ABC Auto and Spare parts Center

Project Domain / Category
Desktop Application/Database Programming

Abstract/Introduction
The proposed software will be used by Motorcycle auto workshop and spare part center.This software is the automation of working of motorcycle workshop and spareparts which will help the owner of auto shop to keep track of its daily expenses in terms of salary, utility bills etc. and daily sales in terms of spare parts sales by keeping track of stock of the spare parts.

Functional Requirements:

1. User of the system will be Admin only. Owner of the auto and spare parts shop is the main user or admin of the system.
2. Software should facilitate then admin to keep track of all its employees and their salries.
3. Software should facilitate the admin to keep track the attendance of its employee .
4. Software should facilitate the admin to keep track the salaries of its employee.
5. Software should facilate the admin to maintain stock of spare parts .
6. Once a moter cycle is enter in the workshop, system should generate a token number and that token number should be served by the mechani, who is free at that moment.
7. Mechanic should tell about the spare part that will pluged in the motorcycle and then the owner will issue required sparepart and that quanitiy of sparepart should be less from stock at run time.
8. All the bill of repairment work and spare part that is pluged in agains that token number should be maintain in ths system.
9. System should have the facility to generat the total bill after all the repair work.
10. System should generate the reports of all the expense like salary, utility bills.
11. System should generate the reports of all the sales of spare part.

Tools:
Oracle or Visual Studio using C# and Microsoft SQL server

Supervisor:
Name: SAEED NASIR
Email ID: saeednasir@vu.edu.pk
Skype ID: saeed-nasir

Chills Restaurant Management System

Project Domain / Category
Desktop Application

Abstract / Introduction
A desktop application to order Pakistani food and designed for providing food services. The main aim of the project "Restaurant Management System" is to keep track of restaurant details like Today's Special dish, Restaurant menu, Order details from the user, collection and expense details daily or monthly. The application will provide users an easiest way for online orders. The system helps to reduce manual effort needed to capture transactions. Also the software will provide assistance in maintaining food orders easily.

Functional Requirements:
The admin is responsible for creating table, menu, products and chef details. The user can view the menu orders or today's offer and can order the menu. The chef master can view the today's order ordered by the users and set delivery time. The user interface module is classified into three types: Admin, Chef and Table. User can login through our site and access the service offered by the admin.

1.   Administrator Module
- •   Admin can view profile details, update their profile and password.
- •   Admin can update the site details, which can be viewed by the End-User.
- •   Admin is responsible for creating restaurant menu, Today's special dishes etc.
- •   Admin is responsible for creating chef details, table details and provides them with username and password to access.
- •   Admin can view the orders placed by the users.
- •   Admin can view daily or monthly collection details.
- •   Admin can view the feedback report from the table users.

Our management software alerts admin regarding familiar products.

2.   Chef Module
- •   Chef can view profile details, update their profile and password.
- •   Chef can view the today's order placed by table user along with the quantity and description.
- •   Chef is responsible for setting up delivery time for each other.
- •   Chef is responsible for updating the delivery status as delivered for delivered orders.

Our management software alerts chef regarding unfamiliar products.

3.   Table Module
- •   User can view the menu orders and place the order.
- •   User can view the popular items and today's special dish.
- •   User can view the delivery status time for the order set by the chef master.
- •   User can post feed for service, taste of the product.

Tools:
Operating system: Windows 7 / above, Eclipse/NetBeans for Java, Microsoft Visual Studio for C#, MySQL (Backend) XAMPP (Server)

Supervisor:
Name: Muhammad Hassaan
Email ID: m.hassaan@vu.edu.pk
Skype ID: muhammad.hassaan005

CPU Scheduling Simulator (CSS)

Project Domain / Category
Desktop Programming

Abstract/Introduction
Operating System (OS) is the most important software that runs on the computer. It not only manages hardware, memory, and other resources but it's also responsible for optimizing the computer performance. It interacts with I/O devices and user's programs and applications. You cannot expect to use a computer without an operating system.

One of the key concepts in OS design is CPU scheduling (or processor scheduling). CPU scheduling dramatically affects performance of the system because it determines which processes will wait and which will progress. Because OS also acts as a resource manager, it must make the best use of CPU. This project – CPU Scheduling Simulator (CSS) – focusses on CPU scheduling. CSS will simulate following scheduling algorithms:

1) First Come First Serve Scheduling

2) Shortest Job First Scheduling (SJF)

3) Shortest Remaining Time First Scheduling (SRTF) – preemptive version of SJF

4) Priority Scheduling

5) Round Robin Scheduling

CSS will accept workload from user and then calculate following for each scheduling algorithm:

1) Waiting time of each process

2) Turnaround time of each process

3) Average waiting time of given workload

4) Average turnaround time of given workload

5) Gantt chart indicating schedule of each process

Benefits:

This project will help students to:

a) Solidify their OS concepts that they have already learnt in CS604 course

b) Appreciate the importance of CPU scheduling as a basis for multiprogramming

c) Enhances their data structures & algorithms implementation skills

<u>Functional Requirements:</u>

1) The system will prompt the user to either enter workload manually or load from a file.

   - In case of manual entry, system will prompt the user to enter total number of processes, arrival time, burst time, priority, and time quantum

   - In case of file loading, these parameters will be in a simple, comma separated text file

2) User must have the option to either run algorithms individually or all at the same time for comparison purposes

3) System should display waiting time and turnaround time of each processes, and their averages.

4) User should be able to view Gantt chart of scheduled processes

<u>Tools & Technologies:</u>
Language: Java
Database: MySQL Community edition
IDE: NetBeans or intelliJ IDEA or Eclipse

<u>Supervisor:</u>
Name: Muhammad Umair Mujahid
Email: umair.mujahid@vu.edu.pk
Skype ID: umair.mujahid@hotmail.com

Hostel Management System

Project Domain / Category
Desktop application

Abstract / Introduction

Hostel Management System is designed for better interaction between student, teachers and accounts. Hostel Management System handles all the requirements for easy Hostel Management for a college. This software will help the Hostel to centralized the activities and maintain data transparency where needed and properly store data for regular operations and future analysis.

Our software will be easy to use for both beginners and advanced users. It features a familiar and well thought out, an attractive user interface, combined with strong searching insertion and reporting capabilities.

Functional Requirements:

1. **Warden**

   - Warden can login and logout.

   - Warden take a backup of the Database.

2. **Student Registration**

   - In this module warden can add and delete student/teachers.
   - And assign IDs.

3. **Staff Registration**

   - In this module warden can add, delete and delete staff.
   - And assign IDs.

4. **Accounts**
   - In this module accountant manage activities related to student fee, staff salary, student discount, due fee.

5. **Room**
   - In this module warden mention room size e.g. single seater, double seater, and three seater.
   - In this module warden allocate and deallocate bed and room to students and have all information about rooms which are reserved and which are vacant and going to be vacant in next few days.

6. **Reports**
   - In this module warden manage
   - Fee Report, Due Fee, Registration, Expenses, and Fee Discounts.

Tools:
- Tools are optional

Supervisor:
Name: Asadullah
Email ID: asad.ullah@vu.edu.pk
Skype ID: asad.ullah121

Inventory Management System for Pharmacy

Project Domain / Category

DB/Desktop

Abstract/Introduction

"Inventory Management System for Pharmacy" is an application which automates the business of medicine. This application would maintain product information, the regular sale of the business and calculate the profit and loss of the business. The application further maintains the detail of the sale of previous period, maintain the detail of sale return, and maintain the detail of customer who purchases items on credit. Different suppliers provide products to the pharmacy. The application also generates the monthly and yearly reports of profit and loss.

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 pharmacy has different drug products for different diseases and each drug has different characteristics which are required by the pharmacy to store.
3. The pharmacy may have multiple stores in different places.
4. The pharmacy purchases drugs from multiple suppliers/places (Country and Cities).
5. The application would maintain the daily sale of pharmacy.
6. The application would care about the profit and loss of the business.
7. The application would also generate some reports.
8. The system would also maintain drug suppliers' information.

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:

Name: Asif Hussain
Email ID: asifhussain@vu.edu.pk
Skype ID: asifnoor1982

Resource Monitoring and Report Sharing System (RMRSS)

Project Domain / Category

Desktop Application

Abstract/Introduction

It is desired to first monitor and assess the utilization of the resources like CPU and RAM usage after every Single minute on client PC and generate Ten minute's report and share it with administrator at server side.

Functional Requirements:

Module:

User management

This Desktop application system will have two types of user i.e. Administrator and a client

Administrator: - Administrator will be monitoring the overall processing utilization on individual PC that is locally connected to the network.

Client: - Client PC is a simple user which is connected with the local area network. RMRSS application will first individually monitor the performance of the local system on which it is residing and the generated reports of monitored resources will be shared with the administrator at server.

Link Management

Link between clients and server of application

Components Monitoring

Report Management

Reports will be generated and shared with admin

Tools:

VB.net or JAVA

Supervisor:

Name: Asim Mehmood

Email ID: asimmehmood@vu.edu.pk

Skype ID: sardar-asim

Stock Management System for Confectionery Items

Project Domain / Category
Desktop Application

Abstract / Introduction
This application will provide an interface for business owners of confectionary food items to manage their stocks and sales efficiently. They will be able to make suitable decisions related to their business by checking the stock and sales report. They can manage their products data, customer (shops) records, orders, bills, employee data and salary records through this application more effectively and efficiently.

Functional Requirements:

1. Business manager will login using their login details as Admin of the application.
2. Admin will be able to add new items (products) and delete/block any item in case, the item is discontinued. All the related information like purchase price, sale price, producing factory, packing details etc. should be included.
3. Admin will manage Buying and Selling records and will be able to add order records of both the parties (i.e. stock purchased from the Sellers and orders delivered to the buyers).
4. Admin will be able to view stock, sales and purchase reports for specific day, month or year. Admin should be able to view sales report against each customers as well.
5. Admin should be able to set a lower limit to stock items and system should add an alert the Admin related to low stock of any items.
6. System should update the stock items automatically, whenever an entry is made.
7. The system allows the manager to enter stock return entries and the reason for return. The system should automatically update the stock numbers automatically.

Note:
It is appreciated to use ledger based sales and stock management.

Tools:
SQL Server, Visual Studio, Any language of your choice for Desktop environment

Supervisor:
Name: Muhammad Tahir Jan
Email ID: tahir.jan@vu.edu.pk
Skype ID: mtairjan@outlook.com

Android SMS Scheduler

Project Domain / Category
Mobile Apps

Abstract / Introduction
Sometimes timing is everything. Maybe you want to send best wishes to someone in a different time zone and know that their favorite time is around 03:00 AM of your time. Or maybe you're not too great at remembering; frequently, forget birthdays or anniversaries of your near and dear ones. It's okay (we won't tell anyone), we have a best messaging app which will do that job for you.

SMS Scheduler is an Android based mobile application which sends Text Messages (SMS) and Multimedia Messages (MMS) at a certain period of time with certain frequency. Just run SMS Scheduler app, write a message and set date & time of your choice (that's all from you), message will be sent by the app at exact date & time as set.

Functional Requirements:

SMS Scheduler app should consist of following requirements;

I.   **Default Messaging App:** Support all functions of a messaging app, like writing, sending and receiving of SMS & MMS etc.
II.   **Modes:** Need to provide following two modes;
- <u>Send Now</u>: Messages will be sent on immediate basis.
- <u>Send Later</u>: Messages will be sent in future at exact date & time.
III. **Repeating Frequency:** Send same message repeatedly on hourly, daily, weekly, monthly or annually basis.
IV.   **Speech Recognition:** Convert audio into text message using Voice Recognition technology, provided by Google.
V.   **Predefined Templates:** Choose text message from predefined templates; can be added, edited or deleted as well.
VI.   **Group Messaging:** Send message to multiple recipients at the same time; can be created, modified or removed as well.
VII. **Alert:** Provide proper notification, tone and vibration on task completion.
VIII. **History:** Save all messages in internal database (*i.e. SQLite*); can be viewed in ascending or descending order on basis of received or scheduled date & time.
IX.   **Backup:** Store/retrieve messages, templates and contact groups to/from SD card in an encrypted form.
X.   **Permissions:** Prompt to grant appropriate permissions for sending/receiving messages, syncing contacts, reading phone states and read/write SD Card contents etc.

Tools:
1. **IDE:** Android Studio
2. **Programming language:** Java
3. **Database:** SQLite

Supervisor:
Name: Muhammad Imran Afzal
Email ID: imran.afzal@vu.edu.pk
Skype ID: imranafzal126

Intelligent Personal Assistant

Project Domain/Category

Android Mobile Application

Basic Functionality:

Android Based Personal Assistant which performs Different Tasks based on the user input. User input type can be be text or Speech.
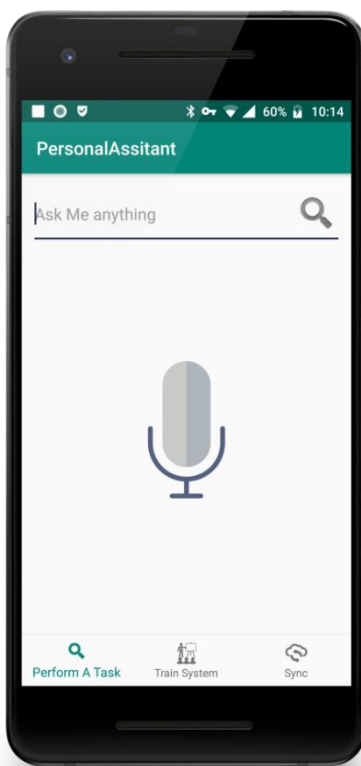
For this project only 3 basic tasks are required:

1. Call someone
2. Text Someone
3. Calculate something and show result
4.

Although you can use google's api which will do speech recogniation which works in offline mode as well.Otherwise if speech Recognition requires internet then in offline mode app should be able to recognize text successfully and perform basic tasks which does not require any internet connection.

The system should be able to process the senetense and understand the task from the senetense provided.
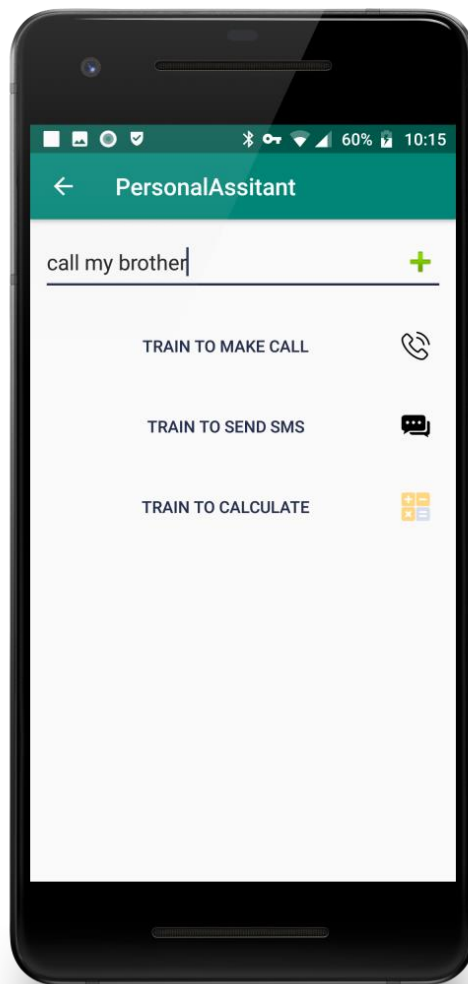
*At intial stage add atleast 50 common senetenses to perform the basic tasks.

Training:

User can also train the system with new sentenses.All the data will be stored in centrilized database (Firebase Recommended).

- If a sentense does not exists in the local database of application user can add it to local db and later click sync button to sync with the server.
- Clicking sync button will not only push new senetenses of application but also fetch other newly added senetenses of other users.
- For example the systyem can understand the following senntence:
  "Call brother" this sentence is stored in local database of the app, now user want the sytem to understand "call bro" which eventually means "call brother" now the user can put the sentense in the local db and sysnc with server to add the sentense in the server (Firebase Database).

Requirements Not Necessary But Appreciated:

- Add Web search capibilities inside app (use webview inside app).
- Use Firebase database rather than other Technologies.
- Use libriries from Github or AndroidArsenal
- Use Git as version control for project.

Tools:
Java/Kotlin, Xml, FireBase database, Android Studio/Eclipse

Supervisor:
Name: Bilal Bin Umar
Email: bilal.umar@vu.edu.pk
Skype ID: u.bilal

Digital Academy App.

Project Domain / Category
Mobile Apps.

Abstract/Introduction

The application must be well designed to serve the needs of different students in different educational domains by providing them a platform to engage / interact with the experience and best faculty for their appropriate domain. Students / their guardians can select the faculty by viewing there profile, experience and expertise available in the app. This platform can be run as a public service podium as well as for pure business proposes.

Functional Requirements:

- Admin/system can add, modify, delete and search students by first name, Last name and date of registration.
- Student can create their log in and profile by first name, Last name, domain, address, contact no and date of registration
- Faculty can create their log in and profile by first name, Last name, domain, address, contact no and date of registration.
- Admin/system can add, modify, delete and search announcements by date and Type.
- Admin/system can add, modify, delete and search testimonials of faculty by different educational domains.
- Admin/system can add, modify, delete and search faculty profile by different educational domains.
- Admin/system can add, modify, delete and search payments and transaction by student.
- Admin/system can add, modify, delete and search visitations of faculty by date, student and domain.
- Admin/system can add, modify, delete and search employees by id, first name and Last name.

