# College Library Automation

## Project Domain / Category

Database Application

## Abstract / Introduction

Library is one of the most important sources of knowledge gathering for students at an educational institute. The basic operations performed in a library are; adding a new member, new books, updating information, searching books, members and the facility of borrowing and returning books. However, the operations of a library are a very tedious and time-consuming job considering a traditional library system. These operations are performed on daily basis and it consumes a lot of time if you are working with it in registers.

To overcome these issues, we need to introduce the concept of automation of libraries at our educational institutes, the library management system is a windows-based application which was developed to make all the operations fast and easy.

The design of our Institute Library Management system is easy to use for every type of users. Whereas, in our application there is a facility of report generation which gives a detail information about books borrowed by students and faculty and make users possible to get hard copy of related reports.

## Functional Requirements:

1. Library Registration
    - The administrator can create a new user.
    - New user can login and logout.
2. Books
    - Admin add, delete or modify the details of the books.
3. Search
    - User can search for the required books based on author name, book name etc.
4. Borrow books
    - A registered user can borrow the book for specific days.
5. Return books

- Book must be returned within the due date; otherwise you must pay fine.

6. Report generation
    - Depending upon the organizational needs following reports can be generated
    - There can be daily reports
    - Weekly reports
    - Yearly reports

**Tools:**
Python & SQLite is mandatory

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# Vehicle Tracking Using Driver Mobile GPS Tracking system

## Project Domain / Category

Desktop Application

## Abstract / Introduction

The GPS is a location-based navigation system that utilizes the satellite services to provide the information about the location. Any vehicle that has GPS can be tracked using GPS to find its exact location. The core idea and working of this system is to track location of the vehicle and will send details about the location to the admin. Any driver using this application helps admin to find out the location of driving the vehicle. By using the services, the Admin can have a clear idea of the location of multiple drivers.

Taxi can be called with the help of this system to find out the location of the driver driving the vehicle and will help the admin to give taxi to the customer. User is being logged on to the system with his credentials i.e. user id and password. Admin will receive the details about the user that has been tracked by System using GPS. Admin will also have the access to the system using his credentials and will assess the location of the driver driving the vehicle based on these details. Admin will perform various operations.

With the help of this application the admin can easily find the location of different drivers. The record of the driver's attendance can also be maintained that will help admin to calculate salary of the driver.

## Application:

- This system can be used in call taxi's to track the location of the vehicle
- This system can be used in vehicles which carries goods by roadways.

## Functional requirements:

- **Admin Login:** Admin is being logged in with his credentials i.e. admin and Passwords.
- **Vehicle and Driver Location View: -** The information about the exact location of driver and vehicle can be viewed.
- **Registration:** The details of driver will be entered by the to register drivers.
- **User Login:** User will login with his own credentials i.e. user ID and password.

- **Tracking of Vehicle:** With the help of using GPS the system will track location of both vehicle and driver.
- **Send Location Details:** Location details will be sent to admin.
- **SMS and e-mail alerts:**

**Tools:**

- Android studio
- Sql lite

**Supervisor:**

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# Blood Donation System (BDS)

## Project Domain / Category

Desktop Application

## Abstract/Introduction

Blood Donation System (BDS) is an application which maintain data of the donors who donate blood, data of different Blood Banks where donors may donate their blood and data of beneficiaries which may be some medical centers like hospitals or individuals like patient. The system maintains the data of the Donor like his/her name, ID, Blood Group, Address, Contact Number, Medical report mentioning the diseases (if any) of the donors. The system will further store the data of its Blood Banks including their names, addresses, contact numbers, number of blood bags, list of donors etc. The donors may visit any blood bank to donate blood. The system will further maintain records of the beneficiaries.

## Functional Requirements:

A set of functional requirements of the proposed system may include the following.

1. There must be login process for administrator and authorized users to avoid unauthorized access to the software.
2. The system must be able to store the data of both beneficiaries' hospitals and patients.
3. The system would be able to store the records of donors.
4. The system would be able to store the records of Blood Banks.
5. The system would be able to print the report of beneficiaries.
6. The system would be able to print the report of donors.
7. The system would be able to print the report of stock (blood bags) whole as well as Blood Bank wise

**Note:** Students are supposed to visit the problem domain and understand the problem and gather the functional requirements not understandable from the given above.

**Tools:**
SQL Server 2008, VB.Net etc.

**Supervisor:**
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# College Easy App System

## Project Domain / Category

Desktop application

## Abstract/Introduction

Keeping in mind the importance of existing technologies and programming languages, the Python is one of the emerging and dominating programing language covering majority of the areas ranging from desktop application to databases, web, artificial inelegance, machine learning and many more.

Making our students to be part of the race in this regard, Python application should be developed as per the following guidelines:

You are required to develop a desktop application in **Python** for a college system that would be capable to replace the old registers and files by installing computer in each department of the college. The proposed system must be able to make sure smooth running of all the activities of the college.

**Working mechanism:**

The new application must provide interfaces for each department for record keeping, entry, update and search etc. The developed application should produce report against a specific task when required like total number of employees, students, attendance record, transcript or result card generation employee or student profile etc. All departments are inter-connected, and changes must be reflected from one department to the other like Student new admission, migration, cancelation of admission.

Student attendance is made easy by opening the student attendance interface in the class where the teacher can easily mark the student's attendance as "Present" or "Absent" by clicking the student ID or Name. The teacher then presses the Save button to save attendance in database. Also, this interface should provide student's attendance percentage. Same attendance procedure should be followed for staff member to make sure their presence by applying in the staff attendance interface which would be saved in the database for record.

## Functional Requirements:

Some common functional requirements are:

1. Admin Login

2. User friendly interfaces

3. Record entry, update, delete, and search

4. Interfaces validation check for entry, update, delete, search etc.

5. Student registration

7. Course selection

8. Recording Attendance

9. Fee /Salary calculation

10. Report generation of Pass fail, Fee voucher, total no. of student per year / specific year, salary slip, DMC, Degree.

**Tools:** Mandatory (Python, Sql Server/ SQLITE)

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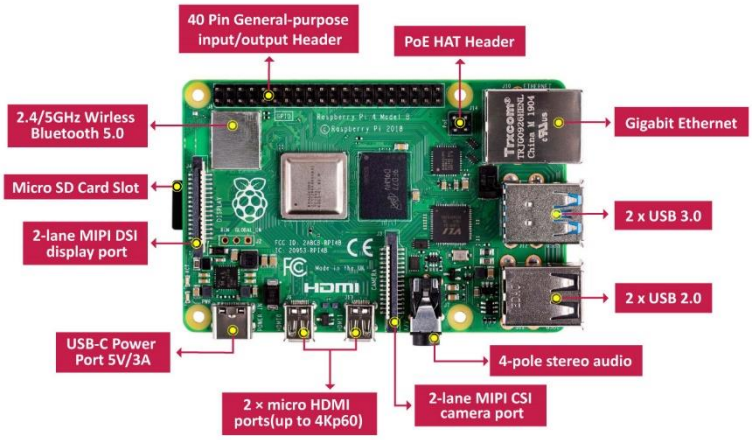
# Facial Recognition Based Home automation using Raspberry pi

**Project Domain/Category:**
IOT

**Abstract/Introduction:**
Home automation is very emerging and popular field. And for home automation IOT devices are used mostly. Raspberry pi and Arduino are most popular out of all the IOT devices currently being used.
We will be working with Raspberry pi, Raspberry pi has many features like Small form factor, USB ports, LAN port, HDMI and many more but most useful feature is 40 pin GPIO port, developers can use these pins to directly control any outside component like a simple led.




We must develop a facial recognition system which will control the lights of different rooms inside a house on the basics of person's face.

**Functional Requirements:**

- Add new persons inside home.
- Train the system with already taken pictures or live view of a person using the camera attached with Raspberry Pi.
- Once trained the system must be able to detect the person within 5-10 feet range.
- Every room will be associated with one person, so whenever a person enters the house the system will recognize the face of that person and turn on the light of that room.

- There will be some common lights as well for example siting area or kitchen which is used by all the persons in a house and these lights will be turned on for all the person.
- If an unknown person enters the house no light will be turned on.

**Hardware: (Please note that No Hardware will be provided by the university)**

- Raspberry pi (Better use the latest version).
- Camera Raspberry Pi Camera Module V2 OR Rev 1.3 (You can also use any other camera but compatibility issues will be more than official camera).
- At least 4 led lights to show working of the system.
- Wiring and connectors.
- Components like resistors, capacitors and transistors if required.

**Important Notes:**

- Prior Knowledge of Raspberry Pi micro controller is very important.
- Without Raspberry pi the project will not be accepted.
- You can use external libraries to recognize face but make sure you know the flow of library as questions may be asked from the library code.

**Tools:**

- Python

**Supervisor:**

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# IOT based Home Automation System

## Project Domain / Category

Digital Logic Designing

## Abstract / Introduction

In the present days, IoT based automated systems have fewer manual actions. They are much more flexible, reliable and much accurate as compared to our manual systems. Due to increase in demand of such reliable and flexible systems, we prefer an automated control system.

The main aim of this project is to design an intelligent home automation system that will increase the ease of use and control home appliances through a mobile application remotely. It will counter room temperature settings and light control mechanism.

System will have an LCD interface for temperature, humidity and running appliances details.

## Functional Requirements:

System will have two different modules:

- Hardware Module:
  - will sense room / home temperature details.
  - will sense humidity details.
  - will be able to state the device/s status (On or Off).
  - Will have the ability to switch On or switch Off multiple Devices.
  - MUST have the ability to send data to a remote application through GSM or any other Wireless mechanism.
- Mobile Application:
  - Will able to receive all signals from hardware modules.
  - Can update or change the status of devices (Switching on or Off).
  - Can schedule the device operation.
  - Application can show the current temperature & humidity levels.

## Tools:

- Raspberry Pi or Arduino.
- Sensing Modules / Sensors:
  - Temperature.
  - Humidity.
- Analog to Digital Conversion modules.

- GSM/Wireless module.
- Android Application Development.
- Database development / management.
- Python Programming.
- Controller Based Programming (if needed) generally in C/C++ or Assembly.

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# IOT based Smart Patient Health Monitoring System

## Project Domain / Category

Digital Logic Designing (Hardware/Android Based Project)

## Abstract / Introduction

The healthcare monitoring systems has emerged as one of the most vital system and became technology oriented from the past decade. Humans are facing a problem of unexpected death due to various illness which is because of lack of medical care to the patients at right time.

The primary goal was to develop a reliable patient monitoring system using IoT so that the healthcare professionals can monitor their patients, who are either hospitalized or at home using an IoT based integrated healthcare system with the view of ensuring patients are cared for better.

The Project can be divided into two modules:

- A mobile device (generally a wearable gadget) based healthcare monitoring system must be developed, which can provide real time online information about physiological conditions of a patient mainly consists of sensors (Heart Beat Sensor for Pulse rate & Blood Pressure, Temperature Sensor & Pedometer Sensor for Step Count), the data acquisition unit for signal processing (A/D Conversion), a single board-based computer (Raspberry Pi, Atomic Pi) for processing and GSM based module for communication.
- A mobile application (preferable an Android Application), that will get data from mobile device. The Doctor or Patient's guardian can get updates through this mobile application.
    - Mobile Application has the capability to notify both Doctor & Guardian about any critical condition based on manually set thresholds by its users (Doctor or Guardian).

Thus, IoT based patient monitoring system effectively monitor patient's health status
and save life on time.

## Functional Requirements:

Provide a bulleted list of functional requirements

- Mobile Device MUST have following capabilities:
    - Can sense patient's body temperature.

    - Can sense patient's heartbeat rate.
    - Can sense patient's blood pressure.
    - Can calculate the patient's walking rate & step count.
    - Can send all data to a mobile device / application through a GSM module.
- Mobile Application MUST have following features:
    - Can read all values sensed on mobile hardware module.
    - Can set a threshold value for each sensed value for stating a critical condition/stage.
    - Can notify doctor or guardian about the critical condition through a mobile app notification or SMS.
    - Can call Emergency contact numbers (doctor/guardian/ambulance etc).

**Tools:**

- Raspberry Pi or Atomic Pi (single board computer).
- Sensing Modules / Sensors:
    - Temperature.
    - Heartbeat.
    - Pedometer.
- Analog to Digital Conversion modules.
- GSM module.
- Android Application Development.
- Database development / management.
- Python Programming.
- Controller Based Programming (if needed) generally in C/C++ or Assembly.

**Supervisor:**

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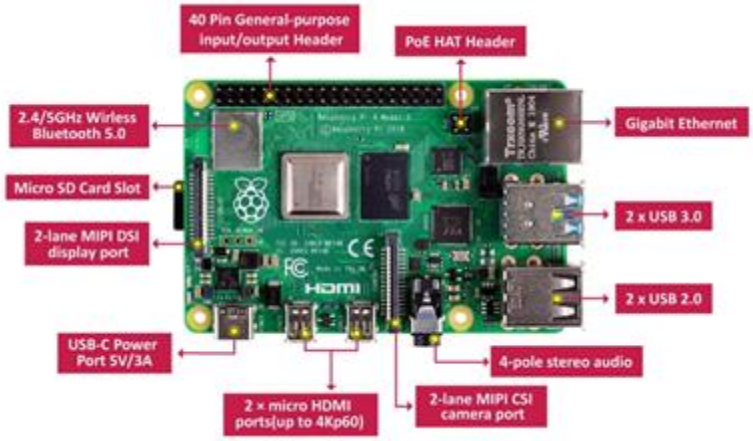
## Surveillance System with Motion Detection and Push Notification

**Project Domain / Category:**

IOT

**Abstract/Introduction:**

With the passage of time importance of surveillance system has been increased drastically and many innovations have been made on this purpose which is massively dependent on IOT. Taking advantage of portability of raspberry pi we will use it as surveillance micro-controller. We will make an effective surveillance system using at least one Camera and Raspberry Pi micro-controller.




The idea of this project is to make a surveillance system with motion detection and push notification using raspberry pi micro-controller and at least one camera. This surveillance system will automatically detect motion in a real-time and starts recording and monitoring as soon as motion is detected. When motion is deducted a push, notification need to be sent to the authorized person to alert him. Video recordings which are being saved to local storage needs to b upload on google drive and this should be automated. Authorize Person can see the live stream at any browser and at any time.

**Functional Requirements:**

- Video recording on Motion Detection Recording
- Provides live stream on any web browser and anywhere.
- Enable Push Notification to authorized person when motion is deducted.
- Save the recorded video on local storage
- Upload recorded video from local storage to cloud storage i.e. Google Drive

**<u>Hardware Requirements</u>: (Please note that No Hardware will be provided by the university)**

- Raspberry pi micro-controller (Better use the latest version).
- Camera Module (You can use any of the following camera listed below):
  I. Rev 1.3
  II. Camera 2.1
  III. Any USB Camera (Using USB camera will be DIY and little bit hard to configure)
- Micro SD card
- Micro USB power supply (2.1 A)
- Camera Mounting
- Wiring and connectors.
- Components like resistors, capacitors and transistors if required.
- Power Supply for Raspberry Pi micro-controller.

**<u>Important Notes:</u>**

- Prior Knowledge of Raspberry Pi micro-controller is very important.

- Without Raspberry pi the project will not be accepted.
- You can use external libraries for motion detection and for uploading content to cloud storage. You need to make sure everything you do you know it well.

**Technologies:**

- Python

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# Bull Run

## Project Domain / Category

Game Programming

## Abstract/Introduction

In video games, artificial intelligence (AI) has come to revolutionize the in-game experience. AI is used to generate responsive, adaptive or intelligent behaviors primarily in non-player characters (NPCs) like human-like intelligence. Among game developers, behavior trees are most commonly used to implement complex behaviors of NPCs. They are a way to code behaviors using a tree of actions.

Bull Run is a Spanish summertime event inspired game in which people run in front of a group of cattle to show their bravado. The cattle are directed by the steers all over the streets to the bull ring situated outside the city where they are killed by the end of that day. This event is life threatening as many runners got injured during the run or die due to goring by mad bulls.

Bull Run is an AI implemented 3D game playable in the Spanish like streets (they are not much wide) among the crowd and mad bulls. The goal is to run safe as far as the player can. Other people in the game are NPCs that are intelligent and react according to the situation. Their actions are implemented through behavior trees.

## Functional & Non-Functional Requirements

You must implement the game with the following scenario:
There is a 3D Spanish street route in which crowd will run in front of fast running mad bulls. Proper map should be shown to the player at the side of the game pane. The major route should be highlighted in red color. As the streets are connected, the player can skip the major route while running by looking the map and can take alternate route for rest. The alternate route must rejoin to the major route later. The alternate route though leads to negative points as well. The goal is to finish the route or stay as much as possible, in the run. Winner will be the one who break the time record of previous players.

While running, player needs to save himself to get hit by the bulls coming behind him, to be gored by the bulls, to get bumped by the crowd in front of him etc. Each bad happening will lead to the decrease in the lifeline of a player.

All other humans should intelligently behave and play around the player. They all are supporters to one another while running. Consider the situations like if the bull is on player's head and the player is not taking decision by himself, the human playing beside could take the player to the side or if the bull is about to jump, the human

around will bend the player down to save life or if the player get injured, the human near the player could take him to the nearest ambulance spot.

There are steers wearing red clothes that follow the herd to encourage any reluctant bulls to continue along the specified route. The function of steers is to guide the bulls to the bull ring. (Optional feature)

Proper sound effects should be incorporated in game.

**NOTE:** VU will not pay for any license of the software, the libraries /toolkits/API's used or any sprite for this project. It may also be noted that your android devices must support all features necessary for this game.

**Tools:**
Any suitable version of Unity.
**Development Language:**
C# (C sharp)

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# Brain Tumor Detection using Image Processing

**Project Domain / Category:**
Image Processing

**Abstract / Introduction:**
Brain tumors can be detected using MRI images but it very tough to detect brain tumor in the early stages of tumor. MRI images are more susceptible to noise and other environmental interventions. To cure this tumor, it is better to identify it in the very early stage. The purpose of this project is to design a technique which can remove noise from the MRI images and present a very clear view of the image to the physician so that he/she can easily identify the tumor.
The MRI image data set for brain tumor can be collected from the following link:
https://figshare.com/search?q=%3Akeyword%3A%20MRI%20images&searchMode=1
The MRI images can be converted into grey scale images and then we apply some filtration techniques to remove the noise from the image dataset after that apply some segmentation techniques to identify the tumor.

**Functional Requirements:**

1. User enters input from MRI images.
2. MRI images should be converted into grey scale images before image processing
3. Some filtration techniques can be used to remove noise of the image
4. Image segmentation techniques are applied to detect tumor edges

**Tools:**

MATLAB version: R2013a
Note: any available latest version of MATLAB can used

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# Opinion Mining and Summarization of Hotel Reviews

## Project Domain / Category

Information Retrieval

## Abstract / Introduction

Users share their view about product, hotel, news and topic on web in the form of reviews, blogs, comments etc. Many users read review information given on web to take decisions such as buying products, watching movie, going to restaurant etc. Reviews contain user's opinion about product, event or topic. It is difficult for web users to read and understand contents from large number of reviews. Important and useful information can be extracted from reviews through opinion mining and summarization process. In this project, there will be a web application where user will provide review about hotels. This review will be in sentence form. System will extract certain keywords from the sentence and will mine keywords in database and system will rate the hotels based on the reviews of various users. We will use machine learning and Sentiment Word Net based method for opinion mining from hotel reviews and sentence relevance score-based method for opinion summarization of hotel reviews.

Opinion mining for hotel reviews is a web application which gives review of the feedback that is posted by various users. The System takes review of various users, based on the opinion, system will specify whether the posted hotel is good, bad, or worst.

We use a database of sentiment-based keywords along with positivity or negativity weight in database and then based on these sentiment keywords mined in user review is ranked. Once the user login to the system he views the hotels and gives review about the hotel. System will use database and will match the review with the

keywords in database and will rank the review. System will rate the hotel based on the rank of review. The role of the admin is to post new hotel and add keywords in database. This application is useful for those who are going to visit a new place. This application is useful for those who travel often. Using this application User will get to know which hotel is best and suitable for them. User can decide which hotel to accommodate before they reach the place.

**Functional Requirements:**

System should be able to:

1. Allow user to login the system, user will view the stored hotels by the admin and gives review about the hotel.
2. System will use database and will match the review with the keywords in database and will rank the hotels review.
3. System will rate the hotel based on the rank of review.
4. The System takes review of various users, based on the opinion, system will specify whether the posted hotel is good, bad, or worst.
5. System will extract keywords from the review of various users and will mine the keyword in database and will rate the hotel based on the opinion provided by the users.
6. We use a database of sentiment-based keywords along with positivity or negativity weight in database and then based on these sentiment keywords mined in user review is ranked.
7. Reviews of hotels will be summarized by the admin to give concise information to the user and provide ease for the user to select hotel based on their requirements.
8. The role of the admin is to post new hotel and add keywords in database.

**Tools:**

- Microsoft SQL Server 2008
- Visual Studio 2010
- SentiWordNet
- Searching Tools – Apache Lucene 3.0.3
- Stanford NLP – POS Tagging

**Supervisor:**

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# Load Balancing Controller

## Project Domain / Category

Networking

## Introduction

In the thrust of best performance, unitization and economy of scale, modern networks are following a direction with isolated control and data plane that allows not only the consolidation and centralization of control plane but also allows new improved network control strategies to get better services performance. OpenFlow is one of the reputable protocols to allow the demarcation and management of the distributed or isolated control planes on the network's devices like router, switches, firewalls etc.

## Abstract/Introduction

This project requires designing a network load balancer with OpenFlow that will provide GUI based interface to the network administrators. The data from the GUI will be fed to the load balancing controller that will coordinate with network nodes to manage the routes to the server. The interface shall contain classification of client nodes having different requirements of bandwidth at different times. This shall be 4 periods with different bandwidth distribution. Student needs to select suitable bandwidth distribution.

There will be 4 servers and 48 client nodes. The students can implement the project using any simulation tool or OpenFlow libraries.

Build the custom load balancer using OpenFlow libraries.

## Functional Requirements:

This project requires students to study the fundamental principles of the OpenFlow, networks and their device configuration as well as requires programming skills in the C/C++ in Linux environment. For this purpose, students shall be required to prepare a presentation on the OpenFlow networks and Linux system programming as part of the SRS document.

The core functional requirements of package are to:

1. Customize OpenFlow Based Controller
2. Develop GUI Interface to configure the controller
3. Customize a Network Topology
4. Measure Performance and Utilization Statistics

a. Throughput
b. Delay
c. Utilization
d. Load Distribution
e. Response time

**Tools:**

- Linux Environment
- Eclipse
- OpenFlow Libraries

**Supervisor:**

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# Performance Improvement in DCTCP

## Project Domain / Category

Networking

## Abstract / Introduction

Web applications are gradually shifting into cloud environments. These cloud services are hosted on huge scale computation and storage infrastructures called data centers (DC) (e.g. Google's data center, Facebook's data center etc.). In a large-scale data center, hundreds of thousands of servers are connected through switches in a symmetric topology. A data center network (DCN) interconnects all the data center resources. Data Center TCP (DCTCP) is a modified version of TCP which is proposed specifically for intra-DCN communication [1].

DCTCP, although, performs significantly better than TCP in data centers but still suffers from performance issues; DCTCP incurs significant packet drops due to bursty flow arrivals (many-to-one communication).

This project aims to:
i) identify the causes of packet drops in the event of bursty arrivals,
ii) propose solution(s) to mitigate the packet loss issue.

The problem will be studied by simulating DCN environment in network simulator ns-2. In addition, the proposed solution will also be implemented in ns-2. Working in ns-2 requires:
i) understanding of basic commands of Linux operating systems (for ns-2 installation and running purposes),
ii) good programming skills in C++ (for simulating the DCN environment and making the required changes in DCTCP),
iii) programming in TCL (for writing simulation scripts),
iv) understanding of AWK command (for trace text processing),
v) understanding GNUPLOT command (for drawing graphs).

