

3 Digit Calculator Using Microcontroller using Microcontrollers

Project Domain / Category

Digital Logic Designing / Embedded System Programming

Abstract / Introduction

As already known that a calculator is a device that is used for making mathematical calculations such as adding, subtracting, multiply, divide, and find percentage etc. A hardware based calculator is an electronic device with a keyboard and a LCD display that can find basic mathematical calculation. You are required to design a digital calculator that can take 3 digits input from a keyboard and can perform basic arithmetic operations on two inputted variables and display result on LCD interface.

Functional Requirements

- 3-digit input (single variable)
- ADD
- Subtract
- Multiply
- Divide
- Percentage
- LCD Interface

Tools

- Microcontrollers (Intel 8051/8052 series)
- C/C++ Programming Language
- Assembly Language
- Circuit Designing Software (Orcad Pspice, WorkBench)
- Keil Embedded Development Kit
- Microcontroller Burner Kit
- Circuit Components (Resistors, Capacitors, oscillators etc.)
- Wireless interface devices (ZigBee etc.)

Supervisor

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

An Intelligent Mobile Learning Application

Project Domain

Mobile Application

Abstract

Intelligent e-learning systems intend to improve the quality of e-learning services. This mobile application will get the student's previous knowledge and its level of learning by using different set of MCQS based questionnaire .After evaluating the student's abilities and previous knowledge the system will show the contents of the course according to the student's needs and requirements. First of all the student will select some domain or course in which he is interested. A test of the related subject will be taken by the student , after getting student's answer the mobile application will evaluate the student' status as beginner level , Intermediate Level or Advance Level. The proposed system will save the student's status in his/her session. After student evaluation process the system will show the context of the subject to the student according to his/her requirements depending upon the previous knowledge. After reading one lecture of the course, a test will be conducted to evaluate the student's performance. After that new lectures will be appeared to the students according to his/her learning abilities.

Functional Requirements:

- ✓ Student Login: using his name and password
- ✓ Student Selects Courses from the drop down list
- ✓ A set of MCQs based test will be appeared on the screen
- ✓ Student's evaluation will be made on the basis of the test result.
- ✓ Student's status will be saved in his session as beginner level , intermediate level or advance level
- ✓ A selected course contents will be displayed on the screen according to the student's level in the course
- ✓ After completing one lecture, a test will be conducted to evaluate the student's performance.
- ✓ At the end of each test student's level will be shown on the screen to inform him about his expertise in the subject
- ✓ Student will also be guided about his weak areas in the subject and suggests him lectures to learn about the selected subject.
- ✓ "Introduction to Programming" can be taken as a sample course to work on this project.
- ✓ There should be set of 30 MCQs for each level of student.
- ✓ MCQs will be categories as beginners level, intermediate level and advance level.

Intelligent Features:

1. Student's Evaluation: The mobile learning application will evaluate each student's performance from his/her behavior during interacting with the tutoring system in order to determine his or her knowledge, perceptual abilities, and reasoning skills.
2. Instructional Design: On the basis of the student's behavior and subject knowledge instructions will be given to the student. For example, if a student has been evaluated as a beginner in a particular programming concept, there will be step-by-step demonstrations of the concept or topic will be shown to the student before taking evaluation test. When a student gains expertise, this mobile learning application might decide to present increasingly complex scenarios.

Tools: Android studio

Supervisor

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Auto Mart-Online Auto Parts Shop

Project Domain / Category

Web Programming

Abstract/Introduction

“Auto Mart-Online Auto Parts Shop” is a website that offers purchase service to the webpage visitors. It offers different variants of a single part. Main categories might include Engine parts and Body parts. Parts will be delivered to the address provided by client during prescribed delivery hours. Payment will be made by cash on delivery.

Stakeholder

1. Administrator
2. Buyer

Functional Requirements:

Buyer:

1. User can view the information about parts.
2. Add different parts to the shopping cart.
3. Buyer will have to fill a form for required details needed to confirm the order.
4. A buyer can cancel an order before confirmation or check out from the main page.
5. After collecting parts, a buyer can write feedback on webpage.

Administrator:

1. Updates auto parts information
2. Manages parts repository
3. Generates reports from system
4. Manages categories of parts.

Others:

- Online payments e.g credit/debit card, online vouchers can be implemented later.
- Return policies might be defined as per needed.

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

Tools:

WAMP server, PHP, MySQL, HTML editors (Dreamviewer, Notepad++).

Supervisor:

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Automated Activity Planner (AAP)

Project Domain / Category

Mobile application

Abstract/Introduction

Today's life is full of activities and sometime activities occur in parallel if not managed in advance. Moreover, some activities are more important than others and need attention at priority which means that when such important activity occurs then all the scheduled activities needs to be rescheduled as per their priority level. As smart devices are common in daily life as one has the access of internet everywhere, an automated activity planer will be more helpful for personal assistance. The main feature of this application shall be to suggest a plan/schedule of activities based on the importance of activity. Application shall also facilitate the user to adjust priorities of different tasks. Users will be informed about the activities with appropriate method set by the user.

Functional Requirements:

Automated Activity Planner (AAP) is a smart phone application with following features.

It will implement a complete calendar.

Users will be able to schedule their daily activities.

Activities should be scheduled up to minutes (e.g. if a person should be able to schedule meeting with exact time (hours, minutes).

User will also be able to set or edit the priority threshold level of an activity. (Whether the activity can be delayed or not and if delayed then maximum for what time period.

Application will be capable of remembering the users' actions which will be used to suggest the user a plan about the same activity or of same nature in future.

User should be able to define the activity as time bound activity i.e. an activity needs to be performed not later than a certain time period. In other words, activity can be delayed to its maximum time bound.

Once an activity time arrives, application should prompt the user either by giving a notification or by ringing the alarm.

Once an activity alarm is raised, person should check it to ensure that he/she has got the notification, however, in case if an activity remains unchecked, there should be snooze option and alarm should be raised again after a specified time interval (e.g. after every three minutes).

A person should be able to edit/delete or check history of activities.

Application should also be able to plan daily routine activities (for all such activities, alarm will be raised on daily basis or on specified days)

There should also be an option to send an email to a specified address (however, this will require internet connection).

Activity alarm should raise at least five minutes (or specified period of time) before the activity actually starts.

Non-Functional Requirements:

Application should be secure, reliable and performance wise efficient.

Tools:

Android studio (for android based application) OR Visual studio.net (for Windows based application)

Supervisor:

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Automation of University Management System

Project Domain / Category

Database application

Abstract/Introduction

To make University fully automated where each department use computers for record keeping, entry, update and search facility. This automated system should produce report against a specific task when required. All departments are inter-connected. Changes are reflected from one department to the other like Student new admissions, migration, cancelation of admission, verification of a member or student if needed.

Library facilitates user login and a faculty login .It also has a facility of admin login through which the admin can monitor the whole system. Library should be functional having books and students can search, borrow and return books. Other departments Admission department (Providing online application, which helps in different tasks as input, update, process and disseminate information, print forms. Student can check for updates and their admission status from anywhere), Exam department must be fully automated / computerized (Faculty login, sending invitation to student, student gets registered in a specific course, faculty posts questions for exam in course registered, marking the test, taking printout of the attempted paper, search facility to get info of student pass fail).

Functional Requirements:

Some common functional requirements are:

1. Admin Login
2. User friendly interfaces
3. Record entry, update, delete, and search
4. Interfaces validation check for entry, update, delete, search etc.
5. Student registration
7. Course selection
8. Attendance
9. Fee /Salary calculation
10. Report generation of Pass fail, Fee voucher, total no. of student per year / specific year, salary slip, DMC, Degree.
11. Books entry, issuance/ borrow, return. Search if you have a specific book in your collection based on the title, author etc.

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

Supervisor:

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Online House Rent Management System

Project Domain / Category

Web Based Application System

Abstract / Introduction

Even with the involvement of technology in many sectors, property (land sector) is still operating with the same old ways with manual entries for renting. This project will focus on the need for a system which can be used easily by any owner who have difficulty in maintaining records of his/her tenants.

This product is best for the persons dealing with more than one house for rent (having more property) but can also be used for individuals.

Functional Requirements:

1. Admin will manage records of tenants, defaulters and houses
2. On home page of your website, there should be a catalog of houses available for rent
3. Alongside the full catalog houses should also be searchable by rent amount, capacity and location
4. Users should be able to view capacity, location, images of overall house and its rooms and inside
5. No registration is required for users to browse for houses, registration will be required when a user will want to rent any house
6. While browsing of each house, rent option should always be available, so that when a user wants to rent a house, then your user should be navigated to the registration page
7. Registration will require user's name, NIC number, age, picture, contact number, number of family members (optional) and date of birth and other attributes which should be added for security reason
8. There should be option of paying rent either cash or via bank account
9. If a tenant wants to shift to another house then your product should allow it, you have to maintain all records with flexibility

Tools:

Microsoft.Net(C#) + SQL Server

Supervisor:

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“Comprehensive exam preparation app”

Project Domain / Category

Android Mobile Application

Abstract/Introduction

This application is helpful for Computer Science students and professionals, to prepare for upcoming tests, exam and interviews. This will also help students preparing for university exams and viva-voice.

The Comprehensive Exam Preparation App is an android application contains multiple choice questions (MCQ) & answers which help students & professionals in refreshing the basic concepts and it acts as a handy guide for preparing competitive computer science exams.

The Comprehensive Exam Preparation App, also tests the comprehensive understanding of various undergraduate subjects in Computer Science.

This app, promises preparation material customized for different undergraduate courses. A mobile app made especially for the multi-tasking undergraduates. Carry your prep material with you, access it from anywhere, take tests on the move and leave no stone unturned in your preparation process.

Functional Requirements:

The main objective of the proposed mobile app is to help the users in the study and test your knowledge in the proposed area. This mobile app will allow following features to users

1. Offline Android App (No Internet required)
2. Application contains MCQ's on following subjects:
 - a. C Programming
 - b. Computer Architecture
 - c. Computer Fundamentals
 - d. Object Oriented Programming
 - e. DBMS
 - f. Operating Systems

Each question has answered & supporting explanations.

3. Creation of database
4. Home screen Select the Subject (C Programming, DataStructure, OS etc.)
5. Quiz of selected subject will be started and display the correct answer with a short description after attempt the question.
6. Design quiz interface
7. Calculate the score of the quiz
8. Bookmark the question for further details

9. App contains different themes like Blue, Green and Pink

10. Customize menu

Tools:

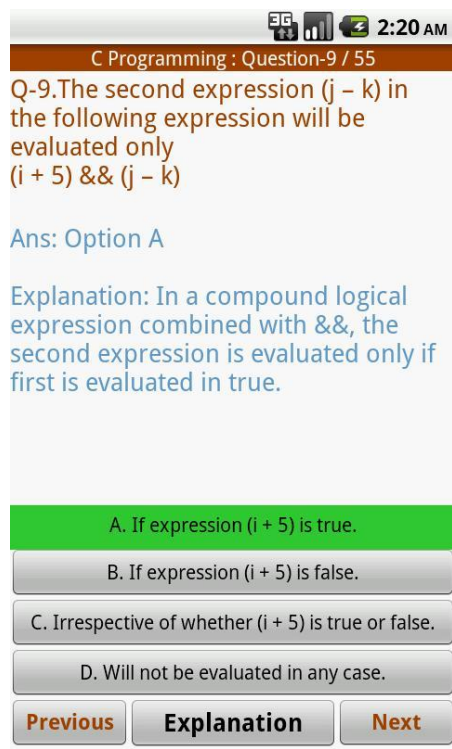
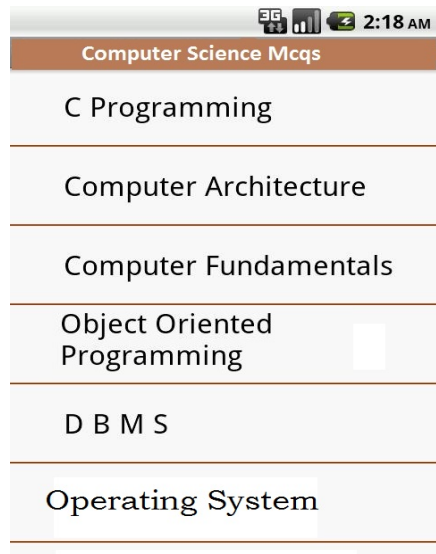
Software specifications:

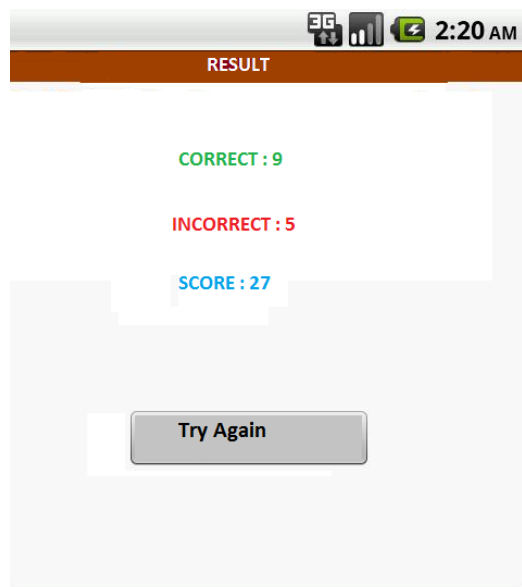
Development environments / IDEs for Android application

Java and xml

Any Database tool

Sample Snapshots





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Computerization of Auto Spareparts Shop

Project Domain / Category

This project belongs to Database category.

Abstract/Introduction

“Computerization of Auto Spareparts shop” is an application which automates the business of an auto Spareparts shop. The applications maintain the regular sale of the business and calculate the profit and loss of the business. The application further main the detail of the sale of previous period, maintain the detail of sale return, maintain the detail of customer who purchase items on credit. 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 shop has different Spareparts for different vehicles and each part has different characteristic which are required by the owner to store.
3. The shop has multiple stores in different places.
4. The shopkeeper (Owner) purchase Spareparts from multiple places (Country and Cities).
5. The application would maintain the daily sale of the business.
6. The application would care about the profit and loss of the business.
7. The application would also generate some reports

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)

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Content Type Aware Search Engine

Project Domain / Category

Information mining and retrieval.

Abstract/Introduction

Search Engine actually is an information retrieval system that helps users to find information stored on computer system or systems. The search results commonly known as “hits” are presented in the form of a list to the users. The current search engines like Google, Yahoo and MSN hits millions of records against a single query. Among these millions of records it’s very difficult and time consuming for the users to find the relevant information. These search engines search information based on key words mentioned in the query.