Non-Functional Requirements:
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. Those criteria are what would make the application stand up from a simple application to a product that can be delivered and used by real life clients. 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: Imran.akhtar@vu.edu.pk
Skype id : msisl.net

Find My Tutor

Project Domain / Category
Mobile Application (Android)

Abstract / Introduction
Often, it can be very tricky to know where to look and find a Tutor if you don't have any connections. Usually, when a student wants to search a tutor, he/she has to search through newspaper advertisements or asks any friend or relative who can recommend a highly qualified and expert tutor with affordable fees.

This project aims at developing an android based mobile application with the aim of making it easier for parents and students 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
2. Tutor

The following will be the functional requirements of this project.

Functional Requirements:

- 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
2. Tutor Module

Student Module:

1. Register with the application as a Student by either giving the email address or contact number.

2. Authenticate the student by sending email to the given email address or by sending a text message on contact number.

3. Allow the registered student to Login to the student.

4. Allow the registered student to search the tutors by providing the following:
   - Subject
   - Qualification
   - Gender
   - Location
   - Fees

5. Display the List of tutors according to the search criteria given by the student.

6. Allow the student to send request to hire tutor.

7. Allow the student to send request for Negotiation of Fees.

8. Allow the student to rate the Tutor for his/her services.

9. Allow the student to comment and give reviews.

10. Allow the student to delete/deactivate his/her Account.

Tutor Module:

1. Allow the tutor to register with the application as a tutor by entering the following:
   - Name
   - Qualification
   - Experience
   - Location
   - Fees
   - Subject
   - Contact Number etc.

2. Authenticate the tutor by sending email to the given email address or by sending a text message on contact number.
3. Allow the registered tutor to Login to the system.
4. Allow the tutor to update his/her Profile.
5. Display the list of students seeking for tuition.
6. Allow the tutor to send the request to student for providing his/her services.
7. Allow the tutor to accept/ reject requests from the students.
8. Allow the tutor to negotiate the fee with the students.
9. Allow the tutor to deactivate/delete his/her Account.

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

Tools:
Android Studio
Firebase

Supervisor:
Name: Umair Ali
Email ID: umairali@vu.edu.pk
Skype ID: live:umairalihamid_1

<h1 style="text-align:center;">Instant Voice Translator App.</h1>

Project Domain / Category
Android Mobile App

Abstract / Introduction

Language translation apps are one of the most demanding and useful apps nowadays. Everyone, no matter he/she is using the translator for practicing the language such as English or he/she is using for convenience in speech during travelling abroad. This app is free to use for everyone and it's very handy too. The user just need to input via their voice or text and the app converts in the desired language.

Instant voice translator supports voice and text translation in various languages. We can use it every day for education, practicing English or any other language, business and travel. This app comprises of many features like text and voice translation, voice recognition, detailed history for stored translations etc.

Creating android text translation app involves different stages. First, you need to choose a third party translation API (for example, Google Translate, Microsoft Translator, Yandex Translate & Baidu Translate) that will help to translate user text inputs to different languages. Another, for network calls in android, you can use **Retrofit** or **Volley** library to send request and receive response from your chosen translation API server.

Functional Requirements:

Following are the functional requirements

1. Translation results are exactly and easy to understand.
2. Greater efficiency in translations (response time) i.e. instantly.
3. Convert voice/text to text.
4. Convert text/voice to voice.
5. Switch among multiple languages.
6. Edit your translations and copy or share
7. You can share the translated results.
8. Correction of small errors.
9. Save translation history like conversations or chat

Tools:

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

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

Supervisor:

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

Mobile (Tablet) Based Inventory Control System

Project Domain / Category
Category: Mobile Apps

Abstract / Introduction
Efficiency (less loss or more profit) is need of business industry. The sellers need to maintain the record of goods bought and sold in order to balance the demand and supply of products, so they can track when and how much goods they should buy in order to save money and invest on right products. Such list of products is referred as inventory.

It is not convenient to waste the time on maintaining hard copies or registers for inventory control nor do we have enough spaces on our desks to maintain spreadsheets and assign an individual person on data entry for inventory. Therefore a solution or an App must need to be designed for small businesses so a sales person can input the products he sold and a purchase person can record what he has purchased for selling purposes, straight from their Mobile Phones / Tablets. Whereas the owner / caretaker of business can track profits earned and suggest when to buy products at minimum rates and how much quantity would be feasible to buy for a specific season (tenure).

Functional Requirements:

Provide a bulleted list of functional requirements

You need to create an app comprising of following key features:
1. A login interface for Purchase Person, Sales Person and the Owner itself.

2. A user registration interface from which an owner can register purchase persons and sales persons.

3. A purchasing interface where a purchase person can record the products which he buys for selling purposes from vendors / whole sellers / companies / factories etc.
    a. You must need to store Expiry Date, Cost Price and Retail Price against each Batch of product in order to calculate "profit & loss reports" etc. later

4. A sales interface where a sales man can create sales orders for registered / walk-in customers.

5. An owner's dashboard where he can view following reports:
    a. A product wise purchase report for specified period
    b. A product wise sales report for given period
    c. A profit loss (P/L) summary of products in order to measure the efficiency of business

6. All the three end-users (the owner, the purchase person and the sales person) can view a product wise stock report so they can know how many items are still available for selling.

Tools:

You can use any of following tools sets for maximum compatibility among tools:

Android	Web App(Microsoft)	Web App(Open Source)	Web App (Oracle)
Android Studio	MS Visual Studio 2017	MS Visual Studio Code	NetBeans IDE
Firebase	MS SQL Server	MySQL / Maria DB	Oracle DB 12 g
JAVA	C# and ASP.NET MVC5	PHP / CGI Script	JSP / JAVA Servlet
XML	HTML / CSS / JavaScript	HTML / CSS / JavaScript	HTML / CSS / JavaScript
	Razor Pages and Bootstrap4	Bootstrap4	JSP-Tags

Supervisor:

Name: Muhammad Kamran Qureshi
Email ID: kamran.qureshi@vu.edu.pk
Skype ID: kamranqureshi99

Nutrition Recommender Smart Phone Application

Project Domain/category
Mobile App

Abstract/Introduction
Everything we eat and drink — the food and beverage choices we make day to day and over our lifetime — matters
Poor diet is the one of the reason of poor health of sub-continent countries residents. Lack of knowledge of healthy food leads to the poor diet. Nutrition Recommender is a smart phone app which suggests the healthy food to everyone. The purpose of Nutrition Recommender is to help people in creating a healthy eating pattern to maintain health and reduce the risk of disease.

Functional Requirements
Abstract level requirements of App are given below. Student will provide detailed requirements in SRS document. This app will:
- guide patients about the choices of food and diet plan according to their health issues
- suggest different fitness diet plans
- provide a list of dieting plans
- recommend healthy food choices for men, women, toddlers, kids etc. according to their age, weight and health condition
- have the calorie calculator
- have some good articles about diet and foods
- inform people about the nutrition importance of different vegetables, fruits, beverages, grains, oils, dairy etc.
- share some innovative ideas about breakfast, lunch and diner

Tools
Android studio
Programming Language: Java or C#
SQL lite or any other modern database

Supervisor
Name: Amna Bibi
Email: amna.bibi@vu.edu.pk
Skype id: aamna.bibi26

Ride Sharing

Project Domain / Category
Mobile Apps

Abstract / Introduction

This app lets users with vehicles help other users who have the closest current location and destination by giving them a lift. A user who has a vehicle and is about to start a journey first marks its status as "I can share a ride" and then enters its destination in the app before starting the journey. A person who wants to travel but is not having conveyance requests the app for a lift by providing his/her destination. The app calculates three things:

1. Requesting user's current distance from the current distances of all the users who have marked their status as "I can share a ride".
2. Distance of destination of the requesting user from the destinations of all the users who have marked their status as "I can share a ride".
3. Finally, the app adds up the current location distance and destination distance for each user whose status is "I can share a ride" from the requesting user.

The user with the smallest sum is the selected user. A message appears on the selected user's smart phone that someone wants a ride. The location of the requesting user is also shared with the selected user on the map so that selected user may pick the requesting user from its current location. After the journey ends, a user who has set its status to "I can share a ride" will mark its status as "I cannot share a ride" so that the app knows that he/she is no longer offering a ride.

Functional Requirements:

1. A user must be able to register in the app.
2. A user can mark its status as "I can share a ride" and set its destination on the map before starting its journey.
3. A user can request for a ride and provide its destination on the map.
4. Once a user requests a ride, the app calculates the following things:
   a. Requesting user's current distance from the current distances of all the users who have marked their status as "I can share a ride".
   b. Distance of destination of the requesting user from the destinations of all the users who have marked their status as "I can share a ride".
   c. Finally, the app adds up the current location distance and destination distance for each user whose status is "I can share a ride" from the requesting user.
   d. The user with the smallest sum is the selected user.
5. The app sends the message to the selected user "You have a ride request" and displays the current location of the requesting user on the map.
6. A user who has marked its status as "I can share a ride" can mark its status as "I cannot share a ride" after the journey ends.

Note: The functionality of adding friends is not required. By default, all the users are friends of each other.

Tools:
Android

Supervisor:
Name: Yasar Mehmood
Email ID: apcs2@vu.edu.pk
Skype ID: yasar.mehmood111

Project Domain / Category
Mobile Application

Abstract/Introduction
This application is basically the matrimonial service provider for all registered members freely. Once a user registered through this application and filled the profile information. The member can set the required parameters to find his/her match. Whenever the other new member registered and have the same parameters that was required to previous one, the application will send an SMS or Whatsapp message to the previous user to suggest his/her matching profiles. The previous user can see and propose the suggested profile. When two users are agreed to decide a meeting they can send a request to admin to show their personal parameters.

Functional Requirements:
1. It should be a mobile base application.
2. The user will register to find matrimonial records according to requirement.
3. The software should give the option to all members to create their matching list for their considerations.
4. The software should give the option to deal with missing values or to edit any record at any time. Once a record will be updated a notification of updated record should be sent to all matching members.
5. The software should give the option to deal with non-serious members who reported with unethical behavior according to concerned rules.
6. This application should notify the member through SMS/Whatsapp messages to suggest new matching profiles.

Tools:
Development environment:
Android Studio, Eclips, Java, Microsoft.Net framework, or any other modern programming language

DBMSs
SQL Light, My SQL or any

Supervisor:
Name: Abdul Qahhar Mohsin
Email ID: mohsin@vu.edu.pk
Skype ID: aqmohsin.vu

Online CV Maker (OCM)

Project Domain / Category
Mobile apps

Abstract / Introduction
Online CV Maker will be an android app that will help users to build their CV or Resume through smart phone. The app will take user personal data and convert into CV which can be exported in PDF format as well as can be shared on user's Facebook account.

Functional Requirements:

Provide a bulleted list of functional requirements

1. The application shall be able to take user personal data including his/her name, father name, address, email address, cell number, profile picture etc.
2. The application shall be able to input objective, user's professional experience, academic qualifications, skills, certifications, publications, test scores, volunteer experiences, memberships, projects and honour & awards, interests, hobbies, languages etc.
3. The application shall be able to export C.V in PDF format.
4. The application shall be able to share C.V at Facebook.
5. The application shall be able to send C.V through email.

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
Email ID: haseebakmal@vu.edu.pk
Skype ID: HaseebAkmal

Online Clinic Appointment Android Application

Domain/Category
Mobile Apps

Abstract / Introduction
This mobile application will have two dashboards: Doctors and Patient. Patients/Students have to register themselves in the application so that they can use the application.

Patient Dashboard
Patient can search for the doctors using different filters. He can search for doctors using nearby location, area wise filtration. After the filtration the lists of doctor appears and the patient can view the profile, schedule of any doctor. The patient can also select a time slot from the available time slots and send the appointment booking to request to doctor. Patient can view the status of his appointment and keep track of his previous appointments. He can also rate the doctors upon his experience with the doctors.

Doctor Dashboard.
The doctor can register himself and his clinic in the app son that he can manage his clinic appointments using the app. The doctor can update his schedule, confirm/reject appointments. Whenever the doctor will approve/cancel any appointments the patient will receive a notification on his smart phone. The doctor can also add his staff members to his dashboard so that they can manage the appointments

Functional Requirements:

- The user should be able to register and manage his appointments online at any time

- Database has to store all the information efficiently without any information loss.

- The user shall be able to search for the doctors by specialty, name, working time and/or gender

- The user can change his profile info at any time

- Doctors can manage all appointments made with him on his account.

- User must be notified upon confirmation/cancellation of appointments

Tools:

- Android Studio
- MySQL
- XAMPP
- Java/Kotlin
- XML
- PHP
- Firebase, Sublime Text
- Google Developers Console, Google APIs

Supervisor:
Name: Hafiz Muhammad Azeem Sarwar
Email ID: azeem.sarwar@vu.edu.pk
Skype ID: h.m.azeem2

Real-Time Android Messaging App.

Project Domain
Mobile Apps

Abstract
Due to the progressively inventions of the technology, everything can be seen with innovative and latest features. As, the cellular-cell phones has come, with all the features, that can have a computers. All users are switching to the smart cellular phones to get advantages of it. In this fast inventing of the information technology era, the mobile communication technology has become need of every people to connect it with the world. Mobile communication is the easy and the cheapest technology for everyone to communicate in any case. The purpose of developing of the mobile communication application is to enhance the student's existing knowledge and make them more creative and innovative. Real-Time Android Messaging App will let the users to communicate with the people through their cell phones via blue tooth and Wi-Fi, which includes voice/video calling and SMS/MMS along with photos, videos and documents. This app enables the audio and video communication among the users from all around the world free of internet cost.

Functional Requirements:
Application should have all intended features are given below.
Student should provide detailed explanation of each feature.
  ➤ Able to provide the registration, login/logout interface
  ➤ User can send/receive request to connect with other users. This should be saved in address book in the app.
  ➤ Should include online communications / chat among users through text messages
  ➤ To provide real time environment app must have ability to work with 3G or 4G and/or Wi-Fi and blue tooth
  ➤ App Should reflect real time information sharing feature like: sharing of photos/images in your phone gallery with your friends
  ➤ App should have functionality of Group text chat (real time group communication)
  ➤ Should provide basic file-sharing among friends/family.
  ➤ App must support to calling features etc

Tools
Android studio
Programming Language: Java
Database SQLite

Supervisor
Name: Imtiaz Bibi
Email: imtiaz.bibi@vu.edu.pk
Skype id: imtiaz.mavra

Smart Language Translator (SLT) Mobile App.

Project Domain / Category

Android Mobile App

Abstract / Introduction

Smart language translator (SLT) is an online android mobile app which translates any sentence or phrase or word into the targeted language.
Translation apps are fairly important in daily life especially when you travel abroad. They help people communicated without a human translator or spending months learning a language. In recent days, the trending technologies such as Artificial Intelligence, Machine Learning and so on are vibrant. That's probably making the Smartphone users look for smarter apps which makes their life simple.
Smart language translator (SLT) supports voice and text translation in many languages. We can use it every day for business, travel and education. SLT provides many features like text and voice translation, voice recognition, detailed history for stored translations etc.

Creating android text translation app involves different stages. First, you need to choose a third party translation API that will help to translate user text inputs to different languages. Another step, for network calls in android, you can use **Retrofit** or **Volley** library to send request and receive response from your chosen translation API server.

Functional Requirements:

Following are the functional requirements

1. Introduction page
2. List of saved translations
3. Delete saved translation
4. About us information
5. Translate text in into many different languages
6. Copy text
7. Delete text
8. Enter text with voice
9. Convert text to speech
10. Paste text
11. Share translated text
12. Save Translated text
13. Switch languages
14. Need of internet connection

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

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

Supervisor:

Name: Fouzia Jumani
Email ID: fouziajumani@vu.edu.pk
Skype ID: fouziajumani

Smart Travel Agent Tourism Management App.

Project Domain / Category
Mobile app

Abstract / Introduction
Tourism is one of the fastest growing agency now a days and playing a vital role in the economic development of any country. The proposed application gives customer the flexibility to avail different travel and tour services online on a single platform which includes ticket booking, hotel reservation, transportation service, and tour packages etc.
Customer can manage all their plans on mobile phones, so by using mobile application they can make online booking, can view the weather condition, nearest tourist attractions based on current location, transportation type available to reach that location, and rout to the selected tourist point.

Functional Requirements:

This "Smart Travel Agent" mobile app has following features:

- User register to the app by providing necessary information.

- User can make online booking for the visit to any tourist location.

- User can select tour packages depending upon their needs. Package can vary in price and facilities. For example every package has different rate, service like transportation facility, hotel room space, and food etc.

- Before booking user can view the weather condition on that specific day on which he/she is going to visit.

- User can view the route, type of transportation to selected location.

- Using Smart travel agent application user can get detailed information about attraction place including text, pictures and video.

- Smart travel agent provide location based information which can be browsed through a map.

- User can search nearby attractions points, can figure out the distance between these point and current location.

