DeepFake Detection by Deep Learning Methods

Project Domain / Category

AI/Deep Learning/Machine Learning

Abstract / Introduction

Deepfake technology refers to the creation of fake content by means of artificial intelligence. Fake content such as fake faces, fake audio, fake news etc. are spreading nowadays. Deepfakes are easier to create due to the use of smartphones and AI applications. Those deepfakes are a threat to society as they disrupt people's privacy, defamation of celebrities/politicians etc. Deepfakes can be created by swapping someone's face and/or swapping the speech of the person etc. Web applications like DeepFaceLab, FaceSwap and mobile applications like Reface, FaceMagic etc. are used to swap the faces of the target person with the source. Similarly, voices can be swapped or cloned by means of many applications like wav2lip, Reface etc. In this project, our goal is to detect those deepfakes by deep learning techniques from the given dataset that will be provided by the supervisor.

Pre-Requisites:

This is indeed a very interesting project but requires in depth study of deep learning, neural networks. The following links may help you in better understanding:

Deep Learning Tutorial:

https://www.youtube.com/watch?v=VyWAvY2CF9c

Deepfake Tutorial:

https://www.youtube.com/watch?v=_AQfHYaQC6o

Functional Requirements:

The following are the functional requirements of the project:

1. The application/software must download the given Dataset that contains the database of real and deepfake videos.

2. The system must consist of a neural network model that contains hidden layers for the deepfake detection.

3. Whenever, any deepfake video is given as an input into the detection system, it identifies as real or fake as output.

4. The system must be able to detect the swapped fake faces and/or swapped audio in deepfakes.

Tools:

- Python (<mark>programming language)</mark>
- Keras (<mark>API)</mark>
- Tensorflow (<mark>open source software library for machine learning)</mark>
- Jupyter Notebook <mark>(open source web application)</mark>
- Matplotlib (<mark>library)</mark>
- Numpy <mark>(library for the python)</mark>

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Develop Online Payments Fraud Detection system using Artificial Intelligence

Project Domain / Category
Data Science/Machine Learning

Abstract / Introduction

Online Payment is happened, when customers buy something (clothes, shoes) using credit card etc. Online payment systems decrease workload of customers. In online payment system, fraud detection is major challenge, therefore, it is important to develop system to detect fraud customer in advance. The proposed system will detect fraud Customer in advance using Machine Learning techniques.

In this project, students will find appropriate machine learning techniques on Synthetic Financial Datasets for Fraud Detection.

Functional Requirements:

Students will perform all these tasks.

1. **Data-Collection**
In this project, students will detect fraud customer behavior (**"isFraud"**) using input features (**"type", "amount", "oldbalanceOrg", "newbalanceOrig"**). The dataset is already available on **Kaggle** website.

2. **Data-Preparation**
After collecting the data, you need to transform the dataset in machine learning acceptable format, therefore you will perform different preprocessing steps,

3. **Pre-processing**
In pre-processing, first, you will handle missing value, Second, to covert categorical data into numeric form, you will perform hot encoding technique, third, you will normalize data by apply z-score technique.

4. **Feature Selection**
To select best features, you will apply the feature selection method.

5. **Train & Test Data**
Dataset will be split into ratio 70% training & 30% testing data sets.

6. **Machine learning Techniques**
In this project, you will apply machine learning techniques (e.g. Naïve Bayes, Decision Tree etc.) to predict fraud customer with high accuracy.

7. **Confusion Matrix**
To check the performance of ML models, confusion matrix table will be created using python library.

8. **Performance metric**

Accuracy, precision and F1- score will be used to evaluate the performance of ML models of this projects

Tools:

- Python (programming language)
- Colab
- Machine learning

Prerequisite:

CS607 Artificial Intelligence

Note: Related materials will be provided by supervisor

Link of Dataset:

Synthetic Financial Datasets for Fraud Detection
(https://www.kaggle.com/datasets/ealaxi/paysim1?resource=download)

Supervisor:

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Implementation of Deep Learning Approach for detection of Plant Leaf Diseases

Project Domain / Category
Artificial Intelligence: Deep learning

Abstract/Introduction
Early detection of Plant diseases can improve the growth of plants and yield production. It is complicated and expensive to detect on manual basis detection regularly by domain experts and it will not give accurate prediction. Artificial intelligence techniques are better approach to automatic plant disease detection and diagnosis with highly accurate results.The program will be implemented to detect the Plant leaf Diseases by using deep learning methods such as classification of different healthy and disease plant leaves. In this system, it will be considered requirements that utilize Plant leaf images repository datasets for experimentation.

Functional Requirements:
1. There are seven major tasks you will typically perform when developing a system. Tasks (2-7) should be implemented internally while developing the system.
    i. Task 1: Define the problem and select the datasets as any type of particular Plant leaf Disease such as Corn, apple, Potato, tomato leaves etc
    ii. Task 2: Image Data Analysis and Pre-processing
    iii. Task 3: Feature Extraction
    iv. Task 4: Detection
    v. Task 5: Build system
    vi. Task 6: Test System
    vii. Task 7: Tune System
2. The program should have a knowledge-based system according to select image data.
3. The program should have the deep learning approach to execute model detection.
4. The program should evaluate the performance and update knowledge based on the requirement.