Content type aware search engine should have the ability to search based on the content type like video, pdf, image, html etc. Search interface of search engine should provide a dropdown list containing the type of contents (i.e video, pdf, image and html) and restrict user to select any of the given content type along with query terms. The search engine should have the capability to suggest users to select type of the contents they want to search, in case user not selecting the type from dropdown list. The search engine will start search only when a particular type/format of the content (video, doc, pdf, jpg, html and xml etc.) is selected. Students are needed to maintain a local database etc. to store the search results for future use.

Students are required to select/specify a particular dataset to test and evaluate their project.

Main modules and their functions:

This project has the following basic modules:

1. Web Crawler:

Web search engines work by storing information about many web pages, which they retrieve from the html itself. These pages are retrieved by a Web crawler which is an automated Web browser which follows every link on the site. The contents of each page are then analyzed to determine how it should be indexed.

2. Front end for query processing and their results:

The front-end presents a search bar for users along with a dropdown list and the query processor parses the request and executes the search. The results are displayed by the front-end.

3. Data base:

- i. Maintaining a list or database for storing current search results.
- ii. Data about web pages are stored in an index database for use in later queries. The purpose of an index is to allow information to be found as quickly as possible.

Tools:

The following tools can be used for developing the above project.

Microsoft.Net, SQL Server

1. Java, SQL Server/MySQL

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Context-Aware Restaurant Finding Mobile Application

Project Domain / Category

Android App

Abstract/Introduction

There is a context aware mobile application which provides services to users about nearby restaurant for lunch/dinner using sensor/s. Let's consider a scenario in which the application list the number of nearby restaurants at lunch time, but, if someday the person is busy in a meeting or have no hunger or he/she is driving. Then, by taking advantage of context awareness that application should provide a usable interface to user. It is usually seen in many similar applications that "application doesn't provide a usable reply to user".

Actually application provides a list of nearby restaurants list to user which is a usability problem and so not required in said context. Thus, we can say, that application didn't provide a usable reply to user.

Now, let's try to find out way. First we need to know why application didn't provide intelligent reply to user. What are the root causes? Whether application didn't discover and take advantage of contextual information? Whether sensors are working properly? Or these aren't linked with application? Or linked with application but not designing an intelligent decision mechanism.

Intelligent reply might be "application don't provide list of restaurant to user" or application provide an interface to user by saying "although you are in a meeting now, if you get free soon, do you like to see list?"

Functional Requirements:

1. Application can find nearby restaurants by taking advantage of sensors like GPS, accelerometer, time, etc.
2. Application will take context aware decision based upon user's location, activities, etc.

Tools:

Android Studio

Supervisor:

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Cyber Security

Project Domain / Category

Networks

Abstract / Introduction

The advancement of Internet and digital systems is making it progressively more complicated to understand cyber-attacks. Corporate, public and defense organizations are all affected by them, so far many lack essential technical background to make right decisions in dealing with them. On the other hand, cyber-security analysts have good understanding about the technical aspect of cyber-attacks, however many don't understand the non-technical consequences of decisions made from their perspective alone. While making a decision about cyber attack both contextual and technical consideration must be taken into account. Excess of cyber-attack models exist today that to some degree aid understanding of attacks. However mostly centered on delivering insight from particular perspective i.e. either understanding of human-centric factors or technical details. The approaches adopted do not high light how a discussion between expert-domain people of diverse backgrounds be conducted to set up a basic situational awareness understanding, to make collective decisions.

One of the counter approaches to counter cyber theft and un intended access to user account is its password; strong passwords created do protect user accounts but on the same time it's quite possible that a user may forget its password. There are different password composition policies being introduced by ISP's and online merchandisers.

In this project students will devise password policy and will implement it using ASP.Net / PHP.

Functional Requirements:

Provide a bulleted list of functional requirements

Literature review of existing Cyber security approaches

Development of Frame work/Methodology

Implementation

Tools:

ASP.Net, PHP

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Desktop Client on Android

Project Domain / Category

Android based development

Remote Desktop Client for Android enables you to connect to your Windows computers across the Internet from a mobile device. Once connected, it gives you mouse and keyboard control over your computer while showing you everything that's happening on the screen.

The main goal of the project is to develop a remote control system for computers in an Android platform using Bluetooth Wi-Fi or Bluetooth with the help of blueCove. The objectives were that the applications would enable connection with the computer via Bluetooth or Wi-Fi from an Android phone and once connected it would give the user full control of the computer's mouse and keyboard.

BlueCove is a JSR-82 implementation on Java Standard Edition (J2SE) that currently interfaces with the Mac OS X, WIDCOMM, BlueSoleil and Microsoft Bluetooth stack. Originally developed by Intel Research and currently maintained by volunteers. Since version 2.1 BlueCove distributed under the Apache Software License, Version 2.0.

The project consists of two applications, server and client. For the client part in an Android device, the development was carried out using Eclipse Integrated Development Environment (IDE) and Android Software Development Kit (SDK) with an Android Development Tools (ADT) plug-in. The development of the server part of the project in the computer was carried out using the NetBeans IDE and Bluecove libraries.

Functional Requirements

- A connection should be made between device and system with the help of a Bluetooth and there must be a server on laptop to make the module in working condition.
- Once the connection is established we can perform different operations on a file with the help of a device. Copy/paste text between client and server, Display zoom in/zoom out, Pinch-to-zoom
- Modify settings
- All operations performed with the help of a device will remain private and secure.

Application Type It will be an android based application

Tools & Technologies Any modern tool and technology set used for developing android based applications.

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Down the Memory Lane

Project Domain / Category

Android Mobile App

Abstract/Introduction

The aim of the project is to connect elderly people with their adult children who are not living with them. The parents (or even children) may tag a location on map and record a video about that location. This video will be associated with that location. Whenever a family member comes to that location, he/she will receive a pop up message (from the application) that there is a video associated with the location where he/she is present at the moment. Now the family member will be able to see the video if he agrees to. For example, you live in Islamabad for your job. Your father lives in Lahore. Your father once had spent some time at a place in Islamabad for some training during his job. He decides to record a video about his past (training at that location) and associates this video with that location. Now one day you happen to go to that place by chance, suddenly a pop up will appear on your smart phone indicating that your father has recorded a video about that place. You can see this video. This is a very novel way of sharing your memories with your loved ones.

Functional Requirements:

1. A user must be able to get registered in the application.
2. The application must allow searching for friends and family from the list of registered users. Users must be able to search their friends and family (who are also registered users) through names, location, age etc.
3. A registered user must be able to send friend request to some other registered user.
4. Upon receiving a friend request (from some other registered user), a user must be able to accept/reject the request. If a user accepts the friend request of another user, he/she will receive prompts regarding the recorded videos of his/her friend (whenever he/she come to a location to which his/her friend has associated a video with).
5. A registered user must be able to associate a pre-recorded video with any location on the map (which can be viewed by his/her friends whenever they will come to that location).

Tools: Android

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E-CRIME REPORTING (ECR)

Project Domain / Category

Web Based System

Abstract / Introduction

The E-Crime Reporting (ECR) System is a web based system to register online Complaint/FIR. The objective of this project is to develop a web-site in which any citizen of Pakistan can easily report their complaint/FIR in police station. The E-Crime Reporting (ECR) System makes the reporting of crime easier. This project will also be useful for the Police Department for further process. The aim of this project is to develop an E-Crime Reporting (ECR) System which is easily accessible to the public, police department and the Police administrative department. This helps to higher authorities of police to have an overview about the progress of the investigation.

People can also see the criminal records and by using Google map which is provided in this system people can also locate the nearest police station. This system provides proper security, reduces the manual work and tries to eliminate or reduce difficulties up to some extent.

NUMBER OF MODULES

In E- Crime Reporting (ECR), there are mainly three modules:

- 1) User Module
- 2) Higher Authority Module
- 3) Department Admin Module

1. User Module

1. In this module, first of all User will register by department admin with proper data (where username, E-mail id and NIC # must be unique for everyone).
2. Once the user is registered than he/she can login in this system and register their complaint/FIR according to their complaint type.
3. If user wants to check the status based on the complaint registered, he/she can view the status.
4. User can view the details regarding the:
 - a) Different type of crimes
 - b) Judicial laws for the crimes
 - c) Criminal records
 - d) News Feed/Press Release
 - e) General tips for not becoming the victim of the cyber-crimes.
5. If user wants to see the nearest police-station than user can see that using the map-locator which is provide in this system.

2. HIGHER AUTHORITY MODULE:

This Module is accessible only to VIPS in the Department like SP, DCP, etc. By using this module they can give any caution to police department. In this module:

1. Main admin will assign police-officer to their respective police-station with proper data.
2. Main-admin will assign police-officer or give them to email-id and password and also edit/update their database like if one police-officer will get promotion or transferred than his/her post will be updated. So main-admin will update that police officer's post.
3. Main-admin can register different police-station and also if police-station shifted from one place to another than main admin will update the database.
4. Main-Admin can see the feedback/Complaints from user and also check the investigation status of Complaint/FIR.

3. DEPARTMENT ADMIN MODULE

In this module, admin will login with proper email-id and password which is already registered by Main-Admin.

1. Admin will assign users or give them to email-id and password of their registered accounts.
2. Once admin will login, he/she can see all the Complaints/FIR which is registered by users and they have to take the particular action depending on the crime. Also admin can search particular FIR records using different parameters.
3. Admin can add Different type of Crimes, Judicial laws for the crimes, criminal information. Here admin cannot update his/her personal information.
4. Admin can also see the feedback/complaint which is given by users.

Functional Requirements:

1. Login for User, Main-Admin and Department Admin.
2. Complaint / FIR Registration and Management.
3. Criminal Registration and Management.
4. Crime and Judicial record Management
5. Feedback Registration
6. Map-locator to find the nearest police-station
7. News feed for crime video/News management.
8. Police-station registration and management
9. Police-officer registration and management

Tools:

SOFTWARE REQUIREMENTS:

1. WINDOWS OS (XP / 2000 / 2003 Server / 2003 Server)
2. Front End: ASP.NET ,Visual Studio.Net, C# language
3. Back End: SQL Server
4. Browser : Any

Supervisor:

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"E-HOTEL": An Online Hotel Management System

"E-HOTEL" is a web based Management System for XYZ Hotel having 200 rooms. Details regarding the different users involved in the system and the functions which they can perform are given below

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

- Customer
- Receptionist
- Hotel Manager
- Chief Executive

Responsibilities and functions of each user are given below:

Customer:

1. User will book the room online. At the time of booking he will enter the following information
 - Customer first name
 - Customer last name
 - Customer address
 - Customer phone number
 - Expected check-in date and time
 - Expected check-out date and time

Receptionist:

1. He has to log in first.
2. When the customer will check in, the receptionist will record the following information
 - Number of occupants
 - Assigned room
 - Default room rate
 - Actual check-in date and time
3. When the customer will check out, the receptionist will record the following information
 - Actual check-out date
 - Actual check-out time
 - Customer feedback

4. The receptionist can add, remove and modify any customer information (The system ask for the reason for any of this operation which he will provide in separate field).

Hotel Manager:

1. He has to log in first.
2. Manager will Add, Remove or modify the records regarding receptionist.
3. He will be able to search customer by giving First name, Last name or by Phone number
4. He will be able to see the history regarding any room such as which customer has occupied the room so far now? When it was occupied? And when it was released?
5. He will be able to see the history regarding any customer such as how many customers has occupied the particular room? When occupied? And when released?

Chief Executive:

1. He has to log in first.
2. He will be able to search customer by giving First name, Last name or by Phone number
3. He will be able to see the revenue and expenses reports.

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Application Type: Web

Possible Students: 1 to 2

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

Exam Scheduler

Project Domain / Category

Web Application

Abstract / Introduction

In conventional educational institutes, making an exam schedule is a hectic job. One needs to simultaneously take care of all the things involved like courses, examination halls, superintendents and students. Constraints like eliminating / minimizing the event of scheduling a student in two or more exams on same day (or worst in same time slot) makes it a challenging task. This project aims to develop an automated solution to the exam scheduling task. The exam scheduler will i) take as input: courses and their enrollment, examination halls and superintendents, and ii) produce an exam schedule that will fulfill all the specified constraints like the one discussed above.

Functional Requirements

The application should be able to:

1. Manage the record of courses (whose exam is to be conducted) and enrollment in these courses
2. Manage the record of examination halls
3. Manage the record of superintendents
4. Calculate an exam schedule on the basis of given data and constraints
5. Provide user management facility. Stakeholders of the application are: admin, student, superintendent and exam coordinator.

Tools

ASP.Net, SQL Server, PHP, MySQL Server etc or any Web development tool and its relevant DBMS

Supervisor

Name: Hasnain Ahmed

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Expert Agent for Banking Chat Service

Project Domain / Category

Web Programming, Artificial Intelligence

Abstract/Introduction

Banking chat service is an Artificial intelligence based web application in which expert agent will be built by using the AI algorithms for answering the customer queries on the base of understanding text message related to bank services such as different type of account information, debit and credit card information ,investing plan and loan services. This web application will be beneficial for web customer or visitors. The expert agent will understand the customer query which is based on any format of text based message and efficiently response to customer. This web application facilitates the bank customer to be updated with bank service activities.

Functional Requirements:

- The application should have graphical user interface which have text based chat interface for responding the customer queries.
- The customer should be registered and login to enter the graphical interface of banking text based chat interface.
- 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 AI knowledge based to appropriately reply the customer query.
- The application should be provided the inappropriate answer tab for customer when he/she seems the answer found inappropriate. Customer will click to report button which will send to admin.
- The bank admin should manage and view inappropriate answer via bank admin portal interface
- The Expert agent will be recognize the questions and answer to the customers
- The customer can query about the bank 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 expert agent and update knowledge based on requirement.

Tools: Microsoft .net Framework and SQL Server

Supervisor:

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F1 racing records

Project Domain / Category

Web Based Development

Abstract / Introduction

F1 car racing record will store information about upcoming events, races, drivers and companies. It will also include the record of tournaments, laps etc. The information of drivers and their respective cars will also be stored in the database. Record of different racing tracks will also be catered into account. Drivers, companies and general public will be able to see all of the above information online.

Functional Requirements:

Following are the functional requirements

1. Display of upcoming events.
2. Drivers and companies would be able to create their accounts (Signup procedure)
3. Drivers and companies will be able to view their records
4. Storing the record of every lap.
5. Storing the record of every race.
6. Storing the record of the every tournament.
7. Storing driver's information.
8. Storing the record of every car participating in races.
9. Record of every racing track.
10. Record of all accidents
11. Record of all companies like Toyota, Suzuki and Honda etc
12. Reports:
 - a. Reports generated on the basis of every driver
 - b. Reports generation on the basis of participating companies

Tools:

ASP.NET

SQL Server

Supervisor:

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Health Management System

Project Domain / Category

Web based application.