- When user moves then this app must automatically update the new position send the updated list of attraction points to the user.

- When user login to the system on his/her mobile, application will trigger the GPS (Global Positioning System) to get and update information of user's location.

- Smart Travel agent also analyze the user information stored in database to get user's preferred requirements.

- After visiting a place user give rating also so that it can help the other users who are planning to visit.

Tools:
Andriod Studio
Java or C#
SQL Lite (Or any other modern database)

Supervisor:
Name: Rizwana Noor
Email ID: rizwana.noor@vu.edu.pk
Skype ID: rizwana.noor77

Smartphone-Based Accident Detection and Reporting Application

Project Domain / Category

Mobile App (Android)

Abstract / Introduction

Road safety is one of the main issues for the government as well as for the public. Over the years, the number of accidents has increased. There is an increasing number of causalities because of road accidents. Most of the time, drivers are alone and in case of any mishap or casuality, there is no specific system through which his/her family members timely informed. There are approaches available which are using the vehicle built-in automatic detection systems. These approaches are working fine but these are expensive and not available in each car. We need a cost-effective solution to this problem. Now, mobile technologies have enough processing power and sensors available on smartphones that we can be utilized for different purposes.

In this project, we are going to propose a cost effective and accurate smart-phone based solution for accident detection and reporting. The proposed solution will use different sensors built into the smartyphone such as sensors speed (through GPS and accelerometer), G-Force (through accelerometer of a smartphone), and Noise (through the microphone of a smartphone) to detect and report the accident. This system will be able to detect accidents at a low speed. Using these sensors, the proposed application will be able to continuously collect and processes the data/information whenever any accident occurs (vehicle collisions).. When the vehicle collides with another vehicle, it will check the data collected from the sensors. On the basis of data processing, it then matches the processed data with some specific conditions to determine whether an accident has occurred or not. There are some threshold values mentioned in the literature. If the values collected from sensors cross the threshold value it means the accident has occurred. When the conditions match, an alarm is generated to avoid false reporting. Notifications will not be generated to ambulance and family members if the driver cancels the alarm. If the driver does not respond within 10 seconds, the system will send a notification to both the nearest ambulance and family member. The system will contain the database of nearby rescue centers and information of driver family members which he/she will add while creating his/her profile. After this, the system will identify the nearest rescue centre to report accident and to call the ambulance. The main objective of this system is to enhance the accuracy of accident detection.

Following will be the functional requirements of the proposed system (application).

Functional Requirements:
1. FR1: System shall be able to create a user profile.
2. FR2: There will be an administrator account to maintain the information about hospitals and rescue centers.
3. FR3: System shall contain hospitals and rescue centers records.
4. FR4: System shall be able to detect the accident.
5. FR5: System shall be able to generate an alarm.
6. FR6: System shall be able to locate nearest rescue centre on the basis of location of occurred accident.
7. FR7: System shall be able to generate notifications to nearest rescue centre.
8. FR8: System shall be able to send text message to family members.

Tools:

IDE: Android Studio or any other
Database: Firebase or any other

Supervisor:

Name: Hina Rafique
Email ID: hina.rafique@vu.edu.pk
Skype ID: live:hina.rafique

Note : Location base services will be managed by student himself. University or supervisor would not be liable to provide any such paid services. These are some of the key functionalities which must be implemented in the proposed system. Student can add more functionalities into their project by gaining the domain knowledge.

Smart Parking Management System

Project Domain / Category
Mobile Application

Introduction
The increase in city traffic is one of the major effects of population growth especially in urban areas. Due to this searching for a vacant parking area during peak hours is not only time-consuming but also results in wastage of fuel. The drivers keep searching for suitable parking lot which leads to increase in traffic. Increasing volume of vehicular exhaust creates a negative impact on the environment. Hence reservation-based smart parking has become the need of the day. The proposed project is a smart parking management system that provides customers an easy way of reserving a parking space online mobile application.

Functional Requirements:
1.1   Module parking operator
- Define new parking areas; specify number of parking lots, the parking cost per minute/hour and other details.
- Modify data of existing parking areas.
- View the data of all registered parking areas.
- Send vehicle plate number and reservation password (Session ID) to central server for verification when users check in.
- Issue bill to users on checkout.

1.2   Module for end users
- Register for the service and enter personal and vehicle details.
- Find a parking area from the list of areas, registered by parking admins.
- View the details of a selected parking area such as the name, price per minute, number of total available lots.
- Reserve an available parking lot and specify duration of reservation.

1.3   Google Firebase
- Authenticate users and admins before modifying any sensitive data.
- Accept reservation of parking lots based on availability.
- Generate a Session ID for each reservation and send it to the user.
- Allow modification of parking lot status by operators.
- Auto-cancel reservation if user fails to reach within the window period.

Tools:
- Android Studio
- Google Firebase

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

Android Based Drunk & Drive Detector with GSM & GPS Support_WQR

Project Domain / Category
Automation / Embedded System Programming

Abstract / Introduction

In the present days automated systems or embedded 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.

Drunk driving, or officially Driving Under the Influence (DUI) of alcohol, is a major cause of traffic accidents throughout the world. In this project, we propose a highly efficient system aimed at early detection and alert of dangerous vehicle maneuvers typically related to drunk driving.

The entire solution requires an Arduino based hardware with Alcohol, Accelerometer sensor, GPS module & Vehicle Details (Vehicle Identification Number, Made & Model etc.). The complete module has capability to sense the speed of the moving vehicle as well as it has the capability to detect the Alcohol level using Alcohol Sensor. If a certain threshold on either one sensing object has met, the module will use its GSM capability to send a msg to remote cell phone with sensor values along with GPS coordinates & Vehicle Details.

On receiving end, the receiving Mobile Phone with a developed Mobile Application will receive the Accelerometer, Alcohol Level readings, GPS coordinates & details of that vehicle. The Mobile Application installed on the mobile phone computes accelerations based on sensor readings and compares them with typical drunk driving patterns extracted from real driving tests.

Once any evidence of drunk driving is present, the mobile phone will automatically alert the driver or message to specific number for help with complete Vehicle details.

Functional Requirements
Hardware Module for Vehicle
- Accelerometer to sense the speed of the moving Vehicle
- Alcohol Level Sensing Capability
- GPS Module for Location Information
- GSM Based Mechanism to Send Vehicle details & Sensor Values to a remote location

Mobile Application (Android)
- Capability to receive and manage an online database of the data from Hardware Module
- Capable compute the critical condition based on received data
- Send a SMS to help number with complete vehicle details
- Call the driver for alert purposes

Tools

- Arduino Kit
- Android Studio
- Web API's
- C/C++ Programming Language
- Assembly Language
- Circuit Designing Software's (OrCAD Pspice, WorkBench)
- Keil Embedded Development Kit
- Circuit Components (Resistors, Capacitors, oscillators etc.)
- GPS Module
- GSM Module
- Accelerometer Sensor
- Alcohol Sensor

Note: Virtual University of Pakistan will not provide any kind of hardware for this project, student has to arrange required hardware by himself/herself.

Supervisor

Name: Waqar Ahmad
Email ID: Waqar.ahmad@vu.edu.pk
Skype ID: engr.waqar.ahmad

Android Based Drunk & Drive Detector with GSM & GPS Support_Zaid

Project Domain / Category

Automation / Embedded System Programming

Abstract / Introduction

In the present days automated systems or embedded 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.

Drunk driving, or officially Driving Under the Influence (DUI) of alcohol, is a major cause of traffic accidents throughout the world. In this project, we propose a highly efficient system aimed at early detection and alert of dangerous vehicle maneuvers typically related to drunk driving.

The entire solution requires an Arduino based hardware with Alcohol, Accelerometer sensor, GPS module & Vehicle Details (Vehicle Identification Number, Made & Model etc.). The complete module has capability to sense the speed of the moving vehicle as well as it has the capability to detect the Alcohol level using Alcohol Sensor. If a certain threshold on either one sensing object has met, the module will use its GSM capability to send a msg to remote cell phone with sensor values along with GPS coordinates & Vehicle Details.

On receiving end, the receiving Mobile Phone with a developed Mobile Application will receive the Accelerometer, Alcohol Level readings, GPS coordinates & details of that vehicle. The Mobile Application installed on the mobile phone computes accelerations based on sensor readings and compares them with typical drunk driving patterns extracted from real driving tests.

Once any evidence of drunk driving is present, the mobile phone will automatically alert the driver or message to specific number for help with complete Vehicle details.

Functional Requirements

Hardware Module for Vehicle

- Accelerometer to sense the speed of the moving Vehicle
- Alcohol Level Sensing Capability
- GPS Module for Location Information

- GSM Based Mechanism to Send Vehicle details & Sensor Values to a remote location

Mobile Application (Android)
- Capability to receive and manage an online database of the data from Hardware Module
- Capable compute the critical condition based on received data
- Send a SMS to help number with complete vehicle details
- Call the driver for alert purposes

Tools
- Arduino Kit
- Android Studio
- Web API's
- C/C++ Programming Language
- Assembly Language
- Circuit Designing Software's (OrCAD Pspice, WorkBench)
- Keil Embedded Development Kit
- Circuit Components (Resistors, Capacitors, oscillators etc.)
- GPS Module
- GSM Module
- Accelerometer Sensor
- Alcohol Sensor

Note: Virtual University of Pakistan will not provide any kind of hardware for this project, student has to arrange required hardware by himself/herself.

Supervisors
Name: Zaid Ismail
Email ID: zaid.ismail@vu.edu.pk
Skype ID: m.zaid_1994@outlook.com

Jungle Walk

Project Domain / Category
Android 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) similar to 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.

Jungle Walk is an AI implemented 3D game playable in a dense forest among notorious monkeys and wild animals. The player has to take safely a bucket of bananas across the jungle. Monkeys in the game are NPC which are intelligent and react according to the situation. Their actions are implemented through behavior trees.

Functional & Non-Functional Requirements
You have to implement the game with the following scenario:
There is a 3D dense jungle with wild animals and caves. A farmer/player has to take a bucket of bananas from one end of the jungle to the other. There are multiple path options available to the player which he could take before the start of the journey. During his journey, he has to save himself from the dangers of other animals and he has to save his bucket of bananas so that he could sell it upon reaching the destination. For his safety, he has carried with him a bow and arrow to kill the wilds. You can associate bananas with the life-line of the player.

Now the jungle is full of notorious monkeys and other wild animals. Monkeys can give the farmer tough time by playing around. They can snatch his bananas and run away having a direct effect on the life line of the player. Monkeys can slap/bite the player or throw balls from the trees: again the life-line gets affected. The player can kill the monkeys with arrows. Monkey can jump or bow down to miss an arrow. If the cave is near monkeys can even hide in it. Monkeys can jump on the tree for their safety. Monkey can adopt an intelligent way of safety whatever is convenient to the situation.

Wild animals like jungle cats are enemies for both the player and monkeys. Upon seeing the jungle cat each attacking monkey has to decide whether it is better to run in a cave or jump on a tree for shelter. Player can kill the jungle cat with arrow else if cat harms him it is the end of the game.

All the monkeys should intelligently behave and play around the player. Consider the situation in which monkey is on the ground and ready to attack/bite the player or snatch his banana to run away. Now the player can throw arrows to kill him. At this situation if jungle cat is appeared, the intelligent behavior of the monkey is to hide so it must left the attack and go in a cave or if the tree is near it could jump. Proper sound effects should be incorporated.

Tools:
Unity 2018.1 or any suitable version
Development Language:
C# (C sharp)

Supervisor:
Name: Anum Liaquat
Email ID: anum.liaquat@vu.edu.pk
Skype ID: anumliaqat1989

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.

Mobile Car Racing (3D Game)

Project Domain / Category:
Game Programming (3D Mobile Gaming App)

Abstract / Introduction:
Mobile Car Racing is a 3D car racing simulation video game. In this game player will start his journey from starting point and have to reach some destination while avoiding hits from other enemy cars as you go further you will try to beat enemy cars and try to reach to the destination before enemy cars so that you can win the game. Otherwise you will lose the game. After doing this project you will be able to build interactive 3D simulation games.

Note: Game must be built in **3D** Environment not in 2D.

Functional Requirements:

1. You need to setup up a racing environment and place player car over it. For this purpose you can use free assets from asset store but only to avoid graphic designing.
2. Have to move player car by using Tilt or UI Buttons (Left, and Right).
3. There must be a forward button to speed up the car as well as a backward button which will slow down the car.
4. Our game will contain some enemy cars which will move using Artificial Intelligence (Automatically).
5. There must be a destination like house when car reaches to the destination we will display Game Over (In case if enemy reach to the destination) Or Wining Message (In case if player reach to destination before enemy).
6. When game start player car will start from zero and speed will increase gradually (On Forward button press) otherwise move with continuous velocity.
7. When Player car tries to reach near to the enemy (enemy car will speed it up).
8. You must prevent any enemy or player car from drop in space.
9. Have to move enemy cars different position not only in straight line.
10. You have to use latest technology for building Graphical User Interface e.g. Canvas.

Tools:

1. Tool: **Unity**
2. Language: **C#** (Also, Other languages like JavaScript and Boo are also supported by unity but you only have to use C# in your project).
3. Platform: **Android**.

Supervisor:

Name: Muhammad Bilal
Email ID: bilal.saleem@vu.edu.pk
Skype ID: bilalsaleem101

Carrier Selection & Band Locking for LTE Network (CS & BL)

Project Domain / Category

Network & Systems Programming/Linux Desktop

Introduction

Long-Term Evolution (LTE) is a standard for high-speed broadband data services for wireless devices and data terminals. Originally it was focused to cellular devices and later on it was also used for the fixed data terminals or systems. It enables the increased capacity and speed with different radio interface together with other network improvements. It is standardized by 3GPP. In fact LTE was an upgrade for carriers with both GSM/UMTS networks and CDMA2000 networks. There are different LTE frequencies and bands used in different countries. Also different service providers use different frequency and bands. Due to this reason the LTE enabled systems that need to be used globally should have the support for the multiple bands and frequencies.

This project is based on knowledge of LTE network, spectrum, frequency bands and understanding of establishing broadband connections to wireless networks. The project will use any Linux based system with LTE modem or Raspberry Pie with LTE modem.
In this project device/system/Desktop are interchangeably used to refer to Linux based system. The term package and application is interchangeably used to refer to the software that shall provide the required functionalities.

Abstract

Users often face issues on their 4G enabled multiband devices when connecting to their service provider network. Sometimes device don't support the specifications of the provider's network and sometimes it has different default factory settings. It causes frustration in users while accessing the internet services on their mobile

This project requires building a software application for Linux based systems that shall provide the auto-configuration of GSM/EDGE/UMTS/LTE broadband connections. If the current hardware don't support the local network specifications, it should report that the system don't support any of the local network or present the recommended settings in other cases. The ultimate goal is, whether the subject device can be connected or not.

Functional Requirements:

This project requires students to study the fundamental principles of the UMTS/LTE 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 LTE networks and Linux system programming as part of the SRS document.

The core functional requirements of the package to be developed are to:

1- Identify the system support capabilities for EDGE/GPRS/UMTS/LTE carriers
2- Identify the available networks and their specifications like frequency, band etc.
3- Report the Connection Errors
4- Provide recommended steps
5- Get device configurations from ISP if available
6- Recommend other ways of connection
7- Connect to highest speed networks available
8- Report the Connection Usage (Bytes Sent, Received, Average Rate)
9- Application should support GUI, preferably web based
10- Users should be able to debug the connection
11- Users should be able to save restore settings
12- It should be possible to switch networks with minimal disruption

Tools:
- Linux Environment
- Eclipse
- LTE Supported Device
- SIM
- Student can also complete this project using raspberry pi.

Supervisor:
Name: Arif Husen
Email ID: arif.husen@vu.edu.pk
Skype ID: vu.arifhrashid@gmail.cm

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), and 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
Name: Hasnain Ahmed
E-mail ID: hasnain@vu.edu.pk
Skype ID: hasnain.bukhari

Soft Load balancer (SLB)

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:
Name: Syed Shah Muhammad
Email ID: syed@vu.edu.pk
Skype ID: mscsvu

Cooking Recipe Rating Based On Sentiment Analysis

Project Domain / Category

Information Retrieval

Abstract / Introduction

Many cooking recipes are available online, some of them may be correct others may not. Recipes what you read will not be the same what you find after preparation. There are number of recipes you will find online which are incorrect. So in order to get right recipes, recipes must be rated by the user. Here we propose a system where user can select categories and post the recipes. Recipes are rated and commented by the visitors. So that user may end up by finding correct recipe online. We will apply sentiment analysis and text summarization approach to mine data. Sentiment analysis is a machine learning approach in which machine learns and analyze the sentiments, emotions etc. about some text data like reviews about recipes. In Text summarization, importance of keywords is decided based on linguistic features of keywords. In this system, admin will add keywords which are relevant to the recipes. System will find those keywords in comment posted by visitor and system will rate the recipe accordingly. Based on visitors review, system will rate the recipe. So it made easier for visitor to get correct recipe. This system is helpful for many visitors who look for recipes online.

System Hierarchy:

Admin Module:

- ❖ **Admin Login:** Admin will enter his credentials and can access the system
- ❖ **Add Keywords:** Admin will enter recipe related keywords into the system
- ❖ **View Visitor:** Admin can view visitor details.
- ❖ **View Incorrect Recipes:** Admin can view incorrect recipes.