## References:

[1] Alizadeh, M., Greenberg, A., Maltz, D. A., Padhye, J., Patel, P., Prabhakar, B., ... & Sridharan, M. (2011). Data center tcp (dctcp). *ACM SIGCOMM computer communication review*, *41*(4), 63-74.

**Intended Outcome**

Implementation, in ns-2, of modifications in DCTCP to reduce packet drops

**Required Skills**

1. Understanding of basic Linux commands
2. C++, TCL, AWK and GNUPLOT (for working in ns-2)

**Supervisor**

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# Android Recipe Maker

## Project Domain / Category

Mobile Application

## Abstract / Introduction

"And eat and drink, and do not cross the limit." – Al Quran (*Part 8, Surah 7, Ayah 31*)

If you are a Cooking Lover but often face situations when you want to make something delicious but are stuck with limited ingredients. Or you find some recipe of your favorite cuisine on social media but can't do anything because it contains such ingredients which you don't have in your kitchen or not available in your local market. Don't be afraid, we have a best recipe maker app which will do that job for you; just start playing around with cooking food at home.

**Android Recipe Maker** is an Android based mobile application which will basically provide some recipes for the available ingredients or groceries. All you need to do is, just input some local food items or select from available list and let the app generate one or more easy and quickly made recipes for you, along with complete step-by-step procedure.

## Functional Requirements:

Android Recipe Maker app should consist of following requirements;

I. **Minimum Recipes:** There should be at least 50 recipes; all must be properly categorised like Breakfast, Lunch, Dinner, Beverages, Appetizers, Snacks, and Salads etc.
II. **Firebase Real-Time Database:** It is needed to store all recipes data in JSON form on Firebase Real-Time Database.
III. **Registered Users:** Only registered users can view the recipes. So, provide registration and as well as login interfaces; store users' credentials on Firebase Real-Time Database in an encrypted form.
IV. **Input Modes:** After successful login, user should be asked to provide ingredients by using following modes:

- Ingredients List: User can choose food items from available ingredients list; need to make sure that no such item should be there which does not have any corresponding recipe.

- By Typing: User can provide multiple ingredients by typing via on-screen keyboard.
- Voice Input: User can use voice for input; convert audio into text using Voice Recognition technology, provided by Google.
- Latest Recipes: User can also view recipes without providing any specific ingredients; only 25 latest recipes should be displayed in this case.

V. **Search Recipes:** According to input, the recipes should be searched from Firebase Real-Time Database and displayed to user. However, user should be properly informed if found no valid recipe.

VI. **Recipe Detail:** Each recipe must have proper Title, valid Description, Ingredients list, Step-by-Step Instructions, Preparation & Cook time, Recipe Servings and Photos etc.

VII. **My Cookbook:** User should be able to save any recipe in the app so that it could be viewed offline; use SQLite or Room database for this purpose. There should be an option to delete recipes in My Cookbook as well.

VIII. **Push Notifications:** The user must be informed via Real-Time Push Notifications whenever a new recipe is added on Firebase Real-Time Database.

IX. **Share Recipe:** User should be able to share recipes on Social Media; only My Cookbook's recipes could be shared.

X. **Backup Feature:** User should be fascinated by giving backup option; all My Cookbook's recipes must be stored/retrieved to/from Firebase Real-Time Database in an encrypted form.

**Tools:**

1. **IDE:** Android Studio
2. **Programming Language:** Java/Kotlin
3. **Databases:** Firebase Real-Time Database & SQLite/Room

**Supervisor:**

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**Skype ID:** imranafzal126

# Augmented Reality Based Home Decor

**Project Domain / Category:**
Mobile Application (Android)

**Abstract / Introduction:**

We need to decorate our home and many decoration accessories are available in market. It's a hectic process to visit market and choose an item which is best suitable for our home. Some products are apparently suitable but when we place those items in our home, they didn't look very good. Sometimes we often check these items through online stores which give us no idea how these items look after the placement.

The AR based Home Decor app will serve this problem. We can pick decoration items and place them in AR based environment to check whether they fit in our place. The APP uses device camera to visualize such items in an Augmented Reality Environment (ARE). In ARE, device camera will be used to visualize the actual environment while user can select any item from list to check its appearance in ARE.

User can also capture any image and after cropping, the picture can be stored in the items listing.

The following will be the functional requirements of this project.

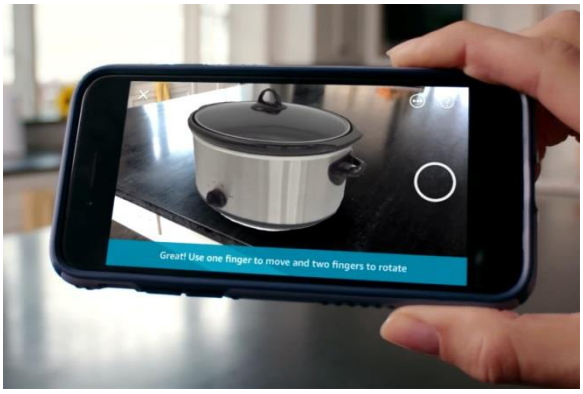
**Functional Requirements:**

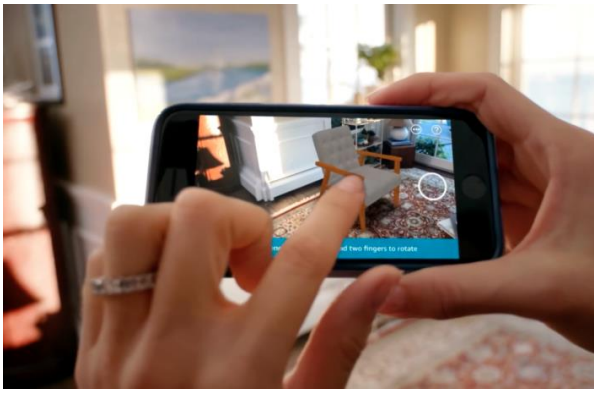
- User can capture items to save in listing.
    - User can take/capture any image and crop the required portion through this app.
    - User can also resize the captured image to fit on required area.
    - User can adjust the contrast of the image.
    - A list/grid is maintained after the editing of captured images.
- User can edit photos from its phone Gallery and perform all steps mentioned in Point # 1.
    - There'll be a single list of items/resources for both processes.
- User can export any screen as picture,
    - App must export screen to image in any of these formats (jpg, png, gif).

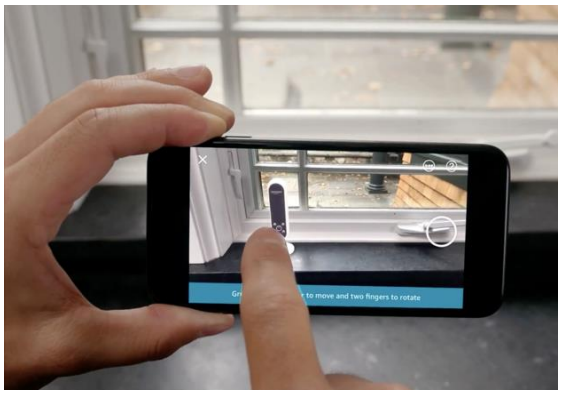
E.g. a User wants to decorate his Room wall, He'll open this app and place in front of the wall. Select any item from the list and place it on required location. He can change positions of the item to check its look and feel. At last, an image will be taken and saved to phone gallery.

- User can import any decor item for later use.
    - User can check images from internet after editing, it can be store in the listing.

## **Screenshots**:







**Note:**

1. You can use libraries from ”GitHub” or ”Android Arsenal”
2. Students may add further functionalities to make the application more useful.
3. VU will not pay for any license of the software, the libraries /toolkits/APIs used in this project.
4. Your android devices must support all features necessary for this project.

**Tools & Languages:**

- Android Studio
- Java or Kotlin

**Supervisor:**
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# Blood Bank System

**Project Domain / Category:**
Mobile Application (Android)

**Abstract / Introduction:**
"And whoever saves one - it is as if he had saved mankind entirely". Al-Quran

We all know that blood is an important factor/element that is very vital in the life of every human being living on this earth. Nowadays, we see that lots of people lose their precious life without getting the blood at the right time. Sometimes, proper contact or record of the blood donors is not available at the time of need. To solve all these problems on time, it is necessary that there must be a blood bank related mobile application, which can be of great help in this regard. It can also help in saving the precious lives of the people, by getting the blood at the right time.

**Functional Requirements:**
This system should have the following features.

1. The system should have a user registration process in order to get login into the system.

**Donor Module:**

1. The user must enter different information or data of the donor like Donors name, donor ID, Donor Medical report, Blood group, Date and time of blood donation, Contact Number, Address etc.
2. The donor should see next donation date.
3. The donor should be able to view his/her blood donation record.

**Patient Module:**

4. The user must enter information or data about the patient like Patient Name, Patient Id, Patient Blood Group, Patent Disease etc.
5. Patient should be able to get all blood donation information in this system instead of going and searching around for it.
6. The patient should see the next blood transfusion date(s) if required.
7. The patient should be able to find the total blood bags of different blood groups available in the system.

**General requirements:**

1. The system should automatically generate next donation date of the donor.
2. The system should automatically generate the next blood transfusion dates of the patient(s) if required.
3. The system should highlight at least two days before the donated blood bag(s) going to be expired.

**Reports:**

1. The system should generate report of patients.
2. The system should generate report of donors.
3. The system should generate different reports of available blood bags based on blood groups.

**Tools required:**

Android Studio, MySQL

**Supervisor:**
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**Skype ID:** To_shah

# Clinical Helper Using OCR

**Project Domain / Category**

Mobile Application

**Abstract/Introduction**

This is an innovative System for any user mostly targeting the aged population as a clinical helper. The user can enter the medicine reminders such as medicine color/type, name, quantity and when it should be taken with a reminder (alarm / notification). The reminder helps the user to investigate the details of medicine that he or she must take and will also speak out the details.

This application should have the functionality to collect the detail of medicine by using OCR with the help of mobile phone's camera (by taking the picture of medicine). The students can use any API for Implementing the OCR e.g. Mobile Vision API.

**Functional Requirements:**

- ✓ System should be able to use the mobile camera to take the picture of medicine.
- ✓ System should be able to extract the detail of medicine (name, type, salt, potency) from the picture that has been taken by mobile camera and save the information in a repository.
- ✓ Along with above mentioned Information, application will allow user to add addition information (such as Dosage, when to use, how to use etc.) manually.
- ✓ User can also store the disease or symptoms for which medicine is being taken.
- ✓ System should alarm the user for the medicine time by speaking the text or displaying the medicine picture with an alarm tone.

**[NOTE:** Student can add/enhance requirements as per needed.**]**

**Tools:**

Students can use any IDE to develop this Mobile application i.e. Eclipse, Android Studio, My SQL etc.

**Supervisor:**
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# EventLog Mobile App.

**Project Domain / Category:**
Mobile Application (Android)

**Abstract / Introduction:**

EventLog Mobile App. is an android based application whose purpose is to notify the user on any upcoming event (like Seminar / Book fair / Food Festival / Exhibition etc.) in his/her city. EventLog will inform user regarding any offers / discounts available in upcoming events. The application will also serve the user with the news around their city and send the breaking news alert notification.

**Functional Requirements:**

- You will create the two interfaces admin and user and application shall be able to register new users (Admin and User) and allow to Login and Logout.

**Admin Account:**

- Admin will create and maintain the event log.
- Admin will categorize the event Like Seminar / Book fair / Food Festival / Exhibition etc.
- Admin will send the required notification to the user according to his/her selected category.
- Admin will also maintain the breaking news notification about the event like (cancelation, delayed or rescheduling).
- You can connect with any trusted online portal to get events information and categorizes them according to the user specific needs.

**User Account:**

- User will first register the application and select event category (like Seminar / Book fair / Food Festival / Exhibition etc.) regarding his/her interest.
- The user will be able to receive the details of the event, including the charges/registration fee and discount offers with details of its expiry.
- The user will be able to see any activity which is about to come or ongoing around him/her.
- User will also get the breaking news notification about the event like (cancelation, delayed or rescheduling).
- The application will also allow the user to share the event information with another user via third party applications.

**Tools:**

Android development IDE
Example: Android Studio, Eclipse for Java, xml

OpenGL ES (2.0 or 3.0) can be used for graphics.

**Supervisor:**
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# Foodies: Online Food Ordering App

## Project Domain / Category

Mobile Application

## Abstract / Introduction

The **Foodies: Online Food Ordering App** is proposed with aim to facilitate customers to order food online from their favorite restaurants. They can place order from their offices, homes etc. The application will contain list of all major and popular restaurants for all major cities. It will also maintain restaurant information according to specific area of a city. The Customer can select restaurants based on their location and get menu details online. They can place their order online and receive their order at doorstep. The customers can pay via Cash on Delivery or Credit/Debit card option. The Admin will manage restaurants' information, orders information, and employee's information etc.

## Functional Requirements:

Following are abstract level requirements of the project. Students are required to provide detailed requirements in SRS documents. Students can also add more requirements as per need.

**FR1.** The application should allow customers to search list of restaurant city wise, area wise. Based on customer location, list of all nearby restaurants should be shown to customer. The list of all popular restaurants in the selected city or area should also be displayed.

**FR2.** The system should also allow customers to create their account. Customer should get the flexibility of placing order both as a guest or registered customer.

**FR3.** The application should contain list of various restaurants with their menu's details.

**FR4.** Restaurant opening and closing timing should also be displayed. If customer selects restaurant which is closed, tell customer that restaurant is close. Ask customer to either wait till its opening time or order from some other restaurant.

**FR5.** The system should provide customers an interface to order their favorite food items. Before order placement, customer should be able to update Cart to add some new food item or remove some existing food item. The interface should also get payment information from customer. On checkout, order and payments details should be shown to customer.

**FR6.** Customer should also be informed about time the delivery will take to reach the destination. Time count down should be displayed after order confirmation so that customer could know about remaining time to receive the order. Along this, the customer should also get updates about order status like order is confirmed by restaurant, order is prepared, odder is picked, order is out for delivery etc.

**FR7.** The system should be able to manage all orders, and payments etc.

**FR8.** The system should be able to store information of all restaurants, orders, reviews/feedback, suggestions and complaints etc.

**FR9.** Detailed information of each restaurant should also be maintained in database by administrator.

**FR10.** The application should also contain Terms and Condition, Suggestions, Complaints and review pages.

**Tools:**

Android studio
SQL lite or any other modern database
Emulator (To run android application on PC)

**Supervisor:**

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# Home Budgeting System (HBS)

## Project Domain / Category

Mobile Application (Android)

## Abstract / Introduction

Budgeting – planning to spend money is one of the most important and hectic monthly tasks in our lives. This is especially a major concern for salaried persons; in some month, he/she spends so much in transportation (for example) that little or no money left for spending on Entertainment or Medical Checkups. Our Home Budgeting System (HBS) will try to cater these problems by effectively managing home budget of an individual. It will alert the user if he/she is spending too much in a specific category or if total available amount is exhausting very quickly way before month's end.

## Functional Requirements:

1) In order to fetch total income, HBS will provide option of various banks' mobile applications. On taping any one of them, the respective banking application should open. If it's not installed in the mobile, it should redirect to Google Play store. (You may search the Internet to explore which banks have mobile applications and include only those in the list)

2) The application should offer 5 Major Categories of expenses and multiple Minor Categories. User will enter his/her expense in minor categories like Petrol, Beverages etc. The system will **auto recognize** in which category this expense should fall. For example, if user has entered Petrol or Car Repairing, system should automatically store the expense in Transportation Expense head.

3) There will be 6 Major Categories:

    a. Monthly Billing
    b. Grocery Items
    c. Transportation
    d. Educational Expenses
    e. Healthcare

f. Entertainment

4) You can have as many minor categories as required. For example, Entertainment head can have Hoteling, One Day Tour, and Cinema etc.

5) The Home Screen of HBS will show the following:
   a. Total Income
   b. Total Expenses so far
   c. Balance
   d. Pie Chart of Expenses (Major Category wise)

6) Whenever a user taps on the specific portion of the Pie Chart; that portions' details (with respect to Minor Categories) should be displayed on another page

7) The user should be able to enter/adjust **Threshold Level** of each Major Category. Whenever that threshold level is exceeded; it should display a **Toast** message (for example: "You're spending too much in Transportation")

8) All values/amount should be stored in database and these will be used for comparison purposes

9) The app should have the option to **compare** current month's expenses with previous months' expenses. On taping Compare button, user will be prompted to select two months. After selecting, a Bar Chart should be displayed (major category wise) giving comparison of selected months.

**Tools:**
Android Studio 3.5 or later (requires Java SDK)

**Supervisor:**
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# Home Services App.

## Project Domain/category

Mobile Application

## Abstract/Introduction

In Pakistan, there is no denying the importance of a house maid for every household out there. While all of us are leading busy lives in the modern era, doing all household chores like cleaning, dusting, cooking, cleaning, and so more become a challenging task. It is an overwhelming thought to manage both professional works as well as household chores daily. When you are stuck in such a condition, it is high time that you can look forward to hiring **domestic house maid services**. The preferable time slots of this company are 9:00 a.m-5:00 p.m. However, company also handle special requests. Trusted, responsible and reliable people are difficult to find when it comes for maids, caretakers, cooks, gardeners etc. Home Services is a smart phone app which helps people to find trusted helpers in their locality. We do document verification of each employee and have database of over 1000 helpers. We deal in different categories of helpers like:

A. Home Services
    a) Maid
        - Cleaning
        - Laundry
        - Utensil Washing
    b) Cook
    c) Gardner
B. Care Takers
    a) Babysitters/Governance
    b) Patient Caretaker
C. Problem Solvers
    a) Plumber
    b) Electrician

## Functional Requirements

Abstract level requirements of App are given below. Student will provide detailed requirements in SRS document. More requirements should also be added according to the need of the scenario.

1. Following Tabs Following tabs must be included in Application.
    a. Home
    b. Services
    c. Our Charges

    d. Book A Helper
    e. Job
    f. Register
2. “Home” tab contains the introduction of your application and what you are offering and how you can help people. Home is the default tab of the application.
3. “Services” tab contains the **list of services** you are offering (List is already given in Abstract). When user click on any service, a new page opens which contains the introduction of the services. Introduction must be appealing and elaborates the working of helper in detail.
4. **Working hours** vary for Home Services and Care takers. It can be 8 hours, 12 hours and 24 hours.
5. “Our Charges” tab displays the **rates of the helpers according to the working hours**. Along with fixed rate, **you should also mention**:
    a. Prices are charged based on 30-minute increments
    b. Housekeeping materials are to be provided by the client
    c. After hours surcharge applies on services before 9am and after 6pm
6. This tab should also contain the **per hour rates** of electrician/plumber/carpenter.
7. There are two types of users, Client and Helper, of this application. **Both Client and Helper need to be registered** before availing any type of service. When a user clicks on “Register” tab, ask him/her to select whether wants to be registered as helper or client.
8. To **verify** the helper/client, along with personal information ask to upload scan copy of **CNIC** and ask for **property documents/agreement** in case of renter.
9. **Ask all required** information from Client/Helper. Some required field must be included.
10. “Job” tab is for new/registered helper. When a helper applies for a job, **he/she must be register if not already registered**. This tab should contain a Sign In and Sign Up options for Helpers. If user click on Sign Up button, the Register page should open. If user Sign Up using this option, he/she should automatically direct to Sign In page.
11. After signing in, a form should appear asking for **tasks helper can perform and preferable Time Slots.** He/she can **add multiple tasks and time slots**.

12. Client can book a helper using “Book A Helper” tab. This tab should contain a Sign In and Sign Up options for Client. If user click on Sign Up button, the Register page should open. If user Sign Up using this option, he/she should automatically direct to sign in page.
13. After Sign In, a form should display asking for which type of **services demanded and time slots.** Also ask for any **special requirements and preferred gender** of the helper.
14. Need to build a suitable database for above scenario.
15. When a client puts a request, **admin allocate a suitable helper** according the requirements of the client and share the contact details of the helper. All this information is **shared on application**. **This information should be added to the client requests page at client-side application.**
16. Client receive an email that resource(helper) is allocated. Client check the details from the application.
17. Admin grant the resource from admin dashboard.
18. You must **create admin dashboard** which will be connected to the same database.
19. Admin has **full rights on database**.
20. Admin can **add/delete/update records** of clients and helpers.

**Tools**

Android studio
Emulator (To run android application on PC)
SQL lite or any other modern database

**Supervisor**

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**Skype id:** aamna.bibi26

# Intra City Courier Service

## Project Domain / Category

Mobile Application (Android)

## Abstract / Introduction

Often, we must send parcels/letters within city. It is a hectic process to go to the post office/courier center for shipment of parcels/letters. We can solve this issue by developing an android app through which user can send his/her parcels picked up from his/her doorstep and delivered at his/her desired destination.

User will enter pick up and destination location manually or by using Google maps along with the parcel and receiver details. Courier Company will confirm the order request of the user and assign a courier representative to user. The user will get push notification on his mobile upon the confirmation of his order request. The courier representative will arrive at the users pick up location (with the help of Google map direction), collect parcel and courier charges and will deliver the courier at the destination. Users can also track the real time status of his parcel on google maps.

There will be three users of the Application.

- User
- Courier representative/driver
- Admin

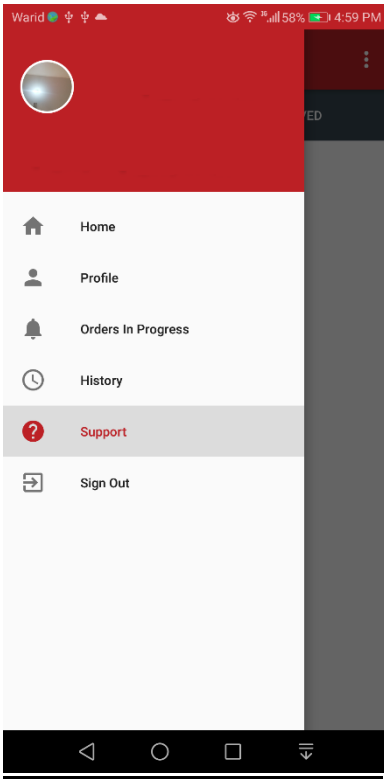
The following will be the functional requirements of this project.

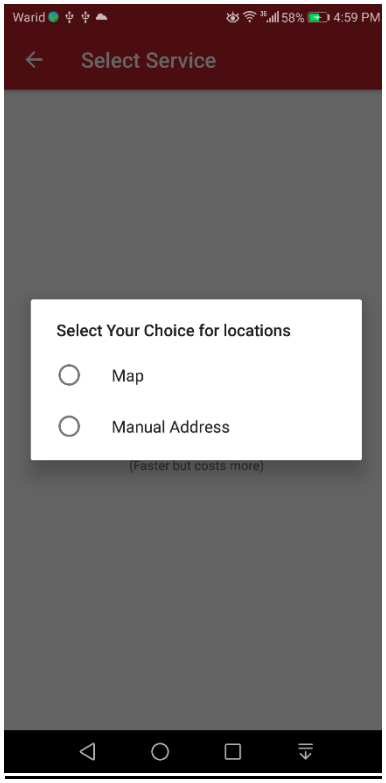
## Functional Requirements:

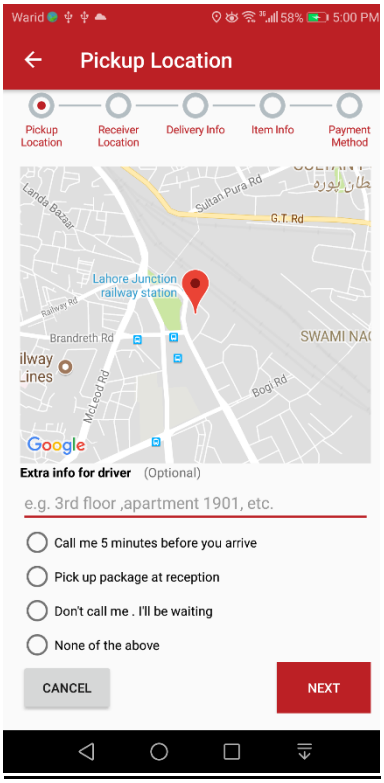
- User management.
- User can request new order.
- Admin/user/driver can view order details.
- Admin can manage accounts
- Admin can manage courier orders
- Admin/user can view tracking result of courier location
- User should be able to receive Real-time Push notifications on order confirmation/cancelation.