Note: Skype sessions must be attended to communicate with the supervisor about deep learning methods and dataset's discussion otherwise project will not be accepted.

Tools/language: Python programming language,
Advanced libraries: Keras, OpenCV, NumPy, Pillow, SciPy, and TensorFlow etc

DataSet: Datasets details will be provided by Skype sessions.

Prerequisite: For Deep Learning Concepts, students will have to cover a short course relevant to the mentioned concepts besides SRS and design initial documentation. It will also be provided course links during Skype sessions.

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Music Endorsement System via Talkbot

Project Domain / Category

Artificial Intelligence/Information Retrieval/Natural language processing

Abstract / Introduction

In the proposed project, student will consolidate various administrations and open-source instruments to make a Talkbot(just like chatbot with which you can converse or chat). The proposed system suggests music in view of the tone of the discussion, which the client is having with the Talkbot. A Talkbot system uses conversational artificial intelligence (AI) technology to pretend a discussion (or a chat) with a user in natural language via messaging applications, mobile apps or the telephone. It uses rule-based language applications to perform live chat functions in reply to real-time user communications.

In this venture, student will construct a Talkbot assistance, to which student can converse with. What's more, conversing with a Talkbot would not be business driven. It would simply be everyday discussions. Further, on top of it, the Talkbot would likewise be prescribing music to the client in light of the tone of the client.

This music suggestion system utilizes the Last.fm Application Programming interface (Last.fm API) for getting song names. Last.fm is a music discovery application programing interface particularly like the well-known Spotify programming interface. Likewise, for tone/feeling investigation of the discussion the IBM ToneAnalyzer Programming Interface (IBM ToneAnalyzer) API will be used. The IBM ToneAnalyzer service uses linguistic analysis to detect the emotional and linguistic tones of written text. Linguistic analysis is the theory behind Natural Language Processing (NLP), which refers scientific analysis of the sentence. There are five stages of analysis in natural language processing: pragmatic, semantic, syntax and morphology.

In this project student do the linguistic analysis by using the syntax (parsing) analysis stage, in this stage student do the syntactical analysis of the conversation done with the Talkbot.

For the development of this project student will use python-3 programing language and anaconda (a distributer for scientific computing of python and R programming languages), student can also use PyCharm IDE or Jupyter Notebook for this purpose.

Functional Requirements:

1. System must have a Talkbot in which user can converse with.
2. System must have a function to get the results of emotion analysis of the discussion.
3. Proposed system retrieves music from emotion analysis data.
4. System must endorse the music, based on the specific song, which the user listens for some time.

Tools:

- Anaconda (IDE)
- Python-3 (Programing Language)
- Last.fm API (Last.fm Application Programming Interface)
- IBM Tone Analyzer API (IBM Tone Analyzer Application Programming Interface)
- Scikit-learn (open-source library for python programming language)
- TensorFlow (open-source library)

Prerequisite:

Students will cover short courses or tutorials from YouTube to gain knowledge and understanding of the Last.fm API and IBM Tone Analyzer API. I am mentioning the web links of the API's.

https://www.last.fm/api
https://cloud.ibm.com/apidocs/tone-analyzer

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Real-Time Emotion Recognition System based on Text and Audio data

Project Domain / Category
Artificial Intelligence + Desktop Application

Abstract / Introduction

Emotion recognition is the process of recognizing and identifying human emotion from both facial and verbal expressions. Emotions have a huge impact on our daily lives. They are a big part of the human experience, and inevitably they affect our **decision-making**. We tend to repeat actions that make us feel happy, but we avoid those that make us angry or sad. Recognizing these emotions in making a decision has always been a challenging task. For this purpose, a real-time emotion recognition system has been developed in the past and it is an active field of research for the past several decades.

Mostly real-time emotion recognition system uses facial expression from video or images, spoken expression from audio, and written expressions from text to recognize emotions.

In this project, students are required to recognize emotions using the collection of text documents or the comments posted on social media platforms like Twitter, Instagram, Facebook, etc., and the audio data. For that purpose, students can work on any publicly available datasets containing audio data or text data, or both of these data.

This system will consist of three modules. Each module will have its own set of requirements.

Note: To select this project, the students must know the pre-requisite required for the project selection. If any student wants to select this project without any prior knowledge of Artificial Intelligence or Machine Learning techniques. He/She must complete the resources and the tutorials mentioned in the pre-requisite section in parallel to SRS and Design document Submission.

Functional Requirements:

Module 1:

- System will Import the dataset.
    - The Datasheet should contain text and a class label.
    - For example, the text may include "Food was great" and its class would be "Happy".
    - The link to the dataset to use for this project has already been shared in the Dataset section below. However, you can use other datasets as well.
- System will Preprocess text data.
- System will Split the data into train and test.
- System will Use a Machine learning algorithm to train the data.
- System will Evaluate the trained model on the test data.
- System will save the model for future use.
-

Module 2:

- System will Import the dataset.
  - The Dataset should contain the audio data or the files and the class label to that data or file.
  - The link to the dataset to use for this project has already been shared in the Dataset section below. However, you can also use other datasets as well.
- System will Preprocess audio data.
- System will split data into train and test.
- System will use a Machine learning algorithm to train the data.
- System will Evaluate the trained model on the test data.
- System will save the model for future use.