Abstract/Introduction

The goal of this web based application is to build up a computerized management system of health department for District Government Lahore. District government is presently using manual health management system for which to handle a large amount of data manually is a difficult task. In the existing manual system is very hard and time intense process to create health polices in given budget used in health management in district. The planned system keeps the information of all population in different categories; it provides directions for efficient functioning of district government. The new system provides opportunities for quick decision making closer to the implementation levels. It also gave a greater voice to women, peasants, laborers and other marginalized population groups. This computerized system implemented for automation of health management system by using SQL server as back-end for database and .Net as front end.

The main objectives of the system are

- To reduce the extra paper work.
- To retrieve the desired information quickly.
- To reduce the number of documents and registers.
- To convert the manual processing into the computerized processing.

Functional Requirements:

1. This web based application should provide complete data storage and marinating solution
2. This web based application can generate fast and accurate documents currently involved in manual system at any time e.g information about Diseases of particular area, list of health sectors, population
3. Reports can be shipped anywhere via Internet by this application.
4. This web based application will inform about current status of the information anywhere.
5. This web based application provides powerful searching mechanism. This can even search a minor record in less than a second.
6. The web based application is easy to use and user friendly. Even some special training is not required.
7. This web based application facilitates the staff for viewing the whole status of the organization.

Furthermore:

8. Preparing area profiles
9. Calculating primary health indicators.
10. Identifying and prioritizing health problems
11. Deciding interventions and describing activities.

12. Costing of activities.
13. Preparing of monitoring plans.
14. Summarizes information generated into an action plan matrix.
15. Comprehensive security.
16. Satisfy the economic objects of the organization.
17. Efficient retrieval of data than existing system.

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

Supervisor:

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HideEncryp

Project Domain / Category

Mobile Apps

Abstract/Introduction

Background

In order to protect important data from unauthorized access, we use many techniques. Encryption is one of the techniques which are widely used for data protection. Encryption is the conversion of data into a form, called a cipher text that cannot be easily understood by unauthorized people. Encryption transforms data into another format in such a way that only specific individual(s) can reverse the transformation. To read an encrypted file, you must have access to a secret key or password that enables you to decrypt it. Unencrypted data is called plain text; encrypted data is referred to as cipher text.

Decryption is the process of converting encrypted data back into its original form, so it can be understood.

There is a wide range of cryptographic algorithms in use such as Data Encryption Standard (DES), Advanced Encryption Standard (AES), RSA etc.

Introduction of Project

The purpose of the proposed project is to implement the above mentioned concept through the development of an android based application providing the security to confidential data on your mobile phone or tablet. The application will provide strong Encryption and File / Folder Hiding mechanism.

Encryption could be done through executing an Encryption algorithm that is designed to encrypt computer data in such a way that it cannot be recovered without access to the encrypted code or security key.

This application also lets you easily hide files on your phone or tablet. While hiding the files or folder, application will require the user to set password that will be later used to make the files or folder visible.

Functional Requirements:

- Hiding un-hiding the desired files / folders.
- Encrypt files such as word documents, images, videos etc. in unreadable format.
- This application generates different encrypted code every time the request is made, even for same file.
- Generated code (encrypted file) can only be decrypted by the key which was used to generate the particular encryption.
- The hidden folder or files can only be visible again by the password which was used to hide the files or folder.
- Create folders inside “HideEncryp” to organize your encrypted files.

- When you switch apps or leave the app, the application is automatically locked for security.
- All encrypted files should be associated with MAC address and this information together with user registration information should be stored online. So that data could be retrieved back in case of malfunction of OS.
- For database handling you can use any database management system (MY SQL, SQL server etc.) with any server side scripting (PHP\ASP\ASP.net etc.).
- Upon installation\re-installation this application will match the MAC address of device with its online record, and then search for any encrypted file on device. If an encrypted file matches on device and its record is also found online than it will ask for user credentials so that these encrypted files could be recovered.

Application Type: It will be an android based application

Tools & Technologies Android Studio/Eclipse, MY SQL\SQL Server etc., PHP\ASP\ASP.net etc.

Supervisor:

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Home Automation System using Microcontrollers

Project Domain / Category

Digital Logic Designing / 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.

The main aim of this project is to design an intelligent home automation system that will increase the ease of use and control home appliances (in a room, like controlling FAN, Light bulb etc.). It will counter room temperature settings and light control mechanism. System will have an LCD interface for temperature and running appliances details.

Functional Requirements

- Room temperature sensing and control through FAN or AC.
- Room light control mechanism.
- Automate FANs and Light bulbs in a room.
- LCD interface to show temperature and appliances details.

Tools

- Microcontrollers (Intel 8051/8052 series)
- C/C++ Programming Language
- Assembly Language
- Circuit Designing Softwares (Orcad Pspice, WorkBench)
- Keil Embedded Development Kit
- Microcontroller Burner Kit
- Circuit Components (Resistors, Capacitors, oscillators etc.)
- Wireless interface devices (ZigBee etc.)

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

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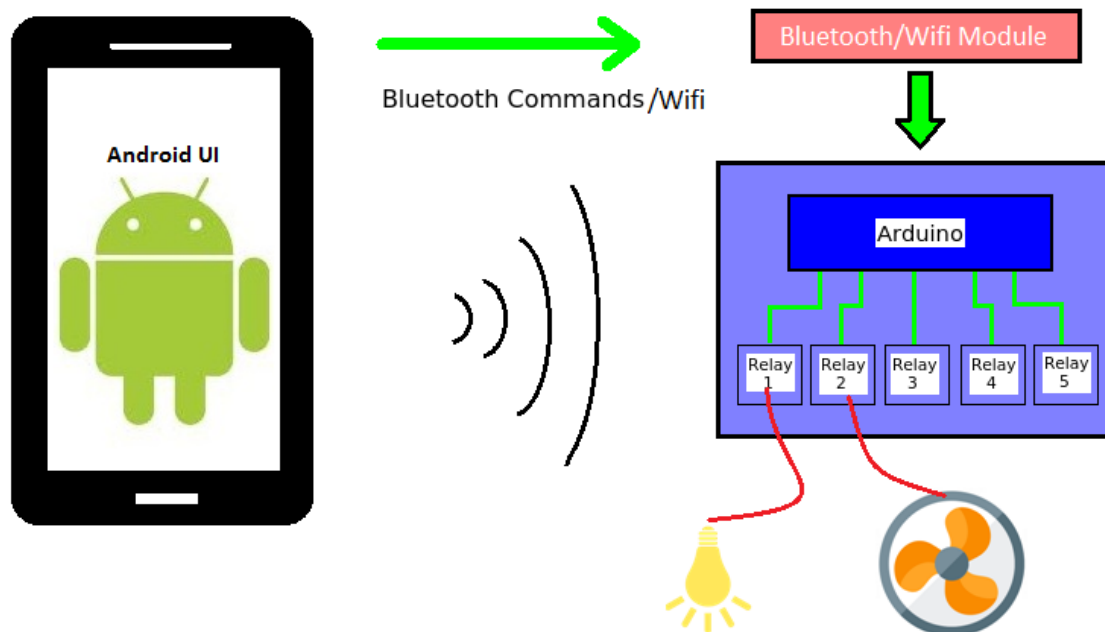
Home Automation using Arduino and android smart phone application

Project Domain / Category

Digital Logic Design & Mobile Application

Abstract / Introduction

In this project students will be required to automate home using smart phone application and arduino micro controller board. Students will control home electricity appliances like lights and fans. Project will comprise of two parts hardware and software part. In hardware interfacing part student will write the code for arduino and setup the relay modules, sensors and board. For software part student will write an application for arduino, student will be required to work on these parts simultaneously. Do note that students will not use mains powers supply AC 220 Volts, they will use battery powered appliances to avoid the shock.



Functional Requirements:

For Application

1. A fully functional android application capable of communicating with arduino (Via Bluetooth or WiFi)
2. Application will show switches to turn on/off appliances.

For Hardware

1. Arduino board setup along with code to control the lights and fan.
2. Relay modules properly setup.
3. LCD to display status of devices (Optional)

Important Notes:

1. Student will buy his/her own hardware. Virtual university will not provide hardware or financial assistance to buy hardware.

2. To avoid any electrical shock student will not use mains supply AC 220 Volts, instead for their project student will control DC lights and Fan. However relay module used should be capable for controlling 220V appliances.
3. C code will be used for arduino and Java for the mobile application.

Tools:

NetBeans IDE, JDK, Arduino IDE

Supervisor:

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Insurance Management System

Project Domain / Category

Web Application

Abstract/Introduction

Insurance is an agreement of compensation for specific possible future losses such as damage, illness or death in interchange for periodic payment. It is designed as a risk management system to protect the financial well-being of a person, company or other entities in the case of accidental loss. Agreeing to the terms of an insurance policy creates a contract between the insured and the insurer in exchange for payments from the insured called PREMIUM. The insurer agrees to pay the policy holder a sum of money upon the occurrence of a specific event. In most cases, the policy holder pays part of the loss called the DEDUCTIBLE and the insurer pays the rest.

There are different types of insurance like life insurance, health insurance, car insurance, property insurance and travel insurance, etc. This project will cover all aspects of health insurance. Health insurance is a type of insurance that pays for both medical and surgical expenses gained by the insured. Health insurance can reimburse the insured for expenses incurred from illness or injury, or pay the care provider directly. It is often included in employer benefit packages as a means of fascinating quality employees. The cost of health insurance premiums is deductible to the payer, and benefits received are tax-free.

Functional Requirements:

1. The system will be fully automated.
2. System will provide online information and application form for registration.
3. This system will allow agents and customers to view and update important information.
4. Policy owners would be able to view and update their personal information, check their agent's information and family members, etc.
5. Agents will be able to look and update their personal information and view the information about new businesses and commissions. In this way, they will be able to help any policyholder or agent requesting assistance / help.
6. Users will be able to see all insurance plans like premium rates offered by the insurance policies.
7. It will display detailed information about the different types of insurance policies provided.
8. Managers would have access to all modules so they will be able to help any policyholder or agent requesting assistance and would be able to update database with new rates.
9. Provides easy verification of all policies issued.

10. It will minimize multiple fraudulent claims.

11. Both admin and customer shall have different views. i.e. Administrator View and User View

Languages & Tools: ASP.NET, C#, VB.NET, SQL Server, Visual Studio

Supervisor:

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Learn Alphabets

Project Domain / Category

Web Programming / Mobile App

Abstract / Introduction

Lot of households has a smart phone, tab or a computer system. These devices can be used as a teaching tool to help pre-nursery, nursery and kindergarten kids. I want software to teach English Alphabets to the kids. Provide proper visual aids which will attract the kids in the process of alphabet learning.

Functional Requirements:

Software should have at least following features but not limited to these features.

1. Colourful display of Capital and Small Alphabets
2. Incorporate audio for the correct pronunciation of letters and words started with the letter.
3. Images of the things whose names are started with a particular letter.
4. Incorporate interactive activities to enhance kids learning.
5. Incorporate tests to evaluate kids' progress made during the learning.
6. Incorporate games to fascinate the kid in the learning process.

Tools:

1. HTML
2. CSS
3. JavaScript
4. Dreamweaver
5. You may use any additive tool, which you think suitable for the development of application.

Supervisor:

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Library Management System

Project Domain / Category

Database desktop application

Abstract / Introduction

The project titled Library Management System is Library management software for monitoring and controlling the transactions in a library. 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.

“Library Management System” is a windows application designed to help users maintain and organize library. Our software is 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. The report generation facility of library system helps to get a good idea of which are the books borrowed by the members, makes users possible to reports hard copy.

Functional Requirements:

1. Library Registration
 - The administrator can create a new user.
 - New user can login and logout.
2. Books
 - Admin add, delete or modify the details of the books.
3. Search
 - User can search for the required books based on author name, book name etc.
4. Borrow books
 - A registered user can borrow the book for particular days.
5. Return books
 - Book must be returned within the due date; otherwise you have to pay fine.
6. Report generation
 - Depending upon the organizational needs following reports can be generated
 - There can be daily reports
 - Weekly reports
 - Yearly reports

Tools:

Any language or tool of your interest

Supervisor:

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“LIBSYS”: An Online Library Management System

Project Domain / Category

Web Based Project

Abstract / Introduction

“LIBSYS” is a web based Library Management System for ABC College. 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, to use the system.

- Admin
- Librarian
- Student
- Faculty Member

Responsibilities and functions of each user are given below:

Admin:

1. Admin can add, remove and modify any user information (Librarian, Student and Faculty Member).
2. For each book, following information will be available in the system.
 - Author of the book
 - Title of the book
 - Published place
 - Publication Year
 - Location in the library
 - Number of copies
 - Current status
3. Admin will Add, Remove or modify the records regarding any book of library.

Librarian:

1. He has to log in first.
2. He will be able to search the book by giving title of book or by name of author.
3. Librarian will issue the book and enter the information of concern Student/Faculty member who will borrow the book.

4. He will receive the book which will be returned by the Student/Faculty member and enter the information.
5. He will be able to see the history regarding any book such as which user has borrowed? When it was borrowed? And when it was returned?
6. He will be able to see the history regarding any Student/Faculty such as how many books he has borrowed? When borrowed? And when each book was returned?
7. The system should automatically calculate the fine on daily basis if any Student/Faculty member did not return the book within 15 days.
8. The amount of fine per day will be entered by the librarian.

Student:

He has to log in first for online book searching on the computer of library.

He will be able to search the book by giving title/name or by author.

Student can borrow 2 books at one time.

Faculty:

He has to log in first for online book searching on the computer of library.

He will be able to search the book by giving title/name or by author.

Faculty can borrow 4 books at one time.

Supervisor: Syed Shah Muhammad (syed@vu.edu.pk)

Application Type: Web

Possible Students: 1 to 2

Proposed Tools: Java, Dotnet Framework

LMS Lite

Project Domain / Category

Mobile App

Abstract / Introduction

Students of virtual university of Pakistan have to login VULMS to know about upcoming assignments, quizzes, GDB or any kind of course activities. Student may delay or forget to login sometimes and it will be hard for students to meet due dates of course based task on urgent basis. To cover all these issues a mobile application will notify students as any new course activity announced.

Android based application will provide list of registered course and notify student about assignments, quizzes, GDB and any course related activity's announcement of each course. Moreover, It will provide videos of currently registered semester courses.

Functional Requirements:

Provide a bulleted list of functional requirements

1. Login
2. Provide registered course list in current semester
3. Notify student about announcements
4. Provide videos of semester's current active courses

Tools:

Android Studio

Student may develop it in IOS Based environment

Supervisor:

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Load balancing in cloud based environment (Eucalyptus Open Source Cloud) based on VM usage information.