User Module:

- ❖ **User Registration:** User must register himself by entering his details.
- ❖ **User Login:** User can login to the system using their credentials.
- ❖ **Post recipe:** User will post the recipe.
- ❖ **View recipe and comment:** User can view the recipe of other user and can comment
- ❖ **View rating:** User can view the rating of the recipes. In this module we will apply data mining algorithm.

Functional Requirements:

System should be able to:
1. User will get correct recipes.
2. Effective graphical user interface
3. User will get genuine rating of the recipes.
4. User can easily find recipes

The system aims at providing an effective graphical user interface for managing online cooking recipes, it shall also provide the user commented recipes. The design is such that the user does not have access the system without internet connection. The system predicts and recommend the correct recipes to users based on keywords rather than phrase. Therefore the user never has to worry about false and inappropriate recipes. The simple interface of the system has functions like adding recipes, removing or updating recipes, view of rated recipes and rating based on user comments can easily find genuine rating of the recipes.

Tools:

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

Supervisor:

Name: Tayyaba Sehar
Email ID: tayyaba.sehar@vu.edu.pk
Skype ID: Tayyaba.sehar13@outlook.com

Discovery and Ranking of Important URLs

Project Domain / Category
Information Retrieval/Web Mining

Abstract / Introduction
Now a days, World Wide Web (WWW) is one of the major sources of information and it is expanding day by day. However, it is very challenging for e-learners to find the relevant information in such huge collection of data. It is of great importance to provide a system/environment which discovers, categorize and manage information sources in such a way that can be made easily available to the e-learners. These systems uses different parameters like number of visitors, page reviews, rating etc. to rank different information sources. The aim of this project is to develop a Web application that discover important URLs of computer science domain (at least 250 URLs), categorize and rank these URLs using parameters like number of visitors, page reviews and rating etc.

This project has the following basic modules:

1. **Web Crawler:**
   Web application that discover important URLs of computer science domain, categorize and rank them using parameters like number of visitors, page reviews and rating etc. and store them in the database.

2. **Front end development:**
   A user friendly interface (UI) will be provided that display 5 to 8 most important URLs and also provide option for the users to select URLs of their preferred category or sub category of computer science domain.

3. **Database:**
   Maintaining a database for storing ranked URLs. These URLs will be displayed for users according to their preferences.

Tools:
1. C#, ASP.Net and SQL Server
2. PHP, MySql and Dreamweaver

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

Computer Based Examination (CBE) Scheduler

Project Domain / Category
Web Programming

Abstract / Introduction
In modern educational Institutions, there is a great need to have an automated Computer based Exam Scheduler. In manual systems, conducting an Entry test for thousands of students is a headache for the administrators as well as for Teachers. Even Result compilation 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. Therefore educational Institutions these days are turning to Computer based MCQ*s* type test, which can be conducted with less human resources and at different venues, on different days and sessions.

CBEs Scheduler is an easy web-based application that eases the process of Exam scheduling. Students can choose any slot/ date / venue from the available ones as per their own convenience and availability.

Functional Requirements:

Some of the functional requirements are:

- Login process/authentication for administrative staff, teachers and students (Sign up and Sign in) to avoid unauthorized access.
- Students online enrolment (as a candidate), and approval by Admin staff.
- Interface for Administrative staff for entering the available resources (venues, no. of Labs, no. of seats etc.) in the system.
- Automated Exam Planner for Administrative staff for planning (declaring no. of Exam days /sessions / centres / no. of seats) based on the no. of expected students (initially enrolled) and the available resources entered in the system.
- Entry Test registration done by enrolled students online, choosing their desired Centre /day / session.
- Limited Seats will be available on first come-first served basis.
- Schedule once confirmed by Students will be locked, and can be edited by Admin only.
- Printing of Students' Exam entrance slip.

- Download / Print Centre /day / session wise attendance sheets.
- Graphical view of Centre /day / session wise strength.

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:
Name: Iftikhar Ali
Email ID: iftikhar.ali@vu.edu.pk
Skype ID: iftikhar_700

"E-ESTATE": An Online Real Estate Management System

Project Domain / Category
Web Based

Abstract/Introduction

"E-ESTATE" is a web based Real Estate Management System for XYZ Company. 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 has to log-in first.

- Customer
- Manager
- CEO
- Admin

Responsibilities and functions of each user are given below:

Customer:

1. Customer can use this website from four perspectives
   a. buy a property
   b. get a property on rent
   c. sale a property
   d. give the property for rent

2. To buy/get on rent, he can search with the following options.
   a. City
   b. Location
   c. Property Type (Plot, House, Flat, Upper portion, Lower portion, Room etc)
   d. Price range
   e. Area (Marlas)
   f. No of Bedrooms

3. To sale/give for rent, he would be given the following options to enter the information.
   a. City

b. Location
c. Property Type (Plot, House, Flat, Upper portion, Lower portion, Room etc)
d. Price
e. Area (Marlas)
f. No of Bedrooms

Manager:

1. Manager can be added and removed by the CEO/Admin.
2. Each area of the city has its own manager.
3. Manager can add or edit any detail regarding the property.
4. Manager can see the reports of his areas such as:
   a. How many adds are added in the websites for sale/purchase/rent in a particular time period (day, week, month, year) in his area

CEO:

1. CEO can add/remove any customer/Manager.
2. CEO can see the complete reports (area wise):
   a. How many adds are added in the websites for sale/purchase/rent in a particular time period (day, week, month, year)

Admin:

1. Admin is the power user and has the rights of each type of user. He can add/remove any CEO/Manager/customer.

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

Supervisor:
Name: Shabib Aftab
Eamil: shabib.aftab@vu.edu.pk
Skype ID: shabib.aftab

Customized Build Your Car Application

Project Domain / Category
Web Based Application

Abstract/Introduction
Car buying these days is not an easy task. Most of the time you will not be able to get your ideal car with along with your desired bells and whistles. By paying a handsome amount of money, we wish to get what we want. "Build your Car" will let you order a car of any brand with full customization. It will be a platform for both customers and manufacturers to get/provide cars as per customer's needs.

Functional Requirements:

Following are the main features of our application:

1. Login procedure for customer, manufacturer and showroom manager.
2. Customer will either by filer or non-filer.
3. Customer will order his/her car online by providing all details like brand, model, exterior colour, interior colour, engine, gearbox and wheels.
4. Customer will get the delivery at any showroom with the help of manager.
5. Manufacturers will get the orders online and build cars accordingly.
6. The manufacturers will then supply the completed cars to the registered show rooms.
7. Show room manager will receive the completed cars from manufacturers and deliver it to the concerned customer.
8. The website administrator should be able to see the total money transferred to manufacturers and show room managers on monthly basis.
9. The website administrator will be able to have a complete report of total orders received and delivered categorically on monthly basis.
10. Total profit should be generated for each month in the form of reports.

Tools:
PHP
SQL Server

Supervisor:
Name: Zulfiqar Ali Khan
Email ID: zulfiqarmrd@vu.edu.pk
Skype ID: zulfiqarmrd

Business Process Manager

Project Domain / Category
Web Application

Introduction
Information systems have become vital part of the modern businesses. Whether it is financial management or human resource management or sales and operations management information systems are all there to automate the various processes and procedures of the organization. Information systems usually contain various features as per specifics to the organization. However almost all the information systems generally include the process man agent.

Abstract
This project requires students to create a generic process management engine (GPME) using any of web programming language of interest as per the functional specification given in this document. GPME is supposed to be used or customized for any domain or application.

Functional Requirements:

The core functional requirements of package to be developed are to

Provide user interface to design a process
       1- Tabular
       2 – Graphically
2. Based on the process design engine should be able to crate all forms, tables, alerts and notifications
3 – Email integrations
4- SMS Integrations

Tools:
- Language : PHP/C# (Student may use Symphony framework)
- Operating System : : Windows
- IDE : Eclipse/Microsoft Visual Studio

Supervisor:
Name: Muhammad Salman Bashir
Email ID: salmanbashir@vu.edu.pk
Skype ID: Muhammad.salman.bashir

AudioCloud

Project Domain / Category
Web Application

Abstract/Introduction
The aim of this project is to develop a website named as "AudioCloud" to store and share collection of audio files of different formats. This website will serve as a web based platform of sharing audio files. The website will allow the registered users to upload and share the audio files. The users of the website will be able to play audio files through embedded Audio player of the website. The user's registration as well as the posts (audio files) for publishing will be approved by the Administrator of the website. There will be two options to share the audio files on the website:

1. Public (to be shared with all types of website users)
2. Private (to be uploaded only for registered user's personal use)

The registered user will be able to upload the audios in different categories such as Quran Recitations, Naats, Audio Lectures, Audio Notes, Sound Effects, Royalty free music etc. There will be proper interface(s) for registered users to manage their posts (audio files). The administrator of the website will have a proper Admin Panel through which he / she will be able to manage the whole website (approving or rejecting user registration requests, approving / rejecting posts, adding / deleting audio categories, searching uploaded audio files by different keywords and filters, uploading and deleting any audio file etc.). There will be proper audio player to run / play the audio files. There must be user friendly interfaces and effective navigation scheme in the website.

Functional Requirements:

Following are the key functional requirements of proposed Project:

1. Sign In and User Registration

   There will be three categories of Website users:

   - Visitor (Unregistered User)
   - Registered User

- o Administrator (Admin)

Visitor will be able to search and play the audio files uploaded by registered users.
Registered user will have the privileges to upload audio files on the website.
Administrator will be the user of website having all the rights of files management as well as user management. Admin will approve the registration requests from users and posts (audio files) from registered users for publishing on the website.
There will be proper interfaces for user registration and Sing 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.

3. Audio Files Uploading / Posting

There will be interactive interface(s) to upload audio files of different formats on the website. There will be some mandatory fields requiring information about the audio file such as Title and Description, etc. These fields will aid the search feature based on keywords. Audio Files posted by the registered users will be verified /approved by the Admin prior to be published on the website.

4. Audio Player

There will be an embedded Audio Player through which the users of the website will be able to play any audio file.

5. Play List Management

A registered user will be able to create / manage playlist(s) by adding the public audio file(s). A user can give a suitable name to play list.

6. Search and Sorting System on Website

Searching Audio Files:
All types of users would be able to search Audio Files shared with Public by different keywords and filters such as:

- o Audio File Title
- o Date of Posting
- o Audio File Category

Search results can be sorted out on the basis of:

- o Listen Counts
- o Relevance
- o Duration of audio file
- o Likes and Dislikes, etc.

Admin will also be able to search Audio Files by user ID.

7. Likes / Dislikes, Listen Counts for Audio Files

Administrator and the registered users will have the facility of liking and disliking any Audio File by clicking the suitable related icon given on the interface. The website will count and display the number of likes and dislikes against each Audio File. Website will display number of listen counts against each Audio File.

8. Embedding and Sharing Feature

The website will allow the Audio Files to be shared with different social media platforms such as Facebook, Whatsapp, etc. The will be embedded coded for each audio file to be used for other websites.

Tools:

HTML, PHP, Java, ASP.Net, SQL Server, MySQL

Supervisor:
Name: Muhammad Saeed Amjad
Email ID: muhammad.saeed@vu.edu.pk
Skype ID: saeed.lro

Central Library Automation System

Project Domain / Category
Web / Desktop application

Abstract/Introduction
Suppose Central Library is one of the largest library of the country, contains tens of thousands of books magazines, Newspapers and members which needs to be organized properly to run the system smoothly without any disturbance and errors. This mainly focuses on basic operations in a library like adding new member, new books, and updating new information, searching books, members and facility to borrow and return books.

The library system should be automated in such a way that it would be able to support online readers as well as readers who visit the library.

The library has also network of computers for visiting reader to get to the desire books or magazines by taking login to the pc. The library system provides search facility to all the members and readers.

The system should have a GUI (graphical user interface) on the internet which allows all of the members, both readers and members a full function access to the library system through the Internet.

The report generation facility of library system should be able to get a good idea of books borrowed by the members, reader and what is remaining quaintly of books, magazines and newspapers.

Functional Requirements:

Admin Login

Reader / member Registration

- The administrator can create a new user.
- New user can login and logout

Books
- Admin add, delete or modify the details of the books.

Search

- User can search for the required books based on author name, book name etc.

Borrow books

- A registered user can borrow the book for particular days.

Return books

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

Report generation

- Depending upon the organizational needs following reports can be generated
- There can be daily reports
- Weekly reports
- Yearly reports

Tools:
Optional (SQL Server,xamp server C# .Net etc, java, php.)

Supervisor:
Name: Muhammad Luqman
Email ID: m.luqman@vu.edu.pk
Skype ID: mluqman.vu

An Intelligent Web Based Chat for Career Counseling

Project Domain / Category
Web Based

Abstract / Introduction:

An intelligent web based Chatbot will be built for career counseling. It analyzes user's queries and understand user's message. This System will provide answers to the queries of the Users. The users just have to enter their queries and the system analyzes the keywords and answers the queries. The user will provide information about their skills, intentions and qualifications and asks for the suitable career for them. The system will compute the question with highly optimize algorithm and respond to the user. The use can also send his/her feedback to the system.

System allows admin to manage all the users and questions.

Functional Requirements:

✓ The system will get basic information about the user like his interests, skills and qualification on the basis of the user's profile the chatbot will guide the user about his career. The chatbot will use some algorithm to compute the user's requirements and guide him in an intelligent way

1. **Admin Login:** Need to enter login credentials into web interface by the admin or the authorized person.
   - ○ **Add/View Questions:** Can add a new question into the system and also can view it along with it's like and dislike.
   - ○ **View Users:** Can view all the users list who are registered with system.
   - ○ **View Feedback:** Can view all the users feedback with their Email Id and date time.

2. **User Login:** Here, user needs to enter the login credentials into android app for login and if He/she does not have login credential they need to **Sign Up** first.
   - ○ **View Profile:** Here, users can view their own profile.

- Ask Question: Here, user can ask questions directly with system and if answer is found then user can like or dislike the answer. Or if answer is not found then user can get option to search on Google.
- Send Feedback: Here, User can send their feedback to admin.

Helping Material:

https://www.geeksforgeeks.org/project-idea-amanda-smart-enquiry-chatbot/

Tools:

GUI Design: Web Based (Any tool),   Web Services / Web APIs: Java / C#

Database: MySQL / / SQL Server

Supervisor:

Name: Noureen Hameed

Email ID: noureen@vu.edu.pk

Skype ID: noureen.uaf

E-Medics

Project Domain

Web Based

Abstract

E-Commerce is helpful for the both the customer and businessmen. With the help of e-commerce the customer can buy any of the desired product available online. The main advantage of buying the product online is that you just order it and it will be at your doorstep. To facilitate the customer to buy products online, the businessmen needs a website where he/she displays the products which he/she is offering to sell.
E-Medics is a website which helps the customers who intend to buy the medicine online. Customer can easily navigate through the website and find the desired medicine category wise or individually. Medicine ordered through the website is delivered to the customer's desired place.

Functional Requirements:

One Admin user who has full rights to perform tasks.

Admin can view the placed orders, like pending and delivered orders.

Admin can insert, update and delete the medicine from the menu list.

Admin can generate the sales report (Yearly, Monthly, Weekly and Daily).

Make different categories of medicines like heart, diabetes, cancer medicines etc.

Customer should have an option of register to website.

Everyone can view the website but customer should login before making any kind of order.

Customer can select medicines from categories and can add the desired medicine to the cart.

Cart must automatically calculate the sum of added items in it.

Customer can place the order and get the confirmation against that order in the form of order no.

Customer can check the status of his/her placed order.

Customer can search any medicine from the webpage.

Customer should have an option of ordering the medicine, like Monthly and one time order.

Customer should have an option of uploading a scanned copy of doctor's prescription.

Secure payment methods both cash on delivery and credit cards should be available for customers.

Database should be relational.
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#, Java, HTML, CSS, JavaScript, Php, XML, MySql, XAMPP, WAMP.

Supervisor:
Name: Syed Aun Ali Bukhari
Email ID: aun.ali@vu.edu.pk
Skype ID: syed.aun89

Expert Agent for Online Shopping Chat Service

Project Domain / Category

Web Programming, Machine Learning

Abstract/Introduction

Shopping chat service is a web application in which expert agent will be built by using the machine learning algorithms for answering the customer queries based on the understanding text message related to shopping services such as different type of Mall Store products such as **Grocery & Beverages, Household Goods, Home Appliances and Textile etc**. This web application will be beneficial for online customer or visitors. The expert agent will understand the customer query which is based on any format of text-based message and effective response to the customer. This web application facilitates the online customer to be updated with shopping service activities.

Functional Requirements:

- The application should have a graphical user interface which has text-based chat interface for responding the customer queries.
- The customer should be registered and log in to enter the graphical interface of text-based chat interface.

- A customer can chat using any English language text format, as there is no specific format that the customer has to follow.

- The application should be used a knowledge-based system with the help of machine learning algorithms to appropriately reply to the customer query.

- The application should be provided the inappropriate answer tab for a customer when he/she seems the answer found inappropriate. Customer will click to report button which will send to admin.