Module 3:

- Create an Interface Chat window using any GUI Python Library.
- Integrate the trained model from module 1 and module 2 into the Chat window.
- The chat interface should provide the user an option to interact with the system using text or audio messages and the system in response to the message should predict the emotion.

Tools:

Language: Python (Only python language)
Framework: Anaconda, Tkinter, PyQt5, etc.
IDE: JupyterNotebook, Colab. Pycharm, Spyder, Visual Studio Code, etc

Pre-requisite:

- Students need to have understanding of the CS607 (Artificial Intelligence) course.
- Students also need to have basic understanding of the Machine learning techniques.
- Students can learn Machine learning and Aritifical Intelligence techniques from the following links:
  - https://www.javatpoint.com/machine-learning
  - https://ocw.vu.edu.pk/Videos.aspx?cat=Computer+Science%2fInformation+Technology+&course=CS607
  - https://www.youtube.com/watch?v=_u-PaJCpwiU&list=PLu0W_9lII9ai6fAMHp-acBmJONT7Y4BSG&index=1
  - https://vulms.vu.edu.pk/Courses/CS607/Downloads/AI_Complete_handouts_for_Printing.pdf

Text classification Tutorials:

- https://www.youtube.com/watch?v=ujId4ipkBio
- https://www.youtube.com/watch?v=RLfUyn3HoaE
- https://towardsdatascience.com/analysis-of-the-emotion-data-a-dataset-for-emotion-recognition-tasks-6b8c9a5dfe57

Audio classification Tutorials:

- https://www.youtube.com/watch?v=mHPpCXqQd7Y
- https://www.youtube.com/watch?v=eA7G9IjN8Xk
- https://www.analyticsvidhya.com/blog/2021/06/introduction-to-audio-classification/

Text Datasets:

- https://www.kaggle.com/datasets/praveengovi/emotions-dataset-for-nlp
- https://www.kaggle.com/datasets/parulpandey/emotion-dataset

Audio Dataset:

- https://www.kaggle.com/datasets/aibuzz/audio-classification-predict-the-emotions

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Smart Fodder and Water Dispensing Application for Animals

Project Domain / Category
Artificial Intelligence /Mobile App

Abstract / Introduction
This application is based on artificial intelligence technology by using Arduino kit. It can feed food even without the presence of owner. Advantages for this system are: It overcomes overfeeding problem and also avoids the wastage of food. It gives a refill alert to the owner. Helps to save fodder and water from wastage and provides the fresh stuff to the animals which provide assistance to enhance healthy livestock production. The project will consist of an Arduino nano kit,a motion sensor, servo motor as hardware devices and use android and python programing languages for software development.

Functional Requirements:
The following are the functional requirements of the project:
Hardware Module:
The hardware must include a PIR motion sensor module (more details can be found here: https://en.wikipedia.org/wiki/Passive_infrared_sensor

- The Motion sensor device must sense the motion of animal object within the valid range of sensing area.
- A fodder pot must be moved towards animal using Servo Motor.
- After eating when animal moves back the sensor detects its motion and command to servo motor to take back the fodder pot.

Software Module:

- Each time when fodder pot moves towards animal and moves back from animal the sensor sends a message to android device using wi-fi connectivity.
- Upon receiving a message from sensor, a notification alert will be generated on android mobile phone.
- For Android programing you are required to use Android Studio and develop an APK file which will be installed in users android device
- To program the Arduino kit you are required to write Python code using Pycharm software.

Tools:
- Arduino Kit (e.g., Arduino Nano R3) or any other Single Board Processor (you may purchase from here: https://www.daraz.pk/catalog/?q=arduino+nano+R3&_keyori=ss&from=input&spm=a2a0e.searchlistbrand.search.go.5a256265JSGAfB).
- PIR sensor module can be purchased from any source (Like: https://www.daraz.pk/products/hc-sr501-hc-sr501-pir-i192762910-s1385572139.html?spm=a2a0e.searchlist.list.5.40a556a6Qkji0Y&search=1
- Servo Motor can be purchased from here: https://www.daraz.pk/catalog/?q=servo+motor&_keyori=ss&from=input&spm=a2a0e.pdp.search.go.6eddQYdAQYdAQ8

- PyCharm (IDE for Python coding)
- Android Studio (IDE for Android coding)

Helping Material:
For coding in Android Studio and Pycharm you may visit the following links for learning purpose.
- https://developer.android.com/teach
- https://www.jetbrains.com/help/pycharm/quick-start-guide.html

The links are given below to understand the Arduino nano kit functionality.