Project Domain / Category

Network

Abstract/Introduction

This project is about load balancing in a cloud environment. We will be working with Eucalyptus cloud, which is a stable Open-Source Cloud environment. We have one system with cloud frontend Install and Configure on one of the system and two or more cloud Node controllers installed and Configure as required. The basic theme behind this project is to perform load balancing at VM level. There will be several VMs running on different Node controller and one specialized VM that will act as a load balancer. Each of the VM will calculate CPU, RAM, and Hard Disk usage after a certain amount of time and send this information to the node controller if the usage of these parameters crosses a certain threshold. The node controller will then send this information to the cloud Frontend to cope with this situation. The cloud Frontend will store information in a database. The cloud Frontend will send an alarm message to the user to save his data and to provide another VM with good specs.

Functional Requirements:

This is a network application for managing load balancing in cloud based environment. Following the are the requirements of this application.

Modules

Module 1: Install and Configure cloud frontend on one of the system

Module 2: Install and Configure cloud Node controller on one or more systems as required

Module 3: Create your own Ubuntu/Linux image and upload on Cloud Frontend system

Module 4: Create one more instances of Ubuntu/Linux/Windows

Module 5: Calculate CPU, Hard Drive, RAM usage on each of the VM and send to the designated VM which perform the load balancing task

Module 6: Create instance of Ubuntu/Linux that will act as a load balancer. This VM will store information send by other VM Instances

Module 7: The cloud Frontend will send an alarm message to the user to save his data and to provide another VM with good specs.

Tools:

Platform: Faststart Eucalyptus cloud ISO image, Linux environment

Development tool: java Netbeans 8 (latest), SQL Server or any other DBMS

Supervisor:

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Ludo (board game)

Project Domain / Category

Game Programming

Abstract/Introduction

Ludo is a board game for two to four players, in which the players race their four tokens from start to finish according to die rolls. Like other cross and circle games, Ludo is derived from the Indian game Pachisi, but simpler.

The game and its variants are popular in many countries under various names including Pakistan. This document will explain functional and non-functional requirements of this game.

Functional Requirements:

At minimum two, three, or four players can play. At start each player will have four tokens. Moves will be in clock wise direction. Each token can be started to play (from starting square) only when player gets six on dice role (first time only for each token) otherwise turn will move to next player. Once a player has one or more tokens in play, he selects a token and moves it forward along the track. The token will be moved number of squares indicated by the die (e.g. if die rolls to four, token will move four squares ahead). If no move is possible, the turn will pass to the next player. If die rolls to six (6), the player may choose to advance a token already in play, or, may enter another staged token to its starting square. Rolling a six (6) earns the player an additional or "bonus" roll in that turn. If the additional roll results in a six (6) again, the player earns an additional bonus roll. If the third roll is also a six (6), the player may not move and the turn immediately passes to the next player. Players may not end their move on a square they already occupy. If a token ends on a square occupied by an opponent's token, the opponent token is returned to its owner's yard. The returned token may only be reentered into play when the owner rolls a six (6). A player's home column squares are always safe because no opponent may enter them.

Game can be played on single computer (for multiple humans and auto users). Game can also be played on LAN (in case of more than one human users).

Non-Functional Requirements:

This system should be secure with user friendly interface and quick response.

Tools: C# OR Java

Supervisor:

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Android Based Package delivery, booking and Tracking

Project Domain / Category

Mobile Apps

Abstract/Introduction

Package delivery of any type (document, shopping item, or any legal product) from source to destination is a very important task. Everyone wants to send the item in fast and secure way. Nowadays with evolution of online business the need of mobile based package delivery booking and tracking is obligatory. With the mobile based package delivery, booking and tracking any individual can book the package deliveries, then the courier service registered with the application will take these packages from the customer and send the package to destination. Meanwhile during delivery the courier service will update the delivery status and client will see these notifications as push notification and also through an SMS.

Functional requirements:

1. There would be three types of users
 - Basic customer
 - Courier service agent
 - Administrator
2. Each user will register on this application.
3. A customer can book the deliveries, see the status of deliveries and update the deliveries (if they are not already taken by any courier agent).
4. The delivery can be of three types
 - Simple delivery
 - Fast delivery
 - Cash on delivery (Fast)
5. Rate of delivery/Return delivery according to delivery type, weight and zones will be shown to booking customer at the time of booking, after that customer can confirm the booking.
6. For Cash on delivery (COD) booking, bank account detail is mandatory so that, funds could be transferred to customer account (who booked COD package) after successful COD.
7. For regular delivery booking, delivery agent will take payment while pickup.
8. Status of delivery will be updated regularly until successful delivery by courier agent.
9. Client could see the status of their booking through application and an update will be notified through SMS and push notification.
10. Administrator will confirm all types of user registration after necessary verifications and will also manage all types of user accounts.
11. For database handling you can use any database management system (MY SQL, SQL server etc.) with any server side scripting (PHP\ASP\ASP.net etc.).

Application Type: It will be an android based application with online database.

Tools & Technologies: Android Studio\ Eclipse, MY SQL\SQL Server etc., PHP\ASP\ASP.net etc.

Supervisor:

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Mobile app to calculate student preference

You have to develop a mobile app that can calculate student preferences using Felder Silverman learning style model developed by Felder Silverman.

Project Description:

Felder-Silverman learning style model characterizes each learner according to four dimensions. The first dimension distinguishes between an active and a reflective way of processing information. Active learners learn best by working actively with the learning material, for example, working in groups, discussing the material, or applying it. In contrast, reflective learners prefer to think about and reflect on the material.

The second dimension covers sensing versus intuitive learning. Learners with a sensing learning style like to learn facts and concrete learning material, using their sensory experiences of particular instances as a primary source. They tend to be more patient with details and also more practical than intuitive learners and like to relate the learned material to the real world. Intuitive learners prefer to learn abstract learning material, such as theories and their underlying meanings, with general principles rather than concrete instances being a preferred source of information. They like to discover possibilities and relationships and tend to be more innovative and creative than sensing learners. Therefore, they score better in open-ended tests than in tests with a single answer to a problem. The third, visual-verbal dimension deals with the preferred input mode. The dimension differentiates learners who remember best what they have seen, e.g. pictures, diagrams and flow-charts, from learners who get more out of textual representations, regardless of the fact whether they are written or spoken. In the fourth dimension, the learners are characterized according to their understanding. Sequential learners learn in small incremental steps and therefore have a linear learning progress. They tend to follow logical stepwise paths in finding solutions. In contrast, global learners use an holistic thinking process and learn in large leaps. They tend to absorb learning material almost randomly without seeing connections but after they have learned enough material they suddenly get the whole picture. Then they are able to solve complex problems and put things together in novel ways but they have difficulties in explaining how they did it.

Each learner has a preference in each of the four dimensions. These preferences are expressed by values between +11 to -11 per dimension. Using the active-reflective dimension as an example, the value +11 means that a learner has a strong preference for active learning, whereas the value -11 states that a learner has a strong preference for reflective learning. Therefore, Felder-Silverman learning style model characterizes each learner by four values between +11 and -11, one for each dimension. For identifying the learning style of learners, Felder and Soloman (1997) developed a questionnaire, called the Index of Learning Style (ILS), which consists of 44 questions: 11 for each dimension. This text is adapted from (Graf, S., & Lin, T. (2008). The relationship between learning styles and cognitive traits—Getting additional information for improving student modelling. *Computers in Human Behavior*, 24(2), 122-137.)

The further details of the questionnaire and how values will be calculated is given below:

[http://www.bradford.ac.uk/academic-skills/media/academicskillsadvice/documents/academicskillsresources/effectivellearningstrategies/Felder-&-Solomon-8-Learning-Styles-Questionnaire-Activity-\(1\).pdf](http://www.bradford.ac.uk/academic-skills/media/academicskillsadvice/documents/academicskillsresources/effectivellearningstrategies/Felder-&-Solomon-8-Learning-Styles-Questionnaire-Activity-(1).pdf)

Functional Requirements:

1. First client needs to enroll their name, telephone no and email id.
2. This information will be stored in the android phone.
3. Android application can give questionnaire to the students.
4. After completing the questionnaire the Android application should calculate the users learning style according to the criteria provided in the project details.
5. Android application can store the users profile and later on can update his/her learning style when user retake the questionnaire.
6. At any time user can check its previous test results by giving his email id and password.

Tools: android development (Android studio and Android SQLite Database).

Supervisor:

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My Expense Planner

Project Domain / Category

My Expense Planner

Abstract/Introduction

Expense management is a critical issue faced on daily basis by almost each of us. In today's fast life, it is getting very difficult to sit down with notepad and work out various daily expenses and income for efficient planning of personal budget. This application will allow users to plan their budget, organize their expenses & income and record movement of money. Application will remind user for any pending bills, expense limit exceeding mentioned in budget well before time. The application will provide different reports regarding expenses and income on daily, weekly, monthly or yearly basis for better control over the money. With the help of this simple tool, users can see their current and future financial situation right on their mobile screen.

Functional Requirements:

- User should be allowed to add income against different categories such as salary, loan or sale.
- User should be allowed to add his/her expenses against different categories such as food, fuel, clothing, medical and etc.
- User may add/remove new or old categories of income and expenses.
- Application should provide the facility for budgeting in advance regarding expenses e.g. electricity bill will be paid by the 20th of the month.
- User should be allowed to set and update limits against different expenses while budgeting.
- Application should remind user regarding unpaid bills and exceeding budget list well before time.
- Application will provide different reports regarding expenses and income on daily, weekly, monthly or yearly basis for better control over the money.
- Application should provide password based secure access in case user wants to secure his/her budget plan.

Tools / Technologies:

Android Studio

Supervisor:

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Skype ID: kanwarabrar

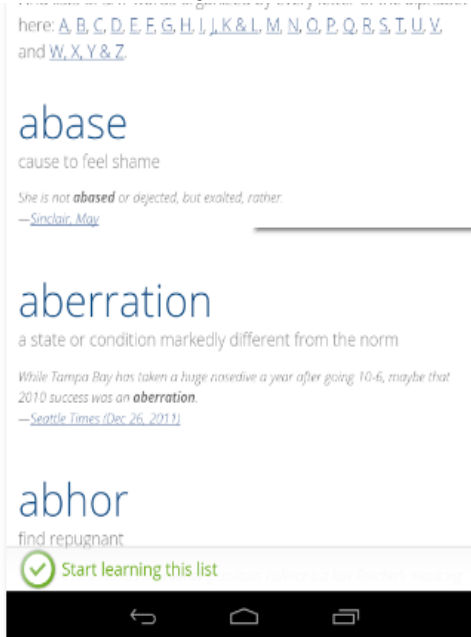
My Vocabulary Bank

Abstract/Introduction

Vocabulary is central to English language teaching because without sufficient vocabulary students cannot understand others or express their own ideas. It is also central to language teaching and is of paramount importance to a language learner. Many English dictionaries are available as mobile apps for such purpose.

“My Vocabulary Book “is unique idea to create your own effective word learning system, this app helps you master words through your own daily experience of new English words. This app will expand your vocabulary with lightning speed with some extra features not available in conventional dictionaries. Functional requirements are given below.

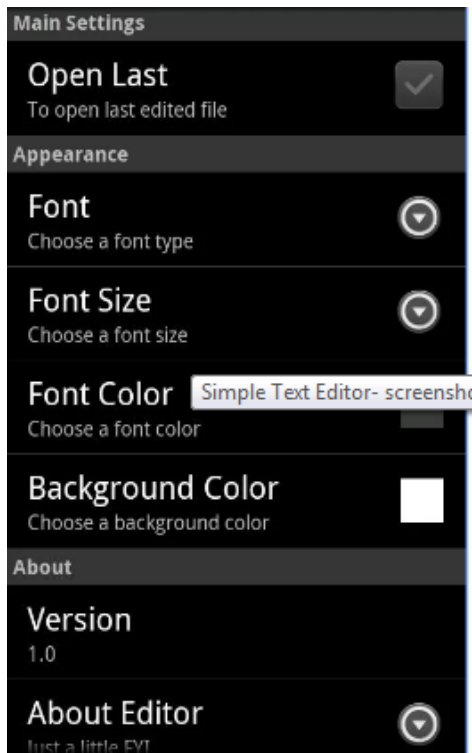
Functional Requirements:



1. Application will display all 26 English alphabets from A-Z as shown in above diagram.
2. First user click on concerned alphabet to insert/add new vocabulary word using Editor Option as given in figure below.



3. There will be an edit option to update word in vocabulary.
4. User can set font and style of each word for better visibility.
5. Application will help user to predict words during typing in search word option.



6. All the data is stored in back end database.
7. User can view all words inserted on specific date.
8. Application will select random word from database and pop out on daily basis to enhance vocabulary.

Tools / Technologies:

Android development (Android studio and Android SQLite Database).

Supervisor:

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NetEye

Project Domain / Category

Networks / Desktop Application

Abstract/Introduction

In a business enterprise, managers always want to keep track of the day-to-day work. These days, enterprises are wired enough to make their employees use computers and the Internet. All this makes the business to sail smoothly.

But, from the other end, use of Information Technology makes the job of managers and analysts more miserable because they have to check what their employees are doing with their computers. For instance, an accounts clerk may be surfing the Internet all the time.

The system will be multi-tier, network software. It will be implemented for computers running under Microsoft's server class operating systems. It should be a system with a small footprint. The socket interface will be used to connect client and the server. Server will be multi-threaded. TCP packets must be used to send compressed images to the server at a certain frequency.

The daemon running on the client must be well aware of the activities performed and must use a XML protocol to send that information to the server. The server might be able to store its logs and the stations' logs in a database or in files.

Functional Requirements:

The proposed NetEye Server will be a multithreaded server implemented as a windows application using MFC. It will use TCP/IP suite to communicate among the clients and the server. It will have a standard windows interface and will be user-friendly. It will have a user's manual and a help system. It will have a TCP socket interface to send and receive packets. In addition, the architecture of the server is component based.

The important tasks of the server include:

1. NetEye Server can view browser history of any connected client at any time.
2. NetEye Server can allow or disallow client machine on run time (Registering/Un-registering).
3. Using TCP port, sever can send any message to any specific client or all active NetEye clients
4. Display the client screen image on NetEye sever side after receiving it in compressed form from NetEye client through TCP Port

The proposed NetEye client will be a special agent running as a service in the client workstation when it boots up. No one except administrators can remove or control this service. In other words, it, is like a daemon process.

The important tasks of the Client include

1. NetEye client will get history of Web browser and send to server on request.
2. For the messaging sub-system, it must host a TCP socket to accept/send messages to and from the server.
3. NetEye client will capture the clients screen bitmap image and compress it in any low resolution image format. Compressed image will be packaged into TCP datagram and sent to port of NetEye server on request with optimal frequency.