- The admin should manage and view inappropriate answer via main admin portal interface

- The Expert agent will recognize the questions and answer to the customers.

- The customer can query the services and activities specifically through online with the help of this web application.

- The application should automatically save the activity of customer and expert agent while chatting in text-based interface.

- The admin should view the performance of the expert agent 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

Prerequisite: Artificial intelligence Concepts, Machine learning

Supervisor:
Name: Saima Munawar
Email ID: saima.munawar@vu.edu.pk
Skype ID: saima.vu1

Housing Society Office Management System

Project Domain / Category

Web Programming

Abstract / Introduction

Purpose of this project is to manage the overall working of a Housing Society Online. The Housing Society Management has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account. The system provides a unique interface to every user to interact with the system. System accepts queries from users and evaluates the need of the query and fires it over the database and results are displayed to the user. There is a member who will transfer the society's plot from person to person, he would have access to payment status and can make changes in transfer details but can't edit or make modifications in payment status. There will be a Website also connected with our Software. The system provides a unique interface to every user to interact with the system. System accepts queries from users and evaluates the need of the query and fires it over the database and results are displayed to the user.

Generally, in Society all the work is decided in meetings and maintenance bills, contact no of members are recorded on the papers. There is no automated system for doing all the things that generally happens in society, so that members can come to know what is happening in society. The Society Management System allows members to login with their own account and get updated with society happenings. Society Management System is the website portal to reduce conflicts among society members. The system has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account.

Functional Requirements:

1. Society Office User will register himself to the application (approved by Admin).
2. Admin will assign the rights to the users.
3. User then shall be able to book the files/plot after login successfully.
4. User shall be to transfer the file/plot of the 1st owner to 2nd owner.
5. System shall have complete record of every Customer.
6. Payment service shall have checkout transaction with specific user details.
7. User shall be able to give only desired details to the owner of the file.
8. User can search the person details on the basis of their C.N.I.C number or plot number.

9. System shall manage the Plot Files on the basis of their registration number.
10. System shall provide Efficient property and owner search.
11. System shall manage Ownership history management.
12. System shall provide Receipt printing for Transfer of Plot.
13. System shall provide Category wise charges management.
14. System shall provide efficient calculation and segregation of Electricity, Water, and other charges.

15. System shall provide Consumer based printing of Electricity, Water, and other utility bills.
16. System shall also provide Bill Re-printing (duplicate).
17. System shall provide Payments Management for Bills.

Tools:

Programming Environment: PHP/ C# / ASP .Net
IDE: Visual Studio / Php Storm
Database: MySQL / MS SQL Server

Supervisor:
Name: SHAKEEL SAEED
Email ID: shakeel@vu.edu.pk
Skype ID: shakeelsaeedvurnd

Homemade Fresh and Hygienic (FnH) Food at your doorstep

Project Domain / Category
Web Application

Abstract / Introduction
It is a web based application which will assist end users to order homemade fresh, hygienic and delicious foods of their own choices from their homes, offices or hostels without compromising on health and thus saving the time of customers. The purpose of this website is to facilitate hostel students, employees at offices and working females in their busy schedule to have safe and hygienic food at their doorstep so that they can enjoy the taste of homemade healthy food. This application provides an online experience to consumers to manage daily, weekly or monthly menu according to their needs. The customer can manage the order by either selecting pre-defined menus (daily, weekly or monthly) or can customize their menu according to their own choices. It should also provide the services to customers so that they can manage order for any party or special event. A feedback form and customer reviews will be provided in this application in order to maintain customer trust and satisfaction. It will keep the updated list of food items/menus based on the customer demand. SMS will be sent to regular customers on any promotion or discounts. Customers can rate the dishes based on quality of food delivered.

Functional Requirements
There will be following two panels in this application:
- Administrator
- Customer

The functional requirements of these panels are as follows:

Administrator:
- Login process to allow authentic user to access the admin panel.
- Admin will be able to add the list of dishes and then maintain the list of daily, weekly and monthly menu along with prices.
- Admin can also update and delete the dishes and menu based on daily, weekly and monthly basis.
- Admin will be able to add/update/delete information about promotions and discounts.
- Admin can send SMS to regular customers on any promotion and discounts and on order status.

- Admin will be able to view customer's profile, feedback and reviews.
- Admin should manage that the ordered product has been timely delivered to the valid customer.

Customers:
- Customers will get themselves registered in this application and then will be able to access the web site by logging into system. At sign-up, customer mobile no. will be added and verification code will be sent to customer for verification.
- Customers can update his/her profile.
- Customer can view/search the list of dishes based on menu (daily, weekly, monthly).
- Customer can customize his/her own menu according to his/her own choice.
- Customer can view the feedbacks and reviews of other customers regarding any dish.
- Customers can manage the order by either selecting pre-defined menus (daily, weekly or monthly) or can customize their menu according to their own choice.
- The payment can be made via three payment options; Cash on delivery, Payment via Credit Card or online transfer.
- Customer can update or cancel the order within time given time limit.
- Customer can view the promotions and discounts on web site as well as via SMS.

Tools and Languages:
Visual Studio, .NET Framework, C#/Java, SQL Server

Supervisor:
Name: Humaira Naeem
Email ID: humairanaeem@vu.edu.pk
Skype ID: humera_naeem

Home Care Services

Project Domain / Category

Web Programming

Abstract/Introduction

Home Care Services is a web application that will allow its users to hire staff for home. The staff will be available for the services such as child care (babysitter), maid, and kitchen care (cook).

In this web application, there will be 3 types of users.
1. Client
2. Service Provider
3. Admin

Client should be able to hire a service provider through this web application. The application will get the client's requirements in the form of a questionnaire and depending on the answers by the client; the application will show the closest matching service providers to the client. Client will be able to send an offer to the service provider of his/her choice.

The Service Provider will be able to provide his/her availability in terms of days and time and what will be the minimum charges he/she will be charging the client with. Service provider will also be able to accept/reject/bargain on an offer made by the client.

Following is the detailed information about the users of the application and the functions they can perform in the application:

Client:
- A Client should be able to sign up using the Client Registration Form.

- The registration form should get the client's basic information and requirements.

- The basic information about the client should have the fields such as Name, Email, Phone, Address, Occupation etc.

- Client's requirements information will include if the client requires services of a babysitter, maid or a cook for the kitchen. It will also include the things like required experience, availability (in terms of days in a week and hours of the day), age, and gender of the service provider.

- Client should have the interfaces such as Hire a Service Provider, Your Hiring History, Suggestions (should show the service providers who match the requirements), Update Your Account/Requirements, Logout etc.

- The suggestions area should show the closest matching service providers to the client according to his/her requirements. The application will suggest the service providers to the clients on the basis of their experience, age, gender, availability and charges (hourly/daily/weekly).

- Client should be able to send an offer to a service provider in the list of suggestions. Once the offer is made by client, the status should show "Pending" until the service provider accepts/rejects the offer. The status next to the offer should update accordingly after the offer is accepted/rejected.

- On the completion of this job, the client should be able to close the job on the site and give feedback on the service provider's performance.

- Once the job is closed, the information about this job should be moved to the Client's Hiring History.

Service Provider:
- The Service Provider should be able to sign up through a registration form.

- The registration form will get the basic information and the information about skills and availability information from the service provider.

- Basic information will include the fields such as Name, Email, Phone, Address, Age, Gender etc.

- Skills and availability information will include service provider's interested job category (babysitter, maid or cook), availability (days of the week and hours in a day), how much they will charge (hourly/daily/weekly), experience etc.

- The service provider's site interface should have options such as Update Your Account (availability timings, charges etc), See the Offers, Previous Job History, Logout etc.

- On the Offers page/section, the service providers should be able to see the offers made by the clients for them, should be able to accept/reject an offer, and should be able to offer the client his/her services on some different terms as compared to the client's offer.

- Once the offer is accepted/rejected, the status of the offer will be updated accordingly.

- On the completion of the job, the service provider should be able to give feedback on the client according to client's cooperation, facilitation and other relevant parameters.

- Once the job is closed by client, it should move to the service provider's previous job history.

Admin:
- Admin should be able to add/update/remove a client or a service provider manually.

- Admin should be able to accept/reject a client or a service provider's sign up request. It means whenever a client or a service provider signs up through the registration forms, they should not be added into the database until the admin approves.

- Admin should be able to create an offer on behalf of the client and should also be able to accept/reject an offer on behalf of a service provider

Tools and Languages:
You can use any combination of the tools and languages from the following:
HTML, CSS, JavaScript, PHP, WAMP server, SQL, Dreamviewer, Notepad++ etc

Supervisor:
Name: Fahad Naseem
Email ID: fahad@vu.edu.pk
Skype ID: live:go2fahad_2

Design and Development of Online School Management Website

Project Domain / Category
Web Application

Abstract/Introduction

This project is an Internet based school management site that enables school management to effectively organize school activities. This web application will provide a centralized interface to management to monitor student's status and manage financial fee related issues. Separate interfaces with limited access features will be provided to the students and their parents to monitor their progress in various subjects.

Admin Interface will be used by school owner/management and its credentials will be shared with owner/management. Through this interface, they can create/register various classes, and register the students in corresponding classes. Fee and subjects information for each class will also be made through this interface. Afterwards, they will create User account for each student which will be shared with the corresponding students/parents.

On **User Interface**, each student can view his/her study progress in various subjects and other fee related information. Students/parents can provide feedback through user interface regarding the progress in various tests/exams to the management.

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 students and various other school related information.

Functional Requirements:
1. The systems shall have two different views. i.e. Admin/School Owner View and User View.
2. The system shall provide convenient interface for classes creation, subject registration, fee information and students registration.
3. Admin User have full rights and can create user accounts for students. They can create, update or delete information of any class or student. They can also create individual accounts for the students.
4. User/Student account have limited access features i.e. they can view only their own progress with limited interaction facility. Furthermore, they can also view school-wide announcements and other general information.
5. The system shall be capable to provide an interface to the Owner to inform parents/student about their progress/results on regular basis through email/SMS.
6. The system shall be capable to provide an interface to the Owner to contact pending fee students and send them reminder through email/SMS.

7. The system shall be capable to provide an interface to the Owner to send custom message to inform all/selected parents/students about any activities or announcement through email/SMS.
8. The system shall provide Password Recovery facility.
9. The system should provide the interface to store the classes' information, subject information and results information regarding various tests/exams.
10. The search interface should be convenient to search and retrieve any student record.
11. The system should store and display picture of each student.

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

Supervisor:
Name: Muhammad Qamar Usman
Email address: qamar@vu.edu.pk
Skype ID: qamarvu

Project Domain
Web Programming

Abstract:
Interactive learning application is an online web based application to check the concepts of students of different courses and topics. This application will randomly show a statement related to any selected course. User of application is required to enter the name of topic.

Functional Requirements:
User Management:
- Application should be able to manage users (called students) of application. Like login, logout and registration.
- There should be an admin user to control the backend of application.

Course Management:
- Admin should be able to manage different courses. Like create, update and delete courses.
- Admin should assign courses to students.
- Student should be able to see assigned courses.

Question Bank Management:
- Admin should be able to enter different questions or statements into courses with possible answer.
- Admin should enter the answer by pressing given in interface from "a" to "z" instead of typing. On questions or statement can typed.

Test Management:
- Admin can create test for different course.
- Students will take test of courses assigned to them.
- Admin and student can see result and grades of courses.
- During test a random question or statement will show to student. Student will answer the question by clicking on characters given in interface below. Clicking on a character will copy it into last row from left of right. Student can remove any character from last row by clicking on it. All character will auto adjust their place so that there should be no empty box between character at last row.

Tables given below is showing demonstration of how application will work during a test.

Question 1 to 10						
a	b	c	d	e	f	Mechanism in which one class acquires the property of another class.
g	h	i	j	k	l	
m	n	o	p	q	r	
s	t	u	v	w	x	
y	z					
Answer:						Next>>
i	n	h	e	r	i	t	a	n	c	e			

Question 2 to 10						
a	b	c	d	e	f	The ability to appear in many forms.
g	h	i	j	k	l	
m	n	o	p	q	r	
s	t	u	v	w	x	
y	z					
Answer:						Next>>
p	o	l	y	m	o	r	p	h	i	s	m			

Question 3 to 10

a	b	c	d	e	f
g	h	i	j	k	l
m	n	o	p	q	r
s	t	u	v	w	x
y	z				

The ability to process objects differently depending on their data type or class.

Answer: **Next>>**

| p | o | l | y | m | o | r | p | h | i | s | m | | |

Question 4 to 10

a	b	c	d	e	f
g	h	i	j	k	l
m	n	o	p	q	r
s	t	u	v	w	x
y	z				

The process of organizing data to minimize redundancy.

Answer: **Next>>**

| n | o | r | m | a | l | i | z | a | t | i | o | n | | |

Tools and Language:
ASP.Net with C#
JSP with Java
HTML with PHP
SQL Server

Supervisor
Name: Muhammad Ahmad Lodhi
Email: ahmadlodhi@vu.edu.pk
Skype id: ahmad_lodhi

Goodluck Online Bakery Shop

Project Domain / Category

Web Programming

Abstract / Introduction

Goodluck online bakery shop allows customers to check for various bakery products available at the online stock and purchase online. It consists of list of bakery products displayed in various categories such as Bakery items (Bread, Rusk, Biscuits, Baked Snacks and Sandwiches), Desserts (Cakes, Cupcakes and Sweets) and Live Kitchen (Pizza).The customer may browse through these items as per categories. If the customer likes a product he/she may add it to his shopping cart. Once user needs to checkout he/she must register on the website first. He/she can then login using same id password next time. Now he/she may pay through a credit card or EaisyPaisa account. Once the user makes a successful transaction he/she gets a copy of the shopping receipt on his/her email id. Bakery items will be delivered at customer home by a rider.

Functional Requirements:

1. Customer must register on the Goodluck online bakery shop and get his/her online account access.
2. Customer can login and check various bakery items.
3. The bakery products are arranged and can be viewed in different categories.
4. Customer can add his/her items to cart.
5. Customer must be checkout from the shopping cart in order to pay total bill.
6. Customer can pay through credit card or EaisyPaisa account online.
7. On successful payment a thank you message is sent to user.

Tools:

PHP Language and MySQL Database for developing Goodluck Online Bakery Shop

Supervisor:

Name: Sumbal Javaid
Email ID: sumbal.javaid@vu.edu.pk
Skype ID: sumbaljavaid1

Online Islamic Book Store

Project Domain / Category
Web Application

Abstract/ Introduction:

In the today's ecommerce world, different types of book stores are going to build their businesses through Internet. The main objective of the Online Islamic Book project is to help the customers an easy way to buy the different kinds of Islamic Books from anywhere. It is beneficial in terms that not only local customers could purchase but the users from different places could also buy desired Islamic book.

This project will contain complete list of different Islamic books displayed in several categories. Any user can visit available Islamic books but only registered user will be able to buy desired Books. If the user likes a book, he/she may add it to his/her shopping cart. User can select any payment option that he/she wish to like credit card or cash on delivery. After successful, completion of transaction user will receive successful transaction message and a copy of the shopping receipt on email id. Admin will manage users, orders and whole system.

Responsibilities and functions of each user are given below:

Admin:

- ➢ Admin can Add/update/Delete Categories
- ➢ Admin can Add/update/Delete Sub Categories
- ➢ Admin can Add/update/Delete Book Records
- ➢ Admin can Check the list of existing users
- ➢ Admin can delete any existing user
- ➢ Admin can update information of any existing user
- ➢ Admin can Check the complete history of Book orders from different users
- ➢ Admin can approve or delete any Book order.

User:

- ➢ User Registration
- ➢ User Login
- ➢ User can Search Book (by name, by author)
- ➢ User can add any number of desired books in cart and can proceed for order
- ➢ User can select any payment option (credit card or cash on delivery)

- ➢ User can check his/her order status(approved/Pending/ delete)
- ➢ User can check his/her order history
- ➢ After successful completion of transaction user will receive confirmation message and a copy of the shopping receipt on email id.

Tools:

HTML, CSS, JAVASCRIPT, PHP, MYSQL

Supervisor:
Name: Sohail Aamir
Email ID: sohailaamer@vu.edu.pk
Skype ID: sohailaamir22

Laptop Sales Management System by Using Chabot

Project Domain / Category
E-Commerce Web Application by using Artificial Intelligence (AI) and Natural Language Processing technique.

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 amount 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 laptop specifications. Chabot are capable of asking a vast number of questions to learn about the specification of the required laptop and finally recommend the laptop 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, similar to 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 Laptop Sales Management System by using Chabot used in B2C E-commerce domain. It facilitates the environment for every customer based on specific laptop requirements. Our Chabot offers support by providing list of laptops 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 Laptop Sales Management System. Pop up window should be displayed at the bottom right of our Laptop Sales Management System by prompting the customer for any kind of guidance.
- The first priority of chatbot is to satisfy the customers that reach out the website. Customers reaching your page, app or website have to select the specific laptop to be

selected. Selection of laptop enables you to offer customers a personalized offering of list of laptops based on customer required laptop specification.