- https://create.arduino.cc/projecthub/exwfarms/automatic-door-and-water-controller-for-chicken-coop-4a9dba?ref=tag&ref_id=animals&offset=0

- https://create.arduino.cc/projecthub/exwfarms/automatic-door-and-water-controller-for-chicken-coop-4a9dba?ref=tag&ref_id=animals&offset=0

Note: Virtual University will not provide any type of hardware and any kind of assistance for purchasing libraries, toolkits or paid software. Students have to arrange on their own if required for the project.

Supervisor:
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Toxic Comment Classification using Machine Learning

Project Domain / Category
Data Science/Machine Learning

Abstract / Introduction
Toxic comments are defined as a rude or disrespectful comments that can cause other users to leave the conversation. As we live in an age of technology where most of us have easy access to the Internet. Due to the increasing use of the Internet, the use of social media, especially for communication, has increased dramatically in recent years.

But this advancement also opens the door to trolls who poison social media and forums by their abusing behaviour toward other. Therefore, detection of toxic language online is becoming a major issue.

In this project, student will classify toxic comments and find accuracy by applying appropriate machine learning techniques (such as SVM, Tree and Random, etc.) to toxic comment datasets. Student will also compare which technique is best for toxic comment classification and why.

Functional Requirements:
Administrator will perform all these tasks.

1. **Data-Collection**
   - For this project, student can collect data from any social media platform (such as YouTube, Facebook, Twitter, or Instagram) to classify toxic comments. Data set must contain at least 2000 comments. The data set is shared in the link below for the idea.

2. **Pre-processing**
   - As most of the data in the real world are incomplete containing noisy and missing values. Therefore student have to apply pre-processing on your data. In pre-processing, student will normalize the data set, remove duplicate values, handle noise & outliers, missing values, and stop words.

3. **Feature Extraction**
   - After the pre-processing step, student will apply the feature extraction method. Student can use Term Frequency-Inverse Document Frequency (TF-IDF), Uni-Gram (1-Gram), Bi-Grams (2-Grams), Tri-Grams (3-Grams), or N-Grams feature extraction method.

4. **Train & Test Data**
   - Split data into 70% training and 30% testing data sets.

5. **Machine learning Techniques**
   - Student must use at least tree classifiers/models (e.g. Naïve Bayes, Naïve Bayes MN, Poly Kernel, RBF Kernel, Decision Tree, Random Tree and Random Forest Tree) of tree machine learning techniques/algorithms.

6. **Confusion Matrix**
   - Create a confusion matrix table to describe the performance of a classification model.

7. **Accuracy Evaluation**
   - Find the accuracy of all techniques and compare their accuracy.
   - This project will also tell us which machine learning technique is better to classify toxic comments.

Tools:
- Anaconda (Python distribution platform)
- Jupiter Notebook (Open source web application)
- Python (programming language)
- Machine Learning (Technique)

Prerequisite:

Artificial Intelligence, Machine Learning, and Natural Language Processing Concepts,

"Students will cover a short course relevant to the mentioned concepts besides SRS and Design initial documentation or see the links below."

Helping Material

Machine Learning Techniques:

https://towardsdatascience.com/machine-learning-an-introduction-23b84d51e6d0

https://towardsdatascience.com/top-10-algorithms-for-machine-learning-beginners-149374935f3c

https://towardsdatascience.com/10-machine-learning-methods-that-every-data-scientist-should-know-3cc96e0eeee9

https://towardsdatascience.com/machine-learning-classifiers-a5cc4e1b0623

https://www.youtube.com/watch?v=fG4e4TUrJ3E

https://www.youtube.com/watch?v=7eh4d6sabA0

Feature Extraction Method:

https://towardsdatascience.com/feature-extraction-techniques-d619b56e31be

https://www.analyticsvidhya.com/blog/2021/04/guide-for-feature-extraction-techniques/

https://towardsdatascience.com/tf-idf-for-document-ranking-from-scratch-in-python-on-real-world-dataset-796d339a4089

https://www.analyticsvidhya.com/blog/2021/07/feature-extraction-and-embeddings-in-nlp-a-beginners-guide-to-understand-natural-language-processing/

http://uc-r.github.io/creating-text-features

Dataset:

https://www.kaggle.com/competitions/jigsaw-toxic-comment-classification-challenge/data

Supervisor:

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Care Pharma Management System

Project Domain / Category
Desktop Application

Abstract / Introduction
The project on **"Care Pharma Management System"** is aimed to manage the details of Products, Sale, Stock, Purchase and Date Wise Sale. It will be a windows-based application which has been developed to make all the operations fast and easy. It is one of latest productivity enhancement tools used widely by most Pharma stores wherever there is a need of making complete atomization of manual system to computerized system.

It also manages all information about the Vendors, Sales Man and its Reporting. The project is totally built at administrator and user end of things. Only the administrator is guaranteed to have full control on the application. It provides search facility such as searching for Stock, Products and Vendors/Company. It tracks all records of Pharma Medicines and Vendor records.

It stores all information about staff to a secure database. It also generates reports. We can add, delete and update, the records easily. It can generate Vendor report. It manages all information of Customer Record. We can easily generate Invoice and take print for Customer. The main objective of developing this system is to help Sale operator to manage their stock in a systematic and efficient way.