Tools:

Microsoft .Net framework, Visual C++. NET, Microsoft Visio

Supervisor:

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Online application for self-learning and assessment for interview

Project Domain / Category

Web programming

Abstract / Introduction

The purpose of this web application is to assist end users to learn and improve their academic skills for interview and users can assess themselves by attempting online quiz. In this app, there will be a list of basic courses and user can select any course of their own choice. Users can view the reading material in the form of questions and answers, watch the video tutorials and after learning, they can evaluate themselves by attempting online quiz. Quiz will be auto generated based on selected course and level of learner.

Functional Requirements:

Admin

- Login process
- Add, delete, update subjects
- View subject expert and learner
- Delete subject expert and learner

Subject expert

- Registration
- Login
- Add, update and delete course contents in the form of questions and answers topic wise
- Add, update and delete video tutorials
- Add, update and delete MCQS (MCQs can be of three levels: Beginner, intermediate and advance)

Learner

- Registration
- Login
- View course contents
- View the video tutorials
- Attempt quiz based on the selected level
- View the result of quiz

Tools:

Microsoft .NET framework, SQL server

Supervisor:

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Online Auction System for Furniture Shop

Project Domain / Category

Web Programming

Abstract / Introduction

Online Auction System for Furniture Shop will be specially design for selling out the Furniture Products online using Auction System. Furniture products will be sold over price bidding. Bidding starts with a low price and then end with a highest price. So buyers will bid for the furniture items online. That person will become a winner who will bid highest price for the furniture item and then furniture product will be given to him. The buyers first have to give his personal details in order to save from the frauds. Only authorized person will be able to bid online for the furniture items.

Buyers can be able to securely purchase the furniture products through this system. Buyer can participate in bidding from anyplace for online auction bidding for furniture products.

Functional Requirements:

1. Buyer must be register with a proper login name & password so he can participate in auction bidding of furniture items.
2. Admin must allocate a four digit code for valid buyers in order to save from the frauds for auction bidding.
3. Buyer must enter his four digit code information to access the auction system.
4. Admin must verify the request of a valid buyer by four digit code for auction bidding participation.
5. A furniture Vendor can add, delete, and update the furniture items for auction bidding.
6. Admin will look up the various fraud buyers and then block that buyer account permanently
7. Buyer can pay via credit card or cash for auction of furniture items.

Tools:

PHP Language and SQL Server Databases for developing Online Auction System for Furniture Shop

Supervisor:

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Online College Management System

Project Domain / Category

Online Web Based Application

Abstract/Introduction

In the offline system of any College, depending on the nature of the College, it is so difficult to keep the records related to employees, faculty, student, parents and other College related activities on the papers. It is a burden to take out the register and search the records.

The purpose of this system is to make an online centralized platform (Online College Management System) which can be accessed from anywhere across the world. The aim of this system is to minimize the paperwork. The system is a web based application for institutions to maintain their complete activities related to their College. All the details regarding College will be computerized. By this management system, it will be easier for each individual person who is related with the system to be in touch as per needed. This software will be very easy to operate and maintain information about College, Students, Faculty, Courses and other related activities.

Functional Requirements:

Four type of users will be involved in the College management system.

- Admin
 - Student
 - Teacher
 - Parent
-
- Admin will be able to control whole College management system, its users, and every other activity that is related with the College.
 - Admin will be able to create, update or delete any record of the system.
 - Admin will be able to track payments / fee of student and view full list of students.

- Admin be able to view the profile of any user in the system and will be able to view all the details whether it is related to staff or students or any other activity.
- Admin will assign a class and related section to the student whenever a student is registered into the College.
- Admin will approve the leave application of the teachers and students.
- All announcements and news about any activity like start of classes, holidays, exams etc. will be sent to students through mobile SMS.

New Users:

- New users/visitors can find contact information and any other related information about College.
- To start with the College, student, teachers and other related users will have to register themselves. For registration, some personal details will be asked like Name, Password, Email ID, contact Number, Address etc.
- After providing all the above details, user will have submit the information to system.
- Admin will verify the details and will sent an email containing the login information on the given ID through the same system.
- After successful completion of the registration process, the user can login to his / her account by entering the unique id, which was sent to him / her via email, and the password he / she provides at the time of registration.
- The users can change his / her password later whenever they want.
- The user can edit his/her Profile anytime.

Teachers:

- The teacher can view the detail of his / her students. He / she just has to enter the class name and section name into the system and the whole list of the registered students of the section will be displayed to him /her.
- The teacher can mark the student as present or absent accordingly and can save the record.

- A teacher will be able to assign homework to whole class or to some particular students accordingly.
- Teacher can check the status of assignment submission.
- The teacher will be able to access any student's profile and acquire the information related to it. The teacher will be able to search student by their name or id.
- The teachers can apply for the leave online according to their need. The leave will be approved by the admin. The status of leave can be viewed in the leave status tab teachers.

Students:

Students can login to system for viewing their marks, personal information and checking payments /Fee to College.

- The student will be able to view classwork, assignments etc. and will be able to upload their work before deadline.
- The student can access the schedule of the class, he or she has to attend and some information such as class section, time of the class, which teacher will take that class etc.
- The student will be able to know whether any dues are pending against him / her or not.
- Students will be able to view any new announcement related to study or other activity.

Parents:

Parents will be able to:

- View the Report of the child
- View the Attendance
- View the Marks
- View the time table
- Get the SMS about new announcement

Tools:

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

Supervisor:

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Online Digital News and Articles System (DNAAs)

Project Domain / Category

Web Application

Abstract/Introduction

This is the era of happenings where number of events, inventions, actions, and advancements are rapidly occurring in different aspects of our life all over the world. To be up to date with happenings all over the world, news websites are key sources that provide the latest information on different aspects of life.

The purpose of this proposed project is to develop an online Digital News and Article System (DNAAs) that will furnish its users with latest news and articles category wise such as World, National (Pakistan), Sports, Business, Entertainment and Most visited. The news and articles will be shown with the combinations of text and related images. The user of the DNAAs could be able to search for different news and articles through different filters. DNAAs will have the built in mechanisms of displaying the latest news and articles on top in the category and the Most visited news from all categories under Most Visited link.

The objective of this project is to have hands on experience on developing a well-designed and fully functional an Online Digital News and Article System (DNAAs)

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:

- Reader / Visitor (Unregistered User)
- Article Writer (Registered User)
- Editor (Registered User / Admin)

Reader could be able to read and search the news / articles.

Article writer will be able to write / post articles on the website.

Editor will be the admin user who will approve the registration requests from users and the posts from the Article Writers.

There will be Sign In interface for registered users and Sign Up interface for unregistered users to register.

2. Email Notification and Verification

An unregistered user will register him/her. On filling the registration form an email notification will be sent to the user for confirmation.

Email verification / confirmation will be done by the user who applied for registration.

3. Article / News Posting

There will be interactive interfaces to post news and articles. The editor will have the rights of posting both news and articles whereas the Article Writer could only post articles on Website. Article(s) posted by the Article writer will be verified /approved by the Editor for publishing on DNAAs.

4. Account Management and Article Verification

There will be a separate interactive Admin Panel for Editor for user account management as well as to verify / approve the posts by the Article Writers.

5. Search System on Website (DNAAs)

There will be rich search facility/system through different filters. A reader and other users will be able to search the articles and news through following filters:

- By Date of Posting
- By Article Writer Name
- By Category
- By Post Title

Tools:

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

Supervisor:

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OnlineDoctorFinder

Project Domain / Category

Web Programming

Abstract / Introduction

“OnlineDoctorFinder” application will help find specialist match according to user’s need. It will maintain record of doctors, hospitals and appointments. It will help users to search doctors’ directory online by Name, Area and their specialty. System will show details of Doctors according to search criteria. User may also add reviews against a doctor. User may be able to see detailed data of doctor including available days and timings of different hospitals. The system will facilitate registered user (member) to book appointment according to doctor’s timings.

A doctor will be able to see details of his/her daily appointments. System will allow doctors to manage their record and handle appointments.

Functional Requirements:

- Admin will be able to register doctors
- Admin will be able to manage records of hospitals, doctors and appointments
- User will be able to search specialist according to categories(allopathic, Homeopathic and Holistic doctors) ,area and specialty
- System will show detailed information of doctor
- User will able to add reviews for a doctor
- A user will able to register as member
- A member will be able to book appointment
- A doctor(user) will be able to update their record
- A doctor will be able to check his/her daily appointment details.

Tools:

Dot.net Framework, C Sharp, SQL server etc

Supervisor:

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Online Prize Bond Checking Website

Project Domain / Category

Web Programming

Abstract/Introduction

Prize Bonds are available in the denominations of Rs.100, Rs.200, Rs.750, Rs.1,500, Rs.7,500, Rs.15,000, Rs.25,000 and Rs.40,000. These prize bonds are issued in series. Each series consist of one less than 1,000,000 bonds. No fixed return is paid but prize bond draws are held on quarterly basis. The draws are held under common draw method and the numbers of prizes are same for each series. It means that if 50 series of Rs.200 Prize Bond are in circulation. Then on each draw we have 50 winners of 1st prize and 250 winners of 2nd Prize and so on.

User can check prize bond by two ways either he/she can create account and save its prize bond or he can check prize bond as a guest user. The benefits of creating account is that user have to enter prize bond one time and after that he can check the different draws any time. User can check the total amount of prize bonds, can withdraw any amount prize bond from his/her account, and can add more prize bonds. This website also gives the feature to import data to excel or in .txt file.

Functional Requirements:

1. Admin shall be able to manage users.
2. Admin shall be able to add the **draw list** on his site which he/she can download from **State Bank of Pakistan** site or savings.gov.pk.
3. Visitor should be able to registered with website
4. Latest draw should be shown on home page in the form of ticker.
5. If user is a registered user then after login into site, user can check the prize bond draw of any denomination by checking the prize bond from the dropdown list, once bond is selected then pressing okay user can check bonds.
6. User can also see its total worth of bonds if user is a registered with website
7. User can import his data on excel file or in .txt format
8. User can delete specific type of bonds
9. Bond number consist of alpha numeric but user have to enter only digits for example if bond number is AX 125201 then the enter number should be 125201 in the form filed
10. There should be two fields one is from and other is to, user can enter 100 bonds just entering first bond and last bonds if bonds have same serial for example 123100 to 123200. Where 123100 is the starting bond and it is enter in from filed and 123200 is the last bond and it is enter the too file, then with the help of add button user can add these bonds to check list.
11. User can add more than 1 bond at a time of same amount.
12. Duplicate bond should not be entered while checking bonds or saving bonds in database

13. After adding bonds for draw No. should be provided to user which admin has already uploaded on his/her site .
14. Through check button user can check whether bond number is in draw list or not, if it is in the list then number should be display on the next field with the draw number and draw city.

Price against Price bond denomination:

The number and amount of prizes on various denominations of prize bonds for each series is shown in the following table:

First Prize			2nd Prize		3rd Prize	
Prize Denomination	Bond No of Prizes	Winning Amount (Rs)	No of Prizes	Winning Amount (Rs)	No of Prizes	Winning Amount (Rs)
Prize Bond RS. 100/-	01	700,000	03	200,000	1,199	1,000
Prize Bond RS. 200/-	01	750,000	05	250,000	2,394	1,250
Prize Bond RS. 750/-	01	1,500,000	03	500,000	1,696	9,300
Prize Bond RS. 1,500/-	01	3,000,000	03	1,000,000	1,696	18,500
Prize Bond RS. 7,500/-	01	15,000,000	03	5,000,000	1,696	93,000
Prize Bond RS. 15,000/-	01	30,000,000	03	10,000,000	1,696	185,000
Prize Bond RS. 25,000/-	01	50,000,000	03	15,000,000	1,696	312000
Prize Bond RS. 40,000/-	01	75,000,000	03	25,000,000	1,696	500,000

Given link is the example of such kind of website

<http://www.forexpk.com/>

Tools:

PHP, HTML, Adobe Photoshop, MySql Server.

Supervisor:

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Online Support System

Project Domain / Category

Web-based Application

Abstract/Introduction

The Online Support System will provide an interface through which users can post the details of problem for which they need assistance. The status of the reported problem will be PENDING. The admin will assign an engineer to resolve the reported issue and update the problem status to ASSIGNED. The engineer will resolve the issue and mark the problem status as CLOSED.

Functional Requirements:

Three types of users will be using this application.

User:

- The application will provide Signup and Login features.
- User can post the problem details for which assistance is needed. The status of reported problem will be set as PENDING.
- User can view the list of problems reported by him/her.
- User can track the status of his/her reported problem.

Admin:

- The application will provide Login interface.
- Admin will manage (add/update/delete) User and Engineer information.
- Admin can view the list of all reported problems with their status.
- Admin will assign a reported problem to an engineer and update the problem status to ASSIGNED.
- Admin can track the status of all reported problem.

Engineer:

- The application will provide Login interface.
- Engineer can see the list of all problems (with their status) assigned to him/her.
- Engineer will fix/resolve the issue, add comments and update the problem status to CLOSED.

Tools: PHP, HTML, JavaScript, CSS, MySQL

Supervisor:

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Online Test Application

Project Domain / Category

Mobile Apps

Abstract/Introduction

Online Test Application (OTA) will be an android-based mobile phone application that will enable end users to take online test and displays the result immediately. This will be an academia related time-based (or clock-based) application for the promotion of raising education about various subject and/or courses at various educational levels. The test will be based upon knowledge of any subject.

Functional Requirements:

1. The system shall show a splash screen to end user when application is started. It must contain welcome message, subject name and some very basic information about test like no. of questions, time allotted etc.
2. The system shall contain all the test questions along with their answers before the test starts.
3. Each test will contain ten (10) questions as well as fixed time limit of 10 minutes. The end user must answer all questions within the time limit. If user do not answer with in time limit, the test will automatically quit after ten minutes and display appropriate Exit message to user.
4. An alert will be shown to user when half (50%) time i.e. 5 minutes will pass.
5. If end user wants to quit test (i.e. press Quit button), the system shall check either he/she has attempted all questions or not. If end user has attempted all questions, allow him/her to exit test by displaying exit screen. Otherwise, do not allow him/her to exit and display warning message to attempt all questions.
6. Once test is completed, the system shall show details report for test results containing; no. of successful attempts, no. of unsuccessful attempts, no. of all attempts, percentage of successful attempts, percentage of unsuccessful attempts, marks gained / total marks. Upon all correct 100% attempts, you have to congratulate user and show Excellent; upon 80% result show Very Good; upon 60% result show Good; below 60% result give a chance (or option) to again attempt the test.
7. If user gets 80% or more results, generate a Completion Certificate (high-quality or reasonable quality image) on the name of user so that end user can print it later.
8. The system will show correct answers of his/her all unsuccessful attempts at the end of test. If user has all attempts successful, correct answers will not be shown.
9. The system shall have functionality for sharing his/her test results as well as Certificate of Completion on his/her Facebook account. Facebook integration is required.
10. The system should have a special functionality that the user cannot copy/paste the question statements. In other words, you need to disable the copy/paste feature.