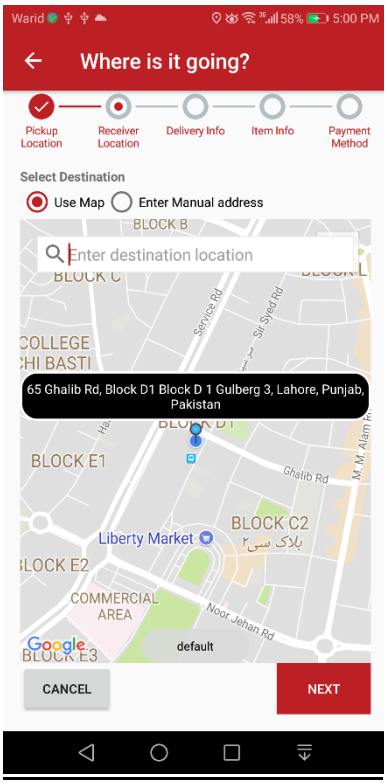
- Courier representative/driver should be able to open Google Maps and follow directions from where the user is requesting the service.
- Show Driver route while delivering the parcel.

## Screenshots:




Where is it going?
Pickup Location
Receiver Location
Delivery Info
Item Info
Payment Method
Select Destination
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Enter Manual address
Enter destination location
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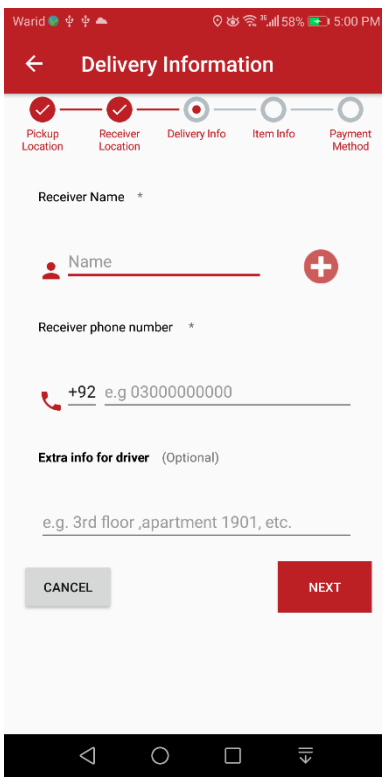
Liberty Market
default
CANCEL
NEXT


Delivery Information
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Name
Receiver phone number *
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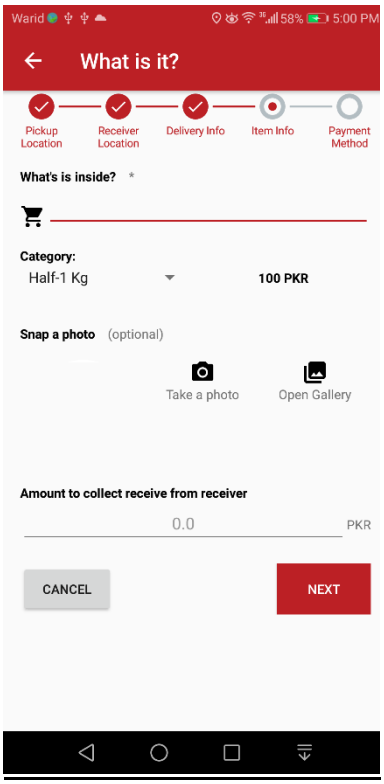
Extra info for driver (Optional)
e.g. 3rd floor ,apartment 1901, etc.
CANCEL
NEXT


What is it?
What's is inside? *
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Snap a photo (optional)
Take a photo
Open Gallery
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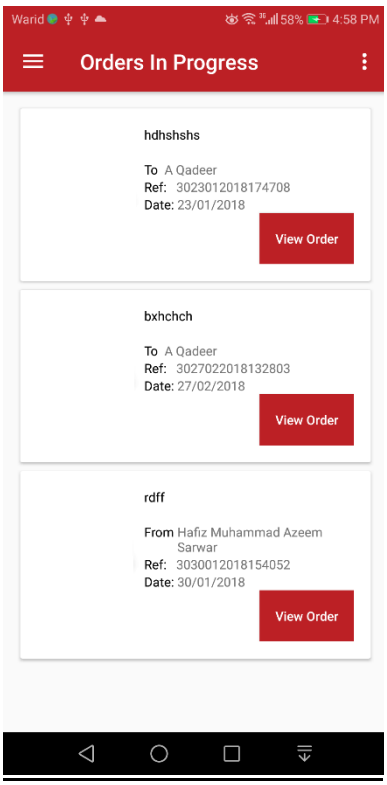
PKR
CANCEL
NEXT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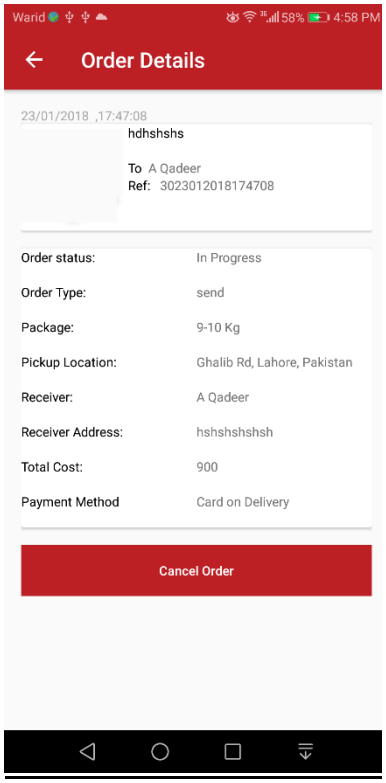
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hdhshshs
To A Qadeer
Ref: 3023012018174708
Order status: In Progress
Order Type: send
Package: 9-10 Kg
Pickup Location: Ghalib Rd, Lahore, Pakistan
Receiver: A Qadeer
Receiver Address: hshshshshsh
Total Cost: 900
Payment Method Card on Delivery
Cancel Order

Note:

- You can use libraries from Github or AndroidArsenal
- You can use Git as version control for project.
- These are basic requirements of the application. Students may add further functionalities to make the application more useful.
- Virtual University of Pakistan will not provide any kind of hardware for this project; student must arrange the required hardware by himself/herself.
- VU will not pay for any license of the software, the libraries /toolkits/APIs used in this project.
- It may also be noted that your android devices must support all features necessary for this project.

**Tools:**
Android Studio
Firebase
MySql/ PhpMyAdmin
Google Maps

**Supervisor:**
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# Video Calling Mobile App in Real-time Environment

## Project Domain / Category

Mobile Application

## Abstract / Introduction

In the past few decades there has been a revolution in computing and communications, and all indications are that technological progress and use of information technology will continue at a rapid pace. Rapidly invention in the information technology, the cellular-cell phones have come, with all the features that can have a computer. This fast and continue use of new information technology has made a mobile communication technology need of every people to get advantages out of it. Mobile communication is the easy and the cheapest technology for everyone to communicate in any case.

This real time android mobile app will let the users to do video calls, share videos, send photos, documents and video conference calls in a group through their cell phones via blue tooth and Wi-Fi. This mode of communication is very easy, time and money saving. The development of application is intended to bring this interesting activity into practical will motivate the students to build up programming learning skills and to make them practically sound in the field. So, the project assigned to the students is to create an android mobile application to communicate in real time with friends, family and other contacts using Internet and/or cellular technologies.

## Functional Requirements:

1. Student should provide detailed explanation of each feature.
2. Able to provide the registration, login/logout interface
3. User can send/receive request to connect with other users. This should be saved in address book in the app.
4. App Should reflect real time information sharing feature like, sharing of videos ,pictures /images in your phone gallery with your friends
5. Should provide basic file-sharing among friends/family
6. App must support to video calling features
7. App must support to video conference calling features

8. App must have ability to work with 3G or 4G and/or Wi-Fi and blue tooth to provide real time environment

**Tools**

Android Studio
Programming Language: Java
Database: SQLite / Firebase etc.

**Supervisor**

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**Skype ID:** imtiaz.mavra

# Locating a Tutor

**Project Domain / Category:**
Mobile Application (Android)

**Abstract / Introduction:**
When a student or parents wants to search for a tutor, he/she must search through newspaper advertisement or asks from people around who can recommend a highly qualified and expert tutor with affordable fees. However, it become very difficult to find a suitable tutor if you don't have any connections.

The aim of this project is to develop an android based mobile application which help students/parents to instantly find and connect with thousands of professional and certified tutors at one place. This application will provide students a platform on their smart phones for finding the experts and tutors of their desired field/subject according to their qualification and experience.

The proposed mobile application will provide an efficient search engine which will help students to search using different filters (subject, location, qualification etc.). Based on the applied filters, the search engine will find the most relevant data and will display it to the user. Search by Location feature will also be integrated in the application so that the users can search for the tutors in their surrounding locations as well as the tutor can know from where the services are being requested.

Finally, the application will allow the users to rate and give their reviews about any tutor and the services they provide which will make this application more useful for the users.

There will be two users of the Application 1) Student and 2) Tutor

The following will be the functional requirements of this project.

- System will be integrated to a Real-time database i.e. Firebase.
- It should be able to send and receive Real-time Push notifications from students to tutors and vice versa.
- It should be able to open Google Maps and show directions from where the student is requesting the service while using the 'Search by Location' feature.
- There will be two modules of the Application.

1. **Student Module:**

- Register with the application as a Student by either giving the email address or contact number.
- Authenticate the student by sending email to the given email address or by sending a text message on contact number.
- Allow the registered student to Login to the student.
- Allow the registered student to search the tutors by providing subject, qualification, gender, location, availability (time), and fees
- Display the List of tutors according to the search criteria given by the student.
- Allow the student to send request to hire tutor.
- Allow the student to send request for Negotiation of Fees.
- Allow the student to rate the Tutor for his/her services.
- Allow the student to comment and give reviews.
- Allow the student to delete/deactivate his/her Account.

**2. Tutor Module**:

- Allow the tutor to register with the application as a tutor by entering name, qualification, experience, location, fees, subject, contact number etc.
- Authenticate the tutor by sending email to the given email address or by sending a text message on contact number.
- Allow the registered tutor to Login to the system.
- Allow the tutor to update his/her Profile.
- Display the list of students seeking for tuition.
- Allow the tutor to send the request to student for providing his/her services.
- Allow the tutor to accept/ reject requests from the students.
- Allow the tutor to negotiate the fee with the students. 9. Allow the tutor to deactivate/delete his/her Account.

**Tools:**

1. Android Studio/Visual Studio
2. Programming languages: Java or C#
3. Firebase/SQL Server

**Supervisor:**
**Name:** Said Nabi
**Email ID:** said.nabi@vu.edu.pk
**Skype ID:** saidnabi115

# Mobile App for Disaster Alert and Management

## Project Domain / Category

Mobile Application

## Abstract / Introduction

You must develop a Mobile App which can predict any natural disaster such as storms, earthquake, flood and other natural disasters. This prediction can be done using previous weather and earthquake data. You can get data from satellite and from weather radars or any website which are providing real time data. For these disasters, you must precisely predict the time, location and magnitude. After predicting any disaster this app must also provide an alert to the user so that he can move to the safe place to avoid the disaster.

In case disaster occurs, this app also provide alert to rescue teams about the areas that need urgent relief. This should also provide possible estimates of the losses occurred as a result of the disaster. You must put lot of effort and do research to develop this app.

## Functional Requirements:

Provide a bulleted list of functional requirements

1. Create a registration page.
2. Create a login page.
3. Provide a menu for user to help him select the predictions or estimate of the losses.
4. If user selected the predictions then app should show the location of any possible disaster on the map along with other parameters like time, magnitude etc.
5. In case of any danger should send alert message (in the form of alarm, email, alert message) to the user.
6. If user selected the estimate of losses then app should show the location of the disaster on the map along with other parameters like time, magnitude, number of losses, possible route to reach there etc.
7. Create an interface to enter the information related to disaster. This information can be location of disaster, time, magnitude, number of losses possible route etc.

## Tools:

Android development (Android studio and Android SQLite or Firebase Database).

## Supervisor:

**Name:** Muhammad Anwar
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# Monitor My Task

## Project Domain / Category

Mobile Application

## Abstract / Introduction

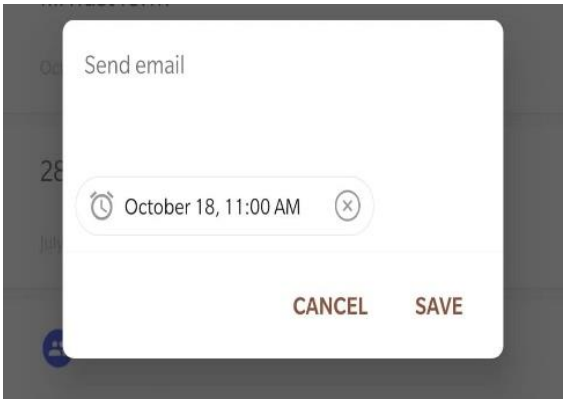
Modern day-to-day life of people in major cities is very demanding and the schedules are equally hectic. In such times, it is practically impossible to keep a track of all the activities/ appointments. Many a times, it happens that we may miss an important task; for example: taking medicines, attending a meeting, returning library books, paying the bills etc. And this cycle can keep going on endlessly.

The human mind is not designed to multitask, it needs to work things out one at a time. This requires us to maintain our focus on the task at hand, and as a result other important thing take a backstage and some may even slip out of our minds. In order to address this problem, we have come up with a Task Alerting System. This system is designed to alert the user of all the important tasks that are due on a specific day, every week. So, now, the user can carry on with his/her life without any worries. The developed project is a tasks reminder app. User may add date, time and priority with the task.

## Functional Requirements:

1. User shall be able to create his/her profile.
2. User shall be able to create list of his/her important tasks which are to be monitored.
3. System shall be able to open the calendar.
4. User shall be able to select date.
5. System shall be able to open clock.
6. User shall be able to set time for task to performed.
7. User shall be able to add priority to the task.
8. User shall be able to receive reminder notifications.
9. System shall be able to retain user data.
10. System shall send notifications to user to monitor his/her upcoming task.
11. System shall send Time-to-Time notification.
12. System shall provide notification as per required.

The image for reference has been added.




*Note: These are basic requirements of the application. Students may add further functionalities to make the application more useful.*

**Tools:**
Android Studio or any of student's choice.
Firebase Database or any of student's choice.

**Supervisor:**
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# My e-Court Android Mobile App

## Project Domain / Category

Mobile Application (Android)

## Abstract / Introduction

This is a simple app for attorney or law firm that includes a calendar, schedule and client tab so that an attorney or law firm can keep track of their upcoming and completed schedule list with specific date and time along with the client details.

My e-Court is the simple, yet intuitive android lawyer App developed for making the practice of lawyers around the world simple. This allows you to manage all your matters from the palm of your hand whenever, wherever you are. This mobile application will enable lawyers and client relationship managers to send information and updates to their clients by using fingertip. My e-Court App can keep your small, medium or large law firm to improve processes and delight clients.

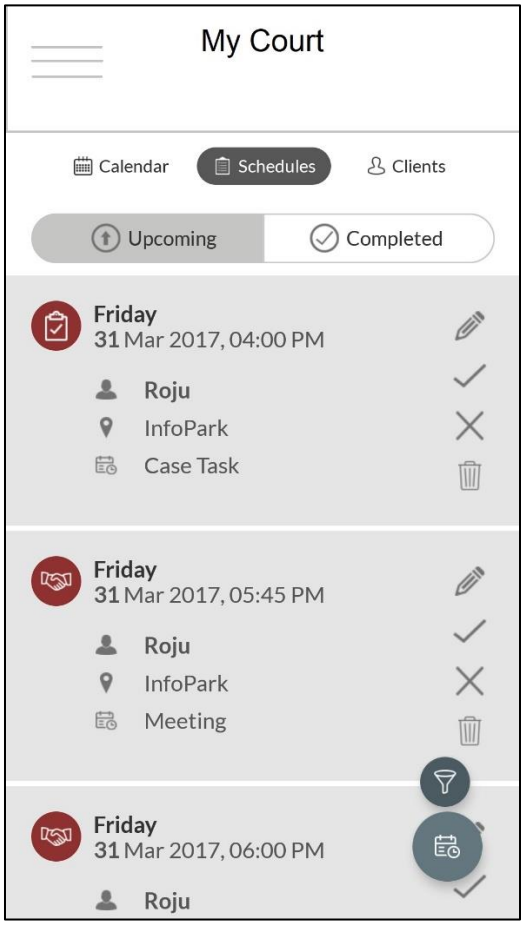
Benefits of My e-COURT:

1. Manage your law firm operations through mobile.
2. Boost your firm on the market
3. Build loyal relationships with clients
4. Protect and support your clients at any time
5. Spend time and money wisely.
6. Get more referrals
7. Keep existing clients and connect to new ones.

## Functional Requirements:

1. Should be developed in native android.
2. Add Location filter.
3. Manage Client and their court dates schedules related to their cases.
4. It should be able to add multiple courts, locations.
5. It must have options to set and edit working hours.
6. It must have interface to manage clients Appointments and Court Dates.
7. It must have Calendar for viewing schedules.
8. It must have option to set Reminders for schedules.

Sample Screens:




**Tools:**

Web APIs Environment: Java/PHP
IDE: Android Studio / Visual Studio with Xamarin
Database: MySQL / SQL Lite / Firebase

**Supervisor:**

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**Skype ID:** shakeelsaeedvurnd

# My Travel Expenses Manager Android App

## Project Domain / Category

Mobile Application

## Introduction

My Travels Expenses Manager App is a perfect and unique app for travel guys and tourists specially to manage their trip-related expenses. Some simple clicks may ease their brain a lot by My travel expense manager. Get free from all the annoying calculations while on the trip and save your valuable time. All your travel expenses will be organised by My Travel expense manager. It keeps track of all the expenses covered during your trip by its detailed statistics reporting.

## Abstract

This project requires students to create an android mobile app for Travel expenses management using android platform with web programming APIs as per the functional specification given in this document. TEM app is supposed to be used or customized for any travel guys or tourists etc.

## Functional Requirements:

The core functional requirements of mobile app to be developed are:

1. Create multiple trips to manage expense.
2. Add places to visit list.
3. Add description/memories about a trip.
4. Create a shortcut to easily access any trip detail.
5. Split expense between people.
6. Share by an option to add expense for selected people.
7. Add deposit amount for any person.
8. Share trip expense as an excel sheet. View stats for any trip according to a category.
9. Add/edit/delete expense category.
10. Edit/delete expense details.

11. Sort expense details according to person/date/category/share by Search trip from a trip listing.

**Tools:**

- Language : PHP/Java for Web APIs
- Operating System: : Android
- IDE: Android Studio/Eclipse/Microsoft Visual Studio with Xamarin

**Supervisor:**

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# Online Head to Toe Wear app.

**Project Domain / Category**
Mobile Application

**Abstract/Introduction**

The project objective is to develop the online shopping application in android platform. Online shopping is the process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet. It is a form of electronic commerce. This project is an attempt to provide the advantages of online shopping to customers of a real shop. It helps buying the products in the shop anywhere through internet by using an android device. Thus, the customer will get the service of online shopping and home delivery from his favorite shop.

**Functional Requirements:**

- Admin can add, modify, delete and search Products by first name, Last name and date of registration, category and subcategory.
- User can create their log in and profile by first name, Last name, Gender, address, contact no and date of registration, can order, select courier and payment mode.
- Moderators can create their log in and profile by first name, Last name, Gender domain, address, contact no and date of registration, Approve the quality of vender product to sale, track order conformation and delivery,
- Admin can add, modify, delete and search announcements by date and Type.
- Admin can add, modify, delete and search insurance/payment receiving companies and courier for delivery, Manage payments record.
- Admin can add, modify, delete and search products of Moderators by different category (*head to toe wear).*
- Admin can add, modify, delete and search moderators' profile by different product domains.
- Admin can add, modify, delete and search payments and transaction by users.
- Admin can add, modify, delete and search moderators by date, users type and product category.
- Admin/system can add, modify, delete and search employees by id, first name and Last name.

The mobile application must be Android-based, and its data is to be managed using SQLite. Also, the application should be easily accessible to users, secured, scalable

and well performing. However, the focus is more on implementing the application using the new tools before considering these enterprise application features.

**Tools:**
Android Studio / Eclipse / Netbeans
Database (SQLite or any modern database language)

**Supervisor:**
**Name:** Imran Akhtar
**Email ID:** Imran.akhtar@vu.edu.pk
**Skype ID:** msisl.net

# Permit Regulation App for Tree Cutting

## Project Domain / Category

Mobile Application (Android)

## Abstract / Introduction

Global warming is the main concern of each country in this era. One of the main reasons is deforestation. Number of trees grown is less than the number of trees being cut or removed. Globally, especially in Pakistan there is no efficient way to regulate the forestation/deforestation. The current regulatory process is offline. We must develop an Android App that will regulate the cutting of trees and transportation of the wood. The regulatory authority (admin) will issue three permits.

1- **Tree Validation permit**

   (Regulator Officers generate a QR code of each tree which contain tree details along with GPS coordinates)

2- **Tree Cutting permit**

   (This permit will be issued to the harvester it will also contain the **tree validation permit (in the form of QR)** in it**.** This permit will allow the harvester to cut the allocated tree).

3- **Tree Transport permit**

   The regulator officer will issue **transport permit** to the harvester after verifying that tree is harvested according to **tree Felling permit**, so that he can carry the wood in his/her vehicle

There will be three users of the Application.

- Harvesters
- Regulatory Officers
- Admin

The following will be the functional requirements of this project.

**Functional Requirements:**

1. Regulators will be added by admin.
2. Regulators will issue QR code to every tree.
3. Harvester can request the cutting of a tree.
4. Admin can manage harvesting requests
5. Harvester should be able to receive Real-time Push notifications his request confirmation/cancelation, permit issuance.
6. Permit Management by Admin
7. Information of all the trees should be saved by the admin
8. On QR code scanning, app should show information against that QR code.

Note:

- You can use libraries from Github or AndroidArsenal
- You can use Git as version control for project.
- These are basic requirements of the application. Students may add further functionalities to make the application more useful.
- Virtual University of Pakistan will not provide any kind of hardware for this project; student must arrange the required hardware by himself/herself.
- VU will not pay for any license of the software, the libraries /toolkits/APIs used in this project.
- It may also be noted that your android devices must support all features necessary for this project.

**Tools:**

Android Studio
Firebase
MySql / PhpMyAdmin
Google Maps

**Supervisor:**

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**Email ID:** azeem.sarwar@vu.edu.pk
**Skype ID:** h.m.azeem2

# Running Diary App.

**Project Domain / Category**

Mobile Application (Android)

**Abstract / Introduction:**

We are going to develop an android based mobile app which will be used by the runners to record your running activity. The app will record the distance covered by the runner, speed of the runner as well as the pace. This app will also show the weekly and monthly reports to the user. Finally, the proposed application should also include a music player to play music from the local storage of the mobile.