Functional Requirements:
Following are the functional requirements, you have to fulfil for this project.

1. The proposed application should have two modules. Admin module and User module.

2. Further application should have following Interfaces. (i) User Registration (ii) Dashboard (iii) Stock Details (iv) Purchase Items (v) Sale Items Records (vi) Invoice Generation (vii) Vendor Details (viii) Daily, Monthly and Annually Sale Report (ix) Stock Items Report (x) Max sold out product List (xi) List of Items which are low in quantity or out of stock.

3. Admin have access to control all components of application but user can access limited components of application. Admin can create a new user and can assign login credentials to any user.

4. When the user or admin open the application using login credentials their username will be displayed on the dashboard.

5. User can add the products into the stock.

6. User can maintain the records of purchase items.

7. User can generate and print the invoice of sale items.

8. Whenever the user or admin add any entry or generate invoice, entry will save in database with name of respective user.

9. User have access to search the product and any sale details.

10. User can't modify or delete the sale records from database, only admin can do this.

11. When user sale out any product it must be deducted from the stock details.

Tools:
Visual Studio(13 or any other above version of VS) with .NET Framework, SQL server, Crystal Reports or Visual Studio RDLC Reports
Programming Language
C# with Window Forms.

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<h1 style="text-align:center;">E-Drugstore Administration</h1>

Project Domain / Category
Desktop Application

Abstract/Introduction
E-Drugstore Administration is specially designed for the purpose of adding Medical item's/ Medicine detail. The system elaborates the basic concept for storing and generating Medical item's detail. These items will be distributed in different categories for example there is different type of Medicine for a same disease in the Drugstore i.e. Disprin and Panadol so we can search it easily under the appropriate label and inform the customer about their price and quantity if needed. In this system, staff can sign up as a system admin, He/she can have full access to the system for maintaining daily records.

It will be a windows-based application which has been developed to make all the operations fast and easy.

The design of E-Drugstore Administration is easy to use for every type of users because a lot of Drugstores have salespersons which are not very much qualified. Whereas, in our application there is a facility of report generation which gives detail information about Drugstore item's sell and purchase and make staff possible to get hard copy of related reports.

There are two type of users i.e. Administrator and User.

Functional Requirements:

1. Registration
   - The administrator can create a new user.
   - New user can login and logout.
2. Drugstore Item's
   - Admin add, delete or modify the details of the Item's.
3. Search
   - User can search for the required Drugstore Item based on name, id etc.
4. Sell Drugstore Item's
   - The sold Drugstore Item's need to be deducted from the available stock.
5. Purchase Drugstore Item's
   - The purchased Drugstore Item's need to be added to the available stock.

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

These reports will be of total available stock, how many Drugstore Items are sold out or purchase on daily basis, monthly and yearly basis and by giving range of days.

The system should be able to generate a report of **Profit** on daily, monthly and yearly basis and by giving range of days.

Note:
Before starting the Project you need to visit one of the Drugstore and understand the overall working of the Drugstore for better understanding. And if you have any doubt or confusion in the Project Proposal you can contact me at my Skype id asad.ullah121.

Tools:
Python is mandatory.

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Intelligent Tutoring System

Project Domain / Category
Artificial intelligence, initially a web based system

Abstract / Introduction
The aim of Intelligent Tutoring Systems (ITSs) is to provide students with personalized learning experiences through the use of deep-learning algorithms.These type of systems can have a direct impact on student learning, especially when it comes to the digital environments.

Intelligent Tutoring Systems (ITSs) are computer systems that aim to provide personalized instruction and feedback to users, often through the use of AI technology and without a human teacher. ITSs have been receiving a lot of attention due to their ability to provide a one-on-one curriculum. The use of deep learning algorithms allows the systems to suggest certain studying strategies for individuals.

ITSs have the opportunity to play a major role in the future of education, solving many of the problems that are present in the sector today. One of the greatest challenges surrounding the education of young individuals, and applicable to any individual regardless of age, is that humans are complicated and require personalized methods of learning to excel.

Functional Requirements:
System should contain artificial-intelligence component. The system must possess following components (1) knowledge of the learner (student model), (2) knowledge of the domain (expert model), and (3) knowledge of teaching strategies (pedagogical model).

1. A student learns from an intelligent system primarily by solving problems – ones that are appropriately selected or tailormade, and that serve as learning experiences for that student.
2. The system may start by assessing what the student already knows. Information about the student is maintained within what is called the student model, which is updated during the course of learning.
3. The system then must consider what the student needs to know. This information is embodied in the domain-expert model.
4. Finally, the system must decide what unit of content (e.g., assessment task or instructional element) ought to be presented next, and how it should be presented. This is achieved by the pedagogical model (or tutor).
5. From all of these considerations, the system selects or generates a problem, then either works out a solution to the problem (via the domain-expert model), or retrieves a prepared solution. The intelligent system compares its solution to the one the student has prepared and performs a diagnosis based on differences between the two as well as other information available in the student model.
6. Feedback is offered by the system based on considerations such as how long it has been since feedback was last provided, whether the student already received some particular advice, and so on.
7. After this, the program updates the student model, and the entire cycle is repeated, starting with selecting or generating a new problem.