11. The system shall allow users to schedule their test on future based upon their availability and flexibility.
12. The system should allow result to export for offline analysis. (can be in Microsoft Excel, Adobe .PDF formats)
- 13.

Tools:

1. IDE: Android Studio 2.1 (or later) for Windows; including Android Software Development Kit (SDK)
2. Programming language: JAVA
3. Database: SQLite
4. Unified Modeling Language(UML): Microsoft Visio, IBM Rational Rose

Supervisor:

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Parental Notification System

Project Domain / Category

Web Application

Abstract/Introduction

This application is basically parental notification system for all registered schools in this web portal. Any educational institution can register their Student's Record along with Mobile numbers of parents to receive all alerts on their mobiles through calls or SMS.

Functional Requirements:

1. It should be a web base application.
2. Any educational institute can register as a user of this system.
3. Institutional management can add students and their parent's information along with their mobile numbers.
4. System should allow the institutional management to send the alerts of student's attendance, circulars, daily assignments and many other reports that are necessary for parent's awareness.
5. Exam/Test reports: A teacher can enter the exam/test report and parents should receive an alert of their children test report.
6. The software should give the option to deal with any update of registered users.

Tools:

Development environment:

PHP, Java, HTML, Microsoft.Net framework, or any other modern programming language

DBMSs

SQL Server, MS Access, MySQL, Oracle

Supervisor:

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Prize Bond Wallet System

Project Domain / Category:

Web based Application

Abstract / Introduction:

Prize bond wallet system is a web-based application which provides a platform for its users to keep record of their prize bonds and check the draw results online. The system consists of an admin panel and a user panel. Admin panel is handled by the administrator (admin). Admin uses this to add the new draw records in the system and send notification to the users. Users need to create an account and enter all the prize bond numbers which they have in the system. They can check the single draw result or all the previous draw results with just few clicks. They don't need to enter their prize bond record every time they needed to check a new draw.

Functional Requirements:

1. Wallet system consists of two panels: Admin panel and User panel.
2. Admin can add new draw records into the system using the admin panel (through reading a text file containing draw results).
3. Admin can send notifications to the registered users regarding draw schedule and results
4. Users can use the site for checking the draw results without registering but they will not be able to save their record in the system.
5. Users can add/delete and update their prize bond record after logging into the system.
6. Once the user has entered their prize bond record, they can check the result by simply selecting the prize bond value and, draw number or all the previous draws.
7. Users can subscribe for the email notifications regarding draw schedules and results.
8. Users winning a prize should be notified through email.

Tools and Languages:

Database: MySQL

Language: PHP

Server: Xampp

Note: CMS not allowed

Helpful Resources / Tutorials:

- <http://www.w3school.com>

Supervisor:

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PM Laptop Merit & Distribution Application

Project Domain / Category

Web based Application

Abstract/Introduction

The Government of Pakistan have launched prime Minister's laptop scheme for the students which is for extra ordinary students to enhance the scope of research and quality education in the country. Laptops quota for each university is very less as compared to number of students. As VU is IT based distance learning institute having lot of students so here there is a need to develop an application which handles different tasks to set laptop merit criteria to reduce the burden of laptop scheme on Focal Person. Here we need web based application software which stores the student's data after submission of application by the students, modification of student's data profile, processing the student's data through data verification. Then merit criteria are set by HEC focal person depending upon the number of laptops. Finally, laptops are delivered to student's nearby Virtual Campuses and Campus Managers will use the software to keep track of distribution process.

Functional Requirements:

- The said software will be for only VU students so there will be three interfaces i.e VU Focal Person, Campus Manager and VU students.

For Student:

- No login required for students
- Student will apply through interface by providing Student CNIC, Student ID, Batch, Name, Father Name, Nearby Virtual Campus, Academic Information i.e Total Semester Attended, Credit Hours Earned, Effective CGPA etc.
- No student can apply if he/she does not fulfil the eligibility criteria set by Focal Person.
- No Duplication of CNIC
- Stores the student's data after submission of application and students should be able to look application status
- Modification of student's data profile by the student till last date
- Any student will be able to see application status any time.

For Focal Person:

- Focal Person will set eligibility criteria first through the said software i.e Batch BS1402, BS1404, BS1502, BS1504 are only eligible to apply or at least 3 effective CGPA.
- Focal Person will set final date of application submission.
- Focal Person will be able to modify data even after last data.
- Focal Person will verify data and application status will be changed to verified.
- Focal Person can disapprove student data in any case.
- Focal Person will set number of laptop i.e 2500 Laptops
- Focal Person will set merit criteria i.e 25% for BS, 30% for Masters, 40% for MS and 5% for Disabled students.
- Out of this quota again for each batch quota is set by the VU Focal Person
- Focal Person will create User Id and password for the Virtual Campus Managers to handle distribution process.
- Focal Person will be able to generate report i.e All Applicant List, Selected Student List, Asset Issued List, Disapproved Student List, Campus Wise Selected Student List etc.

Example:

From 2500 laptops, 40% quota is for MS = $40/100 * 2500 = 1000$ Laptops.

Further is batched based distribution of quota

- 35% will be for Batch MS1502 = $35/100 * 1000 = 350$ Laptops
- 40% will be for Batch MS1504 = $40/100 * 1000 = 400$ Laptops
- 25% will be for Batch MS1602 = $25/100 * 1000 = 250$ Laptops
 - Total = 1000 Laptops

For Campus Manager:

- Finally, the software will keep track of distribution process. Application status will be changed to Asset Issued by Campus manager if laptop has been given to any student.

•

Tools: [ASP.Net](#), [C#](#), [MS SQL Server](#), [PHP](#), [HTML](#), [MySQL](#), [Java Script](#) etc.

Supervisor:

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Spelling Bee Quiz (Mobile App)

Project Domain / Category

Android Mobile app

Abstract/Introduction

This is a very interesting app to learn Spellings in an easy way. This educational app is for all ages. As we know that spelling really matters in written English so by this app anyone can know his/her level in English spellings and improve spelling an exciting manner. English spellings can be learnt easily by easy quiz questions, there are multiple choice questions. User can see his/her score and try to improve in next attempt. This app requires database of English words to be built. There are more than 100 words included in this app.

Functional Requirements:

3. Customized menus
4. Quiz score
5. versatile MCQs
6. Database creation
7. 20 seconds to choose the right answer. If wrong then correct answer is displayed.
8. Offline Android App (No Internet required)
9. Design quiz interface
10. Calculate the score of the quiz

Tools:

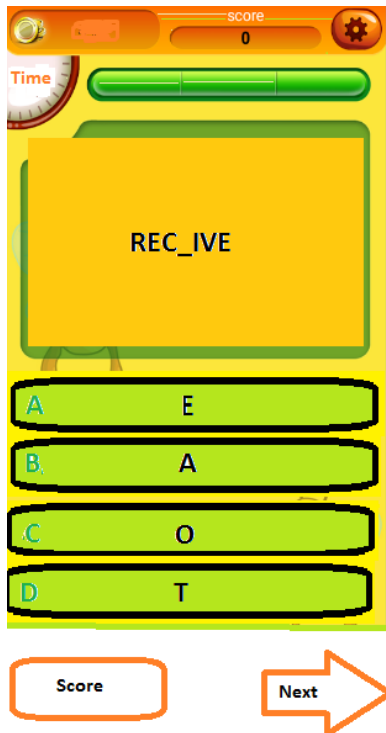
Android development IDE

Example: Eclipse ,Xml

Any database tool

Interface:

An exemplary snapshot of Quiz is below:



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GROOMING LOUNGE

Project Domain / Category

Web Programming / Web Application Development

Abstract/Introduction

Grooming Lounge is a user-friendly website with the main aim to facilitate users to online book their saloon appointments with their favorite workers in available slots. It not only helps users to buy offers or dresses or other accessories online but also help them to get registered in some short courses also. Customer can also give feedback after availing services and can also rate the worker. From the admin's perspective, it keeps all the records of sales and purchases which can be viewed graphically. Workers performance is also evaluated based on the booked slots and customers' feedback. All the records are kept that which worker has performed which service to which customer for future assistance.

Functional Requirements

1. The website will show the details along with the charges of all saloon services. Services will include skin treatments, hair treatments, make-over, cutting and waxing, bridal packages, day-to-day packages, online boutiques and accessories, home services provided, photo-sessions likewise (You may include as many services as possible). News and events should be included.
2. There will be two types of registered users which are valued and non-valued. Valued customers are those who are the members of the system and get a fixed discount on all payments. Valued customers are those who availed cumulative services of certain fixed amount like Rs. 20,000 or they want to pay that fixed amount directly prior of availing any services. Non-valued are initial level customers.
3. Profile of the working staff can be viewed with their expertise and experience. New workers can be added to the system. System should keep the record at back end for the workers who left and their profile should not be active (cannot be viewed to users) accordingly.
4. System should calculate the salary of each worker with per hour rate. For this purpose, the GUI should be friendly enough for the admin that he can record a particular service(s) offered by the worker. If the worker remains idle for more than 15 days only basic salary will be given.
5. Registered users can see the profile of working staff along with their availability on particular day and time. The system should update the schedule of each worker that is booked appointments on coming slots or free slots from time to time. Registered user can make online appointments by viewing the monthly schedule of their favorite worker on the free slots available. Registered user only book the initial time of appointment. System should calculate the estimated time for the service and make the slot busy accordingly.

6. Only registered user can avail home services.
7. Any user can avail discount offers/ promotions. The vouchers for promotions can be bought online or through cash payments prior to home delivery. Time left for the offer to avail should be displayed in terms of days, months and hours and minutes.
8. Only the valued customers have options to make their payments in installments for the bridal packages. System should notify if any previous payment is pending before offering any service.
9. Registered users can avail short courses offered. Short courses can be of self-grooming or fashion designing or likewise. Valued customers only can make their payments in installments.
10. System should be able to calculate the sales (generated from saloon services or classes or through online sales) and purchases (like products or other accessories bought) at any given time. Proper records should be maintained for this. Sales graph should be seen for any day, week or month. Consider electricity bill payments, workers' salaries and other expenses also in calculations.
11. Workers performance evaluation should be done from the client's feedback and the work done in slots hence their bonuses in salaries are calculated.
12. System should calculate overall rating of each worker.

Note: New features are subject to be added from time to time in this domain.

Tools:

Visual Studio (latest version) with .net Framework + SQL Server (latest version)

Development Language:

C# (C sharp) with SQL

Supervisor:

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Real Estate and Builders

Project Domain / Category

Web based Application

Abstract/Introduction

The field of Real estate in Pakistan/ world is in its emergent stage as People need homes and business man need offices and premises for work. However, it is a rapidly growing area in Pakistan and across the world where thousands of professionals are now associated who are responsible for planning, organizing, and evaluating of many events throughout the year.

The Real estate and builder is a company provide solution for Homes and work premises as per the requirement of the client, by selecting different options he/ she can get his/her required harmonized property list. You are required to develop a web based database application for the company so they can take orders online.

Functional Requirements:

1. Client can register him/herself for booking an job.
2. There must be a login process for admin and clients to avoid unauthorized access.
3. System should save all the necessary information of the clients.
4. Clients can change any of their requirements any time.
5. System should record the order details.
6. There must be a list of all types of services the company is dealing with the available themes.
7. System should display list of available properties.
8. System should ask for Deal type, Property type, Different price ranges, location, and other necessary information related to property.
9. There website should display the photographs of the properties held by company.
10. Clients can provide feedback about services.

Tools:

PHP

My SQL Server

(Any modern language tools)

Supervisor:

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Rent-A-Car System Management Application

Project Domain / Category

Database.

Abstract / Introduction

Life without aim is like a word without meaning, a body without soul, a lamp without light and an eye without sight. This is the aim that distinguishes us from animals. Aim in life gives us a proper shape and direction to our abilities and energies. It works as a motive force. Our aims of life sometimes change according to the time. I can clearly remember that I wish to travel by my own car but due to the lack of finance i could not fulfill it by that time.

So keeping in view my desire i had when i was young i decided to open a Rent-A-Car company to provide an opportunity to those people who wish to travel by his/her own car (which is one of the increasing demand of common society) but can't afford to buy it right now.

To make available this opportunity to the general public, i have decided to open a Rent-A-Car company, on one hand it is an opportunity for general public not having its own car while on the other hand it will generate fruitful profit.

In order to streamline all the activities the company needs a data base for it to store all the necessary /required information to the company, the company needs to have an account of the expenses (if any regarding vehicles such as minor/severe accident etc.) of a vehicle or vehicles issued to the customer(s) by an authorized employ of the company at that time with a guarantee of a specific person.

Functional Requirements:

- ❖ The database must include the following information.
- 1. The vehicles the company provides for rent purposes, such as (CAR ID, its reg#, model etc.)
- 2. Information about the customer getting the vehicle on rent basis.
- 3. Information about employee/Admin an office.
- 4. Guarantor/Sponsor information. (His/her ID, NIC, Address etc.)
- 5. Accounts having details of Customer, Car and their expenses if any. (who and when someone took the car on rent, Did or not returned the car safe, if not what are the total expenses)

Tools:

Oracle/ MySQL Server v5.0 – A Powerful Open-Source Database Server. /any other of your interest

For front end use java/any other of your choice.

Supervisor:

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Restaurant Management System Mobile App

Project Domain / Category

Mobile Apps

Abstract / Introduction:

Restaurant Management system is need of every restaurant and hotel or hospitality business. With the passage of time the need to improve their value chain, restaurants are increasingly looking for ways to improve their process efficiencies, attract more customers and improve their revenue streams.

Beyond doubt, in order to standardize processes and identify cost savings, automation of processes is critical. And this automation can be easily achieved through restaurant management android based apps.

With competition growing intense in the hospitality industry, more and more restaurants are looking to make use of advanced tools, applications, and software programs to manage their restaurant operations in an efficient manner. In this regard using android app on tablet or mobile for the restaurants is good option. It will speed up the process of order placement for order takers, order processors and cashier etc.

Functional Requirements:

The functional requirements of this mobile app can be divided into following points.

1. A table man should be able to place order on customer behalf selecting the Table Number and then Order Menu ordered by customer.
2. Table man or order taker will select the menu items after category wise searching facility. For example if customer ordered "Fried Rice" then he/she will select the relevant category as "Rice" first then will select the menu, system will keep calculating the price of each menu item and in the end when order will be completed total of all will be shown.
3. Order taker will save the order with customer name and table number and will send the order to kitchen for processing.
4. Kitchen user will see a prompt on his screen for new order and will select it to view the details. He will add time for the order completion and that time will be saved and shown to order taker as well for customer inquiry.
5. Once an order is prepared in kitchen the kitchen user will change the order status to ready and order taker will get a prompt on his screen about ready order # with table #.
6. Order taker will serve the order to customer with an order receipt for payment, and before leaving customer will go to cashier for payment.