**Functional Requirements:**

1. When the user opens the app. the system will get the current location of the user on map and will show it to the user. At the bottom of the map, there will a button to start the running session.
2. The user will press the "START RUNNING" button before starting the running session. After the button is pressed, the application will start recording the running history (distance covered so far, time taken so far, speed and pace). The system will capture the distance per run via GPS coordinates or device location.
3. The user will press "END RUNNING" button after completing the running session and then the system will calculate the distance, time, running speed and pace and will show to the user.
4. The system should also be able to store the information about each running session in the database. This information will include the route on the map, the total distance covered for that session, the speed and pace of the runner during the session.
5. This data will be used by the user to generate the reports for a specific duration (weekly, monthly etc.)
6. The system will calculate and display the averages speed and average pace during a specific duration based on historical run statistics.
7. There will be pace calculator functionality which will ask the user to enter the starting point and the destination and then based on previous running history, the system will calculate the time required to complete the running from starting point to the destination.
8. Our proposed application will allow include a music player which will allow user to choose music files from the local storage and will allow the user to play/stop songs directly into the application.

**Tools:**

1. IDE:  Android Studio
2. Programming Language: Java
3. Database: SQLite / any other DB you like
4. Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

**Supervisor:**

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**Email ID:** zaid.ismail@vu.edu.pk
**Skype ID:** m.zaid_1994@outlook.com

# Smart bike service for University Students and Faculty

**Project Domain / Category:**
Mobile Application (Android)

**Abstract/Introduction:**
In recent times, the use of service-based applications is attracting peoples due to their diverse use. In most of the Universities, students are residing in hostels and move from hostels to their departments frequently and need to travel a lot. To facilitate the students, the university can provide bike service on pay. Students who want to avail the service must register to the service and will be given an RFID tag that will be used to lock/unlock and track as per requirements. The application will track the distance that student/employee travel during each visit.

**Functional Requirements:**
Application should have all intended features as given below.

- Able to provide the registration, login/logout interface
- Register the RDIF tag
- Lock/Unlock the bike after user verification using RFID tag
- RFID should be connected to the mobile application
- Track users while they visit (find the total distance covered on a certain path)
- Payment method should be added
- Store information in database
- There are some **other requirements** which **student will extract** from these requirements

Important for Selecting Project: Those students who are eager to work, having the relevant skills (programming etc.) and can give proper time are to be given priority.

Help:
1) https://www.youtube.com/watch?v=DHpsBZqIaFE (How to connect the RFID reader to Mobile)

**Tools:**
GUID Designing: Android Studio
Database: MySQl

**Supervisor:**
**Name:** Muhammad Ibrahim
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**Skype ID:** ibrahimmayar

# Smart Labor Booking App.

## Project Domain / Category

Mobile Application

## Abstract / Introduction

Smart labor booking app will allow creating convenient and easy-to-use online system for users, trying to get the labors. The app is based on a relational database with its Smart labor booking app and reservation functions. The database system stores the information about labors and customers. The app facilitates for labor booking and communication based upon the collected information.

## Functional Requirements

1. The system shall be able to store the labour information like original details / particulars of labours, along with experience in number of years etc.
2. The system shall be able to store customer information like customer-id, name, address and phone-number. This information may be used for keeping the records of customer for any emergency or for any other kind of information.
3. The system shall be able to book labour using information like customer-id number, work, date of booking, type of work.
4. The user must have the access to up-to-date information about the labour including labour_id, labour name, work_type etc.
5. The user must be able to add a new labour by supplying the labour details including, labour name, work_type, address.
6. The system shall be able to communicate among users and labour though mobile SMS.

## Tools

1. IDE: Android Studio
2. Programming Language: Java
3. Database: SQLite / any other DB you like
4. Unified Modelling Language (UML): Microsoft Visio

## Supervisor

**Name:** Abdul Ghani
**Email ID:** abdul.ghani@vu.edu.pk
**Skype ID:** ghanibaloch2009

# Smart News Alert App.

**Project Domain / Category**

Mobile Application (Android)

**Abstract / Introduction:**

Smart News Alert is an android mobile application with the basic purpose is to update the user about the breaking news depending on their city's preference. The application may use any online portal for the breaking news updating and then sends it to the user/client. In this way the user gets notifications of news happening in the city and country too. The user will also get the news from the categories provided such as weather news, local news, breaking news, sports news etc. In this way, the application will provide the real-time news from the selected category to the user.

**Functional Requirements:**

1. The application first registers the user.
2. Then the application lets the user to choose his/her city preference and the news category.
3. The application will then send the breaking news notification to the user according to his/her city's preference set in the application.
4. The app lets the user to see the latest news with the detail.
5. The app sends the breaking news notification to the user.
6. The application will use the trusted online news portals or from the leading newspapers.
7. The Headlines offers an unfiltered view of top and breaking news articles from around the country and selected city that was already collected from the trusted sources.
8. The application gives the flexibility to the user to read preloaded news offline.
9. Application will have simple design with easy scrolling and swiping for an exciting reading experience.

**Tools:**

1. IDE: Android Studio
2. Programming Language: Java
3. Database: SQLite / any other DB you like
4. Unified Modeling Language (UML): Microsoft Visio, IBM Rational Rose

**Supervisor:**

**Name:** Sonia Salman
**Email ID:** sonia.salman@vu.edu.pk
**Skype ID:** sonia_salman

# To Do List

## Project Domain / Category

Mobile Application

## Abstract / Introduction

To Do List will be an android productivity app that will help users to develop list of routine tasks on daily, weekly, monthly or yearly basis on smart phone. The app will help users to stay organize and increase efficiency in their life. It should contain date and time-based reminders for upcoming tasks as well as maintain record of previous tasks. This app will facilitate busy people to save time and energy during life at home and office.

## Functional Requirements:

1. The application shall be able to register new users and allow to Login and Logout.
2. The application shall be able to store user's tasks along with brief description, date and time.
3. The application shall be able to remind you about self-imposed deadlines for the tasks. The reminder must produce alarming sound.
4. The application shall be able to add tags for the tasks.
5. The application shall be able to search your defined (input) tasks along with their details.
6. The application shall be able to support input for bulleted list as well as numbered list.

## Tools:

1. IDE: Android Studio
2. Programming Language: Java
3. Database: SQLite / any other DB you like
4. Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

## Supervisor:

**Name:** Haseeb Akmal
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**Skype ID:** HaseebAkmal

# Uber for Hotels

## Project Domain / Category

Mobile Application

## Abstract / Introduction

This app allows a user to easily find a suitable hotel room for stay and can be called as Uber for hotels. Hotels can make their rooms available for people to stay. Similarly, if someone visits a city then he/she can use the app to see the available hotel rooms (and their features) within 5 KM diameter from its current location. The user can reserve a hotel room through the app. The hotel management can check in the user who has reserved a room and later check him/her out. The option of advanced reservation is not available in the app and the user must check in the hotel room on the same date he/she has reserved it. Finally, a user will be asked to rate the hotel and the hotel room and similarly hotel management will rate the user.

## Functional Requirements:

1. Hotel management can register its hotel through the app.
2. Hotel management can add the rooms available for guests to stay for a registered hotel. For each room, the hotel management needs to enter the following features:
    a. Room number
    b. Number of beds in the room
    c. Internet availability
    d. Room rent
    e. Picture of the room
3. A registered hotel can set the status of its added rooms as “available for stay” when the room is free.
4. A person can register itself as a user within the app.
5. A registered user can view all the available rooms at registered hotels within 5 KM of its current location.
6. A registered user can reserve a room with the status “available for stay”.

7. Upon reservation, the status of the reserved room will be changed from “available for stay” to “reserved”.
8. The hotel management will check the user (who has reserved the room) in when he/she arrives at the hotel for stay and the status of the room will be changed to “checked-in”.
9. When the user finishes his/her stay at a room where he/she has checked-in, hotel management will check him/her out and the status of the room will become “checked-out”.
10. The hotel management can make the status of a “checked-out” room as “available for stay”.
11. A user can rate the hotel and hotel room within the check-out date.
12. Hotel management can rate the user who stayed in the room within the check-out date.

**Note:** The option of advanced reservation is not available in the app and the user must check in the hotel room on the same date he/she has reserved it.

**Tools:**
Android

**Supervisor:**
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**Skype ID:** yasar.mehmood111

# Citizens Information Board of Pakistan

**Project Domain / Category**

Web Application

**Abstract / Introduction:**

"Citizens Information Board of Pakistan" is a website to facilitate the citizens to search and get the authentic information about other citizens of Pakistan. It will provide on-hand information about anyone. The aim of this Application is to reduce the chances of frauds by eliminating the fake bio data of people. System will also reduce the manual effort and cost required for verification through Govt. law departments. So, it will benefit both public and the government.

This Web Application offers the following categories:

- People Search
- Criminal Record
- Court Record
- Phone Book
- Family Tree
- Public Record
- About Us
- Contact
- FAQ

**Functional Requirements**

**Modules:**

**Customer Module:**

- View/Search: The user can view/search the categories without registration.
- User can search by CNIC, Name or Farther/Guardian Name.
- User can also give feedback about services provided.
- System can show any history of the citizens. E.g. Bio Data, marital status, criminal history and family tree, etc.

**Admin Module:**

- Add an Admin/ Login: The main administrator can add any other person as admin.
- Admin can add/remove categories or edit existing categories.
- Admin can view and manage records.

- Logout

**Tools:**

**Software Requirements:**

- Operating System: Window7and above
- HTML, CSS, Bootstrap (Front-end)
- Adobe Dreamweaver
- MYSQL(Backend)
- PHP (Server-side programming)
- XAMPP — Web Application Server

**Supervisor:**

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# Colony's Record Management

**Project Domain / Category:**
Web Application

**Abstract/Introduction:**
The main aim of this project is to develop a Responsive web-based system of record management of a colony. The website will keep the record of all the members of the colony, vehicles belonging to members of colony, incoming and outgoing vehicles as well as the visitors to and from the colony with respect to the time. In addition, the website will also have a module as property classified through which the visitors of the website will get the information of property on sale/ rent.

**Functional Requirements:**

**Main Modules**
Main modules of proposed system are as follow:

1. **Home**
2. **Search**
    - In search module, user can search Rent/Sale property by different filter such as Property Type, Price (PKR), Area (Unit in Marla) and Bedrooms etc.

3. **Administrator Panel.**
    - Administrator will login to the system for performing tasks
    - Admin can post adds for property on sale or on rent.
    - Admin will generate Passes for Colony Members.
    - Administrator will create security guard login
    - Administrator can add, delete and update the bio data and vehicle information of colony members in database.
    - Both security guard and administrator can view the member record, vehicles in and out record and daily visitors' reports.

4. **Security Guard Panel.**

    - Security guard will login to system to perform his/her tasks.
    - Security Guard may add visitor record and create visitor card according to relevance information.
    - Both security guard and administrator both view daily guest report.

- Security guard will add the vehicles in and out record.
- Both security guard and administrator can view the member record, vehicles in and out record, and daily visitors' reports

5. **Create Responsive Web Page.**

**Tools & Technology:**

1. Php
2. Javascrirt/ Jquery
3. CSS/CSS3
4. HTML5
5. Notepad ++
6. MySQL

**Supervisor:**

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# Complaint Management System for KN Solutions

**Project Domain / Category**

Web Application

**Abstract / Introduction**

KN Solution is an internet service provider company currently working in only Punjab. KN Solution offers different internet packages to students, home users and business communities. This project is about to implement an online system for KN Solutions to handle customer's complaints and provide them best customer care facility.

**Functional Requirements:**

- Modules:

1. **Admin:**
    - **a.** Admin is required to Sign In first to access the whole system.
    - b. Admin can add, view, edit and delete employee details.
    - c. Admin can add, view, edit and delete customer details
    - d. Admin can view all complaints (date wise) of the company's registered customers.
    - **e.** System will provide the facility to the admin to view the reports of solved complaints (date wise) by employees with the rating given by the customers.

2. **Employee:**
    - **a.** Employee will be required to Sign In using valid details given by the admin.
    - b. Employee can add (Telephonically received complaint), view, solve and close complaint.

3. **Customer:**
    a. Customer will receive an email about the complaint fixing by internet service provider. Customer can rate the given service among 1 to 5.

4. **Tools**
- PHP or .net
- SQL or MySQL

**Supervisor:**
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# Design and Development of Online Auction Website

## Project Domain / Category

Web Application

## Abstract/Introduction

This project is an Internet Auctions site that enables sellers offer one item at a time or multiple lots of the same item. In simple words, online auctions run much like local auctions, but behind the scene, there is ongoing data collection. Just like local auctions, there are **sellers** and **bidders** and **winners** and **losers**. Winners are expected to pay for what they bid on at the end of the auction. But that is where the similarities between online and local auctions end.

On **User Interface** a seller or buyer will be required to register before he/she can buy or sell item(s). **Admin Interface** login is required to track item's user bid on or sell, keep up with the bids, determine the winning bids and build a database on seller and bidder feedback. Setting up an online email account separate from your main email account is recommended to help you track the progress of the auction and prevent spam from coming into your main account.

The bidding for each auction closes at the scheduled time. In the case of sales of multiple lots, the participants with the highest bids at the close of the auction are obligated to buy the items. If no one bids at or above the reserve price, the auction closes without a winner. At the close of a successful auction, the buyer and seller communicate, usually by email, to arrange for payment and delivery of the goods. For example, eBAY (www.eBay.com) makes publicly available the data on all ongoing and recently closed auctions, and for each auction the data include the entire bid history (time stamp and bid amount) except for the highest bid, as well as the information about the seller, the auctioned item, and the auction format.

When an auction ends, email messages are sent to the owner of the item and the winning bidder (if there is one) to indicate the result of the auction. This message typically includes the name of the item and the details of the owner/winner, depending on which email is sent.

Buyers may have several payment options depending on the auction platform, including credit card, debit card, personal check, cashier's check, money order and cash on delivery. However, you are required to implement cash on delivery option.

This website project will be developed using ASP.NET / PHP as the front end and SQL Server / MYSQL as a back end. The database will store all information about the users and various bids and items along with their respective categories.

**Functional Requirements:**

1. The system shall provide convenient interface for User Registration, Categories and Items Search.
2. A guest user can only view items. For any kind of selling or buying he / she must register.
3. The system should be able to show auctioned items in their respective categories.
4. Admin should be able to view details of each seller and buyer. He / She should also be able to delete any item at any time.
5. The system shall be capable to provide an interface to the seller to contact to the winning bidder within 3 days.
6. The system shall provide Password Recovery facility through customer email id.

7. The system should provide the interface to store the item and delivery address of the winning bidder of that specific item.
8. The search interface should be convenient to search any item / product; also, a user-friendly interface must be there for advertising.
9. Every bid shall be allocated a unique identifier (BID_ID).
10. The systems shall have both Admin and Customer views. i.e. Administrator View and User View.
11. The system should store and display images of each item also.
12. Customer shall be able to get notifications on his / her email id.

**Tools:** ASP.NET, C#, SQL Server, PHP, MYSQL

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# Designing and Implementation of water supply management system

## Project Domain / Category

Web Application

## Abstract / Introduction

The aim of this project is to develop a web-based system which will be used to automate manual workflow of filtered water Supplier Company. We will build this system so that company can manage its customers, employees, stocks and route/area details; it will also facilitate the customers so that in their busy life, they can easily approach their basic need of life i.e. filtered water using internet facility. Customers and business owner can communicate and share different type of information with each other through website. A customer can sign up for free, login to his / her account. This website will deal many brands of filtered water i.e. Gourmet, Doce, Nestle, Aquafina, Qarshi Springley and Axis water etc. Customers can select their required brand among these categories. Customers can select brand, place orders, share information about their remaining stock, complaints about delivery and check their bill details. Company/owner can check the customer's requests, complaints, and remaining stock details. Company also wants to keep track of their delivered bottles details.

Company defines different areas/routes for delivery; a specific area is normally visited upon the request of customers. It is necessary for customer to place the request at least one day prior. Salesman can check these requests, demands of water bottles and remaining stock details. Company will also give special discounts and water dispensers to their special customers, and these special facilities depending on the usage of water bottles.

This project will be developed using ASP.NET / PHP as the front end and SQL Server /MYSQL as a back end. The SQL database will store all information about the customer and order posted by user. Keeping the features of an e-commerce site, online water supply system project acts as a central database

## Functional Requirements:

1. The system will provide user friendly interface for Registration.
2. Customers will get them registered in this application and then will be able to access the website by logging into system.
3. The system will provide three types of payment options which will be cash on delivery, Payment via Credit Card or online transfer and these payments will be done on daily, weekly or monthly subscriptions basis.

4. There will be proper interface for placing order and complaints. The system will allow the customers to give feedback.
5. Customers will be able to get notifications about their registration, order placing, order confirmation and payments on his / her email id.
6. Admin will be able to add different brands.
7. Admin will be able to add/update/delete information about facilities and discounts.
8. Admin will be able to view customer's profile, feedback and reviews.
9. Admin will be able to generate Sales and profit report on daily weekly and monthly basis.
10. If remaining stock is zero, an alert should be shown to the salesman.
11. Salesman will get register in the application.
12. Salesman will confirm the order through SMS or email.
13. Salesman will select specific areas/route for delivery.
14. Every order will be allocated a unique identifier (ORDER_ID).
15. The system will provide Password Recovery facility through customer email id.
16. The systems will have administrator view, salesman view and user view.
17. The system will be capable to generate invoice. Payment receipt is also generated for customer record as well as for admin.
18. "Location" tab contains the details of the areas in which delivery service is provided.
19. System will restrict the user from entering any location which is not in your area list.

**Tools:**

Operating System: Window7and above
ASP.NET, C#, SQL Server, PHP, MYSQL

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# Electronic Patient Management System at Hospital

## Project Domain/Category

Web Application

## Abstract/Introduction

Today's healthcare organizations need user-friendly information tools that cut through the chaos and deliver solid analysis and reporting capabilities specifically designed for patients, doctors and other staff to meet their needs.

With these needs in mind, we need a more longitudinal collection of the electronic health information of individual patients.

Furthermore, maintaining different types of patient's data manually in today's busy world is a very tiresome job. To reduce the load of maintaining bulk of data and to provide facility to record the relevant information of patient, we will create a web-based application. The aim of this application is to automate the patient management at hospital and to provide paper less environment.

## Functional Requirements:

The system should have the following features:

A user registration process in order to get login into the system. Login will be of four Types. Admin, Reception person, Doctor and Supporting staff(nurse).

The application will have four modules:

### Reception person (Patient Information):

This module will be used by the Reception person to perform following roles /tasks:

- Reception person will enter the record of patients. The record will include all relevant required information.
- Reception person will generate Patient ID that could be later used in the system to access the patient's information.
- Reception person will send the record to assigned department (doctor)

**Medical Person (Nurse):**
This module will be used by the nurses or assistant person of doctors to perform following roles /tasks:

- Entering Diagnostic information for each patient
- Updating the record by entering the physician comments
- Entering required treatment information suggested by doctor
- Sending lab tests when it is required
- Creating Discharge Summery

**Admin Panel:**

- Admin can register hospital staff i.e. Doctors, nurses and admin staff etc.
- Admin should be able to retrieve and view each patient / staff's information her by different filters such as Name, CNIC, Hosp ID etc.

- Admin should always be able to supply real-time tracking information for all files (from admission through discharge)

**Doctor Role:**

- Doctor should be able to view its personal information
- Doctor should be able to view patient's information assigned to him/her by different filters such as Name, CNIC, Hosp ID etc.
- Doctor should be able to view information of supporting staff working with i.e. nurses

**Reports:**

- List of all Doctors, administrative staff, supporting staff
- List of all patients (date, month and year wise)

**Recommended tools and technology**

Programming Language: JAVA or c# only
Database: MySQL

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# Employee Order Management System

## Project Domain/Category

Web Application

## Abstract / Introduction

It is very time consuming for the lower staff to take orders for lunch or tea from each employee individually and manually. There is a chance of writing errors. To overcome this problem, we will develop a website for employee order management system which will help lower staff in taking orders and will also save their time.

**Functional Requirements:**

1. The system should have a user registration process in order to get login into the system. During registration process employee will provide basic information like employee id, name, designation and department etc.
2. The system should have 3 options morning tea, Lunch and afternoon tea.
3. There should be some basic sub options regarding tea and lunch for example list of different fruits, bakery items and list of different types of lunch etc. These sub options should be available in all the 3 options i.e. morning tea, lunch and afternoon tea.
4. Employee should be able to select multiple items in single order.
5. Employee should be able to enter total amount/collected amount, quantity and remaining amount against order.
6. There should be "?" symbol, in case if the price of the items is not known in advance.
7. If the price of the item is present in the system, then the reaming amount should be calculated by the system.
8. System should be able to automatically calculate total collections from all employees.
9. Employee will not be able to update or enter any order after due time.
10. Admin will be able to insert, update or delete new items and their price in the list.
11. Only admin will be able to print employee wise order report.
12. Employee should be able to view his order reports only (daily, weekly and monthly basis).

13. Employees should be able to cancel order before due time. Due time for morning tea should be 10 AM, for lunch 1:00 PM and for afternoon tea 3:00 PM.
14. Admin should be able to adjust the timings of morning tea, lunch and afternoon tea.

**General Reports:**

1. Employee order report (Daily, weekly and monthly wise).
2. Report of all employee.
3. Report of all items.

**Tools & Technologies:**

Preferred tool and technology JAVA and MySQL

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# E-Music

**Project Domain / Category**
Web Application

**Abstract:**
E-Music is a website where you can find *Royalty Free Music*. Admin can provide paid or free music to customers. Customers can download free music and can purchase paid music. You can categorize the music in the following categories:

- Cinematic
- Folk
- Pop
- Electronica
- Urban

User can listen to the music files on website and can also download the free music. But for paid music, they need to purchase it. For purchasing, user must sign up or Login (if already registered).

**What is Royalty Free Music?**

**Royalty Free Music** refers to a type of **music** licensing that allows the purchaser to pay for the **music** license only once and to use the **music** for as long as desired. As YouTube video content creators can't use copyrighted music as it will create a copyright issue on YouTube.

**Modules:**

**Customer Module:**

- Sign Up/Login: The customer can view/search for the music without registration. Sign Up or login is compulsory for purchasing any music item.
- Customer can download music files where are free.
- Registered customer can make any music item favourite.
- Registered customer can also give feedback/review about any music.
- System can store the purchasing history of the customer.
- Customer can add music items to cart, check out using debit or credit card.

- Customer has the authority to delete his account from the website.
- Logout

**Admin Module:**

- Add an Admin/ Login: The main administrator can add any other person as admin.
- Admin can add/remove categories and music items or edit existing music items or categories.
- Admin can view, confirm/cancel orders manually.
- Admin can generate coupons or offers against any music item.
- Admin can manually add or delete any customers.
- Logout

**Tools:**

**Software Requirements:**

- Operating System: Window7and above
- HTML, CSS, Bootstrap (Front-end)
- Adobe Dreamweaver/ Sublime Text
- MYSQL(Backend)
- PHP (Server-side programming)
- XAMPP — Web Application Server

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# Online Software Repository

**Project Domain / Category:**
Web Application

**Abstract / Introduction:**
The aim of this project is to develop a website named as "Online Software Repository" that will contain different types of computer application software. The available software will be either licensed or free. All software will be available with their categories according to their specific genre like (Multimedia software, Microsoft Office, Database Software etc.). For licensed software, the user will must register him/herself on the website. There will an online instant chat box on the website for the 24/7 guidance of customer.

**Functional Requirements:**

- Sign up page for new users.
- Sign in page for downloading the facility of software and personal help.
- Only registered users can download software.
- An instant chat box will be available at home page for 24/7 help.
- Admin will maintain proper record of available software and customers in database.
- Admin will add the categories of the software.
- Admin will manage all software (add or remove).
- Registered users (customers) can purchase licensed software by using payment methods (Paypal, Credit card, Debit card).
- The website will allow the visitors to search the software by different filters.

**Tools:**

- XAMPP — Web Application Server
- Operating System: Window7and above
- HTML, CSS, Bootstrap (Front-end)
- MYSQL(Backend)
- PHP, Laravel, (Server-side programming),

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# Family Medical History (FMH) Online Portal

## Project Domain / Category

Web Application

## Abstract/Introduction

This is an online portal in which users are registered and enter their and family medical history to track their health issues and medications in different durations.