Tools:
Authoring Tool (perticularly used for ITSs to design lessons), other suitable tools for development
Supervisor:

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Pharmacy Management System

Project Domain / Category
Desktop Application

Abstract/Introduction
A pharmacy management system is specially designed for the purpose of adding pharmacy item details. The system elaborates the basic concept for storing and generating pharmacy items detail. These items will be distributed in different categories, for example, there are a different type of items in the Pharmacy i.e. tablets, capsules, syrups, etc. so we can search them easily under the appropriate label and inform the customer about their price, quantity, and quality if needed. In this system, owner can sign up as a system admin, and he/she can have full access to the system for maintaining daily records. It will be a windows-based application that has been developed to make all the operations fast and easy. The design of the pharmacy Management system is easy to use for every type of user because a lot of shops have salespersons which are not well qualified. The main objective of developing this system is to help inventory operators of pharmacy to manage their inventory in a systematic and efficient way.

Functional Requirements:
1. Registration
    - The administrator can create a new user (Workers at pharmacy).
    - New user can login and logout.
2. Pharmacy Items
    - Admin add, delete or modify the pharmacy items and its details.
3. Add expired Items
    - Admin add, delete or modify the expired items and its details.
4. Search
    - User can search for the required pharmacy items based on name, id etc.
5. Sell pharmacy items
    - The sold pharmacy items need to be deducted from the available stock.
6. Purchase pharmacy items
    - The purchased pharmacy items need to be added to the available stock.

Tools: NetBeans for java and phpMyAdmin.

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School Management System

Project Domain / Category
Database

Problem:
There are too many problems with the traditional school system as it lacks proper way of storing information. Students are enrolled by filling a form that is a headache for Admin and students as well. The form is filled by the student and in case of any mistake while updating the record the data can become erroneous. It may lead to searching problems, record updation issues. There is huge possibility of teacher facing same issues while using the paper system, like student's behavior during the class, exam results and class attendance.

School Management System Project Modules:

School Information Management:
This module will show the information about school. The school information includes the number of students and instructors they have along with the available slots.

Student Management:
This system will manage the students as it is the most important piece of information to be processed by the system.

Instructor/Teacher Management:
In this part teachers and their availability is considered along with the student strength they are managing. This also includes the data about teachers like their qualification and classes they are taking.

Room Management:
In room management students are divided into sections and classes according to the capacity in the rooms. Every rooms hosts certain number of students and their respective teacher.

Grade and Subject Management:
In this module Grades and subjects are managed w.r.t the teachers.

Grading System:
This module will prepare results of the students according to the marks obtained and total marks. Ultimately we shall have every student's performance record.

Enrollment System:
This module will manage all the activities of enrollment. It can also check the necessary requirements to register as a student of the school.

Fee and Payment Management:
Fee management is one of the necessary task to be covered by the system. It has to be updated before the parent and student can see to avoid any conflict.

Tools: Oracle

Supervisor
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Food Delivery and Recommendation Application

Project Domain / Category
Mobile App + Information Retrieval

Abstract / Introduction
This application will facilitate customers to place order from their home and can receive the orders without any hassle at home. Technology is facilitating our daily routines of life. In this application both customer, seller and rider can sign up and login the application. Customers can place order while seller receive their orders and ship the order to the customer. This application will not only facilitate the user but also provides order live tracking on the map also recommend foods to the customer which user likes.

Functional Requirements:

1. **Signup:**
   User can Sign up by using his Name, Username, Email, Shipping address, Permanent address and password into the application signup interface.

2. **Login:**
   You can login the application with username/email and password after signup.

3. **Manage Users:**
   The application will have three type of users which are customer, seller and rider. These users can login the application.

4. **Place Order:**
   Customer can search for food which is given in the application and can add food items to the cart by selecting them and can place the order.

5. **Receive Order:**
   Seller will receive order notification in the app and after preparing food handover the order the delivery boy.

6. **Ship Order:**
   Delivery Boy will take the order and give order to the customer. On successfully receiving the order customer will press ORDER Received button to verify that order is received.

7. **Recommend food:**
   Application will initially show different restaurants and foods prepared in those restaurants. When customer place some order then application will recommend similar restaurants or foods to the customer using some content based recommendation technique.

8. **Open Street Map Integration:**
   You have to integrate Open Street Map to track your order over the map.

9. **Logout:**
   After using the application user can successfully logout the application.

Tools:
Languages: Kotlin/Java, Design: XML/Material Design, Development Environment: Android Studio, Database: Firebase Database

Supervisor:
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Classes Time Table

Project Domain / Category
Web Application

Abstract / Introduction
In conventional HEIs, a classes' time table is made at the start of each semester. The time table gives a schedule of lectures of the various offered courses - precisely the time table gives the Instructor, the classroom and the weekday and time slot for each offered course in the academic department. The classes' time table is usually display in a week's format.

This project intends to make a classes' time table from the given input. The application will i) take as input: courses' enrollment, faculty members' course preferences, available classrooms and labs, and ii) produce a classes' time table.