7. Cashier will check the customer order details; will process payment against the said order.
8. At the day end manager will be able to see the daily sale report, with different filters like date wise, order taker wise, table wise, menu wise etc.

Tools: Android / Xamarin Studio + Java / PHP + My SQL / SQL Lite / C#

Supervisor:

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Sale/Purchase Property Online

Project Domain / Category

Web Programming

Abstract/Introduction

Property purchasing is a diligent work for which you need to visit a lot of areas simply to discover a dream area for you and your family. This can be very costly and time-consuming. Consequently, property sale out is also a very hectic task. “Sale/Purchase Property Online” is a platform to fulfil all the customers’ real estate needs (sale/ purchase). This platform will be able to keep a database of different properties, and it will play a vital role in the sale/purchase of property online and it will save customer’s time and money.

This project aims to develop a web-based application for real estate which deals in buying and selling of land, homes and commercial properties. It will also show the location of the particular property with the help of Google map by tracking the address location. It will also show the nearby important places (schools, colleges, hospitals, markets, parks etc.).

Functional Requirements:

- Login process/ authentication for administrators and customers (Sign up and Sign in/ Sign out) to avoid unauthorized access.
- Administrators can add, remove and approve property ads along with details.
- Property owner can add property ads, remove and manage property added by them only.
- Buyers can search for property according to its type/price/city/category.
- Buyers can contact the property owners after sign in (authentication) only.
- Location of each property is required using Google map.
- List of nearby important places (schools, parks, hospitals) should be available with the property (based on the area).
- List of favorite properties (hot deals) based on customers’ search.

Tools:

Server side programming language: PHP

Scripting and styling languages: HTML and CSS

Client side scripting: JavaScript and JQuery

Database: MYSQL

IDE: PHP Storm

Local host Server: WAMP

Supervisor:

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Scholarships E-Portal

Project Domain / Category

Web based Application

Abstract/Introduction

Nowadays many organizations/institutes are offering scholarships to the students of different disciplines. These scholarships are either fully or partial funded. Scholarships are offered in national and foreign universities. Scholarship E-Portal is a place where students can get up to date information about different scholarships to Pakistani students. Furthermore, students can also apply for different scholarships.

In order to make an online scholarship E-portal system, your system should contain the following functional requirements.

Functional Requirements:

- List of national and foreign scholarships
- Link of each scholarship should contain the following features
 - Name
 - Description
 - Deadlines
 - Eligibility Criteria
 - Terms & Conditions
 - Required Documents
 - How to Apply
- Online application form
- Test/Interview schedules
- Application Status
- List of selected candidates against each scholarship
- List of scholarship offering institutes
- Frequently asked questions
- Important announcements on main page
- Contact us
- Important Links on main page

Tools: Visual Studio(C#), SQL Server

Supervisor:

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Online Manuscript Management system

Online Manuscript Management system

Project Domain / Category

Web Application

Abstract/Introduction

This system allows easy handling and transparency for all submissions of research papers. It includes the facilitation of peer review of submitted research papers. System is customizable for each journal and will generate reports and statistics on the editorial process. System is able to provide a suite of customizable manuscript tracking for authors, reviewers, editors and journal office staff from submission to peer review and production of research papers and journals. System is designed to accommodate easy and rapid publishing of international open access journals that are dedicated to various allied sciences. Editors can focus on bringing out quality scholarly issues for the academic and scientific community.

Functional Requirements:

1. Manuscript /Paper data consists of paper title, abstract, keywords, paper file, and paper source file. A paper is described by paper category (like case study, technical note, etc.)
2. Your system will allowed different users to use the web application having different roles and rights. Like authors, reviewers, editors and journal office staff. Author is the main writer of the research paper. Reviewer will review and identify the changes required in research journal/paper. Role of editor is to keep track the list of all the submitted manuscript from submission to publishing.
3. The new paper submission procedure consists of three steps. In the first step, authors supply data about paper, including title, abstract and keywords. The next step consists of supplying authors' personal data. In the last step, the authors submit the paper file.
4. In the revised paper submission process username and password are used to log into the system and view the paper status. From that area, revised paper or source files of accepted papers can be submitted. Authors are also allowed to edit their personal data.

This is also the place where the reviews will be published so that the authors can read them.

5. Each new paper has an editor who is in charge of overseeing the review process and recommending the decision about the submitted paper. If the submitted paper clearly does not meet the requirements and the editorial policy of the journal, it may be rejected by the editor without the review.
6. A paper is associated with different states (received, accepted, rejected, to be revised). System will keep record of all the research papers that are rejected and are not up to the required standard. Editor can see the status of all the papers/journal that are under the review process. A paper may have multiple reviews. Each review is related to the reviewer (person conducting the scientific review of the paper).
7. Our mobile friendly websites is able to handle open access of scientific and academic journals that is optimized for different Search Engines.
8. The most difficult requirement on scientific journals is reduction of time from manuscript submission to publishing. To reduce this time it is necessary to efficiently conduct the review process and this can only be done by efficiently assigning the submitted manuscript to each reviewer to speeds up the exchange of information.
9. The editor can add new reviewers and can send e-mail reminders of overdue papers to reviewers. The editor is allowed to browse papers assigned to other editors in case consultation is required.

Tools: JSP, Tomcat Webserver, SQL Server.

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Shopping Mart Computerization

Project Domain / Category

Desktop

Abstract / Introduction

The computer is an important factor of our lives. Through computer we can perform different tasks efficiently and in a speedy way.

In this project, we will build an easy to use Desktop based application for a Shopping Mart which will be used by employees of the shopping mart in two layers. I.e. to facilitate the administrator and to facilitate employees working at the counters of the shopping mart. The administrator of the Shopping Mart will add different products, search about different products, can find total profit on daily, monthly and yearly bases. Whereas the employees working at the selling counter (Sales point) will be able to create receipt of good purchased for customers and will be able to check stock etc.

The main purpose of this project is to facilitate the administrator and employees working at counters in keeping the records electronically rather than manually.

Functional Requirements:

1. Administrator and employee working at the counter can login and logout
2. Administrator can add different products and their information's like product name, product price, quantity etc.
3. Administrator can edit and delete different products
4. Administrator can generate selling reports both on timely based and on demand
5. Administrator can generate the total profit of a month and a year
6. Employees working at counter can print receipt for a customer that contains different information about customer purchased products such as product quantity and price
7. Employees working at the counter can check the status of goods in the stock
8. Employees working at the counter can generate cash reports of shift based, daily, monthly or yearly.
9. Products sold must be automatically deducted from stock.
10. Application must throw alerts when a product in stock is limited or completely sold

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

Tools:

Java, SQL server

Supervisor:

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Smart Courier Management System

Project Domain / Category

Web Programming

Abstract/Introduction

Smart Courier Management System (SCMS) is a web application that will allow its users to book shipment, track shipment status and view different shipment offers online.

User will be able to book shipment order online and also will be able to book through any of the express centers of the courier company. Express Center is a franchise of the courier company where package may be collected directly from the client or picked up from the home address of the client who is using the online booking service.

The shipments made from far away express centers may also arrive temporarily in an express center to dispatch them further to their destination addresses.

This web application has three main modules:

Client:

Client is the actual user of this application. Client will be able to register and view the content of the website such as shipment services, blog, contact info etc. Client may also book shipment, track shipment delivery status, and make payments online.

Express Center Manager (ECM):

Manager is the authorized person on the express center who can collect packages from the clients and add them in the database. ECM will also be able to view user's profile, previous history, package details, track package delivery status, and update package delivery status of the packages arrived from other express centers.

Admin:

Administrator of the application will be able to modify (add/update/delete) website's content including shipment services, special offers, blog, contact info etc. Administrator will also be able to modify (view/create/delete/update) the profiles of client and Express Center Managers.

Functional Requirements:

Client:

1. The website should provide registration option to the client
2. Registration is mandatory if the client needs to make booking for the shipment online
3. A tracking page should be provided for the clients who are not using the online booking facility. They should be able to track their package delivery status through the tracking number provided to them by express center manager

4. Online payment options should be provided to the registered clients through credit card, paypal etc .

Express Center Manager:

1. An interface should be provided to Express Center Manager where he will be able to book the shipments from both online and walk in clients
2. Online shipment orders placed by the clients can be picked by any ECM using the system
3. ECM should be able to update the delivery status of the package upon arrival of that package to their express center
4. ECM should be able to track the delivery status of a package
5. ECM should be able to view a client's history on the basis of their customer ID or their email address

Administrator:

1. Administrator of the web site should be able to create/modify/delete profiles for clients and ECMs as well
2. Administrator should be able to add/update/delete the content of the website e.g. blog, contact info, shipment services, special offers etc
3. Admin should also be able to view the performance of any express center on the basis of number of its shipment orders, processing time, package collection time etc

Tools and Languages:

HTML, CSS, JavaScript, PHP, Wordpress, WAMP server, SQL,, Dreamviewer, Notepad++ etc

Supervisor:

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Snakes and Ladders

Snakes and Ladders (Board Game)

Project Domain / Category

Game Programming

Abstract/Introduction

Snakes and Ladders is an ancient Indian board game regarded today as a worldwide classic. It is played between two or more players on a game board having numbered, gridded squares. A number of "ladders" and "snakes" are pictured on the board, each connecting two specific board squares. The object of the game is to navigate one's game piece, according to die rolls, from the start (Bottom Square) to the finish (Top Square), helped or hindered by ladders and snakes respectively.

This project is aimed at developing a multiplayer Snakes and Ladders game which can be played by two players. It can be played over LAN and also on a single computer. The players roll the dice and based on the number they get, they move up the board. The Player who reaches the finish point first wins.

Functional Requirements:

- There should be options to select boards of different size from 8 x 8 to 12 x 12 boxes. Ability to select different (at least) two board designs from each category of size. Each design will have different positioning of snakes and ladders. Design of dice will also be controlled in this module.
- Overall design of game should cover game board, dice, player's info, progress and win/lose records.
- Two players are allowed to play the game. Both players can be human or one player will be human and other will be auto (computer controlled).
- There should be options to play the game on LAN and local PC. Playing on LAN will be only between two human players.
- For computer controlled player, dice rolling and piece moving will be auto. For human player dice will be rolled by player and piece moving will be auto.
- If any player wins, game will be ended. Before starting the game, there should be option to enter the name of human players for identification of next turn and score of the players. For computer player there can be any default name.
- At start of game, piece of each player should be at locked state. For each player game will be started only if dice only roles to "Six" (only first time). If dice roles to "six" player will be given another turn. If dice roles to a number greater than distance from winning position then current turn of the player will be cancelled and other player will get turn to roll the dice.

- Whenever a move ends at start of a ladder, the player will climb up the ladder to the respective position at the top of the ladder. If current move ends at a snake, the player has to retrace back to the position at the tail of the snake.
- There should be option to play the game in full screen mode.

Non-Functional Requirements:

This system provides, security, user friendly interface and quickly response.

Tools:

Microsoft Visual C#

Java

Supervisor:

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Speak & Listen App for Deaf

Project Domain / Category

Mobile Apps

Abstract / Introduction

Deaf people face many problems in a world so connected with sounds. Although they do not see themselves as impaired but rather as a cultural and linguistic minority, they have difficulties to connect with the hearing majority.

Speak & Listen App for Deaf is an Android based mobile phone application which aims to bridge the gap between Deaf and Hearing cultures by allowing them to communicate with each other in a simple and convenient way.

This application consists of a chat (written text) option which converts written text into audio so that it can be listened from normal people (hearing people); deaf people can write and normal people can listen. On the other hand, it also converts audio to text that deaf people can read and understand easily what normal people want to say; normal people can say and deaf people can read.

Functional Requirements:

1. This app consists of two parts:
 - i) Speak
 - ii) Listen
- I. Speak: A deaf person can write in a text field what s/he wants to say and press to the 'Speak' button. Then the normal person can listen what a deaf person wants to say. Text to speech (TTS) technology is used here which is provided by Google.
- II. Listen: A normal person first presses the 'Listen' button then says what s/he wants to say. Then it is converted into text or sign language and deaf person easily understands what normal person want to say. Voice Recognition technology is used here which is provided by Google.
2. The written text supports simple alphabetical text and sign language text by using PSL (Pakistan Sign Language); so a deaf person can write either by using alphabetical keyboard or sign language keyboard (i.e. PSL keyboard).
3. The speech received from normal person will be converted into simple alphabetical text and as well as sign language; so a deaf person can easily read text speech or visualize the sign language.

4. The interface should provide the simulator and animation for visualizing the sign language to a deaf person.
5. A database will be maintained to store all conversations as well.

Tools:

1. IDE: Android Studio
2. Programming language: JAVA
3. Database: SQLite
4. UML: Microsoft Visio, IBM Rational Rose

Supervisor:

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Speech Synthesizer Application for Blinds (SSAB)

Project Domain / Category

Web Application / Desktop Application

Students have choice to develop web based application or desktop application by using tools / packages specified below.

Abstract/Introduction:

Technology is being used by humans of every age and even with disabilities so the proposed system is for blind people to take notes of lectures and / or their conversations. The system would also enable them to send these notes (speech to text conversion) via email and able to listen their received emails (Text to Speech conversion).

Functional Requirements:

1. The idea is to create a class in .Net with .Net SMTP option Voice Authentication.
2. Microsoft Speech SDK is integrated with the programming Language.
3. Set of Commands are reserved like "start", "subject", "matter", "send", "delete". Activate Dictation mode not command mode.
4. Try to generate event when user speaks these words to perform certain actions e.g. taking notes, sending email, composing email etc.
5. Create a simple text Box editor. When user speaks, they get typed over here.
6. A push Mail interface to read from your email account.
7. When you say "Read", should fetch the mails in List box and read sender and heading.
8. Bonus Features: Operations on selected segment of text i.e. with Up and Down command you can select a particular mail its body will be spoken out.

Tools: Microsoft .Net Framework + Microsoft Speech SDK

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Photo Gallery

Project Domain / Category

Web programming

Abstract/Introduction

Photo Gallery (PG) is basically the idea behind the Open market project name. As a photographer, event organizer or party host, you're expected to provide a positive and memorable experience to all of the guests. There are many photo gallery benefits that would make them perfect for weddings, birthday parties and other celebrations, if only they weren't so heavy and slow to set up. Fortunately, PG allows you to take instant pictures, share them with intended users Photo gallery you don't have to wait for your pictures anymore. The social media integration allows guests to show off their best photos and save them to their mobile devices instantly.