## Functional Requirements

***Users related:***

- Admin is the person that is registered by default and manage all other users
- A member is registered as family head
- Family information is entered later after creation of user account
- Family includes
  - Parents
  - Wife (There's a check that a person is not allowed to enter more than 4 wives)
  - Children (Boys and Girls)
- There's a facility for a user to manage dependents
- If a dependent is deleted, then previous related data should remain in system
- Attributes related to user and dependents are mandatory to be stored e.g. age, relation and disability etc.

***Working Information/flow***

- Family head would enter medical condition that any of the dependent would face. Condition / Problem should be entered that is diagnosed by Medical Specialist.
- Also required to enter name of Doctor that is visited
- Medical Treatment / Prescription is duly entered. Details are;
  - Medicine Name and its type or category (e.g. Pain killer / anti-biotic / anti-allergic etc.)
  - Its dosage (e.g. Morning / Noon / Evening)
  - Potency
  - Duration of in taking medicine
- If there's a need to visit in hospital's emergency then its details will also be entered along with attending doctor(s), diagnoses and their suggested treatment
- If user or any of the dependent is admitted in hospital, then same details are required to be entered as per above point

- Medical treatments / procedures are also required to be entered

***Required Reports***

1- Certain type / category of medicine used by certain person for certain time of period
   - ➢ There are three search criterions for this report that are;
     - Medicine Type
     - Person / User / Dependent
     - Period
2- Medical Procedures to certain person
3- Most visited Doctors for certain medical condition
4- Mostly doctor / hospital / emergency visited by dependent along with details of visits

**Tools**

HTML, PHP, MySQL, Xampp / wamp server, PHP Report Maker / PHP Reports / Any other supportive tool for Report generation

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# Intelligent System for Movie Ticket Booking

## Project Domain / Category

Web Application

## Abstract / Introduction

Online Movie tickets booking has widely spread across in Pakistan for the past few years. With the revival of cinema, people all around the Pakistan had started using the facility for online tickets purchasing. You are required to develop a web-based intelligent system for movie tickets booking, which allows the user to purchase (his/her) desired movie ticket online. Your system must have a rich set of GUI Interfaces which allows the user the ease to select the ticket from the list of movies available.

## Requirements:

- User should first register him/herself into the system. The admin should approve the user request. After user request is approved, he/she should be able to Login to the system.
- The system should provide different categories of movies (Action, Horror, Comedy, Sci- fi etc.) to the user from which he/she can select the desired category of his/her choice. You can also customize the categories of the movies of your choice.
- User should first select the time of the movie and after selecting the time, User can select the seats of different categories from Gold, Silver and Platinum, where each category of seats should have different price, e.g. For Silver Category PKR 450, For Gold Category PKR 750 and For Platinum Category 1000 PKR.
- After selecting the seat(s), the user must provide his/her card details for payment purposes. Right after the payment user must be notified via email and message the details of ticket.
- System must have the functionality to remind the user about his/her movie timing right before two hours from the start of the movie.
- The system should recommend new movies to the users based on the categories of the movies he/she has watched e.g. a minimum of 5 movies at least.

**Note:** You can customize or add more features into the system to make it more refined.

**Tools:**

**Language:** Python
**IDE:** Pycharm or Microsoft visual Studio or any other Modern IDE
**Framework**: Django or Flask

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# Design and Implementation of an Online Clearance System for Graduating Students of University

## Project Domain / Category

Web Application

## Abstract/Introduction

The internet has changed the face of the world and made receiving and sending of information spread widely and easily, this can be done at the tips of people hand and without wasting any time. Compared to when internet has not evolved, before information could be received another end, it takes time depending on the distance of the journey. Online clearance system is a web-based system which makes use of the internet. Most of the universities don't have such online method of clearance which creates the overhead for students of going from department to department to sign the forms. The form given to student must be signed by the following; University Liberian, Head of department, Sport official, Dean of student affair, Accounts, Café/Mess etc.

So, the aim of this project is to develop a web-based Clearance system through which graduating students will be able to complete the process of clearance from anywhere. He/She will not must physically visit the University and concerned departments for this purpose. It will also lead in saving of the time and the cost of transportation from one location to another.

## Functional Requirements

### Types of users

- Admin
- Student
- Liberian
- Head of department
- Sport In charge
- Dean of student affair
- Accounts In-charge
- Café/Mess In-charge

**Types of interface:**

- Admin interface
- Student interface
- Separate interface for concerned departments.

**Admin Panel:**

1. Login/Logout procedure for the Admin user.
2. Admin has record of all the registered users/students.
3. Admin have rights to accept the users/students clearance request if any dues are not pending.
4. Admin have rights to reject the users/students clearance request if any dues are pending.
5. Admin has information of all the departments of clearance section.
6. Once admin receives a clearance request, then the admin will forward the request to the concerned department.
7. The concerned department will give feedback on the clearance report to the admin.
8. Admin can generate the clearance receipt after the clearance procedure in case of any dues are pending.
9. Admin must upload the clearance receipt of the concerned student account.

**Student Panel:**

1. Login/Logout procedure for the Student.
2. User /Student will create a request for the clearance.
3. Student can download the “clearance receipt” and print the voucher. Pay the dues in the account section.
4. Student upload the paid voucher.

**Tools:**
HTML, PHP, MySQL, Xampp / wamp server, PHP Report Maker / PHP Reports / Any other supportive tool for Report generation

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# Teacher Hiring Evaluation System

## Project Domain / Category

Web Application

## Abstract/Introduction

Institutions hire faculty by just interviewing candidate which may lead towards wrong candidate selection. Knowledge is considered a basic requirement for teaching profession but in class environment, teaching does not merely depend on knowledge. There should be some other criteria as well i.e. voice loudness, teaching methodology, dressing and style etc.

There could be some evaluation test of concerned subject first to check the knowledge then candidate should be evaluated in classroom teaching and online computerized evaluation form should be filled by the class students in computer lab. The proposed online software should provide test interface for any subject i.e. Physics, English, Math etc. for the candidate. Any already working faculty member of concerned subject could create test by putting MCQs. At the end, the proposed system of "Institution Hiring Evaluation System" should generate reports of candidate's overall performance including test and class evaluation etc. in summarized form. So that, the management could decide about hiring of good candidate.

## Functional Requirements:

- The application should have the following major modules:
    - Candidate Test Module
    - Class Student Evaluation Module
- There will be only two users of the application initially i.e. Admin & Guest
- Admin could be able to create login of any already working faculty member and for candidate.
- The teacher could be able to create Test based on subject. The application should provide facility for the teacher to create test containing MCQs only.
- Candidate could be able to solve the test after login in the proposed system.
- The application should keep track of the candidate name, subject, date and marks as well.

- The application should provide interface for the students to fill online Performa to enter the feedback regarding the candidate's teaching skills in terms of following:

  - ✓ Communication skills.
  - ✓ Listening skills.
  - ✓ Deep knowledge and passion for their subject matter.
  - ✓ The ability to build caring relationships with students.
  - ✓ Friendliness and approachability.
  - ✓ Excellent preparation and organization skills.
  - ✓ Strong work ethic.
  - ✓ Community building skills.

  More characteristics and evaluation criteria could be added above than that. Rate the above characteristics in the form of marks i.e. 1 to 5 in the proposed system and class students could be able to choose from 1, 2, 3, 4 and 5 by login as Guest User.

  Sample Performa

**TEACHER EVALUATION FORM**
**To be filled by the students**

Course Title/Number

_____

Name of Teacher

_____

Department

_____

Semester/year

_____

| **Use the scale to answer the following questions below and make comments 1-Srotungly Disagree, 2-Disagree, 3-Somewhat Agree, 4-Agree, 5-Strongly Agree** | | | | | | |
|---|---|---|---|---|---|---|
| **Teacher:** | | | | | | |
| **A.** | The teacher is prepared for class. | 1 | 2 | 3 | 4 | 5 |
| **B.** | The teacher demonstrates knowledge of the Subject. | 1 | 2 | 3 | 4 | 5 |
| **C.** | The teacher has completed the whole topic. | 1 | 2 | 3 | 4 | 5 |
| **D.** | The teacher provides additional material apart from the textbook. | 1 | 2 | 3 | 4 | 5 |
| **E.** | The teacher gives citations regarding current situations with reference to Pakistani context. | 1 | 2 | 3 | 4 | 5 |
| **F.** | The teacher communicates the subject matter effectively. | 1 | 2 | 3 | 4 | 5 |
| **G.** | The teacher shows respect towards students and encourages class participation. | 1 | 2 | 3 | 4 | 5 |
| **H.** | The teacher maintains an environment that is conductive to learning. | 1 | 2 | 3 | 4 | 5 |
| **I.** | The teacher arrives on time. | 1 | 2 | 3 | 4 | 5 |
| **J.** | The teacher leaves class on time. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **K.** | The teacher enjoys teaching. | 1 | 2 | 3 | 4 | 5 |

- Finally, the detailed result of written test and evaluation Performa marks in summarized form could be viewed to check the candidate performance.
- All types of reports should be generated i.e. Overall Test Detail for each candidate, Evaluation status etc.

**Tools:** ASP.Net,C#, MS SQL Server or PHP with MySQL or any other tool(No compulsion)

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# KidsMath

**Project Domain / Category:**

Web Application

**Abstract / Introduction:**

Mathematics is one of the subjects with which students face much of the difficulty and especially the initial Grades students. KidsMath is an online application that lets kids solve different mathematical problems and match their solution with actual ones.

The Five basic operations including (Addition, Subtraction, Multiplication, Division and Exponents) will be part of the application.

**Functional requirements:**

Application will comprise of an interface to generate questions of different categories. These categories will include:

a) Addition
b) Subtraction
c) Multiplication
d) Division
e) Exponents
f) PEMDAS

From the interface the user will input the following information:

| Input | Application | Remarks |
|---|---|---|
| Category Name | Applies to questions of all categories | |
| Number of Questions | Applies to questions of all categories | |
| No. of Operands | Applies only to Addition and PEMDAS categories. For all other categories, number of operands will be two (2) except the Exponent category where the number of operands will be one (1) | This means the total number of values (terms) in each question. E.g. an addition question with two (2) operands may be as follows:<br>54145+62514<br><br>Similarly, a question with five (5) operands may be as follows:<br><br>256+624+146+241+156 |
| Operand size | Applies to All categories except "Exponents" | operand size means the number of digits in each operand e.g. an operand |

| | | |
|---|---|---|
| | where range of exponent can be 1 to 3. | of size three (3) means “245”, an operand of size 6 may be “246874”. Similarly, an operand of size four (4) may be “6487”. |
| Types of operators | Applies only to PEMDAS. | It means that which operators should be included in PEMDAS question. E.g. if user selects “Addition”, “Subtraction and “Multiplication”, the system should generate questions including these operators only. |

Once the above-mentioned information is provided, system will randomly generate questions as per specification provided by user. System should also generate the solution of each question in separate sheet. Note that solution should be detailed e.g. for the question: 12 X 12, answer should be like:

```
  12
X 12
--------
  24
 12
=====
 144
```

Similarly, for a PEMDAS question, 2+3-6(2x4)-1

Solution should be:

```
  2+3-6(2x4)-1
=2+3-6(8)-1
=2+3-48-1
=5-48-1
=-43-1
=-44
```

Similarly, Exponent solution should be:

$2^4$= 2x2x2x2 = 16

System should also be able to generate papers including the number of questions specified by user. The user will also specify the categories of the questions along with related information (e.g. number of questions in this category, number of

operands in each question, operand size etc.). A solution of each paper should also be generated on separate sheet.
Furthermore, note that papers should be saved in database for the current users so that he/she may use it later as well. Each user should register first to get its username and password.

Note: you can find a similar application for idea at the following link:
http://www.math-aids.com/

**Tools:** Any of the following tools may be used
ASP.NET, JSP and PHP

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# Salon Management System

## Project Domain / Category

Web Application

## Abstract / Introduction

Salon management system is a web-based application which will provide the facility of online appointment to its users with a salon. It will connect clients, salons, and stylists in an online community allowing users to find / browse salons and stylists, and book appointments. Users can also write and read reviews of salons and specific stylists. Salons owners can specify the stylists that work at their salons, as well as the services they offer. Salons can also book appointments for customers, can view and print schedules in convenient formats.

## Functional Requirements:

### Admin

- Admin can login into system.
- Admin can delete/ edit information of user and salon
- Admin keep the records of all appointments

### User

- User can create account
- User can log in into the system
- Search for salons by: name, area location, city etc.
- View and Edit Account information
- Make an appointment
- Specify stylist
- Cancel an appointment
- View Appointments
- Rate salon/stylist (can only rate Salons/Stylists after an appointment)
- View user ratings of salon and stylist (filter by salon location, service)

### Salons Owner

- Create a salon account
- Log in into the system
- Edit Salon Account Information
- Add a Stylist
- Remove a Stylist
- Edit the services a stylist provides
- Add/remove beauty services of Salon
- View ratings of salon
- View/Print schedules

**Tools:**
PHP language, HTML, MySQL

**Supervisor:**

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# KoolKids

**Project Domain / Category:**
Web Application

**Abstract/ Introduction:**
In the today's ecommerce world, different types of kids' garment brands are running their business through Internet. The main objective of this project is to develop a website that will help the customers to buy the different Varieties of kids' garments and other kid's necessities from anywhere. It is beneficial in terms that not only local customers could purchase but the customers from different places could also buy desired varity.

This website will contain complete variety of different garment brands as well as other kids' necessities displayed in several categories. Any Customer can visit available variety, but only registered customer will be able to buy/place order. Admin will manage customers, orders and whole website.

**Functional Requirements:**

**Customer:**

- Customer Registration
- Customer Login
- Customer can Search (by brand, by size, by colour)
- Customer can add any number of kids Varity (clothes, toys etc.) in cart and can proceed for order
- Customer can select any payment option (credit card or cash on delivery)
- Customer can check his/her order status (approved/Pending/ delete)
- Customer can check his/her order history
- Customer can submit his/her Feedback
- After successful completion of transaction customer will receive confirmation message and a copy of the shopping receipt on his/her mobile number.

**Admin:**

- Admin can view list of registered customers, Total booking orders, shipping orders, pending orders, delete orders, Feedback, total queries etc.
- Admin can Add/update/Delete Categories
- Admin can Add/update/Delete Subcategories
- Admin can check the list of existing Customers
- Admin can delete any existing Customer
- Admin can update information of any existing Customer
- Admin can check the complete history of orders
- Admin can approve or delete any order.

**Tools:**

HTML, CSS, Bootstrap, JAVASCRIPT, JQuery, PHP, MYSQL
No any other language is allowed for this project.

**Supervisor:**

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# Leave Application Management System

**Project Domain / Category:**
Web Application

**Abstract/Introduction:**
Everyone in today's world has a hectic routine, either in academic sector or corporate sector. People don't have much time to go through the tedious way of submitting the leave application manually. Also, it is difficult to track leave application manually. So, it will be much easier for them, if they apply online leave application from anywhere and to keep record of their leaves at their own.

Functional Requirements:
System should comprise of some important interface modules like,

1. User must register himself on interface and fill the complete form. Admin will approve the registration of users.
2. User must be able to get login.
3. Applying leave module must contain tabs like
    - Total number of Available Leaves
    - Reason of Leave
    - Apply Date
    - Address
    - Module to calculate the Leave Deductions
    - Total Cost to be deducted of Leaves
    - Leaves could be either Casual, Earned, Without Pay or Medical
4. After successful applying of leave application, it will be available for Admin for approval.
5. Employee will be able to mark their attendance online.
6. Admin will review about the leave and will be authorized to 'Accept' or 'Reject' the leave.
7. After the "Approval" or "Rejection" of leaves, SMS Alert/ Email Notification must be sent to the concerned employee.
8. A proper user-friendly Graphical User Interface must be designed, to make all tasks interactive.

9. In end all status of leave application, must be shown to the user, and all records and history of leaves must be saved into the database by admin.
10. Admin must be able to keep record of employees.
11. Administrator will be able to maintain daily attendance of employee.
12. User must be able to logout to release the interface.

Note: These given FR must be incorporated into the project. More FR could be added other than given.

**Tools:**

MySQL, PHP, ASP.net, C Sharp (Students may select software tools of their own choice as per their convenience)

**Supervisor:**

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# Online Admission Management System

## Project Domain / Category

Web Application

## Abstract / Introduction

Online admission management system is being developed for a university so that students can online apply in different disciplines once in a year. Admission to the eligible students will be offered merely on merit basis. Desiring candidates will fill form for the admission. A candidate can also apply in more than one disciplines if he/she is applying in any regular study program. 5% marks will be deducted from the merit if any candidate has less than 45% marks in last academic year.

System will maintain discipline wise merit lists of students, record of those students who will apply on specific quota and can also generate report based on student's priority for discipline. Student will also receive acceptance/rejection message through email. User's provided data will be used for Student's id card.

## Functional Requirements:

- Administrator of the system will be able to manage whole system. He / She will be able to admit a student, cancel an admission, edit data, generate data for id cards, generate merit lists.

- Candidate will be able to enter data through online form.

- System will take data to check eligibility for admission in BSCS/BS(IT)/BBA study program(s) in different disciplines as per following criteria:
  Intermediate (12-yrs education) with at least 45% marks

- System will take data to check eligibility for admission in 2-years MS(CS) in different disciplines as per following criteria:
  4 Years Bachelor's degree (16-yrs education) with at least 45% marks

- System will able to generate merit list on quota basis e.g. Provisional, District etc.

- Merit lists will be generated on basis of priority for discipline that candidate has selected at time of data entry.

- A complete merit list according to different disciplines will be generated for all students.

- A complete merit list for total number of students will also be generated for each discipline.

- Based on student's priority for discipline, a complete merit list for total number of students will be generated for each discipline.

- A separate merit list will be generated for eligible and non-eligible candidates.

- Email message will be sent to the candidate on acceptance/rejection of admission.

- System will be able to generate Id cards of admitted students. Id card details will be included:

  Student name, Picture, Roll Id, Study Program, Expiry date.

**Tools:**
ASP.NET, JSP, PHP, MS SQL Server, MySQL

**Supervisor:**
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# Online Building Construction Services

## Project Domain / Category

Web Application

## Abstract / Introduction

In this project, we will build a web-based application named as “Online Building Construction Services”. In this project a user can view the availability of the technical employees such as Masson, Electrician, and Carpenter etc.

On the availability of the person, the user can book that resource for his/her construction work. In the booking process, the user will provide all the details about the working he/she is going to plan.

The main purpose of this project is to facilitate the end users to online book a technical person for his/her construction work according to the end user convenience.

## Functional Requirements:

**Admin panel:**

8. The admin can login and logout.
9. The admin can add different information about their services and create profile for their employees such as Masson, Electrician, carpenter etc.
10. The admin can also add all the information about their employees such as information about the available dates, their per day cost /service charges etc.
11. The admin can edit/ delete/ update all the information of an employee.
12. The admin can see the booking information and assign that work to a specific employee(s).
13. The admin can generate a voucher/expense report for the user.
14. The admin can generate different reports like total completed projects, total cost of a project etc.

**User Panel:**

1. The user can login and logout.
2. The user can book a specific service according to his/her convenience on the availability of the service/resource person.
3. For booking the user must be a registered user. If the user is not login already then there must be a “Registration” option available for the user.

4. In the booking process, the user will provide complete details about the work and can provide the pictures of the working area.
5. The user can see the appropriate expense report after booking the appropriate service.
6. The user can download the service dues voucher. Pay the dues in the bank and upload the paid voucher on his/her account.
7. The user can see the approximate deadline of the selected work.

**Tools:**
PHP, MySQL, Xampp Sever

**Supervisor:**
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# Online Bus Ticket Reservation System

## Project Domain / Category

Web Application

## Abstract/Introduction

This will be a web-based application that offers its users with the services to reserve bus tickets from their selected source and destination locations. User should be able to make the reservation online by paying online or make the temporary reservation online and pay at the front desk at the time of departure.

## Stakeholder

1. Administrator
2. Front Desk Officer
3. Buyer

## Functional Requirements:

**Buyer:**

1. Buyer can view the information about bus ticket fairs according to their source and destination locations, departure and arrival timings and available tickets (seats) for a bus leaving at a specific time.
2. It should be mandatory for the buyer to get registered for completing the reservation.
3. Buyer must login into his/her account in order to do the ticket reservation.
4. The buyer can either pay online for the ticket to confirm the reservation or can make the temporary reservation without payment online and then pay at the front desk an hour before the departure time.
5. The buyer should have the option to cancel/reschedule his/her reservation online from his/her account. It should be compulsory that the cancellation/rescheduling of the reservation should take place at least 24 hours before the departure time.

**Administrator:**

1. Admin can add/update/remove ticket fairs, plans, promotions, and related information.
2. Manages buyers and front desk officers' accounts
3. Can generate different kind of reports from the system such as total sales, sales according to a specific time period, total reservations according to the regions, routes, sources and destinations etc.

4. Should be able to add/update/remove buyers from the system and make any changes to their reservations such as change, cancel or confirm.

**Front Desk Officer:**

1. Should be able to create new reservations for the buyers OR confirm their temporary reservations already made through the online application.
2. Should be able to cancel/reschedule the buyer's reservations.
3. Sets the status of buyer to "Ticket Issued", "Ticket Cancelled", "Refunded", or "Ticket rescheduled".

**[NOTE:** Student can add/enhance requirements as per the application's requirements.**]**

**Special Instructions for the students:**

- You must test the application thoroughly before your application viva.
- You must have at least 3 to 4 Buyers in your system with different status of their reservations such as (Completed, Cancelled, etc)
- You must have at least 2 Front Desk Officer Accounts in the application already so that you can show their stats for already completed reservations at the time of your viva.
- There should also be at least 1 admin account already.
- Here are some good examples of the websites for their design and functionality that you may follow for your project.
  https://daewoo.com.pk/
  https://www.easytickets.pk/buses
  https://bussquare.com/
  https://faisalmovers.com/

**Tools and Languages:**

XAMP or WAMP server, PHP, MySQL, HTML, CSS, Dreamviewer, Notepad++

**Supervisor:**

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# Online Cars Portal

## Project Domain / Category

Web Application

## Abstract / Introduction

This is an online car and car parts store that has listings of various cars along with their features. The system allows user to buy car, car parts and inventory online through cash and credit card payment. This system also consists of 'Test Drive' feature where user can request admin for test drive of any specific car, the user will select date and time for test drive and the admin will approve/reject that request.

The visitor who wish to make some purchase on the system needs to be registered into the system by filling up personal details. After registration user can login to the system with his/her username and password in order to access the system. The system will have user friendly search feature based on car name, model, registration city, price etc. User can check various car listing and can view each car feature. User may select the product and can add the product to shopping cart. User can made payment through cash or credit cards on the shopping cart page.

## Functional Requirements:

The functional requirements for the project are listed below: -

1. User management (users' registration on site, plus add/update/delete users at admin).
2. Cars and car parts listing and management from admin panel.
3. Test drive feature.
4. Orders management feature.
5. Cash and credit card payment options.
6. Advance search feature on user's end against car name, model, registration city, price.

## Tools:

ASP.NET MVC with C#.NET and MS SQL SERVER for database.

## Supervisor:

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# Online Cooking Training Center

## Project Domain

Web Application

## Abstract

It is a web-based application which will assist end users to learn cooking from different cooking expert/chefs free of cost or paid without going outside of their homes. This application provides an opportunity for cooking experts/chefs to share online experiences of their recipes with the learners. Similarly, learners can learn different recipes of their own choices from different chefs.

A feedback form and learners reviews will be provided in this application in order to maintain learner's trust and satisfaction with chefs. Learners can rate the recipes of different chefs based on the quality and difficulty level of recipe. Chefs can also rate learners based on number of recipes learnt or shared pictures or learning experience of cooked dishes by learners. There are different modules of this application such as administrator, cooking experts and learners.