The application will:
- take as input, through Web: courses to be offered, students enrolled in offered courses, details about faculty members and their courses' and day preferences, classrooms and labs available their capacities, and
- output a classes time table
- also cater the following requirements:

Functional Requirements:

1. Faculty member may: i) login, ii) give his/her preferences in the offered courses once, view his/her time table of class(es) (if calculated).

2. Student may: i) login, ii) view his/her time table (if calculated)

3. Admin may create accounts of: faculty members, students, class coordinator

4. Class coordinator may: i) enter data about available rooms and labs their respective capacities, slots and the availability of multimedia ii) view all the details of available rooms and labs, iii) enter preferences of faculty members, iv) view all preferences of all faculty members, v) enter course information (i.e. information about the offered course, its student strength its requirements like multimedia), vi) view all the offered courses and their details (student strength and requirements), vii) calculate classes time table, viii) view the time table, ix) view the unscheduled faculty members, x) view the unscheduled courses, xi) view the unscheduled classrooms/labs slots, xii) manually schedule unscheduled courses.

5. Furthermore:

   a. If a course is preferred by two or more faculty members then the system should select the faculty member of higher post (e.g. select Associate Professor over Assistant

Professor or Lecturer etc.). If the contending faculty members have equal rank then select on the basis of who chose earlier than others.

b. Each course will be 03 credit hours having two lectures of 90 minutes each to be scheduled per week. Both the lectures cannot be on the same day. Lectures can be scheduled in classrooms/labs from 08:00AM to 04:30PM having slots: 08:00AM – 09:30AM, 09:30AM - 11:00AM, 11:00AM – 12:30PM, 01:30PM – 03:00PM, 03:00PM – 04:30PM.

c. Each faculty member should give at least five preferences. A faculty member may be assigned at least two and at most three courses.

Tools:
Students may use any Web development tool and its relevant DBMS

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Micro-Volunteer management System (mVMS)

Project Domain / Category
Web Application

Abstract / Introduction

Micro Volunteerism is getting more attraction for last past few years as it offers competitive advantage to the non-profit organizations and charities. All the charities always require skilled persons as volunteers besides donations. The management of the volunteers is crucial to maintain as different volunteers will have different skillsets and different charities require volunteers according to their needs as projects. Volunteer management becomes more complicated in distributed environment as volunteering is collaboration-oriented activity and face to face meetings are not possible among globally dispersed stakeholders. The focus of the proposed system Micro Volunteering Management System is to eliminate all of these problems by providing a user-friendly system which will help the stake holders in effectively implementing volunteer process. Micro Volunteer Management will help both the individual volunteers and non-profit organizations by providing assistance to both without a single move.

Functional Requirements:
Provide a bulleted list of functional requirements
1. User authentication and authorization
2. Volunteer Profile Management:
3. Micro-Project Management
4. Collaboration
5. Volunteer Reward
6. Reporting

Tools:

Programing language: Any web development Language **JavaScript, Python, PHP, Dotnet**
IDE: you are comfortable with **Visual Studio Code, Atom by GitHub, Sublime Text**
 Database: **MySQL, Microsoft SQL Server, MongoDB**

Supervisor:
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myproducts.com website

Project Domain / Category
Website

Abstract / Introduction
An ecommerce online shop for example **myproducts.com** website. The propose of this website is to sell your products online. The **visitors** can browse products, view products details. **Register** users will be able to purchase the products by adding into their shopping carts.
There will be three types of users

1. **-Admin**
2. **-Customers (Registered Members)**
3. **-Visitors (Guest Users)**

Functional Requirements:

Provide a bulleted list of functional requirements

Backend

1. Login/Logout

2. Authentication & Authorization

3. Add/Edit/Delete Product Categories

4. Add/Edit/Delete Products

5. Add products with products pictures, description, attributes and respective categories

6. Order Management

7. Shipping Management

8. Products pics should be on the cloudnary (https://cloudinary.com/)

Frontend

1. User Registration

2. Login to site

3. Registered user can see his profile

4. Registered user can manage his account

5. Registered user can see his orders

6. Registered user can buy the products with checkout

7. Logout

8. Add products with products pictures, description, features and respective categories

9. The **visitors** can browse products, view products details

10. An Email using **SendGrid** will be generated when a user purchases a project, it will be sent to the user as well as site admin

11. Similarly, an SMS will be generated using any API to confirm the mobile number of the user who has purchased the product

Tools:

Indicate development environments / IDEs / Any other tools required in this project
1. **React.js**
2. **-Next.js**
3. **-Strapi**
4. **-Postgres**
5. **-Stripe or PayPal as a payment gateway**
6. **Any SMS API like *twilio***
7. **-SendGrid (Email Marketing Tool)**
8. **-Cloudinary**
9. **-VS Code**

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Online Budget Planner Application

Project Domain / Category

Web-based Application

Abstract/Introduction

The application will provide an interface which helps users to maintain expenses on daily basis. The user will be able to manage the expenses and save money for future use. By adding budget and expenses, user will be able to manage expenses according to the budget.