- Search results, personalized merchandising of laptops, recommendations can help your customer find specific laptop specifications. When your customer online activity indicates willingness to buy laptop 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 laptops 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 laptops.
- Chatbot judge the customer behavior and suggest the specific latpot 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 has to 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 taking into account 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 laptop, 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:
Name: Muhammad Umar Farooq
Email ID: umarfarooq@vu.edu.pk
Skype ID: live:umarvc

Online Property Booking Application

Project Domain / Category

Web Programming

Abstract/Introduction

In this project, we will build a web-based application named as "Online Property Booking Application", in which different type of users can book the property from the available properties.

The user first visits the web application, select the plot/shop/plaza from the given options and see the complete installment procedure and details and then book the property.

Features:

Admin panel:

1. The admin user can login and logout.
2. The admin user can view, add, delete and edit different property details. The admin user must provide the plot/shop/plaza size, total price, picture, and instalment durations etc. at the time of adding properties in the website.
3. The admin can generate the monthly, quarterly or yearly based receipt for the user and upload that receipt on the user account.
4. The admin verify the amount paid by the user and generate a receiving receipt for the user.
5. The admin can manage the expenses.
6. The admin can allocate the allotment letter on the completion of all the instalments.
7. The admin can generate different reports like purchased plots/shops/plaza, total instalment, expenses, profit etc.

User panel:

1. The user first visits the "Online Property Booking Application".
2. The user can search for a different property likes plots, shops, commercial plaza etc.
3. Then select an appropriate property from the available list.

4. The user must register himself/herself before selecting the property. In the registration process, the user must provide all the details like name, address, cell no, etc.
5. After selecting the property, the user must download the voucher from his/her account.
6. The user must paid the amount in the specific bank.
7. The user must upload the paid voucher on his/her account.
8. The user can view remaining amount of his/her property.
9. The user can logout.

Tools:
PHP, MySQL, Xammp

Supervisor:
Name: Akmal khan
Email ID: akmalkhan@vu.edu.pk
Skype ID: akmal_vu

Online Quiz Management System

Project Domain / Category
Web Application

Abstract/Introduction

Quiz is a very important part of education and content revising. With the help of "Online Quiz Management System", users would be able to create and conduct quizzes for students. Online quiz management system can be implemented in colleges, universities or at home to check the preparation of students and revise contents of different courses. Manual systems are very time consuming and difficult to grade. Online quiz management system would be able to develop, conduct and check the quizzes thus reducing the burden of academics staff and will provide efficient evaluation of students.

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

1. The administrator will be able to add new questions in the quiz.
2. The application will maintain a question bank from where questions will be selected for quiz simultaneously.
3. The system will maintain different subjects for quizzes
4. The administrator will be able to select the start and end date for quiz.
5. While entering the question the administrator will be able to select the right answer for the question entered.
6. The application will be able to evaluate each question by comparing its correct answer.
7. The administrator will be able to select maximum number of questions to be included in the quiz.
8. The administrator will be able to edit or delete a question.
9. The application will enable the quiz for users once the start date is active.
10. Administrator will be able to declare the result of quiz which will be made available to the users after the declaration of result.
11. Administrator will be able to set the attempt time for each question. If the question is not attempted in the time provided then the next question will automatically be uploaded.
12. User will be able to login/logout.
13. User will be able to start the quiz
14. User will be able to end the quiz

15. User will be able to select a single option from the list and save the status of quiz.
16. User will be able to skip a question for later attempt.
17. User will be able to see the attempted and non-attempted questions.

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:
Name: Jibran Khan
Email ID: jibrankhan@vu.edu.pk
Skype ID: jibrankhanvu

Online Location Based Restaurant Finder

Project Domain / Category
Web-based Application

Abstract/Introduction
The application will provide an interface through which users can easily find restaurants from different areas. There are three types of users in this application; Admin, Restaurant-owner and Registered-user. Admin can manage all the application-related data. Restaurant-owner can add details of restaurant and upload banners and images. Registered-user can search for restaurants based on location and food type. Registered-users can also post feedback regarding specific restaurant. This feedback should be visible to all the registered-users if they search that specific restaurant. Restaurant-owners can view the posted feedbacks regarding their restaurants.

Functional Requirements:
Three types of users will be using this application.

Admin:
- The application will provide Login interface.
- Admin can view/add/update/delete Restaurant-owner, Registered-user and Restaurant information.
- Admin can view all the feedbacks posted by the users.

Restaurant-owner:
- The application will provide Login interface.
- Restaurant-owner can add details of restaurant and upload banners and images.
- Restaurant-owners can view the posted feedbacks regarding their restaurants.

Registered-user:
- The application will provide registration interface.
- User can login to the system after providing registration details.
- User can search for restaurants based on location and food type and can see offered food, address details and posted feedback etc.
- User can post feedback regarding specific restaurant.

Tools: PHP, HTML, JavaScript, CSS, MySQL

Supervisor:
Name: Muhammad Zafar Nazir
Email ID: mzafarnazir@vu.edu.pk
Skype ID: mzafarnazir

Online Course Management System

Project Domain / Category
Web Application

Abstract/Introduction

Online course management system allows both students and faculty members to manage different course activities throughout the semester. Faculty members will be able to offer courses, management different activities of courses such as assignment uploading, Quiz management and evaluation, Time table scheduling, course material uploading etc. Moreover online course management system will also provide the fee status of students, fine and attendance record. On the other hand students would be able to upload assignments, attempt quizzes, attempt quizzes, check class timing and download different courses related material. Online course management system is implemented both in distance learning system and also in traditional teaching system to help faculty manage their course well and increase productivity. Moreover "Online Course Management System" would be able to reduce the burden of faculty staff.

Functional Requirements:
1. Administrator will be able to login and logout.
2. Administrator will be able to create new courses for a semester.
3. Each course will contain different items such as course material, student's attendance, weekly course schedule, assignment and download section.
4. Administrator will be able to upload different course contents such as PPT files, past papers, important questions, Syllabus, course contents in the download section for students.
5. Administrator will be able to create weekly time table for students.
6. Administrator will be able to maintain daily attendance.
7. Administrator will be able to upload assignments for students.
8. Administrator will be able to register students to their courses.
9. Administrator will be able to upload student's marks for different activities such as assignments, pre board examinations, quiz etc.
10. Administrator will be able accept or reject student's leave applications.
11. Student will be able to mark their attendance online.
12. Student will be able to check weekly course schedule,
13. Student will be able to download different course material such as lectures PPT files, past papers, assignment files etc.

14. Student will be able to check results of different activities such as assignments, quizzes etc.
15. Students will be able to submit leave applications.

Tools: MySQL, PHP, ASP.net, Notepad++(Students may select software tools of their own choice as per their convenience)

Supervisor:
Name: Dr. Nida Anwar
Email ID: nidaanwar@vu.edu.pk
Skype ID: nida.vu

Lost and Found Management System for Airport

Project Domain / Category
Web Programming

Abstract / Introduction
This is web based application for managing records of lost and found items of travelers on airport. Travelers flying to and from airport forget or lost something while they're there. This application works best to make sure that any lost items are returned to their right owners. Found items should be reported or handed over at the Customer Service Information Centers of airport. The admin add description (id, name, category, color, date, weight, brand, area and manufacturer name) of found items by filling form on website. The traveler report about their lost items by creating account and fill description (name, category, color, date, weight, brand, area, pic and manufacturer name) form on web site. If description of lost item is matched with found item then an email is sent to person whose item is lost and who find the item. He/ She visits airport and takes his/her item.

Functional Requirements:
Lost and Found management System has following functional requirements.
1. User will be Registered and create his/her profile.
2. User will be able to login in the website.
3. User will enter information of lost item(s) as well as his/her CNIC number and required information of
   two witnesses.
4. Admin will enter information of all found items and assign id to each found item.
5. Admin will match the product description and inform the user through email if any description matched.
6. Admin will dispatch the item to its owner.

Tools:

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

Supervisor:

Name: Kinza Ijaz
Email ID: kinza.ijaz@vu.edu.pk
Skype ID : iamkinzaijaz@gmail.com

<h1 style="text-align:center">Online Plots Scheme Management System</h1>

Domain / Category
Web Application

Introduction
Keeping manual record of plots is a very tiresome job and takes longer to generate different types of reports. To overcome this problem we will develop a website for plots scheme Company to be able to move their business online and to increase the availability and efficiency of their business processes.

The system should have the following features:

- The system should have a user registration process in order to get login into the system.
- Different Plots details should be available on the main page of website for customers.
- User should be able to add customer record like name, father name, NIC, Contact, etc.
- User should be able to update, delete and search customer information.
- Admin should be able to add property details like plot No, Size, price, location etc.
- Map should be available for all the plots of the society.
- Create a map for only 25 different plots.
- System should be able to highlight free plots in green and sold plots in red.
- User should be able to record ownership history of the plots.
- User should be able to add different town charges like water, security etc. for all plots/customers on monthly basis.
- Installments facility should be available for the customers.
- User should be able to add/update plots installments.

- **Reports:**
  - Sales Report (Daily, monthly, weekly, yearly and custom)
  - List of all Customer (Date wise)
  - Installments report (Customer Wise).
  - Town Charges report. (Month wise, paid, unpaid).

Tools & Technologies
Preferred tool and technology JAVA

Supervisor:
Name: Noor Rahman Mahsud
Email ID: noor.rahman@vu.edu.pk
Skype ID: mahsud-cs619

Online Pharmacy

Project Domain / Category
Web Programming

Abstract / Introduction
Customers/Patients mostly face trouble to find their medicine from different stores. Sometimes medicine does not available and customer has to search for it in different pharmacies. Online Pharmacy is a website which will solve that issue and give the facility to select your medicine according to your need and place online order to reduce the headache to go to market and purchase medicine.

Proposed System
- ➢ It allows users to check for various medicine categories available at the online pharmacy and purchase online.
- ➢ Customer should register himself and make a login account to place order and check his/her history of medicines purchased. Also customer can order without registration, but system will keep record of customer by his phone number.
- ➢ There will be a products menu which will show all the products related to specific area like Surgical, Orthopaedics, Syrups, Antibiotics, etc.
- ➢ There will be a list of medicine's quantity and categories according to each category which will be displayed in the products category menu.
- ➢ Search box can also be used to check medicine availability by medicine name.
- ➢ Each medicine should have a description to show this medicine is for what purpose and who can use it (you can check medicine description inside the medicine box).
- ➢ There will be options to select medicine, its dosage quantity etc.
- ➢ Make a cart to put ordered medicine along with its purchase detail.
- ➢ User can view cart and edit it.
- ➢ Place order, track order and dispatch order features must be there to know about order status. (Use order number or phone number for all these features).
- ➢ There will be rank system to check which medicine's sale is more and from which area.

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:

Name: Neelam Alam
Email ID: neelam.alam@vu.edu.pk
Skype ID: neelam-cs

Kutab and Samane Tahreer Mart

Project Domain / Category
Web Application

Abstract / Introduction
Today the trend of book reading in Pakistan has not maintained its position in the priority hobbies of people. Over the previous years its trend has been declining which is quite sad. Books are an important learning tool and a true friend for people. Books helps you develop awesome vocabulary that you cannot develop otherwise by daily life interaction. Not only that, it makes you a person of intellect and shapes your way of thinking and personality. They increase your knowledge of worldly matters and books like biographies can get you precious insights to many famous and effective peoples' experiences which can aid you in your practical lives to greatest extent .Whether you likes to maintain a well-stocked collection of books and stationary for yourself , or for kids in school , you have come to the right place. Kutab & Samane-Tahreer Mart provides you a vast online collection of books and stationary items to gratify your important, mandatory and productive stationary and kids school needs.

This website has all the products you may require including, Books, stationary, office or school accessories, magazines, Urdu & English books, pens, pencils, staplers, filer, binders, work pads and notepads etc. Shop all these items from this website online in Pakistan with best prices.In this project, we will build user friendly website in order to buy and sell books and stationary online.

Functional Requirements:

Provide a bulleted list of functional requirements

Administrator:
1. Login process to allow authentic user to access the admin panel.
2. Admin will be able add the list of categories on the basis of books, 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 have to 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.
3. Admin will be able to add/update/delete information about promotions and sales.
4. Admin will be able to view customer's profile, feedback and reviews.
5. Admin will be able to generate Sales Report and profit on monthly basis.
6. SMS will be sent to regular customers regarding any promotion or sale.

7. Admin will confirm the order through SMS or email also mention the minimum time of product delivery.
8. Payment receipt is also generated for customer record as well as for admin.

Customers:
9. Customers will get them registered in this application and then will be able to access the web site by logging into system.
10. Customer can view/search the list of items based on their categories.
11. Customer can add the items in their Wish List., also able to edit it as per need.
12. Customer can view the feedbacks and reviews of other customers regarding any product.
13. 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.
14. Customer can update and cancel the order.
15. Customer also able to mention the date and time of delivery.
16. 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:
Name: Nadia Tabassum
Email ID: nadiatabassum@vu.edu.pk
Skype ID : nadia.vu.cs

Online Course Website

Project Domain / Category
Web Programming

Abstract/Introduction

In today's world internet has made tremendous development in all the fields of life including education and learning. With advancement of technologies, e-learning is flourishing day by day. Aim of this project is to use the existing internet technologies and develop an e-learning platform. Using this platform any one can get enrolled in any course(s) from a list of courses offered by industry/academic professionals and can learn new skills.

Functional Requirements:
There will be three types of users:
- Administrators
- Instructors (Course administrators)
- Students

There will be registration feature for Students and instructors.
There will be Dashboard for students for following tasks:
- Course enrollment
- Asking Questions
- Watching Course videos
- Accessing course contents

There will be Dashboard for instructors for following tasks:
- Managing new\existing courses
  - Upload course videos and other content
  - Managing schedule
  - Handling course related queries
  - Managing course announcements
- Managing profile
- Managing students

There will be Dashboard for Administrators for following tasks:
- Approve students and instructors

- Add new administrator
- Approve course after reviewing contents

Tools:

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

Supervisor:
Name: Rehan Ahmed
Email ID: rehan@vu.edu.pk
Skype ID: rehan.vu

<div align="center">

Online Gym Management System

</div>

Category/Domain

Web Application

Introduction

Exercise is extremely necessary for physical and mental fitness it is defined as any movement that makes your muscles work and requires your body to burn calories. There are many types of physical activity, including swimming, running, jogging, walking, dancing and gyming, to name a few. Additionally, exercise can increase the production of endorphins, which are known to help produce positive feelings and reduce the perception of pain. Furthermore, exercise has been shown to reduce symptoms in people suffering from anxiety. It can also help them be more aware of their mental state and practice distraction from their fears. Interestingly, it doesn't matter how intense your workout is. It seems that your mood can benefit from exercise no matter the intensity of the physical activity. Due to the extreme importance of gyming in our daily life you are hereby suggested to create a data base to stream line its activities and make it easy to manage a gym center for the owner or its runner in future. The system must handle at least the requirements being discussed in the following paragraphs respectively. If the developer of this project is going to add some extra features besides already mentioned so he/she can do so.

Functional Requirements:

1. The system should have the features like the user of this system have the facility to search about trainer(s) name(s) and time slot(s) govern by him or them. User must have the facility to view the number of trainees with each trainer while searching. Is there any room for new trainee at available time slot if the there are one or more time slots such is morning and evening provided for trainees?
2. The trainee/user should have the facility to Make Reservation on the time slot most feasible for him if available. Otherwise he will have to wait till the time slot becomes available.
3. The trainee must have the flexibility to show his or over all reservation of the available seats.
4. He also has the facility to cancel reservation to release the occupied seat.
5. The trainee should have the facility to select trainer for him.

Tools and technology:

PHP and MySQL.

Supervisor:

Name: Mukaram Shah

Email ID: mukaram.shah@vu.edu.pk

Skype ID: to_shah

Online Tour planner and Operator

Project Domain / Category
Web Application

Abstract/Introduction
ABC Tours Private Limited (ABCT) is offering a variety of tours which are highly in demand and hence most of their customers book their tours well in advance.
Each tour that is offered has been scheduled to start and finish on the same day. During each tour, the customers / travelers will be visiting many sites. All of those sites offer site seeing, however only some of those sites offer various activities in which the customers can participate. Some of the sites that are visited in a tour may also be included in other tours. For each of the tours, a tour guide is allotted by ABCT.

Note:
- Each tour must have a distinct name and a price along with additional attributes depends upon your design.
- Each site must have a name along with additional attributes.
- Each activity must have a name, duration and number of participant in that activity.
- Each tour guide must have attributes saved in along with name.

Additional attributes for tour, site, activity and tour guide are left to your choice.

You need to create a web based application that performs the following:
- Create and store activities
- Create and store sites with or without activities
- Create and store the details tour guides
- Create and store tours and allot a tour guide to a tour

Depending on your design, you may have to create many database tables. Creating suitable tables for the following may help you to design the application effectively:
- Site (without activity)
- Site with activities
- Tour including list of sites and a guide
The web page should have necessary controls that are necessary to receive the input data and the application should store them appropriately. The web page's layout is left to your choice. The page should also be user-friendly and is expected to display appropriate error/exit messages. The web application should also show your Student ID and Full name.