## Functional Requirements:

There will be following three panels in this application:

- Administrator
- Cooking experts/Chefs
- Learners

**Administrator:**

- Login process to allow admin to access the admin panel.
- Admin will be able to manage both types of users.
- Admin will be able to view users' profile, feedback and reviews.

**Cooking Experts/Chefs:**

- Chefs will get themselves registered in this application and then will be able to access the web site by logging into system.
- They can update their own profile.

- They can add different recipes in application based on different parameters like type of food (Chinese, Continental, Thai etc.), name of dish, name of chef, paid or free, preparation time required, cooking time required etc.
- After selecting the above required information, they will provide the description of recipes with steps along with pictures.
- They can also upload videos of recipes if they want.

**Learners:**

- Learners will get themselves registered in this application and then will be able to access the web site by logging into the system.
- Learners can update their own profile.
- Learner can view/search the list of dishes based on different parameters like type of food (Chinese, Continental, Thai etc), name of dish, name of chef, free or paid, preparation time required, cooking time required etc.
- After selecting the above required information, the detailed description of recipes along with steps and pictures will be displayed.
- Learners can download the videos of recipes if uploaded by chefs.
- Learner can give the feedbacks and reviews of recipes of different chefs based on quality and difficulty of recipe.
- Lerner can have levels like 1 star, 2 stars (and so on), based on progress and feedback from chefs.

**Tools and Languages:**

Visual Studio, .NET Framework, C#/Java, SQL Server

**Supervisor:**

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# Online Food Ordering System

## Project Domain / Category

Web Application

## Abstract / Introduction

The purpose of the online food ordering system is to facilitate the customer in ordering food through web interface without going outside. This application will facilitate the application administrator to manage customer data and order data efficiently. Admin will be able to make suitable decisions related to the business by checking the customer feedbacks and reports. Admin can manage the food items i.e. add new food items, edit/delete food items or enable/disable certain food items according to the season and availability. Admin has the right to view order status, change the order status and view the customers' feedback. He can also view the system user details and payment transaction details.

Customers can access the system with valid credentials after registration. They can go through the food categories on system web pages and select the desired food items. System will also provide the cart system, order tracking and online payment facility to the users.

## Functional Requirements:

Online food ordering system supports two kinds of users, who will have their own system interface panel to use the system. Administrator will use the Admin panel of the system to manage his work and users will use the customer panel to order the desired food. Functional requirements for each user are mentioned below:

### Admin Panel:

- Add Food Items: Admin can add food items details like name, Photo, Description/ Ingredients, Price, Category etc.
- View / Edit (Price, Enable/Disable) / Delete Items: Admin can edit the food item details as well as Enable/Disable certain food items according to season or availability.
- View Orders: Admin can track the live orders and change the Status of specific food order.
- View feedback: Admin can also view the customer feedback related to any order to improve the customer experience related the system.
- View Transactions: Admin can view payment transaction history and can search transactions for a specific day, time duration, total amount or a user.

- View Users: Admin can view the user's details which are given during registration.

**User Panel:**

- Registration: Users must register with essential details (like name, CNIC, email, verifiable phone number and address etc.) to use the food ordering system.
- Login: Users must login with their valid credentials to access food ordering system.
- Menu List: User panel of the system will show different food items within its respective categories to be chosen by the users.
- Item Purchase: Users can view food items details and add the desired items to their cart. They can view their cart details and can delete food items from cart or update quantity of any item in the cart. He will complete his order through an online payment.
- View Orders and Status: Users can keep track of their orders with delivery status through the system.
- Provide Feedback: Users can provide their feedback related to the food quality and service issues related to his order.

**Tools:**

MYSQL/SQL Server
NetBeans/PHPStrom/Visual Studio/Dreamweaver etc.
MS VISIO, MS Word, MS Power Point etc.

**Supervisor:**

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# Online Voting System

## Project Domain / Category

Web Application

## Abstract / Introduction

Online Voting System creates and handles details regarding polling and election which will enable all citizens to cast their vote via a web-based platform. Database consisting of records and details of the citizens and candidates who are eligible to vote are maintained by the system.

Keeping the election and voting requirements in mind, Online Voting System will be developed with two **modules**: administrator module and user module. Administrator has the whole authority over the system to maintain (add, update, modify and delete) records and details of all voters and candidates. Users, on the other hand, can view the list of voters, candidates and see results after the election is completed.

## Functional Requirements:

1. Admin panel
   Admin will manage all the records of voters and candidates.
2. User Registration
   User/ Voter will register their selves in the system in order to cast vote later.
3. Manage Districts
   It will manage all the districts of a specific country.
4. Manage Candidates
   It will manage all the candidates that are going to take part in elections.
5. Manage Parties
   It will manage all the political parties that are going to take part in elections.
6. Cast Vote
   This function will allow an eligible user to cast a vote.
7. Tally Vote
   It will count the total number of votes cast against each party and display the result.
8. Verify Result Integrity
   It will check the duplication and error in voting

9. Voice recognition
   Our system should work in such a way that at every page, it will also interpret words or phrases of a specific function.
10. Thumb verification (Optional Requirement)
    User will register their thumb impressions too by using a thumb machine, which will later use in casting vote too.

**Note:** Virtual University of Pakistan will not provide any kind of hardware for this project; student must arrange the required hardware by himself/herself.

**Tools:**
Visual Studio and SQL Server

**Supervisor:**
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# Online Venue Booking Application

**Project Domain / Category:**
Web Application

**Abstract / Introduction:**
Online Hall & Venue booking system provides a reliable and easy to use online reservation system for marriage halls, party halls, and all other bookable function rooms. The hall booking application provides an easy to use, reliable calendar of events and allows venue bookings to be made 24/7, updating the hall or venue availability seamlessly. This avoids double bookings, missed phone calls and unnecessary paperwork. This project aims to develop an effective **Online Venue Booking** Platform for users to find suitable venues for events; user will search the venue by applying different filters like Location, Event type, Food type etc. Venue owner will register on system and add the venue with venue facilities, amenities, images etc. This application will help to book venue based on Availability, Menu & packages with Pricing.

In addition to user and venue owner, there will be an admin module to manage the entire platform as well as user and venue owner. There will be three system users: admin, user and venue owner.

**Functional requirements:**
Admin

1. Admin can login into system.
2. Admin can delete/ edit information of user and venue owner
3. Admin keep the records of all bookings

Venue owner

1. Venue owner can login into system.
2. Add / Edit venue related information
3. Venue owner can see the user who has requested for the venue
4. Owner confirm the booking and inform the user

User

1. User can login into system
2. Add / Edit personal information
3. Search for venue by applying different filter like Location, Event type, Food type
4. Request to book desired venue

**Tools:**
PHP language, MySQL

**Supervisor:**
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# Web based Enterprise Resource Planning (ERP) on Educational Institution Management System

## Project Domain / Category

Web Application

## Abstract / Introduction

Enterprise Resource Planning (ERP) incredibly large, extensive software packages and mostly used to manage a firm's business processes and standards. ERP software packages must be configured to meet the needs of a firm/institute.

Enterprise Resource Planning (ERP) for any school/college/university Management Module which is used by Schools as well as Colleges/Universities to manage their daily activities which include the management of Employees, Students, Books and Library Records, Parents details, Assignments, Admission Process, Results and Reports, Exams, Events, Attendance, Timetable, Fees and Other Reports. It provides one-point access to manage these wide ranges of activities.

## Functional Requirements:

The system will be used by four modules, which are Admin, Teacher, Librarian and Student. Each module is interconnected or integrated to each other. This system is very easy to understand and user friendly. In this system user can connect any time whenever he/she wants.

This system should be secured.

1. Admin can login using valid credentials and perform various task such as Adding a Teacher, Student and Librarian and can view them.
2. Admin can also add Timetable and Event details. System allows admin to view book request received from librarian.

3. Teacher can login and perform various task such as add assignment, mark attendance, upload result and view event.
4. Librarian can login and perform task such as adding a single or multiple book, view added books, request a book, issue a book to students, return issued book from student and view event.
5. Student can access the system by providing valid credentials access modules such as viewing their own profile, view books, view timetable, assignments, result, attendance and event.
6. Super admin is the root node who adds the colleges into the system with their details. Also, can view/delete a college from the system.
7. Proposed system is easy to understand and user friendly too.
8. In that system admin will handle the data.
9. Admin can take information regarding fee detail.

**Tools:**

ASP.NET/C#, HTML, CSS, JavaScript, Crystal report, SQL Server,

**Supervisor:**
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# SEAM-School and Educational Accessories Management System

## Project Domain / Category

Web Application

## Abstract / Introduction

E-commerce stores relieve customers of travel time, and retailers of store-front expenses. These days, people are busy and want to buy online even schools accessories. So there is a need to build a website that provide the best quality school uniform, school bags, school accessories, educational toys and much more without compromising the quality to thousands of valued consumers at their doorsteps in Pakistan. SEAM is a complete solution of all school accessories from uniform to books of any specific school.

This website will manage all products you may require including school uniform, educational toys ,books, stationary , school bags, lunch boxes, water bottles etc. for school Shop all these items from this website online in Pakistan with best prices. In this project, you will must build user friendly website in order to increase the usability.

## Functional Requirements:

**Administrator:**

7. Login process to allow authentic user to access the admin panel.
8. Admin can add school and all related accessories like school uniform, books, bags etc. related to specific school.
9. Admin will be able to add the list of categories based on schoolbooks, stationary.
    - Admin will then add the list of items for each category.
    - Items can be added based on their name, prices, and pictures of products.
    - Admin will must add publisher and supplier.
    - Admin also mention the minimum time at which product (book or stationary) delivered.
    - Admin can also update and delete the categories and items.

10. Admin will be able to add/update/delete information about promotions and sales.
11. Admin will be able to view customer's profile, feedback and reviews.
12. Admin will be able to generate Sales Report and profit on monthly basis.
13. SMS will be sent to regular customers regarding any promotion or sale.
14. Admin will confirm the order through SMS or email also mention the minimum time of product delivery.
15. Payment receipt is also generated for customer record as well as for admin.

**Customers:**

16. Customers will get them registered in this application and then will be able to access the web site by logging into system.
17. Customer can view/search the list of items based on their categories.
18. Customer can add the items in their Wish List., also able to edit it as per need.
19. Customer can view the feedbacks and reviews of other customers regarding any product.
20. Customers can add the product/item in the Cart and select any of three payment options Cash on delivery, Payment via Credit Card or online transfer.
21. Customer can update and cancel the order.
22. Customer also able to mention the date and time of delivery.
23. Customer can view the sales and promotions on web site as well as via SMS.

**Tools:**

Visual Studio, .NET Framework, C#/Java, SQL Server

**Supervisor:**

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# Web Based Network Performance Analyzer

**Project Domain / Category:**

Web Application

**Abstract / Introduction:**

Traffic analysis is an important area in network monitoring and performance analysis. It helps network administrators to understand network usage, efficiency, and services performance and rank users, nodes, links, services and devices. There are numerous tools available that helps to analyze the network traffic captured in form of pcap or trace files in case of simulated environments.

This project focuses on developing a web based software application to analyze traffic data from heterogeneous sources in popular formats like .pcap, trace or log files. Application needs to extract all fields and values and store them in some suitable format to be used for further analysis. It will be able to scan the individual packets, nodes, flows across multiple files. The aim is to generate reports having graphical and tabular summaries with drill down capability that shows various aspects based on computations on input data e.g.

1. Network Performance analysis often needs to measure latency or end to end delay, jitter, packet loss, throughput , overhead to data ratio, request or transaction completion time.
2. Network utilization analysis includes link utilization, node utilization in terms of data Erlang and percentage of relevant capacities and efficiency of nodes, links etc.

The projects require supporting a modular architecture and must be capable to allow writing plugins for computations and graphical analysis. There are various approaches to develop such application like python, C/C++ or Java. Python has advantage in terms of availability of various tools/libs for data analysis and

graphical analysis. Students are free to choose their way. The application will have a backend database to allow saving analysis results, reports for future access. However, no traffic data should be used on this database. The source files can be stored on local or network locations or streaming and application should be able to process these files.

The application will have common built-in calculations methods for, delay, jitter, throughput, packet loss, flow completion time, detection of traffic of interest and events. E.g. the start of a TCP session could be observed with analysis of TCP message exchange. In addition to this application provides support to provide custom relationships to define new metrics for performance analysis.

**Functional Requirements:**

Some of the functional requirements are:

1. Modular Web application Framework
2. Import or Data input in pcap, json and txt formats
3. Built in Performance analysis metrics
4. Built in utilization analysis metrics
5. Custom Metric Definition
6. Analysis interface
7. Report generation
8. Plugin Addition

**Tools:**

Students are free to use programming language and environment of their interest. Typical tools would be:
Languages: Python, C/C++, PHP/ASP, JAVA, Database: MYSQL /MSSQL
IDE: Eclipse/ Visual Studio, Styles: Bootstrap

**Supervisor:**

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# Online Responsive Multi-vendor Marketplace

## Project Domain / Category

Web Application

## Abstract / Introduction

Online Multi-Vendor Market Places serves as a hub where there are millions of products, relevant to many categories sold by multiple sellers through their stores which are provided by the Market Place.

The Buyer visits the Market Place, searches the product and read the product details, afterwards orders the product, the seller receives the order and ships it, the marketplace keeps an eye on all these activities and respond accordingly.

In the current era, the use of smart devices such as Smart phones and tablets has increased massively hence a web application should be created such that the design and development should respond to the user's behavior and environment based on screen size, platform and orientation.

## Functional Requirements:

1. **Responsive Behaviour**

   The goal of responsive design is to build web pages that detect the visitor's screen size and orientation and change the layout accordingly.

2. **Multiuser Authentication and Password resets**
3. **Email notifications and runtime notifications through web interface (UI)**
   Notifications should be sent to all the type of users through email and web interface (depending on the type of operation).

   Example Operations for notifications are:

| Operation | Notification |
|---|---|
| User Registration successful | Email |
| Password reset successful | Email |
| Added to Cart | UI and Email |
| Order placed | UI and Email |

4. **Administrators Portal**
   Design a web portal that will be used for the following tasks:

   1. Managing categories
   2. Managing Brands
   3. Managing users
   4. Managing Product Approval
   5. Other tasks associated with administrator not listed here

5. **Buyers Portal**
   Design a web portal that would be used for the following tasks:

   1. Managing Profile
   2. Managing addresses
   3. Managing orders
   4. Managing favourite stores
   5. Managing Wish lists
   6. Managing cart
   7. Asking Questions
   8. Giving review for already bought products
   9. Other operations not listed here associated with the buyer

6. **Sellers Portal**
   Design a web portal that would be used for the following tasks:

   1. Checking insights of the store through home\dashboard page such as No. of items, most sold items, item not being sold, Total sales for selected period. (You can use charts as per your choice for relevant operation)
   2. Managing Store
      For managing store logo, store address, store status (online, offline) etc.
   3. Managing Profile
   4. Managing address
   5. Managing orders
   6. Managing Products
      - Activate/Deactivate
      - Soft Delete
      - Edit Product
      - Listing a product
        - Product should have at least the following information:
          - Product Name
          - Product Model

- Description
- Images (maximum 8)
- Category
- Brand
- Warranty
- What is inside
- Weight and length, width, height
- Price
- Quantity
- More attributes relevant to products not listed here

7. **Answering questions**
8. **Other operations not listed here associated with the seller**

**Tools:**

- PHP and MySQL (You can choose any framework such as Laravel)
- Bootstrap or any other CSS Framework
- Any JavaScript library/ framework such as jQuery, Vue Js, react Js or angular Js.

**Supervisor:**

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# Online Multi seller Product Auction System

## Project Domain / Category

Web Application

## Abstract/Introduction

Online auction is a different business model where the items are sold through price bidding. Usually bidding has start price and ending time. Potential buyers in auction and the winner is the one who bids the item for highest price. We treat the fraud detection with a binary classification. For buying product online user must provide his personal details like email address, license number, PAN number etc. Only the valid user will have authority to bid. This prevents various frauds in online shopping.

**Biding Algorithm**

A time range would be allocated for the bidding of each product. The highest bid would be selected. After the time expires, if two bids have same bid value then the decision will be taken on first come first serve bases and bid will be approved for the customer who bid first.

## Functional Requirements:

Customer Module:

- Customer registration: customers will be provided with a personal account through registration
- Customer Login: Login to the system with valid username and password
- Profile Verification: The customers profile verified by the admin for the auction bid participation
- Auction Products: Only verified customers will be able to view auction product gallery, bidding for product and buy product.

Seller Module

The seller module includes different sellers who wish to sell their products. The seller needs to be approved by administrator after a seller submits his registration. A seller can add or delete or modify information about different items. The different functionalities for seller are

- Can add a new product
- Can delete a product
- Can place new offers to the product
- Can modify information related to the product such as price, basic information

Admin Module

The administrative module includes an admin who acts as an intermediator between sellers and the customers.

- Admin Login: Login with authorized username and passwords
- Verify Customers & Sellers: The Administrator verifies new users when the online auctioning also approves authorized seller after registration
- Delete Seller: If the admin feels all the products from specific seller mostly are not trusted he can also remove the seller and his related products
- Block Fraud Customer: Administrator can delete an account when any of the user leave the auctioning organization and permanently block any customer (in case of any fraud)

Complaint Filing

Buyers can file complaints against fraudulent sellers. The administrator views the various types of complaints and takes the final decision about it.

**Tools:**

| | |
|---|---|
| Server-side scripting technology | PHP/Asp.net |
| DBMS | SQL/MySQL/Oracle, etc. |
| Code Editors | Sublime Text, PHP storm, Visual studio, etc. |

**Supervisor:**

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# Task Tracker

## Project Domain / Category

Web Application

## Abstract / Introduction

"Task Tracker" is proposed with aim to provide instant updates about the status of an application in an office. Using this web-based application, people can submit their queries/applications to the relevant department and then track the progress of their applications. The user of this application will submit his/her application and then Complaint In-charge will accept that application after checking its validity. Then, Complaint In-charge will submit the application to task list. Both the applicant and Complaint In-charge will be able to track the progress of the task by using this application. It will aid both the user and complaint in-charge as user does not need to visit office to track his/her application and Complaint In-charge does not need to go through the office files to check the progress report. In this way, it will not only save their time but also provide a smart way to avoid hectic management of files. This application will also help to check the efficiency of that office holder by making reports of applications entertained weekly, monthly or annually.

There will be three users of this application.

- Administrator
- Complaint In-charge
- User

## Functional Requirements:

The functional requirements are given as follows.

1) Administrator can manage (create, update and delete all the users of website) the web application.

2) User will create an account
3) User can submit a query / complaint
4) Complaint in-charge will add the query to task list after checking its validity
5) Complaint in-charge can prioritize the tasks in a task list
6) Registered user can track the progress of query / complaint
7) Module for user to notify about the progress of query /complaint through e-mail.
8) “Contact Us” module for complaints and suggestions.
9) System will generate different reports.

**Note:**

- These are basic requirements of the application. Students may add further functionalities to make the application more useful.
- Virtual University of Pakistan will not provide any kind of hardware for this project; student must arrange the required hardware by himself/herself.
- VU will not pay for any license of the software, the libraries /toolkits/APIs used in this project.

**Tools:**
Microsoft Visual Studio, SQL Server

**Supervisor:**
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# Rent-Hub

**Project Domain / Category**

Web Application

**Abstract/Introduction**

The aim of this project is to develop a well-designed and interactive website named as “RentHub” through which the users will be able to find the rental property. The website will allow the registered users to upload the information of rental property. User registration, posts of registered users and the whole website will be managed by the “Administrator” of the website through Admin Panel. The website will provide user friendly interfaces, easy navigation flow and proper search facilities for its users. Launching of this website will remove the overhead of physically visiting to different property dealing centers for finding rental property.

**Functional Requirements:**

Following are the key functional requirements of proposed Project:

1. Sign In and User Registration

   There will be three categories of users:

   - Visitor (Unregistered User)
   - Registered User
   - Administrator (Admin)

   Visitor will be able to visit the website to search his/her relevant rental property information from website.
   Registered user will be able to post the information about the property to be given on rent.
   Administrator will be the user of website having all the rights of posts management as well as user management. Admin will approve the registration requests and posts (containing necessary information regarding property to be given on rent for publishing on the website).
   There will be proper interfaces for user registration and Sign In.

2. Email Notification and Verification

   An unregistered user will register him/her on the website. On submitting the registration information, an email notification will be sent with a confirmation link

to the user's given email ID. On confirmation through link, the Admin will approve the registration requests from users. An email notification will also be sent to the registered user on approval or rejection of any post.

3. Categories of Property

   The website will provide information regarding rental properties according to categories such as Houses, Flats, Shops, Shopping Malls, Warehouse, Plane field etc. The categories will be managed by the Admin. The categories will be used by the registered users for entering the post related information and by the visitors to search the information by category.

4. Posts of Rental Property

   There will be interactive interface(s) for the registered users to upload the necessary information of property to be given on rent. The interface will consist of different fields associated with different categories of property. For example, if a registered user selects the category as "houses", then the interface will require to enter /select the total area, number of bedrooms, number of attached bathrooms, Kitchen (yes /no), drawing room, dining hall etc. and in case, if user selects the category "Shop" then the interface will require to enter information like, total area, location and rent etc.

   Note: Location, Total Area, Rent, Condition, Image(s) etc. and some fields related to property owner will must be available in all interfaces related to all the categories.

5. Search and Sorting System on Website

   All types of users would be able to search posts by different keywords and filters such as:

   - Title
   - Category
   - Location
   - Date of Posting

   Admin will also be able to search the post by user IDs.

**You are advised to visit some related websites to gain the idea of interfaces and navigation flow.**

**Tools:**

1. PHP and MySQL (You can choose any framework such as Laravel)
2. Bootstrap or any other CSS Framework
3. Any JavaScript library/ framework such as jQuery, Vue Js, react Js or angular Js.

**Supervisor:**
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# Scientific Articles Crawler and Processing Application

## Project Domain / Category

Web Application

## Abstract / Introduction

A rapid growth of research articles is creating a problem of information overload for the researchers. Due to which both novice and expert researchers find it very difficult to download research articles of some specific journal/conference or form a web page. Therefore, there is need of application which will be able to download all research articles form a specific journal or conference or from a web page. To overcome this problem, we will develop a research articles crawler application which will be able to download freely available scientific articles of user interests in the form of PDF or Doc/Docx format and process those documents.

## Functional Requirements:

1. **SignUp:**
   Create a Signup module. User will be required to register their self in the application

2. **Sign-In:**
   Create a Sign-in module. Only registered user will be able to use the application

3. **Articles Scraping and Downloading with Creation of Web Pages:**
   Make a webpage which will take URL of some conference/journal or a webpage and download all related scientific articles.

4. **Download Status:**
   Show all download articles titles in the form of list over the webpage at run time below the input URL text box and download button.

5. **Maintain Articles History:**
   Show downloaded articles history on a separate webpage.

6. **Browse Downloaded Scientific Articles for Processing:**
   Create another webpage through which you can browse and select one or more pdfs from the downloaded pdfs.

7. **Process and Store Data:**

Extract different sections of downloaded pdfs e.g. (Title, Authors, Keywords, Abstract, References). Save it in Excel file or CSV file column wise e.g. first column name is “Title”, Second is “Authors” and up to soon.

8. **Convert CSV/Excel to JSON File Format:**
   Create another page which will convert this CSV or Excel file to JSON file.

**Allowed Tools:**

**Programming Language:** Python
**Framework:** Django or Flask
**IDE:** PyCharm, Visual Studio or any other
**Database:** MySQL, MongoDB or any other

**Supervisor:**
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# Online Real Estate System

## Project Domain / Category

Web Application

## Abstract / Introduction

The main objective of this project is to develop an interactive and effective website design for the needs of Real Estate Customers. The website focuses to display several property listings on the website, and it contains sophisticated searching for buyers to search for property listings specific to their needs. The searching not only provides an easy and convenient way to search for listings but also display the entire list of properties in a customized format. The buyer can then view the complete specification of each property listing with its features, description and photographs. The main emphasis lies in providing a user-friendly searching for effectively showing the desired results on the GUI.