Functional Requirements:

1. The admin page will allow the admin (Event organizer) to set the different fields according to the requirements of users. Admin will set the setting for camera, frames, social media links, emails, reports and for printers. Admin can create new events and name it according to relevance of the event name and location or organizers can name the event according to them. Admin can add, modify, delete, update image. Admin also give rights to registered users for modification of images or deletion of image from personal images from gallery.
2. Users select between taking picture, making gif and record videos. Users are provided the option for select between different frames and can retake shots in selected option.
3. User can select the desire frame for his/her photos.
4. After photos are taken, gif is made and videos are recorded users can upload them on social media
5. Retrieve/view photos according to event
6. Search photo according to different parameters like date, time, event, place etc.
7. Photo can be Zoom in, rotate etc.

Tools:

- Microsoft® Visual Studio 2013 Professional – for Development of Application
- Microsoft® SQL Server– for Databases
- Microsoft .NET framework

Supervisor:

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Student Performance Analyzer

Project Domain / Category

Data Mining

Abstract/Introduction

Data mining is a process of analyzing data from different perspectives and summarizes the results as useful information. In the field of education the concepts of data mining are known as Educational Data Mining. Through this process we transform the raw data coming from different educational system and can predict on the basis of this data about the performance of students in future. The main objective of this project is to detect the failure rate of students as early as possible and to prevent them from dropping out and to enhance their academic performance. In this project on the basis of midterm results of students it could be predicted that what will be their possible performance/result in final term exams. This prediction can help educational systems to take preventive measures for students either to make changes in learning environment and to raise their educational standards.

Functional Requirements:

1. Dataset of students at least of 50 students.
2. Predict the student performance in final term exams on basis of their midterm results
Using Artificial Neural Network (ANN) techniques.
3. Error rate must be as low as possible.
4. This simulation base final results must be shown diagrammatically in final docs (diagrams must be related to simulator result, not drawn by hand).

Tools: [MATLAB](#) or [Weka](#)

Supervisor:

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Support Chat Bot System

Project Domain / Category

Web Programming

Abstract/Introduction

A web based application built on AI technology model which provides user with response like normal human beings. Chat bots typically provide a text-based user interface, allowing the user to type commands and receive text response. Chat bots are usually state full services, remembering previous commands (and perhaps even conversation) in order to provide functionality.

Functional Requirements:

1. Support Chat Bot project is built using AI algorithms that analyzes user's queries and understand user's message.
2. This System is a web application which provides answer to the query of the customer very effectively.
3. Customers just have to query through the bot which is used for chatting.
4. Customers can chat using any format, as there is no specific format that the user has to follow.
5. The System uses built in artificial intelligence to answer the query.
6. The answers are appropriate what the user queries.
7. If the answer found to be invalid, user just need to select the invalid answer button which will notify the admin about the incorrect answer.
8. Admin can view invalid answer through portal via login
9. System allows admin to delete the invalid answer or to add a specific answer of that equivalent question.
10. The system analyzes the question and then answers to the user.
11. The system replies using an effective Graphical user interface which implies that as if a real person is talking to the user.
12. The user can query about the products/support online with the help of this web application.

Features:

The system comprises of main two modules as follows:

1. Admin
2. Bot Chat

Description:

1. Admin

User has to login to the system to access various helping pages through which user can ask queries to the system with the help of bot.

2. Bot Chat

User can chat with the system and ask queries about products or supports etc.

Tools:

ASP.NET Web Forms, ASP.NET MVC, Microsoft Visual Studio, Microsoft SQL Server

Supervisor:

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Travel and Tourism Management System

Project Domain / Category

Web Application

Abstract / Introduction

The objective of the project is to develop a system that automates the processes and activities of a travel. The proposed system is a web based application and maintains a centralized repository of all related information. The system allows one to easily access the relevant information and make necessary travel arrangements. Users can view details and decide about places they want to visit. User can make booking/reservation for travel and accommodation through this online system also. The new online system will be easy to manipulate and will decrease the time to manage a tour.

Functional Requirements:

Here are following modules in Travel and Tourism Management System:

- Administrator module
- Travels module
- Routes module
- Reservations module and
- Recommendations module.

The Functionality of each module of Travel and Tourism Management System is as follows:

ADMINISTRATOR MODULE:

This module provides administrator related functionality. Administrator manages all information and has access rights to add, delete, edit and view the data related to places, travels, routes, bookings/reservations, etc.

TRAVELS MODULE:

This module provides the details of various travel agencies. A user can select the appropriate agency depending on convenience and accessibility.

ROUTES MODULE:

This module provides information related to various routes connecting sources and destinations. For each route, information such as source, destination, fare, reservation details, etc. are provided. Only administrator can add, delete, edit and manage the data. Users can only view the information.

RESERVATIONS MODULE:

This module provides functionalities that allow a user to reserve tickets or cancel previously reserved tickets. The module maintains the details of all reservations made so far and allows administrator to either confirm or reject the bookings/reservations.

RECOMMENDATIONS MODULE:

Users of this application can post their opinions, complaints and suggestions regarding this portal and services to the administrator.

Tools:

Html, PHP, CSS, JavaScript, Adobe Dreamweaver, Adobe Dreamweaver, Adobe Dreamweaver, My-SQL, Adobe Photoshop, MS Visio

Supervisor:

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University Transport Management System

Project Domain / Category

- Web Application
- Database

Abstract/Introduction

In this project, we are going to develop a transport management system (TMS) for university transportation department to manage the everyday transport operations in an efficient way. The university transportation department has many buses which run of different routes within and outside the city to carry students and staff between their homes and the university during different times of the day. TMS provides hassle free transport facilities to the students and employee by allowing them to get themselves registered with the TMS, searching for the bus running of their desired route and selecting the bus to travel. TMS is helpful for university transport department who want to assign different routes. TMS is a web based application which focused in the area of adding, editing and deleting the passengers, staff and the Bus routes.

Main Users: Administrator, Student, University Employee, Driver

Functional Requirements:

1. The system will be managed by an administrator who will be responsible for all the operations of the system.
2. An administrator can add/remove/update any information stored in the backend database maintained by the system.
3. There are two categories of the users of this system; Guest, Registered User
4. An unregistered user will be only allowed to search for the different routes which are being covered by the university buses.

5. The system will allow the users to get themselves registered into the system using the authentic information which will be first verified by the system before confirmation his/her registration.
6. The authentication will be done on the basis of some pre-defined information such as student university id, employee id etc. This is to ensure that any outsider is not allowed to be registered.
7. Either a student or university staff can get themselves registered with the system.
8. Once the user submits his registration form, his registration process is in pending status until the administrator approves his/her registration.
9. The system will allow all the registered users to login to the system.
10. The registered user (student/staff) can not only view/search the information about different routes being covered by university buses but also he/she will be allowed to book their seat. The booking will be done on per month or per semester basis.
11. Each user will be charged some amount depending on its route and time duration.
12. Based on their bookings, a fee voucher will be generated by the system which will be submitted by the user to confirm the booking.
13. The administrator will be able to add/delete/update a new bus details to the database.
14. The administrator will be able to add/delete/update a new route details to the database. The details will mainly include the final destination as well as different areas being covered during the route being shown in form of a map.
15. The administrator will be able to assign any bus on any registered route along with the time during the day. There can be more than one buses running on the same route or there may be more than one routes being covered by a bus in different times of the day.
16. The system will allow the administrator to add/update/delete driver's information. The administrator can assign a bus to a driver.
17. The administrator can update the information about any registered user.

Tools:

Visual Studio (latest version) with .net Framework + SQL Server (latest version)

Development Language:

C sharp (C#)

Supervisor:

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Vehicle Distances measuring System Using GPS/GSM/GPRS Technology and Smartphone android Application

Project Domain / Category

- Networking

Adequate

Abstract/Introduction

An efficient vehicle distance tracking system is designed and implemented for tracking the movement of and the distance while travelling on roads from any location at any time. The proposed system made good use of a popular technology that uses Smartphone application. Android application for this purpose will be developed to find out distance between two users by the exchange of messages. This application will make use of Global Positioning System (GPS) and Global system for mobile communication / General Packet Radio Service (GSM/GPRS) technology.

Using this application one of the users who send will calculate their coordinate and send this information to the intended receiver(s). This information will be used by application at receiver side to calculate the time that will take the user to arrive at sender's location. The application will also have its database to store the information from the other users and its own coordinates and other information.

The application will send the information regarding speed and the co-ordinates after some interval of time.

Resource gathering module, time calculation module

Functional Requirement

Application will collect the coordinates and publish on the application database using GPS/GPRS

Any user who wants to measure distance with any other vehicle user will calculate his coordinate information using GPS and I calculate distance and time based on the coordinates from GPS

The Coordinates will be updated after every 10 minutes.

Proper registration is required by all the users of the application.

User management

Simple communication between users Via GPS and GPRS/GSM

Resource gathering module, time calculation module

Report Management

- **Tools:**
- Android Studio (Android development studio)
- Java.

Supervisor:

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Virtual Computing Services Provider(VCSP)

Project Domain / Category

Computer Systems and Networks

Abstract/Introduction

Virtualization is hot topic in ICT industry and has quite healthy future. Although there are various global computing service providers like amazon, Google, Microsoft etc. whose services are available everywhere, however there are active concerns for the data regulation and security over continental internet traversal of in various countries so many of the enterprises or business who opt for computing as services for faster startup or reduce their ICT investments, they prefer to buy such services from local providers. Unfortunately, currently in Pakistan there is very little or almost no such providers offering the IAAS/PAAS/SAAS services.

This project aims to create necessary skills and working knowledge in virtual universities 's undergraduate students on various infrastructure virtualization techniques and creating suitable environment for quick deployments.

Furthermore, it will provide students an opportunity to learn latest trends in the ICT industry and services. Skills learnt in this project will help students to initiate new ventures in computing services after completing their degree program.

Functional Requirements:

1. Prepare a server to provide virtualized resources (OCI/VM/Kubernetes/Any).
 - a. Each running instance of OS, Server or Applications must provide complete isolation in process space, logs etc. every instance must b be secure on system and network.
 - b. Servers access must be provided via SSH or any other secure tunnel method
 - c. Desktop access must be provided with some secure remote desktop app

- d. All services must be running in background on server
 - e. Server should only provide a page to show the cpu/memory/disk utilization of each user
 - f. Allow user to control the OS installation (optional)
- 2. Develop portal where user can register (username , password, user validation etc.)
- 3. Subscribe to services
 - a. Free basic package (Computing or Webservice)
 - b. Paid Basic Package (Computing or Webservice)
 - c. Paid Advanced Package (Computing or Webservice)
- 4. Quick deployment of Computing Services
- 5. Monitor Processor utilization, Space Utilization and Memory utilization and restrict the access to host resources as per subscription
- 6. Notify users when the load or space utilizations increases the limits
- 7. Unsubscription should only allow the access cessation, user data should not be deleted for at least for 3 days
- 8. Before deleting user data, Notify customer the data is going to permanently deleted
- 9. Basic Dashboard showing Individual resource utilization
- 10. Ticket Support
- 11. Chat Support

Project Guidelines:

- ❑ Students may form a multidisciplinary group like (Project Specialist , Systems & Network Specialist, Web Development)
- ❑ No of Students : As per Role , no more than 3
- ❑ Project Success and Student Success to be evaluated independently
- ❑ Evaluation (Student Contribution Grade = 80%)
 - o Project Success = 20% Max
 - o Role Success = 60% MAX
 - o Team Feedback = 5% (Max)
 - o Quality of Work = 5% (MAX)
 - o Role Documentation = 5% (MAX)
 - o Total = Project Success Grade + Role Success Grade + Team Feedback Grade + Quality Of Work Grade + Role Documentation Grade
 - o Final Project Report is responsibility of Project Specialist

Tools:

Example:

Virtualization Tools (OCI/VM/Kubernetes/rkt etc.)

Operating Systems : Linux/Unix/WIN (Debian, Ubuntu/Kubuntu , etc.) Unix Systems Programming : C/C++/Any

Server side programming/Scripting language: PHP/ASP/
SHELL/PERL/PYTHON/JS/ANY Scripting and styling languages:
SHELL/PERL/PYTHON/JS/ANY

Client side scripting:
JavaScript/JQuery/Any Database:
MYSQL/MSSQL/Any
IDE: ECLIPSE/Any

Local host Server: LAMP/WAMP/Any Custom Setup

Supervisor:

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Remote Desktop Access / Screen Sharing Web Application (RDA/SS)

Project Domain / Category

Web/Networking

Abstract / Introduction

You are required to design a solution to address the problem of **remote access/screen sharing** by reducing platform dependency. You must have a domain to fix it as a base for a channel/platform to access the desktop of the system placed anywhere around the globe using the web services you designed. Ultimately require a web panel to access system of same or different domain using remote system's IP or MAC Address. In continuity of successful session the system should maintain a repository of connections previously linked, so that to populate the fields of existing contacts which could be beneficial in efficient and swift connection making.

Functional Requirements:

There must be two separate Tabs:

1) Remote Access

- User will login to website.
- Register remote connection with fields (User name, IP or MAC address, Password, Email.)
- Add registered connection in connection's list.
- View all added connections list (connections must be shown with user name).
- Allow to see details of specific connection.
- There must be authentication between host and remote to start session.
- After accessing remote desktop:
 - Remove remote desktop's wallpaper.

- Do audio/video communication between remote and host members.
- Remote desktop can restrict host to access his system as “host can view desktop” or “can edit desktop”.
- Session should be recorded at client or server end of the access in timely manner.
- Save session with Username, date and time in a default folder.
- Host will have the right to stop session.
- Remote desktop cannot stop session before specific time.
- Make a log of successful and un-successful connection on daily basis after remote connection taken.
- Make a log of Connection’s time, duration, Login history.
- Design of the system must be user friendly, means domain and login should be a two-step procedure.
- System should be responsive enough to respond the request timely without un-expected delay.
- System should be hardware independent.
- System should be flexible enough to accommodate the same domain remote access or variant domain access.
- System should run on all windows versions.

2) **Screen Share**

- User will login to website.
- Add registered contact in contact’s list.
- View contacts list (connections must be shown with user name).
- Allow to see details of specific contact.
- Send request to screen share to specific contact.
- After Sharing screen:
 - Do audio/video communication session.

- Session should be recorded in timely manner.
 - Save session with Username, date and time in a default folder.
 - Stop screen share.
- Make a log of contact's time, duration, Login history.
- Design of the system must be user friendly.
- System should be responsive enough to respond the request timely without un-expected delay.
- System should be hardware independent.
- System should run on all windows versions.

Tools:

Visual studio Asp.net

Language C#

Linq

Entity Frame work

Sql

Any tool for networking connections

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