The data type for each of the inputs has not been mentioned purposely. You need to use appropriate data type accordingly. The following Buttons, in addition to other controls, should be available and perform appropriate actions:
 Clear Form – to clear the current inputs and present the default page
Exit – to confirm the exit and then return to main page / home page

Important Guideline:
- Admin will create / authenticate tour guide's login
- Admin has responsibilities to enter sites and activities
- Each Tour guide would able to create a tour plan of its own along with its price
- Each tour plan has limited seats for reservations
- Plans are viewed by travelers and then book number of seats against each tour
- Payments are done by using credit card. (Use dummy credit card number of 10 digits)
- Visitor / traveler is not allowed by system to book two different tours which start or end dates are overlapped
- Visitor / traveler may apply for cancelation of tour plan to request system admin and admin would only allowed to cancel that tour reservation before one week of start date.

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

Supervisor:
Name: Rizwan Riaz Mir
Email ID: rizwan-mir@vu.edu.pk
Skype ID: rizwan-mir

Project Manager (PMAN)

Project Domain / Category
Web Programming

Abstract / Introduction
Different software development organizations follow different software development models e.g. waterfall, RAD, spiral and Iterative etc. PMAN is an online application that will manage all the projects undertaken by a certain software development organization. A project may be developed by using any appropriate process model for example an ERP may be developed by Waterfall model at the same time when the same organization is developing another POS terminal system by using Spiral Model. PMAN will facilitate organization by letting it manage project related activities e.g. which resources are allocated to which projects? What are deadlines of certain task? How much of a certain project is completed, Are we on budget and schedule? Which resource person has how much load? Etc.

Functional requirements:

Project Assignment Module (PAM):
This is the simplest module of application, operated by top-level management to assign a certain development model to a project along with final deadline and budget. Alternatively this module can also be used to check complete schedule of a project along with information of the projects that are running out of schedule.

Work Breakdown Module (WBM):
 This module will let us break a certain project in number of sub activities (up to N level) and assign certain resource person(s) to each activity along with their deadlines. This module can also be used to track individual resources along with their assigned tasks, deadlines, load level [1] Etc. This module can be used for resource reassignment to other activities as well.

Budget Management Module (BMM):
This module will be used to manage overall budget of the project. All the expenditures that are carried out with passage of time are entered along with their details. The reports generated by this module can be used to check information like: How much budget has been consumed? How much budget is left? Are we running out of budget or not? etc.

Project Complete Picture (PCP):

This module will show the complete picture of projects i.e. all the information of the project but information will be shown according to the user level e.g. top management can check complete information including budget, lower-level management can see only work breakdown etc.

[1]Note: You can use any technique to evaluate work load of a resource.

Tools: ASP.net, C#, SQL Server.

Supervisor

Name: Muhammad Summair Raza

Email ID: sraza@vu.edu.pk

Skype ID: summair.raza

Procurement Management System_Waqas

Project Domain / Category
Web Based

Background
In many large organizations, procurement is considered a very hectic, challenging and time consuming process due to higher procurement costs, labor costs and mostly importantly due to the element of corruption involved during procurement. Some individuals in the organization may want to give the contract to the their favorite contractor thereby receiving higher kickbacks which eventually leads to low quality products being purchased or purchased at very higher costs resulting into financial loss to the organization. Due to these factors, the traditional mode of operation and methods of procurement cannot meet the needs of modern procurement. In order to achieve the pursuit of efficiency and effectiveness, the establishment of procurement management information system is very necessary.

Project Introduction
In this project, we want to develop an online web based procurement management system to overcome the many drawbacks of procurement and purchasing management of the organizations. The proposed project will not only facilitate the organizations in managing the procurement but also ensure that the all steps involved in the procurements should be free from any corrupt elements.

There will be following users of the system:
- Organization Departments
- Procurement Manager
- Contractors/Sellers/Bidders

There are different departments in any organization which may need some items/resources to be purchased at different times. Each department submits its request for the required products (stationary, furniture, computer accessories etc) to the procurement manager through online procurement management system. The procurement manager can view those items' requests and may approve or reject those requests. Once, the request is approved by the manager then it then publically visible to the sellers/bidders as tender. The sellers/bidders can bid on any which they can submit their quotations.

Following will be the functional requirements of the system.

User Registration and Login:
- The system will allow the users to register into the system.
- The procurement manager will act as an administrator and will be primary user of the system.
- The departments and bidders can registers themselves to access the system.
- The departments can register themselves by entering the basic registration details like department name, location, contact info etc.
- The bidders can register by entering their information such as contractor name, address, contact number, NTN number and other relevant details.
- The registered users can log into the system by using the username and password.

Products/Items Requisition:
- The representative of any department can log into the system and submit the requisition for the items required by the organization by filling a form.
- The item requisition form will include the item type, item name, manufacturer, quantity required etc.
- The department can view the status of their previous requisitions.

Tender Issuance:
- Once the requisition is submitted, the procurement manager can view this requisition and then it may accept or reject the item request.
- Once, the request is accepted by the procurement manager, it is publically available to all the registered bidders to be seen.
- The registered bidders can then bid of the requested products and submit their quotations such as the items' manufacturer, offered price and any relevant details of the items.
- The bidders can also search the tenders using the item name etc.

Bids Management:
- Once all the bids are submitted by the bidders for any specific tender, these bids are available to the bidder which can then accept a bid with the best price offered.
- The procurement management also has the rights to blacklist any bidder so that he is not eligible for bidding for any future tenders.
- Once, the bid is accepted, the tender is finalized and the items/products requested by the department are ready to be purchased.
- All the previously submitted bids can be viewed by the procurement management.

Tools and Languages:

- Visual Studio (C# with ASP.NET), SQL Server Management Studio

Supervisor:
Name: Waqas Ahmad
Email ID: waqas.ahmad@vu.edu.pk
Skype ID: waqas_vu

Note: The above given are just some of the very important functionalities of the proposed project. You may add more functionality to the system by using the domain knowledge which you can gained by using the below given link.

❖ **Reference Link:**

- http://ieeexplore.ieee.org/document/6014650/

Procurement Management System_Meh.Ali

Project Domain / Category
Web Based

Background
In many large organizations, procurement is considered a very hectic, challenging and time consuming process due to higher procurement costs, labor costs and mostly importantly due to the element of corruption involved during procurement. Some individuals in the organization may want to give the contract to the their favorite contractor thereby receiving higher kickbacks which eventually leads to low quality products being purchased or purchased at very higher costs resulting into financial loss to the organization. Due to these factors, the traditional mode of operation and methods of procurement cannot meet the needs of modern procurement. In order to achieve the pursuit of efficiency and effectiveness, the establishment of procurement management information system is very necessary.

Project Introduction
In this project, we want to develop an online web based procurement management system to overcome the many drawbacks of procurement and purchasing management of the organizations. The proposed project will not only facilitate the organizations in managing the procurement but also ensure that the all steps involved in the procurements should be free from any corrupt elements.

There will be following users of the system:
- Organization Departments
- Procurement Manager
- Contractors/Sellers/Bidders

There are different departments in any organization which may need some items/resources to be purchased at different times. Each department submits its request for the required products (stationary, furniture, computer accessories etc) to the procurement manager through online procurement management system. The procurement manager can view those items' requests and may approve or reject those requests. Once, the request is approved by the manager then it then publically visible to the sellers/bidders as tender. The sellers/bidders can bid on any which they can submit their quotations.

Following will be the functional requirements of the system.

User Registration and Login:
- The system will allow the users to register into the system.
- The procurement manager will act as an administrator and will be primary user of the system.
- The departments and bidders can registers themselves to access the system.
- The departments can register themselves by entering the basic registration details like department name, location, contact info etc.
- The bidders can register by entering their information such as contractor name, address, contact number, NTN number and other relevant details.
- The registered users can log into the system by using the username and password.

Products/Items Requisition:
- The representative of any department can log into the system and submit the requisition for the items required by the organization by filling a form.
- The item requisition form will include the item type, item name, manufacturer, quantity required etc.
- The department can view the status of their previous requisitions.

Tender Issuance:
- Once the requisition is submitted, the procurement manager can view this requisition and then it may accept or reject the item request.
- Once, the request is accepted by the procurement manager, it is publically available to all the registered bidders to be seen.
- The registered bidders can then bid of the requested products and submit their quotations such as the items' manufacturer, offered price and any relevant details of the items.
- The bidders can also search the tenders using the item name etc.

Bids Management:
- Once all the bids are submitted by the bidders for any specific tender, these bids are available to the bidder which can then accept a bid with the best price offered.
- The procurement management also has the rights to blacklist any bidder so that he is not eligible for bidding for any future tenders.
- Once, the bid is accepted, the tender is finalized and the items/products requested by the department are ready to be purchased.
- All the previously submitted bids can be viewed by the procurement management.

Tools and Languages:

- Visual Studio (C# with ASP.NET), SQL Server Management Studio

Supervisor:
Name: Mehboob Ali
Email ID: mehboob.ali@vu.edu.pk
Skype ID: mehboobalivu

Note: The above given are just some of the very important functionalities of the proposed project. You may add more functionality to the system by using the domain knowledge which you can gained by using the below given link.

❖ **Reference Link:**
- http://ieeexplore.ieee.org/document/6014650/

Online Quotation Generator for Personal Computers

Project Domain / Category:
Web Programming

Abstract/Introduction:
"pcquot.com" – Online Quotation Generator for Personal Computers is a website that generates the price quotation for the webpage visitors. To generate a quotation, a form should be displayed to the user. User will select the items form drop down menu. Form will calculate the total amount from the running price of each item selected. Main categories should include Processor, Motherboard, RAM, Storage, Keyboard-Mouse Combo and Accessories (like USB drives, Printers, Speakers, Headphones, Stylus etc). Each category must have item with at least three properties: manufacturer, model and price tag. There could be different variants for any item e.g Intel has i-series processors and Celeron processors. Keyboard-Mouse Combo could have wireless or USB keyboard and mouse.

Stakeholder:
1. Administrator
2. **Visitor**

Functional Requirements:

GUI interface:
1. Main page will show different categories and quotation generation link.
2. Preview Page: When user/visitor clicks on any item, a new page for the details of the item should be shown to user/visitor. This page should contain pictures for particular item. You can show current market price value on this page.

Manufacturer: Dell

Model: DDR

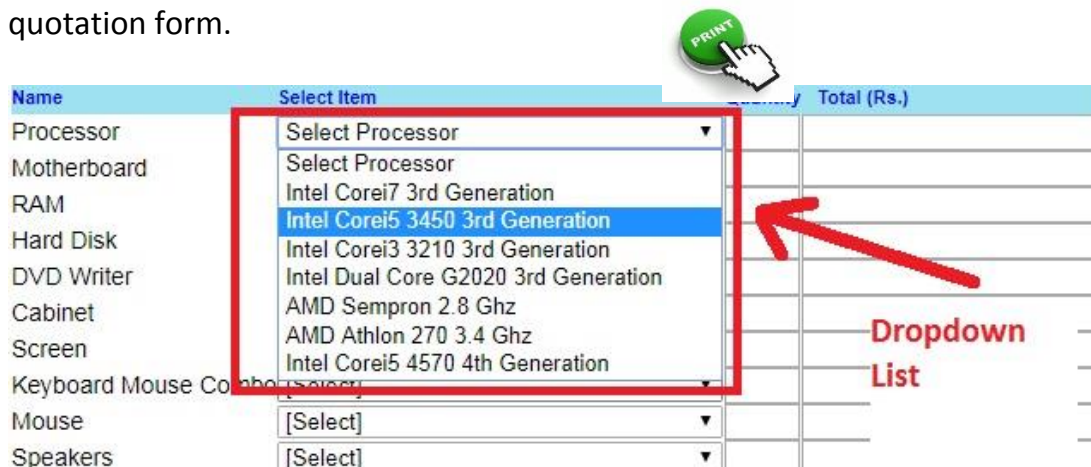| |
|---|
| Price: Rs. 3000 |

[additional]
[additional]

3. User should be able to generate the price quotation for PC.
   Quotation form structure:

Name	Select Item	Quantity	Total (Rs.)
Processor	Select Processor ▼		
Motherboard	Select Motherboard ▼		
RAM	Select RAM ▼		
Hard Disk	[Select] ▼		
DVD Writer	[Select] ▼		
Cabinet	[Select] ▼		
Screen	[Select] ▼		
Keyboard Mouse Combo	[Select] ▼		
Mouse	[Select] ▼		
Speakers	[Select] ▼		
Webcam	[Select] ▼		
Antivirus	[Select] ▼		
Pen Drive	[Select] ▼		
Power Supply	[Select] ▼		
TV Tuner Card	[Select] ▼		
Scanner	[Select] ▼		
Printer	[Select] ▼		
Headphone	[Select] ▼		
Router	[Select] ▼		
Internet USB Dongle	[Select] ▼		
Computer Accessories	[Select] ▼		

Total Price : 0.00

Submit

NOTE: The above form is for demonstration purpose as sample. You can add/remove fields from this form.

Item selection on Form: To select an item, drop down list should be appeared on quotation form.

PRINT

Name	Select Item	Quantity	Total (Rs.)
Processor	Select Processor ▼		
Motherboard	Select Processor		
RAM	Intel Corei7 3rd Generation		
Hard Disk	Intel Corei5 3450 3rd Generation		
DVD Writer	Intel Corei3 3210 3rd Generation		
Cabinet	Intel Dual Core G2020 3rd Generation		
Screen	AMD Sempron 2.8 Ghz		
	AMD Athlon 270 3.4 Ghz		
Keyboard Mouse Combo	Intel Corei5 4570 4th Generation		
Mouse	[Select] ▼		
Speakers	[Select] ▼		

Dropdown List

Visitor:
1. A visitor is a non-registered user of the website.
2. Can view different items and can explore different categories.
3. User/visitor should be able to generate the price quotation for PC.
4. Can print the quotation.

Administrator:

1. Updates category/items information
2. Generates reports from website
3. Manages categories of manufacturers/brands.

Others:

➢ Different searching filter should be implemented so that a visitor can search a particular item.
For example: search by price range, search by name of manufacturer etc.
➢ You can implement 360 degree preview of a particular item [optional]

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

Tools:
WAMP/XAMPP server, PHP, MySQL, HTML editors (Dreamviewer, Notepad++).

Supervisor:
Name: Abdul Majid Khokhar
Email ID: abdulmajid@vu.edu.pk
Skype ID: abdulmajidkk

Pakistan Railway Tracking and Arrival Time Prediction

Project Domain / Category
Web programming

Abstract / Introduction
Pakistan Railway System provide an important mode of Transportation in the farthest corners of the country and brings them closer for Business, tourism, and education. It has happened so many times that you have been waiting on railway station for someone to arrive and you do not have any exact information about train timing and other stuff. The proposed project on Pakistan Railway Tracking and Arrival Time Prediction system any one can get information about train timing, and is it on time or not, and other information. In this, system will track the train timing at what time train departed from a particular station and pass these timing details to other station's system where it will display the timing according to train departed from previous station. If system will find any delay in train due to signal it will automatically update the train timing in next station and will be displayed to viewers.

In this system there is an admin module, who enters the detail about trains and its timing and these details will be passed through internet server and is fetched by the system on other stations, and there is other system that shows train information to the viewers on platform. Second system will get all the information of all trains but will automatically select the data that refers to particular station and shows that information on screen. For example if an admin at Lahore station enter information about Faisalabad station and Islamabad station system will not be effected, but Faisalabad Station system will show the information about train. This system works like when train is departed late from a station, admin will enter details about departure and its time, and this information goes in real time on internet server and retrieved on other system through internet server and shows the details on screen. This second System is installed on various locations on station for viewers to view the information. Admin will add information like train departed from station, expected arrival at destination, delay in the train schedule, etc.

Functional Requirements:

- **Admin Login:** Admin will login to the system using admin ID and password.
- **Add Train Details:** Admin will add train details to the system from the station where train departed like train departed from station, expected arrival at destination, delay in the train schedule, etc .
- **Add Time-Table:** Admin will add time table schedule upcoming trains.

- **Train Delay:** If admin in next station finds any delay in train schedule due to signal admin will update the train details.
- **Railway Train Fare:** Admin will update ticket price of different sides/locations
- **Categories of train classes.** Admin will update about economy class , AC Business , AC Standard , First Class sleeper , AC parlor , Lower Air-condition etc ticket price
- **Viewer:** This second System is installed on various locations on station for viewers to view the information about train timing.
- **Viewer:** This system will help viewers to know about train delays and timing.
- **Viewer:** System will provide accurate details about the train to viewers.

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

Supervisor:
Name: Qaiser Shabir
Email ID: qaiser.shabbir@vu.edu.pk
Skype ID: qaiser_shabir

<p style="text-align:center">**Online Sweets Purchase System**</p>

Project Domain / Category
Web based Project

Abstract / Introduction
The main aim of this project is to develop an interactive website that facilitates the customer with an on-the-click functionality which is useful to find sweets for any occasion with different categories like sweets, premium sweets, assorted sweets and make your own box etc. and customer can buy them at any time. The aim of this application is to reduce the manual effort needed to manage transactions also the software will help in easy maintaining and updating sweets purchases in the website for the administrator.

Existing System
In shops all the orders are taken manually. The stock is maintained on paper. Paper work takes more time and may lose the data. It demands more man power and time.