## Functional Requirements:

- **Sign in and User Registration**

  There will be three categories of Website users:
  o Visitor (Unregistered User)
  o Registered User
  o Administrator (Admin)

  - There will be Sign In interface for registered users and Sign Up interface for unregistered users to register on the website.
  - Visitors will be able to just search the available properties on the website.
  - Registered users will have the privileges to request 'property upload' or 'purchase property' available on the website.
  - Administrator will be the user of website having all the rights of properties management (making properties available on the website and hiding the sold properties). Admin can view, update and delete any property. Admin can view the property details, make any update if required and can delete the property.

- **Uploading Property's information on Website**

There will be interactive interface(s) to upload the information of property on the website. Once a user is registered with the system, he/she can register his/her property to Online Real Estate System. Admin will view the property details and verify that property and approve it.

- **Searching the Property:**

  Any user (registered or unregistered) can search for the available property. The user can select the property according to his requirements. Searching criteria will be like search by property type, search by Marla, search by area and by price etc. Search begins by pressing the search button. If user requirement meets, then system will show result in proper format.

- **Display of Properties on the website**

  There should be a detailed view of property listing with its features, description and photographs. The property price, location, category, thumbnail image and other complete details available should be displayed on the website in proper design. On clicking the thumbnail, the website will maximize the property image.

- **Renting or Purchasing of property**

  The website will allow the registered users to select their desired property and make purchasing/renting request. There will be proper interfaces on the website.

  Once customers choose their desired property, then an email will be sent to the property owner and the customer. The customer will be provided the contact details of the owner.

  [**Note:** Student can add/enhance requirements as per needed.]

**Tools:**
ASP.NET, C#, HTML, CSS, JavaScript, Bootstrap, MS SQL Server

**Supervisor:**
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# Online Scrabble Game

**Project Domain / Category**

Web Application

**Abstract/Introduction**

Scrabble game is a very efficient tool for learning and improving English language vocabulary. In scrabble game two players cross words to earn points due to which it is also called cross word game. The grid of scrabble game is normally a 15X15 grid on which players can move characters up or down to get a correct word. The characters must be intersected to write a new word and to gain a point. This application can play a vital role in improving vocabulary of students at middle or high level by simply playing a game.

**Functional Requirements:**

A set of functional requirements of the proposed system may include the following.

1. Each player can login to start a game.
2. The game must support both single user and multiuser players.
3. The game will be divided into three different levels of difficulty i.e. beginners, Average and expert level.
4. The difficulty of the game will depend on these levels.
5. In single user game the user will play with computer.
6. Players can select from different grid styles available.
7. Each player will be provided with 9 tiles at the beginners to form a word in the beginner level. The number of tiles will change from level of the game i.e. as the level become harder a smaller number of tiles will be provided at the beginning.
8. At the beginning of the game tile banks will be distributed between two players depending on the level of game playing. Without looking at any of the tiles in the bag, players will take one tile. The player that has the letter that is closest to “A” will begin the game. A blank tile will win the start of the game. The tiles are them replaced to the bag and used in the remainder of the game. Every player will start their turn by drawing seven tiles from the Scrabble bag. There are three options during any turn. The player can place a word, they can exchange tiles for new tiles, or they can choose to pass. In most cases, players will try to place a word as the other two options will result in no score.
9. Each player will be provided number of fixed characters from which they are required to form a word.

10. In case of wrong combinations players will be alerted with an error message.
11. The grid of the board will be 15 cells high and 15 cells wide.
12. When the game begins first player will put a word on the board for the second player.
13. The points will be earned according to the below mentioned criteria
    - 0 Points - Blank tile.
    - 1 Point - A, E, I, L, N, O, R, S, T and U.
    - 2 Points - D and G.
    - 3 Points - B, C, M and P.
    - 4 Points - F, H, V, W and Y.
    - 5 Points - K.
    - 8 Points - J and X.
    - 10 Points - Q and Z.
14. After all tiles have been consumed by players, application will count the points and announce a winner.

Students are supposed to visit the problem domain to get more functional requirements and understand the problem.

**Tools:**
MySQL, PHP, ASP.net, Notepad++ (Students can also choose tools of their choice).

**Supervisor:**
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# Online Furniture Showroom

**Project Domain / Category:**
Web Application

**Abstract/Introduction:**
Furniture is one of the core component interiors in any house and organization; due to which furniture industry is always flourishing.
Due to increased business, the organizations dealing with selling of furniture always face to manage their sales and customers. Online Furniture Store (OFS) is an online application that lets the selling organizations to manage their orders and customers online. This document explains various tasks performed by OFS.

**Functional Requirements:**
Mainly OFS comprises of two modules:

**Admin Panel:**
There are some tasks which will be performed by admin user:

- Add, update and delete different categories of furniture with category name and a picture for each category.
- Add, update and delete different products (furniture items) in any category.
    - Each furniture item can have a unique name, pictures (different view of pictures like front, back, side, top and bottom view), wood it is made of and price.
    - Same furniture item can be in different sizes
- Admin should be able to create different packages which include some items of furniture from different categories. Each package will have some discount which will be applied based on total cost and number of items in package.
- There will be a forum type commenting system where user of application will be able to give comments, suggestions about each furniture item.
- Admin will receive orders from users and move to production line for development.
- Admin will be able to manage user accounts and delete comments of any user in comments section if any comments are not following terms and policies.

**User Panel:**

- There will be an interface to show all categories of furniture.
- On opening any category user should be able to see all furniture times in that category.

- Opening any furniture item will show details of item like its price, name, size, type of material used to develop it and all the images from different angles.
- User should be able to comments on each future item for the sake of suggestions and complaints.
- Application should show total price, discount on package and net payable price on each predefined package or individual items (if any) selected by customer.
- There should be some additional page for company information like, about us, contact us, etc.
- There should be a complete user management which all the users to register, login and change profile details.

Student will provide detailed requirements in SRS documents after discussing with project supervisor.

**Tools and Languages:**
ASP.Net with C#
JSP with Java
HTML with PHP
SQL Server, MySQL

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# Bidding Management System

**Project Domain / Category:**
Web Application

**Abstract / Introduction:**
Bidding Management System is a web based automated system. PSL (Pakistan Super League) is the most attended cricket league in the world. Before the start of every season, players are auctioned for teams. Currently, this system is not fully computerized. Therefore, we are trying to develop fully computerized Bidding System for next PSL season. This system would be fully cloud-based system. Bidder can bid on players from their offices, homes, or place where they want to be. This system would be more transparent any one can view the PSL auction. Only registered team owner can bid on registered players. This system also provides online tickets of PSL events.

**Functional Requirements:**

1. Admin Profile is profiled which is assigned to super user having full access to the system.
2. Player Profile is profiled which have details of registered players.
3. Team owner profile, which contains information about team and its share. It also contains bid information of a player.
4. Search player's details in registered team owner account.
5. User authentication according to the role.
6. Registration system.
7. Validation.
8. Payment option.
9. Feedback and suggestion.
10. Online tickets.

**Tools:**

1. Tool: **XAMPP**
2. Language: **PHP, HTML, CSS, JavaScript (other supporting language)**

**Supervisor:**
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# Book Car Maintenance

## Project Domain / Category

Web Application

## Abstract/Introduction

With the increasing technology in automobiles, it has become difficult to find a professional mechanic for operating high tech cars. Besides the saturated market, we only find a couple of good mechanics in the above scenario but most of the time they are overburdened so we do not get their precious time as per our convenience. A scheduling app for such mechanics will be fruitful where customers will book their date and time through online interface.

## Functional Requirements:

Following are the main features of our application:

1. Login procedure for customer and Mechanic.
2. Customer can either by filer or non-filer.
3. Customer will book his appointment by providing the details like requested service that will be assigned the required time by the system.
4. Customer will get the requested slot if available.
5. If requested slot is not available, he/she can book time at any other date.
6. Upon successful car service, bill will be generated by the mechanic.
7. If the customer fails to arrive at the appointed date and time, a nominal penalty will be imposed on him. If the mechanic fails to provide services to customers based on their appointed slots, a nominal penalty will also be imposed on the mechanic.
8. The mechanic will be able to generate a report on monthly basis for total number of appointments and their successful handling.
9. The mechanic can also generate a report on monthly basis for total number of unsuccessful appointments by the customer.

## Tools:

PHP
SQL Server

## Supervisor:

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# Clinic Management System (CMS)

## Project Domain / Category

Web Application

## Abstract / Introduction

This system is made to keep the records about the patients, doctors and other staff members working at a clinic. It is software which helps the user to work with the clinics easily. This software reduces the amount of manual data entry and gives greater efficiency. Admin can login into the clinic management service using the email id or the user id and password. After signing in into this system there are the options to add new patients, new doctors and other new staff members like nurses and ward boys etc.

## Proposed System

This system is designed to easily maintain the data of the patients specifically. Daily many new patients visit the clinic so adding the new patient's details and keeping the records using it is very easy.

There is also an option to add and delete doctors and other staff member's details. New and unique ids are given to everyone who gets registered over this system as well as options to check the patient's disease and course the patient is going through. Fees paid by any customer or patient can be saved on it and it is easy to calculate daily that the money is collected.

Doctors and another staff member like nurses, ward boys, janitor and maid leaves can be deducted from their salary and rest of the salary can be paid easily using this clinic management service. It is easy to calculate money and handle account on monthly basis also. This system also has an option to use the backup that means if we are backing up the database it can never be lost.

So, overall this Clinic Management System is a solution to all the problems that we face in a clinic.

## Number of Modules and Functional Requirements Detail for each Module

**Modules**

**Receptionist:**

The receptionist is the user who can register itself on the application or software and after registering on its other available attributes can be used. These attributes are adding new patients, adding new staff members and adding new doctors etc. This user can also calculate the money expenditures on salaries and the total amount collected from patient fees.

**Login:**

After registration one can log in the system as the operator of the system on the behalf of user. After this, he has the other user interfaces available for further actions like adding and deleting doctors and other staff members etc.

**Adding New Patients:**

Adding new patient's details in the database is most important. In the details person's address, phone number, disease or problem and some other things will be provided.

**Adding and Deleting Doctor:**

Doctor's information will be added in the database of the clinic the details that are added are the name, age, address, phone number, a specialist in the branch, qualification and some other things. There is also an option to delete the doctor as in case if some doctor is leaving the clinic and his or her information is no longer required when the information related to that specific doctor can be deleted any time by using the option delete doctor.

**Adding and Deleting Other Staff Members:**

The information that is added to the staff is a name, address, phone number, employee id, the job of the employee and the salary of the employee. These details are asked when the new employee is added and option to delete their details is also given as if the employee or the staff member wants to leave the job and the information is no longer required by the hospital or clinic.

**Tools:**

**Software Specifications:**

- Language Used: PHP 5.3
- Database: My SQL 5.5
- User Interface Design: HTML, AJAX, JavaScript
- Web Browser: Mozilla, Google Chrome, Internet explorer

**Hardware Requirements:**

- Processor : Pentium, AMD or Higher Version.
- Operating System : Windows XP/ Windows 7/ Linux
- RAM :256 MB, 2GB recommended
- Hard disk : 10GB or More

**Supervisor:**

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# Computers Sales Management System by using chatbot

## Project Domain / Category

Web Application

## Abstract/Introduction

Chatbots have the potential to save any individual's time, hassle, and tedium by automating different tasks. The idea about chatbot application is that it will help the user to interact with the customer through B2C E-commerce application. To create a chatbot, there is currently an incredible number of **platforms** and **tools**, with different complexity levels, expressive powers and integration capabilities. Chabot uses Natural language processing combined with Artificial Intelligences in E-commerce environment. For this conversational Chabot can be used in E-Commerce environment. Chabot are a form of artificial intelligence associated with natural language processing that interacts with users in a human-like manner. Secondly in E-Commerce environment there is lot of competition of different competitors. Chabot can judge the customer inclination through natural language processing by engaging customer interest in different computer specifications. Chabot can ask a vast number of questions to learn about the specification of the required computer and finally recommend the computer as per customer demand.

Today, chatbot are bridging the gap between customer and latest E-commerce technologies. Chabot creates an interactive experience by facilitating the online selling and buying of goods, like a B2C business to customer in E-commerce application. The machine-learning Chabot are still in early days; in many cases, it is obvious that the customer is interacting with a Chabot.

## Functional Requirements:

Now-a-days E-commerce business is growing very rapidly. E-commerce or internet commerce refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Our proposed

Computer Sales Management System by using Chabot used in B2C E-commerce domain. It facilitates the environment for every customer based on specific computer requirements. Our Chabot offers support by providing list of computers and adaptive guidance to specific customers.

The goal of proposed system is to perform following activities.

- Customer used the CustomerID and password to access the computer Sales Management System. Pop up window should be displayed at the bottom right of our Computer Sales Management System by prompting the customer for any kind of guidance.
- The priority of chatbot is to satisfy the customers that reach out the website. Customers reaching your page, app or website must select the specific computer to be selected. Selection of computer enables you to offer customers a personalized offering of list of computers based on customer required computer specification.
- Search results, personalized merchandising of computers, recommendations can help your customer find specific computer specifications. When your customer online activity indicates willingness to buy computer however, customer is not buying, it may be a good time to probe what customer is exactly looking for. A conversational interface allows you to ask probing questions and understand your customers' intent better.
- Search result should be displayed the list of computers with respect to processor generation, RAM capacity and hard disk sizes.
- Your customer may be looking for a better price and believes qualifies for a discount. Understanding if customer falls into one of your segments qualifying for a discount and offering that discount immediately can reduce friction in buying computers.

- Chatbot judge the customer behaviour and suggest the specific laptop according to his budget.
- Conversation Flow -- When a human talks to a human, he or she rarely plans the entire dialog in advance. When a human talks to a bot, this conversation must be guided. The thing is, conversation flow is a dialog tree. It visualizes expected user-bot interactions and makes sure every user request is covered by some part of the bot's logics. To make conversation flow smooth and efficient, it's important to apply the best practices and build chatbot. For this Machine learning algorithms are used by considering business objectives and customer' expectations.
- Chatbot should already be "taught" common questions so that it will be able to answer customer questions and respond immediately to customer' queries.
- Once the customer has selected the required computer, chatbot should properly guide the customer of payment method.
- Chabot should also guide the customer about the product guarantee in case of malfunctions for specific time period.
- For successful human-like interaction, chatbots need a perfect tone and dialect. To achieve coherence, a character is used to effectively communicate in audio synced with the text.
- Chatbot used a list of Frequently Asked Questions to generate a chatbot's list of pre-programmed queries and responses.

**Tools:** JSP, SQL server 2012, Dialogflow, IBM Watson, Microsoft Bot Framework, Wit.ai, Api.ai, Chatfuel.

**Supervisor:**
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# "E-Attendance": An Online Attendance Management System

## Project Domain / Category

Web Application

## Abstract/Introduction

"E-Attendance" is a web-based Attendance Management System for XYZ University. The aim of this system is to manage the student's daily attendance which is entered by the faculty members. Details regarding the different users involved in the system and the functions which they can perform are given below

**Functional Requirements:**

Following are the users of this system. Each user must log-in first, to use the system.

- Faculty Member
- Head of Department
- Controller Examination
- Admin

Responsibilities and functions of each user are given below:

**Faculty Member:**

1. There are multiple faculty members in each department. Each faculty member teaches multiple courses and, in each course, multiple students can be enrolled, on the other hand one student can be enrolled in multiple courses as well. The faculty member can save the attendance record of multiple students in multiple courses.
2. Faculty member can access and browse the courses in the system which he teaches. He will enter attendance record on daily basis and can submit. After the submission he cannot update the records.
3. The faculty member can open the page of any specific course assigned to him.
4. The information which a faculty member can access include 3 non-editable and 3 editable contents/attributes:
    a. Non-Editable
        - Faculty Member Employee ID
        - Faculty Member Name
        - Faculty Member Designation

    b. Editable
        - Attendance
        - Date

- Time

**Head of Department:**

1. There are multiple departments in university and each department is headed by a senior faculty member.
2. The head of department assigns the courses to the teachers from a separate interface.
3. This user can see the information of all the courses of all degrees (offered by his department)
4. The information which a Head of Department can access for each course include 5 non-editable attributes:
    a. Non-Editable
        - Faculty Member Employee ID
        - Faculty Member Name
        - Faculty Member Designation
        - Attendance
        - Date Time

**Controller Examination:**

This user has the authority to only see the complete information of/provided by first two users.

**Admin**

1. Admin is the power user and has the rights of all three users.

**Proposed Tools:** Java, Dotnet Framework, MySQL, SQL server etc.

**Supervisor:**
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# E-Pharma: Online Chemist

## Project Domain / Category

Web Application

## Abstract / Introduction

Online Chemist provides you everything related to your health at one spot. It can be any medicine, medical device, items related to personal hygiene and care, support and fitness etc. It provides the facility to purchase every health/medical related thing online and deliver at your doorstep. This will also provide the facility to provide the medicines, medical devices and instruments to hospitals.

## Functional Requirements:

"Online Chemist" website features/requirements are given here. You must provide the detail of these requirements in SRS document and you can also add more requirements.

The main page of app will have following tabs.

- Home
- Health
    - Medicines
    - Medical Devices/Instruments
    - Exercise Machines
- Sport and Fitness
- Personal Care
- About Us
    - Company Profile
    - Privacy and Security Policy
- FAQ
- Contact Us
    - Call us now
    - Chat our Representative

1. Home is your default page where you can give information about your company and services you are providing. Show the Information at the bottom about payment method, shipping method and charges and about return/exchange of products.

2. Support and Fitness will have subcategory of fitness nutrition's and sport.
3. Personal care can include baby care, beauty and care, makeup and fragrances.
4. User and hospital register to the app by providing necessary information.
5. User (individual Customer/ hospital) can place order of their desired items.
6. When you click on any product it must show the item detail (e.g. medicine formula), its manufacturer, and its price.
7. To order a medicine user first must upload the scan copy of prescription, on which medicine name, its quantity and its potency must be mentioned.
8. Hospital can order items in bulk form also.
9. After adding items into cart total bill will be calculated. User will select payment method which can be cash on delivery or credit/debit card.
10. User will must give delivery address and all his/her contact information on check out process.
11. After placing order and email will be received to customer.
12. User can also check the his/her order status by entering order number.
13. There should be search bar at home page. You must create admin dashboard where admin will manage all records and information of the company.
14. Admin can add/delete/update records.
15. Admin process the order by verification of prescription given by user.
16. Admin must have all the records of orders which are placed, delivered orders as well.
17. Admin can update the website.
18. Admin must send or email to user regarding processing of order.
19. All information must be stored in database.

**Tools:**

Any modern language or tool.

**Supervisor:**

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# Expert System for Assessing Programming Course Performance of E-learning Student

**Project Domain / Category:**
Web Application

**Abstract/Introduction:**
Expert course assessing system is a machine learning based web application in which expert system will be built by using the any machine learning algorithms or fuzzy logic algorithms for evaluating/assessing the programming course performance of e-learning student automatically. In this system, it will be considered these parameters Skype session attendance, internal course activity marks, programming lab activity, mid-term and final term marks to evaluate overall academic performance of computer science students. The fuzzy Rules/Rule-based will be generated according to course parameters and will maintain knowledge-based system.

**Functional Requirements:**

- The application should have graphical user interface which have admin, teacher and student interface.
- The Admin/teacher should be login with valid username and password.
- The Admin will assign and manage the teacher records.
- Admin/teacher should be able to insert proper details of programming course activities of registered students.
- The student should be registered with basic details for student account
- The student should be Login with valid university ID and password
- Student should be able to view his/her academic performance based on course activities with the passage of time.
- The application should be used a knowledge-based system with the help of machine learning algorithms.
- The application should be used fuzzy knowledge/Ontology based to generate report efficiently.

- The admin should manage and view all student records
- The admin should view the performance of eLearning student and update knowledge based on requirement.
- The admin should view the performance of the students and update knowledge-based on the requirement.

**Note:** Skype session must be attended to communicate with the supervisor about machine learning algorithms otherwise project will not be accepted.

**Tools:** C# or Java language or python or any new language but firstly should discuss with supervisor via email

**Prerequisite:** Artificial intelligence Concepts, Machine learning

**Supervisor:**
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# Food Ordering System

## Project Domain / Category

Web Application

## Abstract / Introduction

Food ordering system is a process in which we can order various food items from some local restaurant menu via the use of internet, just by sitting at any place and the order is delivered to the given location. Customer must register and then select the food items of their choice from the menu list and order food online. When customer finalized the order, then he/she can add an item into the shopping cart and by checking out from the shopping cart, his/her order will be delivered at the doorstep. When customer is satisfied with the order, service and quality, then he/she pay cash on the spot.

## Functional Requirements:

**Admin:**

1. Admin have access to monitor everything on the online food ordering system.
2. Admin can add, update and delete the restaurants.
3. Admin can verify all the orders details.

**Customer**

1. Customer has created a new account (sign up)
2. Customer can view the menu of different restaurants and then select food item of his/her choice to the shopping cart.
3. The customer must fill a form providing his/her name, number, address, city, delivery time slot and payment method (cash on delivery) after he/she checkout from the shopping cart.
4. Food will be delivered to the customer at home with respect to the selected time slot.

## Tools:

PHP Language and MySQL Database for developing Food ordering system

## Supervisor:

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# SMART HR MANAGER

## Project Domain / Category

Web Application

## Abstract/Introduction

The employee management is the basic need of every organization, each organization must manage its employees and if any Organization doesn't adopt automation process while employee management, then it becomes difficult for organization to manage its employees.

The goal of SMART HR MANAGER is to provide the facility of employee management through few clicks, this system is not only helpful for employers while managing their organization but also helpful for employees to communicate with the system and hence with the organization.

## Main Roles of the system:

There will be two main types of users:

- Employee Management.
- Attendance Management.
- Leave Management.
- Salary Management.

## Core Functionality:

The Employee will first encounter the login page, after login into the system, employee will be able to enter into the system and can see his profile which has its details which is registered in the company, moreover employee can mark its attendance, and also can check its salary, employee can also apply for leave through this system and also can check status of applied leaves (weather it is in pending, approved or rejected state).

There will be an admin panel for Administrator or employer who can manage:

- **Employee Registration.**
  Admin can manage employee registration through the interface of the system and enter the record into the system.
- **CRUD Operations for Employee management.**
  Administrator can Create, Read, Update and Delete employees of its company through the admin panel.
- **Salary management.**
  Admin can manage salaries of employees through admin panel.

- **Leave management.**
  Admin can manage leaves of employees through admin panel.
- **Attendance management.**
  Admin can manage and change attendance of employees through admin panel.

**Tools:**

| | |
|---|---|
| Server-side scripting technology | PHP |
| Client-side technology | Javascript |
| Responsive framework | Bootstrap |
| DBMS | MySQL |
| Code Editors | Sublime, PHP storm Visual studio, etc. |

**Supervisor:**
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# Online Course Registration System

**Project Domain / Category**

Web Application

**Abstract/Introduction**

The application will provide an interface through which users can easily register courses online. After enrolling a course, users can watch video lectures, access course related material and ask questions related to the course. There are three types of users in this application; Admin, Instructors and Learners. Admin can manage all the application-related data. Instructors can add course related material and provide answers to the questions posted by the learners. Learners can register the offered courses online, access course related material and ask questions.

**Functional Requirements:**

Three types of users will be using this application.

Admin:

- The application will provide Login interface.
- Admin can view/add/update/delete Instructors, Learners and Courses information.
- Admin can view all the questions and respective answers for any course.

Instructor:

- The application will provide Login interface.
- Instructor can add course related material like course videos, course announcements and course contents etc.
- Instructor can view list of all the leaners registered in a course.
- Instructor can view all the posted questions and provide appropriate answers.

Learner:

- The application will provide registration interface.
- Learner can login to the system after providing registration details.
- Learner can search for offered courses and register for the courses. After registering course(s), all the course related material can be accessed, and questions can be posted.
- Learner can view all the questions and respective answers for his/her registered course(s).

**Tools:** PHP, HTML, JavaScript, CSS, MySQL

**Supervisor:**

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# Online Maintenance& Repairing Services Web Portal

## Project Domain / Category

Web Application

## Abstract/Introduction

Now a day's people have difficulty to find professionals for home maintenance and repairing work and professional people may demand for high charges. Proposed system will provide easy solution in finding such professional at good rates. Many of the daily maintenance services provider can register with our system by giving detail of area, rates etc. so that we have a database of those maintenance and repairing work professionals. For example Mr. Ali need a plumber, he will first register with our portal. After registration, he will give description of the services that he requires under the plumber work portion. After that different plumbers submit their proposal including rates, material and number of hours. Then it's up to Mr. Ali which plumber he selects.

## Functional Requirements:

1. Admin will be responsible to manage portal and authenticate different user's i.e. Professional workers and people need services.
2. System should have facility to provide difference categories of maintenance /repairing work professions.
3. System should have the facility to register different maintenance /repairing work professionals by entering required information (Name, CNIC, address, city, country, Mobile number, Picture etc.) on web portal.
4. System should provide the facility to registered user with the web portal and submit description of work with pictures.
5. After that specific maintenance/ repairing service provider will give their complete proposal including rate, material and number of hours or days to complete that work. After that it's up to service finder to select one of them.
6. Proposal submits from different service provider should be hidden from other maintenance/repairing service professionals only the service finder can see all the proposals.

7. Once the service finder selects the maintenance professionals and his work is complete, after that he should have the facility to close status of their work description.
8. The proposed system should give the facility to rate the professional worker so that in future it will be easy to check the quality of professional worker.

**Tools:**
Visual Studio using ASP.Net & C#, and Microsoft SQL server, PHP with My SQL

**Supervisor:**
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# Online Students' Feedback System (SFS)

## Project Domain / Category

Web Application

## Abstract / Introduction

In modern Educational Institutions, there is a great need to have an online students' feedback system which aims to rate and analyze the faculty's performance. This type of feedback system reduces the strenuous work of physically examining the feedback pages of each student. It reduces the efforts and burden of keeping and maintaining the records, whereas it requires a lot of space and safety to keep up such records in a manual/ paper-based system.

Manual analysis of students' feedback can take several days, and a lot of human resources are required. Besides authorities need various types of analysis reports by which they can take policy level decisions. Preparing these reports is time consuming and troublesome. Also, the students feedbacks can be tempered for wrong reasons in case of paper based feedbacks wherein the SFS will always ensure safety of feedbacks privacy. Another important features of the SFS is that physical presence of neither the admin nor the student is required for the either giving the feedback nor for assessing the feedback.

Therefore, Educational Institutions these days are turning to online students' feedback systems, which can be conducted very efficiently and with less human resources.

## Functional Requirements:

Some of the functional requirements are:

- Login process/authentication for Admin, Faculty members and students (Sign up and Sign in) to avoid unauthorized access.

1. **Admin Requirements**
    - Admin approves the registered students
    - Admin manages the students (manually add/ view/ update / delete)
    - Admin manages the faculty (add/ view/ update / delete)
    - Admin can update Faculty contact details and manage login password

- Admin can check feedback given by each student about each faculty member
- Admin can check average feedback for each faculty member
- Printing of average feedback for each faculty member
- Graphical view of average feedback for all faculty

2. **Students Requirements**
   - Students can register and Login to the system
   - Students can view/ update profile and can update password
   - Students can choose faculty member (who teaches their registered courses) and give feedback for all questions (asked in the feedback form)

3. **Faculty Requirements**
   - Faculty can login
   - Student can view/ update profile and can update password
   - Faculty can check feedback (about him) given by students
   - Faculty can check average feedback given by students

**Tools:**

Server-side programming language: PHP
Scripting and styling languages: HTML and CSS
Client-side scripting: JavaScript and JQuery
Database: MYSQL
IDE: PHP Storm or NetBeans or any one of your choice
Local host Server: WAMP or XAMPP

**Supervisor:**

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# Online Tailoring Service for Women

## Project Domain / Category

Web Application

## Abstract / Introduction

This is web-based application which provides facility to woman's to get their dress material stitched without stepping out of your house. They can place order by using this application. The fabric and perfect fitting garment collect & delivers at your door step with in 5 to 8 working days.

It only provides stitching of simple dresses. It is mandatory to make an online account to place an order. This account will help the customer to keep a track of her size profiles. After login, the customer must choose one category from the given categories from online application.

(1) Shirt
2) Shirt, duppta, trouser
3) Shirt and trouser

The stitching payment for each category mentioned with it. When customer choose category or click place order button then a measurement form appears. Customer must provide measurement description (Shirt length, Shoulder, Waist, Aram holes, Sleeves, Trouser length, Bottom and Waist) by fill online form. After click on NEXT button the Pickup and deliver address form appear. It contains name, address and phone number filed. After fill address form the order placed.

The admin handles all the customers' record who registered in the application.

## Functional Requirements:

Online tailoring service for women has following functional requirements.

Login procedure for both Admin and customer.

Customer will be able to enter the description of dress measurement.

Online tailoring system provides user friendly interface. All users familiar with the general usage of browser, no specific training is required.

The system is very reliable because it provides facility of data backup if system fails.

## Tools:

1. C#, .Net and Sql Server
2. PHP, MySql and Dreamweaver

## Supervisor:

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# Online Vehicle Showroom (OVS)

## Project Domain / Category

Web Application

## Abstract / Introduction

This project is aimed at developing a Website that depicts Online Vehicle Showroom and booking vehicles through online. Customer can register to this website and he/she can book vehicles by entering his/her login information. Administrator is the main user of this system and admin can add employees, dealers as well as new vehicle details.

## Existing System

The current system is offline system, in this system to purchase vehicle the customer should visit the showroom for vehicle booking and purchase. So, this current system is very difficult because its time consuming. Proposed project aims at creating a website which tracks Customer records, Online booking, Online vehicle records, etc. and it provides easy to use web based interface for customers where customers can search for vehicles, view complete details about vehicle, models, features, pricing of the vehicles and book the vehicles.

## Proposed System

The main scope of this website is that it depicts online Vehicle showroom and booking vehicles through online. Customer can register to this Website and he/she can book vehicles by entering his/her login information. It keeps track of Customers records, Vehicle records, Payment and billing records, dealer records, etc. The system generates Invoice and bill after purchasing or booking of new vehicle. This is web application and it's developing using PHP language. All the records must be store in MySQL Database. Administrator is main user of this system and he/she can add employees, and new vehicle details.

- The design of the website involves the listing the vehicles, search for vehicles, display the complete details of vehicles, etc.
- It provides updated information about the vehicles of all the companies.
- Customer can view Purchase details and billing records any time.

## Number of Modules and Functional Requirements Detail for each Module

**Modules:**

- **Main and Login Page:**
  - The main page, neatly designed page, here login option is provided to login. Also new signup option is provided to for new user to sign up.
- **Vehicles Page:**
  - This screen will display all the vehicle details, with exact cost, Features, Model details, etc.
- **Vehicle Selection Screen:**
  - This search screen Option must be provided to select the vehicles based on name. In this option customer can select vehicles based on its model.
- **Booking Page:**
  - In this page user can book vehicles by entering vehicle information. After booking vehicles user will receive booked vehicles information via email. This page also includes the details about the payment Options for vehicle deliver.
- **Admin Page:**
  - Administrator has full permission to access this website. Here administrator can add new vehicle details, and he/she can add employees.
- **Dealer Page:**
  - Dealers can handle customer details, and he/she can communicate with customers through email. If customer forgets his/her password dealer can reset the password.

## Tools:

**Software Specifications:**

- **Language Used**: PHP
- **Database:** My SQL
- **User Interface Design**: HTML, AJAX, JavaScript
- **Web Browser**: Mozilla, Google Chrome, Internet explorer

**Hardware Requirements:**

- **Processor** : Pentium, AMD or Higher Version.
- **Operating System** : Windows XP/ Windows 7/ Linux
- **RAM** :256 MB, 2GB recommended
- **Hard disk** : 10GB or More

**Supervisor:**

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# Online Quiz (A web based application)

**Project Domain / Category:**

Web Application

**Abstract/Introduction:**

A quiz consists of Multiple-Choice Questions (MCQs). A set of MCQs will be generated by Quiz Online application for a specific quiz and will display MCQ to user one by one. Application will randomly pick a set of MCQs from database while generating a new quiz each time. User will attempt the quiz and result will be displayed on submission. User can view score of previously submitted quizzes.

**Actors/ Users of the Application:**

- Registered User
- Admin

**Functional Requirements:**

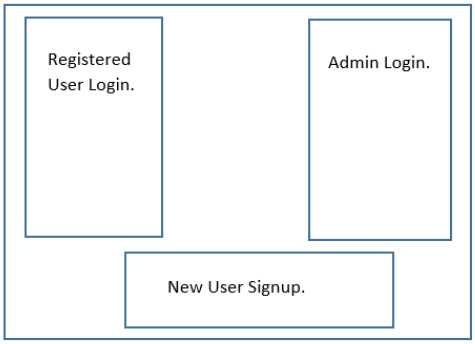
- Login / Signup page should be displayed first.
- Admin will manage users' accounts and add/update/delete MCQs from the database.
- While saving an MCQ, its correct answer should also be saved.
- New user should register through Signup option.
- Already registered users will login through Login option. After the user is logged in, s/he can either start a new quiz or view score of already submitted quizzes.
- By clicking on start a new quiz, a quiz will be generated by randomly picking MCQs from database.
- Once the user submits quiz, user-answers will be compared with already stored correct-answers and result will be displayed.
- A quiz set is a set of 10 MCQs randomly selected MCQs selected by application from database.
- Score is the obtained marks for correct answers in each quiz e.g. if student select correct answers of 5 MCQs; his score will be 5 (out of 10).
- Result will show all the attempted MCQs. But will only show the correct answers which were selected by user. It will not show the answers of the MCQs with wrong selections. Result will not show the un-attempted MCQs.

[NOTE: Requirements can be enhanced if required.]

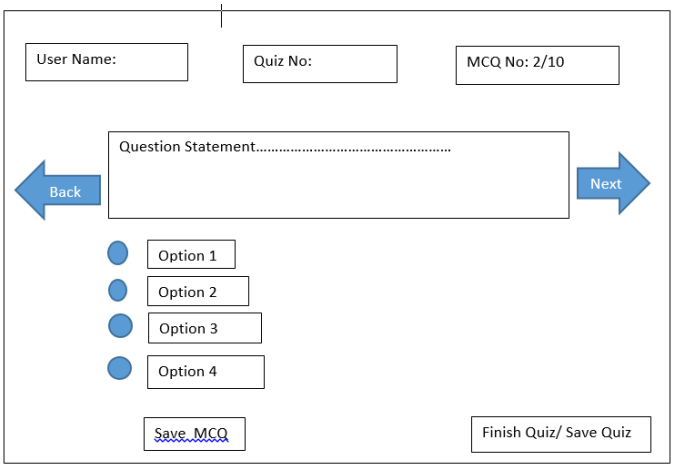
## GUI Requirements:

Following 3 pictures are for demonstrations purposes only. You must apply designing tools to develop the pages for GUI interface. You must create/add other pages for application as per requirements.

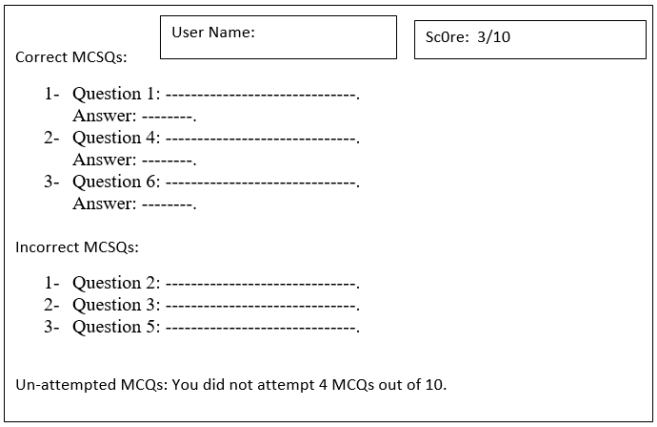
Login/Sign UP page:




Quiz Page:



Result Page:




**Tools:** PHP, HTML, JavaScript, CSS, MySQL, Dreamweaver, Notepad++ etc.

**Supervisor:**

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# Smart Home Application

**Project Domain / Category:**
Web Application

**Abstract / Introduction:**

Nowadays, technology becomes a vital part of our daily life. It is included in almost every aspect of life. One of the emerging technologies is the smart homes technology. This technology will influence the structure of our homes in the coming years. Smart homes technology provides comfort, luxury, entertainment, security, and ease to us. The purpose is to design an application though which a user can control the home appliances. Multiple devices can also be controlled via web application.

**Functional Requirements:**

1. Home must have minimum 3 rooms with 1 main gate (you can increase the number of rooms).
2. All the devices in the home must be automated.
3. List of devices (you can have more devices but not less than the mentioned).
    a. Fan
    b. AC
    c. Windows
    d. Doors
    e. Bulbs
    f. Lamps
    g. LED TV
    h. Music System
4. Combination of the devices mentioned above can be in all rooms with variations.
5. The state of devices should be ON and OFF.

6. User can add, update, and delete the devices.
7. Multiple devices can be used at same time with different states (ON/OFF) for the goal.
8. Make a pool of goals like sleep, entertainment, security, study etc. You can apply same goal in different rooms. For example, sleep goal can consist of devices like fan OFF, bulbs OFF, AC ON, windows OFF, lamp OFF.
9. Goals can be made using multiple devices. For example, we have a goal to initiate which is named as “sleep” in room 1 and “entertainment” in room 2, you just pick the goals made from the pool of goals and apply it in the rooms.
10. Each room can have their different goals from other rooms at the same time.
11. One goal should be active in a room at a time.
12. Database should be relational.
13. Responsive web design approach should be used to design the website (respond to user’s behavior and environment based on screen size, platform and orientation).

**Tools:**

Visual Studio, ASP.net C#, Sql server,

**Supervisor:**

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# Teacher Assistant App for E Learning Courses

**Project Domain / Category:**

Web Application

**Abstract / Introduction**

Now a days E Learning education is widely used by those students who live in backward area or cannot afford conventional education or for professional who cannot study along with job. So, numbers of students in such universities are in thousand per course, which are tough to handle regarding their study and administrative activities like marking assignments, downloading file, and upload their marks etc.

Teacher Assistant app is a web application that will do some automation for specific task for XYZLMS (XYZ Learning Management System) that are much difficult and take time manually. That would be for the ease of teacher to save time and effort and have correct results.

**Proposed System**

1. Develop a web page with name of XYZLMS.
2. Teacher login page for login with username and password.
3. Home page having choice of semester and course using drop down.
4. Course Assignments, GDB, MCQ tabs.
5. Each tab must have its respective functionality like your VULMS course page.
6. There must be submitting file option for assignments and GDB while attempt quiz option for MCQs for every student.
7. In MCQs page give options of answer using radio buttons.
8. All uploaded files by teacher and submitted files by students must be saved in database.
9. For each tab there must be downloading excel file option which would have Student Ids (having all student ids of that course retrieved from database),

Result (Blank column), and Comment (blank column). The name of Excel file must be like Assignment 1-CS619 for first assignment of respective course.

10. After manually checking of activity files or MCQs fill the excel sheet manually.
11. Upload students result saved in excel file on LMS using excel read and fill grid functionality in respective assignments, GDB and MCQs tabs.
12. Also show the overall result percentage of pass and fail students for each study activity and for course.

**Tools:**

**Software Requirements:**

- Operating System: Window7and above
- HTML, CSS, Bootstrap (Front-end)
- SQL SERVER
- Visual Studio, Asp.Net using C# language
- ADO.Net Entity Framework (optional)

**Supervisor:**

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# VIVA Scheduler & Notifier

## Project Domain / Category

Web Application or Desktop Application

## Abstract / Introduction

VIVA Scheduling of final year project students is a hectic task for Final Year Project supervisors. During each semester, the project supervisor must supervise many students and to manually manage the VIVA scheduling task for every student is very repetitive and tiresome task due to challenges faced by the supervisor. One of the challenges is that there are hundreds of study centers across the country which include both VU Owned as well as Private Campuses. As per rule, the student is not allowed to appear for VIVA from private campus. In such situation, the student is asked to appear for VIVA at nearest VU Owned Campus. Currently, this process of finding the nearby VIVA station is being manually performed by the supervisors by calculating the distance from student's study center to the nearby VU owned campus from the Google Map and then the nearest campus is assigned to the student to appear for VIVA. This takes a lot of time. Secondly, each student must be sent an email to notify him/her about the VIVA date and time. This is also done manually, and which is prone to many unwanted issues such as conflicts in VIVA schedule of students. We aim to overcome these challenges by developing a system which will automate the VIVA scheduling and VIVA notification tasks.

## Users of the Proposed System

Project Supervisors

## Functional Requirements:

1. The supervisor will enter the Group ID, Student ID as well as the student's current study center by looking at his/her profile. Then, the system will provide the supervisor a functionality to search the nearest VIVA station (VU owned campus) based on the VU center which will be given by the supervisor.
2. The nearby VIVA station will be selected from the database which will contain the nearest campus for each private campus. The system will provide the supervisor an admin interface from which the supervisor will be able to maintain the data for each study center (private campus) and the neighboring VIVA station, their addresses along with their distances from the respective study center. You can locate all the VU campuses including both VU Owned as well as Private Campuses from the link below:

https://www.vu.edu.pk/PVCs/CampusLocator.aspx

3. By using the admin interface, the supervisor will be able to add/update or delete the information about any campus.
4. If the study center selected by the supervisor is already a VU Owned campus, then in that case, the same study center will be selected as the VIVA station for that student. However, if the student is an overseas student, then the VIVA station should be selected as Home. For overseas students, OPKST code is used as study center.
5. After searching the nearest VIVA station, the supervisor will select the date and time from a calendar to schedule the VIVA.
6. One of the key features of our proposed system is a VIVA notifier through Email.
7. Based on the information available, the system will generate the contents of an email for the student by using the template shown in Figure 1. The contents of the email will be customizable and will be specific to each student containing his/her name, viva station and the date/time. The template of the email can be like the one given below. The system will use this template from a file and will automatically replace the values given in blue font with the information provided to the system.

**Dear Student,**

You are required to appear for [ENTER VIVA TYPE HERE] VIVA according to below given details:

| Group ID | Student ID | VIVA Date & Time | VIVA Station |
|---|---|---|---|
| [ENTER GROUP ID] | [ENTER STUDENT ID] | [ENTER VIVA DATE/TIME] | [ENTER VIVA STATION DETAIL HERE ALONGWITH COMPLETE ADDRESS] |

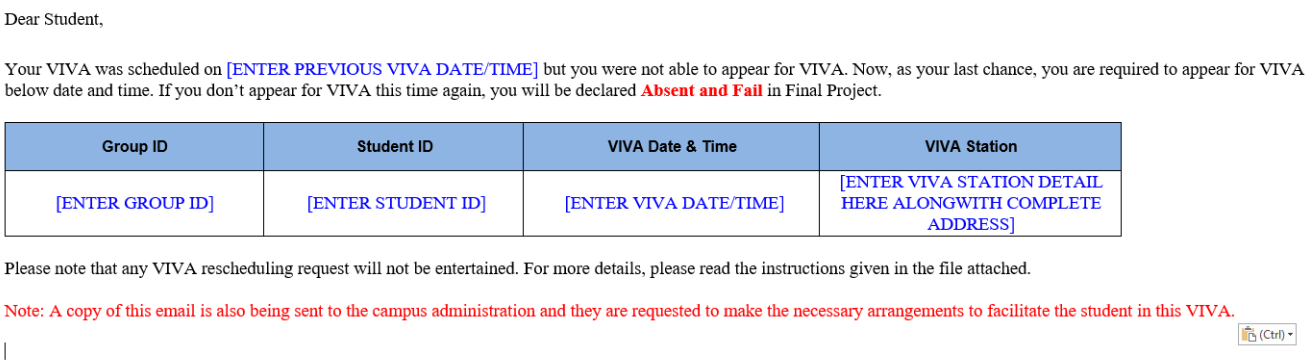
Please note that any VIVA rescheduling request will not be entertained. Furthermore, if a student does not perform well in the VIVA, no second chance will be given. For more details, please read the instructions given in the file attached.

Note: A copy of this email is also being sent to the campus administration and they are requested to make the necessary arrangements to facilitate the student in this VIVA.

*Figure 1: VIVA Scheduling Email Template*

8. After replacing the required fields in the email template, the system should be able to show a preview of the generated email so that the supervisor can proofread it before sending the email.
9. The system will allow the supervisor to send an email at the student's email address to notify him/her about her VIVA. The system will also send a copy of the generated email at the email address of the VIVA station selected by the system. However, in case if the student is an overseas student then only, he/she will receive the email as there is no VIVA station in this situation.

10. The system must ensure that the VIVA of no student is scheduled twice by mistake. Moreover, the student must be able to detect the VIVA date/time conflicts for more than one student. To ensure this, the system will maintain the history of already scheduled VIVAs in a database. This history will be checked each time before scheduling the VIVA of a new student.
11. It is possible that that VIVA of a student is required to be rescheduled because of his absence due to any reason. In such case, the supervisor gives one last chance to the student to appear for VIVA. In such case, it is important that the system maintains the VIVA scheduling history of that student and uses an email template as shown in Figure 2 to send a VIVA reschedule email to the student



Dear Student,

Your VIVA was scheduled on [ENTER PREVIOUS VIVA DATE/TIME] but you were not able to appear for VIVA. Now, as your last chance, you are required to appear for VIVA acco below date and time. If you don't appear for VIVA this time again, you will be declared **Absent and Fail** in Final Project.

| Group ID | Student ID | VIVA Date & Time | VIVA Station |
|---|---|---|---|
| [ENTER GROUP ID] | [ENTER STUDENT ID] | [ENTER VIVA DATE/TIME] | [ENTER VIVA STATION DETAIL HERE ALONGWITH COMPLETE ADDRESS] |

Please note that any VIVA rescheduling request will not be entertained. For more details, please read the instructions given in the file attached.

Note: A copy of this email is also being sent to the campus administration and they are requested to make the necessary arrangements to facilitate the student in this VIVA.

*Figure 2: VIVA Rescheduling Email Template*

## Batch VIVA Scheduling and Email Sending

12. The system must also support the functionality for batch email scheduling and email sending. To use this feature, the supervisor will upload a file to the system containing the student ID and study center in each row. The proposed system will read the student ID and his/her study center of each student from that file one by one to find out the nearest VIVA station.
13. The supervisor will then select the start date/time and duration for each VIVA.
14. The system will automatically calculate the date/time for each student by using the start date/time as well as VIVA duration.
15. The supervisor can also select how many VIVAs he intends to conduct in each day. The number of VIVAs to be conducted may be more than the number of VIVA, the supervisor intends to conduct in a day. So, the system will schedule the VIVAs accordingly so that it stretches across more than one working days.
16. After scheduling the VIVA date/time for each student, the system will send an email to each student as well as his designated VIVA station one by one.

17. As proposed before, we will maintain the record of scheduled VIVAs in the database for VIVA for future use.

***Note:*** *You are required to read the proposal very carefully to understand the requirements of this project. If you face any confusion, you can feel free to ask me through Skype. But make sure that before selecting the project, you are fully clear about the requirements of this project to avoid any inconvenience later. Moreover, you must make sure that you must use only one of the given two languages to develop this system. For using any other language/tools, you must ask for the permission first.*

**Tools and Languages:**
C#, Java, SQL, MySQL

**Supervisor:**
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