Proposed System
- ➢ An online sweets shop that allows users to check for various sweet categories available at the online shop and purchase online.
- ➢ The project consists of list of sweets quantity and sweet categories displayed with their prices.
- ➢ The user may browse through these sweet categories as per his/her requirement.
- ➢ If the user wants to buy sweets he/she may add it to his/her shopping cart.
- ➢ Once user wishes to checkout he/she must register on the website first. User can then login using same id password next time.
- ➢ Payment mode may be cash on delivery, Debit card and Credit Card.
- ➢ Once the user makes a successful transaction he/she gets a copy of the shopping receipt on his/her E-mail id.
- ➢ The system will also reduce the manual operation associated with the maintenance of the records consisting of the product, product order details, and customer details.

Number Of Modules

1. **Login/Registration Module**: In this module, the Administrator or the customer will have to authorize his/her access to the modules of this online system.
2. **Sweets Categories Module**: In this module each and every operation related to the sweet category and sweet quantity such as adding new sweet category/quantity, editing the existing sweets category/quantity, delete sweets category/quantity, gets the lists of sweets category/quantity and reports of sweets category/quantity will be managed. Sweet items are arranged and can be viewed in categories. i.e.

   ### Sweets
   - Amrati, Badam Barfi, Balushahi, Burfi Plain, Besan Ladu, Pateesa,gulab Jamun, Chamcham etc.

   ### Premium Sweets
   - Ajwa dry fruit halwa, Akhrot halwa, Badam Peray,Injeer Dry fruit roll,Kaju ladu etc.

   ### Assorted Sweets
   - Assorted barfi, Assorted Halwa Bites,Assorted Ladu, Assorted special sweets etc.

Visit this link for sweet categories options
http://www.bundukhansweets.pk/assortmentes/

3. **Customer Module**: This module helps the customer to Sign-in, creating an Account, Search sweets category, Select sweets category/quantity, Buy sweets, Continue Shopping, View/Edit Cart, Checkout, Bill Information, Confirm order, and Delete Order.
4. **Admin Module**: In this module, add sweets category/quantity, modify sweets category/quantity, delete sweets category/quantity, Sale Record, Database's data Report, transactions history are included.

Functional Requirements

1. A Login and registration facility for enabling access to system both for customers and Admin.
2. The customer can view/search the Sweet Categories without logging into the system or getting him/her registered.
3. To buy Sweets, user should follow the registration (login) process.

4. Administrator will maintain the system through admin panel which consists of order bills, order Status add/update/delete the product details in the catalogue.

Tools:

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

Supervisor:
Name: Komal Khawer
Email ID: komal.khawer@vu.edu.pk
Skype ID:kom.kk

Possession and Leasing of Car

Project Domain / Category:
Web Programming

Abstract / Introduction:
This site will be launched by a showroom. They are providing the facility of selling cars online in Lahore, Islamabad and Karachi on either at full payment or at installments. On home page there are multiple images of cars available with their prices. There are also categories of different car's companies available. Any customer, who wants to purchase the car online, needs to create the profile including his and his guarantor's bank's details. After creating the profile user will be able to sign in to his account. After signing in he will be able to order a car either with full payment or on installments. Delivery of car at doorstep also includes some additional charges. After completion of order a confirmation message will be appeared on the screen.

Functional Requirements:

➢ User registration process including bank's details.
➢ Two guarantor's bank's details.
➢ Sign in page with log in ID and password.
➢ Categorization of cars according to car's companies.
➢ Selection of city.
➢ Payment method (full payment/ Installments)
➢ Additional charges for delivering car at doorstep.
➢ Confirmation message on completion of order successfully.
➢ Cancellation of booked car is possible within 24 hours.
➢ After completion of order log out facility for customer's security.

Tools:

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

Supervisor:
Name: Komal Saleem
Email ID: komal.saleem@vu.edu.pk
Skype ID: komalsaleem123

Pathology Lab Management System

Project Domain / Category
Web based Application

Abstract / Introduction
The main aim of this project is to develop a website that facilitates the user with an on-the-click functionality which is useful to find patient's lab report. User can get lab report at any time through this website. The aim of this application is to reduce the manual effort and time needed to travel and collect the report of a test from laboratory and this software will be helpful for the administrator also for the maintenance of the patient's history. However, patient will provide the test sample at the laboratory/ collection center and will pay the relevant fee. Support staff will provide the receipt.

Patient can get the Pathology lab reports (e.g. blood analysis, blood count, bone marrow aspiration) by entering the invoice number and access code through their receipt. Any other reports (ECG, CT, X-Ray, MRI, etc.) are not available online and for these, users can visit the hospital. User can download and print your own reports. In case of assistance, user can email to the Support staff. Moreover, reports can be viewed for a period of **6 months** from the invoice date.

<mark>Note</mark>: Provide the user, sample invoice number with access code at the view lab reports interface.

Functional Requirements
 Here are following modules in **Pathology Lab Management System**
 ➢ **Patient Module**
 ➢ **Admin Module**
 ➢ **Healthcare Professionals**
The Functionality of each module of **Pathology Lab Management System** is as follows:

5. **Patient Module**: This module helps the user to Sign-in, Create an Account, Search Lab report, Patient history, Feedback, Patient Success story
6. **Admin Module**: In this module, Add Lab Report, Update Patient Report, Delete Report, History, Delete History, Approve Patient Success Story is included.
7. **Healthcare Professionals:** In this module, Healthcare specialists will share their experience of Medical services and research, Patient Information Guidelines.

Tools:

Software Requirements:
- Operating System: Window7and above
- HTML,CSS, Javascript (Front-end)
- MYSQL(Backend)
- PHP(Server side programming)
- XAMP — Web Application Server

Supervisor:
Name: Shafaq Nisar
Email ID: shafaq.nisar@vu.edu.pk
Skype ID:shafaqnisar1

Trip Karigar

Project Domain / Category
Web Application

Abstract / Introduction
Develop a tourism website in which Admin will create new trip/tour plans i.e.1 day trip to 7 days tour in different northern areas of Pakistan. Admin will also respond to the custom trip/tour queries by the users i.e. Queries regarding quote, itinerary, road map and services which will be provided.
Users can view trips which are already created by the Admin. User can book trip/tour , User can filter categorically i.e. 1 day trip, 3 day Tour etc. or by location wise i.e. Naran Tours, Hunza Tours etc.
User can get a Quote for their Custom trip/tour by filling a form in which they will give all required information i.e. Departure Place, Arrival Place, Number of Days, Number of Person, Services required etc.

Functional Requirements:
Admin Panel:
- User Management
- Create/Read/Update/Delete Trips and Tours
- Reply to the Custom Trip Query generated by the users
- Give Quote for Custom Tours

User Module:
- Sign In/Sign Up
- Get Quote for Custom Trip/Tour
- View Trips Created by the Admin
- Book Trip/Tour
- Cancelation of Booking

Tools:
Sublime Text Editor ,Notepad ++ or PHP Strom, Xampp, WampServer etc. Students can use core PHP and HTML or they can also use CodeIgniter or Laravel Web Frameworks for development of this project.

Supervisor:
Name: Zamar Khan
Email ID: zamar.khan@vu.edu.pk
Skype ID: zamar.khan@live.com

Smart Rescue System

Project Domain / Category

Web Programming

Abstract / Introduction

The Smart Rescue System is proposed with aim to provide instant rescue services in case of fire, accidents, flood, crime etc. Using this web based application, people can report different type of emergencies along with their location. Depending on nature of emergency, they will be offered rescue service like land ambulance service, air ambulance service, fire service etc. This application will also allow people to view emergency data which has been reported in past like statistics of Road Traffic Accidents, Fire Emergencies, Crime incidents, Medical Emergencies, Drowning etc.

Functional Requirements:

Following are abstract level requirements of the project. Students are required to provide detailed requirements in SRS documents.

FR1. Allow user to report an emergency
FR2. Verification process to avoid fake emergency reporting
FR3. Notification should be sent to relevant authority for response
FR4. User must receive instant response on reported emergency
FR5. Filter emergency data according to area, location and type of incident reported
FR6. Store emergencies data in database
FR7. Consolidated report of emergency calls and rescue operations should be displayed based on Province and further at district level.
FR8. Contact details (phone, fax and address) of all rescue offices
FR9. Suggestions/Complaint Module

Tools:
Visual Studio (C#.Net) and SQL Server

Supervisor:
Name: Umra Naeem
Email ID: umra.naeem@vu.edu.pk
Skype ID: umra.naeem

Result Compilation System Application

Project Domain / Category
Web based Application

Abstract/Introduction
Different institutions are handling exam system manually so, it is very difficult to compose a weekly/monthly tests then summarize the marks and generation of Student Progress Reports on basis of tests. The proposed web based software will handle all such things to facilitate teachers to compose a test, put marks and create result sheets etc. The proposed web based application is required for all educational institutions in order to know when the test will be conducted and from which part of the subject. After taking test offline on paper sheets, the marks will be entered in the system by the concerned teacher. Finally, if guardian of any student wants to know the marks, the application should support it and progress report could be generated.

Functional Requirements:
- The application should have the following major modules:
  - Question Paper Module
  - Exam Marks Entry
  - Result Preparation.
- There will be only one user of the application initially i.e Admin
- Admin could be able to create any teacher login id.
- The teacher could be able to create Test on the basis of Year, Class, Date and Time, Total Marks and Chapter/Topic.
- The application should keep track the teacher name etc. about entry of marks as well.
- The application should provide facility for the teacher to create test containing MCQs and with descriptive questions.
- After entering test questions, the teacher could print paper to give offline test to students.
- The application should provide interface to enter student wise marks of any test.
- Finally, the detail result of all the tests could be viewed and result sheet could be generated.
- All types of reports should be generated i.e Month Wise for each student, Overall Test Detail for each student, Class Wise Reports, Student Wise Reports etc.

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

Supervisor:
Name: Adnan Asif
Email ID: adnanasif@vu.edu.pk
Skype ID: ch.adnanasif

Project Domain / Category

Web Programming

Abstract:

"Store to Door" is website for the home delivery of different grocery items. It is an on demand grocery store. It will provide you delivery within your city. The aim of this website is to reduce the effort of the customer to go out and visit any market to purchase grocery item. System will also reduce the manual effort of the Administrator needed to manage transactions, maintaining, updating purchases and stock management in the website.

This website offers following categories:

- Fruits
- Vegetables
- Dairy Products
- Eggs and Meats
- Bakery Items

Functional Requirements

Modules:

Customer Module:

- Sign Up/Login: The customer can view/search the grocery categories without registration. Sign Up or login is compulsory for purchasing any item.
- Customer can view his order history. After receiving the package successfully, customer can update the order status to "received".
- Customer can also give feedback/review about any product.
- System can store the buying history of the customer.
- Customer can add products to cart, check out through cash on delivery or 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 products or edit existing products or categories.
- Admin can view, manage orders, confirm/cancel orders manually.

- Admin can manage the stock of each product. Also system can generate warning if stock of any product will be less than 20.
- Admin can generate coupons or offers against any product.
- Admin can manually add or delete any customers.
- Logout

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

Supervisor:
Name: Maham Murtaza Khan
Email ID: maham.murtaza@vu.edu.pk
Skype ID: maham.khan024

The Smart Pharmacy

Project Domain / Category
Web Application

Abstract / Introduction
The smart pharmacy system, is a system that stores data and enables functionality that organizes and maintains the medication use process within pharmacies. The system serves many purposes, including the safe and effective dispensing of pharmaceutical drugs. During the dispensing process, the system will prompt the pharmacist to verify the medication they have filled is for the correct patient, contains the right quantity and dosage, and displays accurate information on the prescription label.
Necessary actions for a basic, functioning pharmacy management system include a user interface, data entry and retention, and security limits to protect patient health information.

Functional Requirements:

Provide a bulleted list of functional requirements

6. Staff management
7. Flexible payment options
8. Reports and analyses
9. Management of expiry dates
10. Barcode Management
11. Stock and Sales Management
12. Print Sales Invoice
13. Prescription Management

Requirements Not Necessary But Appreciated:
- Use Ajax based requests.
- Use of Frontend Libraries such as Bootstrap, Material Design etc.
- You can use libraries from Github for payment options.
- Use Git as version control for project.

Tools:
Any web development tool e.g. PHP, ASP.NET, Java, along with any Database.

Supervisor:
Name: Hafiz Wajahat Hashmi
Email ID: wajahat.hashmi@vu.edu.pk
Skype ID: wajishah007

Responsive Blog Post's Opinion Mining Sentiment Analysis System

Project Domain/Category
Web Application

Introduction
Here we propose a sentiment analysis mining system that detects hidden sentiments and rate that particular post accordingly. Based on these comments system will recognize the sentiments in every user's comments and based on these sentiments it rate the comment whether this post is good, bad or worse. Firstly, it extract the sentiment from the particular comment then this system will use a database of keywords along with positive and negative weight then based on these sentiment keywords mined in user's comment is ranked. User can visit any blog post and read admin or other user's comments without login but if user want to comment on any particular post then user must be login first. User's comment will match with the keywords in database and will rank the topic. User can edit his profile, profile picture and password. The role of admin is to add sentiment's keyword, delete any users and comments. This system will generate a sentiment reports of a particular post's comments in table form. This system is very useful to get idea of people's thinking about any idea, product or movie.

Functional Requirements

- **Admin Login: -** Admin login's to the system using his Admin ID and password.
- **Add Post:** - Admin can post topics.
- **Add Keywords:** - Admin add keywords in database so that system will match the comment with the keywords in database and will rank the topic.
- **User Login: -** User login's to the system using his user ID and password.
- **Comment:** - User will post comment on the topic.
- **View Comment:** - User can view comment of other user's.
- **Rating Calculation:** - System will match the comment with the keywords in database and will rate the topic. This only be visible to admin only.
- **Edit Profile:** - User can edit his profile and can change his profile picture.
- **Status:-** User can view status and can change his status.

Tools:

- Windows 7 or Windows 10
- Bootstrap
- HTML, CSS
- Php or asp.net
- Mysql or any database

<u>Supervisor</u>

Name: Faizan Tahir
Email ID: fazitahir@vu.edu.pk
Skype ID: faizan.vu

SWS Online Tailoring-Suits which suits you

Domain/Category
Web Application

Abstract/Introduction
Nowadays major fashion houses around the world are not always at the helm of the latest technology innovations. Not only because they make clothes in just the standard sizes, which often don't fit the majority of the world's population, but also since they force us to rush back and forth to the dressing room, with a pile of different sizes until we find a decent fit. When the clothes don't fit we have two options. Either we throw them away or return them to the store. Both options are on the increase and both impact our environment.

Further Manual maintaining different types of tailoring data 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 customers, we will create a web base application. The aim of this application will be to automate the tailoring business and to provide paper less environment.

Functional Requirements:

The system should have the following features:

The system should have a user registration process in order to get login into the system. Login will be of two Types. Customer and Admin

Admin Role

Admin can register its employees i.e. tailors
Admin should be able to view the order of customer.
Admin can assign the customer order to employed tailor
Admin can check status of all orders placed
Admin should be able to add/update orders of customers.
Admin should be able to add/update new categories of stitching like shalwar kameez/formal suiting and event suiting
Admin should be able to add/ update details of stitching costs for each category
Admin should be able to send SMS to the customer on completion of order
Admin should be able to add/update staff, monthly salary and designations.

Customer Role

Customer can register itself
Customer can add basic information like name, address and contact no etc.
Customer can place order by giving sample or exact measurements details
Customer can update/delete order with in time limits specified by system.
Customer can schedule a free sample pickup if measurements are not accurate.
Customer should be able to view his order status online.

Tailor Role

Tailors can view orders placed by admin to their account
Tailor can update customer order status.
Tailor can send SMS to customer for query regarding measurements and can view it.

Reports:

List of all customers (Date wise, garment wise)
List of all orders (Date wise, complete orders, cancel orders)
Option should be available to print Receipt of the orders.
Report of income between two dates
Report of expenses between two dates

Tools & Technologies Preferred tool and technology

JAVA, Database –MySQL

Supervisor:
Name: Asma Batool
Email ID: asmabatool@vu.edu.pk
Skype ID: Asmabatool13

Web-base Research Collaboration Platform

Project Domain:
Web Application

Abstract:

In recent times, a number of web-based collaboration portals are being developed to assist the community in various ways. The students, researchers, normal users, faculty, industry personals find these collaboration portals useful for finding solution relating to diverse natures of problems. In this project, a web-based Research platform is to be developed where students can get answers of problems related to their study and research. The researcher can utilize this platform as a way of collaboration with the researchers of their interest. For the industry, they can hire various renowned experts for consultancy. The teachers can provide their supervisory services to the students and vice versa.

Functional Requirements:

Application should have all intended features as given below.

- Able to provide the registration, login/logout interface
- The information about students, teachers, researchers, industry personal can be stored in the database
- Different users can interact with other relevant users.
- The users can post their problems
- The industry personals can find relevant expert
- The student can find relevant expert
- Various research groups are to be created and maintained
- The student, researchers can join relevant group
- There are some **other requirement** 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.

Tools:

GUID Designing: HTML/CSS

Programming Language: PhP Framework

Database: MySQl

Supervisor:

Name: Muhammad Ibrahim

Email:ibrahimmayar@vu.edu.pk

Skype id: ibrahimmayar