Functional Requirements:

The functional requirements are:

- Registration and Login
  - Application will provide an interface to create user account
  - User will be able to login to the application after account is approved by Admin
- Add Budget
  - Application will provide an interface to add budgeted amount for the expenses
  - User will also provide the amount for savings.
- Add Expenses
  - User can enter all sorts of expenses like Home, Education and Travelling etc.
- Status of Budget
  - The application will display graphical representation of budgeted amount
- Status of Expenses
  - The application will display graphical representation of total expenses
- Savings
  - The application will display the total saved amount

Tools: PHP, HTML, JavaScript, CSS, MySQL

Supervisor:

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Web-based Online Job Portal

Project Domain / Category

Web Programming

Abstract / Introduction

This online job portal will facilitate users to create an interactive job vacancy portal for candidates. This web application will help updates both job seekers as well as the companies to apply for jobs and to recruit them. The objective of the app is to enable jobseekers to create their online resumes and find appropriate jobs while companies to publish their vacancies and find suitable candidates.

It enables jobseekers to post their resume, search for jobs, view personal job listings. It will provide various companies to place their vacancy profile on the website and also have an option to search candidate resumes. Apart from job-seekers and Companies (Job Provider) there will be an admin module to manage complete Portal as well as jobseeker and companies.

Functional Requirements:

1. The system shall be able to register users as candidates or job-seekers along with their personal profile maintenance including name, contact information, address, location, profile pic, email addresses etc.

2. The system shall be able to allow candidates to maintain their professional profile that includes professional summary, skills, personal qualification, experiences, certifications, publications, patents, honours and awards, languages interests, hobbies, causes, followings etc.

3. The system shall be able to allow candidates to upload their C.V in .PDF format.

4. The system shall be able to register companies as users and add their portfolio including introduction, web address, email address, postal address, employees, posts, events, followers, offices etc.

5. The system shall allow companies to post vacancies / jobs so that candidates can search. These job posting should contain job description with salary, required qualification and skills, job placements or locations and relevant necessary information like posting date, expiry date etc.

6. The system shall be able to export candidate C.V based upon all the information that candidate and entered online.

7. The system shall be able to download candidate C.V that he/she has already uploaded in .PDF format.

8. The system shall support audio / video content, where necessary.

9. The system shall support real-time communication among users (candidates and company representative) via online chat, audio and video call.

Tools:
Server-side Programming language: PHP
Framework: Laravel or CodeIgniter or Symfony any other framework of PHP of your choice
Scripting and Styling Languages: HTML , CSS
Client-Side Scripting: JavaScript, JQuery etc.
Database: MySQL with preferred IDE as PHP Storm or NetBeans or any one of your choice
Local Host Server: XAMPP or WAMP
Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

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Alzheimer decease prediction using Deep Learning Techniques

Project Domain / Category
Image Processing

Abstract / Introduction
YOLO is an algorithm that uses neural networks to provide real-time object detection. This algorithm is popular because of its speed and accuracy. It has been used in various applications to detect traffic signals, people, parking meters, and animals.

We will use yolo algorithm to predict Alzheimer decease.

The first step will be to label the images, for this purpose we can use different available tools like LabelImg. Then we will setup environment apply data augmentation,train our model and check the results.

Functional Requirements:
1. There are four classes given in the data set, you need to annotate all the images manually.
2. We can use data augmentation to artificially increase number of images.
3. Next step is to annotate the images according to the different classes provided in the data set in yolo format using LabelImg.
4. Once the data set is annotated yolo environment.
5. Next step is to split the data in test and train.
6. Then the model can be trained.
7. You can set environment on your own machine or use google coolab.
8. Model must be retrained if desired accuracy is not achieved by enhancing data set or changing training parameters.

Tools:
- Python
- jupyter notebook
- Yolo

DataSet:
https://www.kaggle.com/datasets/sachinkumar413/alzheimer-mri-dataset
Supervisor:
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Diagnosis of Alzheimer's Disease Using Machine Learning

Project Domain:
Image processing

Abstract

Alzheimer's disease is chronic condition that leads to degeneration of brain cells leading at memory loss. Patients with cognitive mental problems such as confusion and forgetfulness, also other symptoms including behavioral and psychological problems are further suggested having CT, MRI, PET, EEG, and other neuroimaging techniques. The aim of this paper is making use of machine learning algorithms to process this data obtained by neuroimaging technologies for detection of Alzheimer's in its primitive stage.

Functional Requirements:
The workflow of the project is shown in the diagram below:

1. Image data acquisition and perform preprocessing of the data.

2. Use **Brouta Algorithm** (available with python package) for feature selection.

3. Apply any suitable machine learning (supervised learning) algorithm for classification.

4. The classification results were calculated by means of three metric measurements, which are used for quantitative valuation and evaluation, including accuracy, sensitivity (recall) and specificity. Additionally, numerous optimal approaches such as receiver operating curve (ROC) and Area under the Curve (AUC) are calculated as well.

5. Use at least two algorithms like support vector machine and Linear Regression and do comparison to select the best one the basis of performance measures.
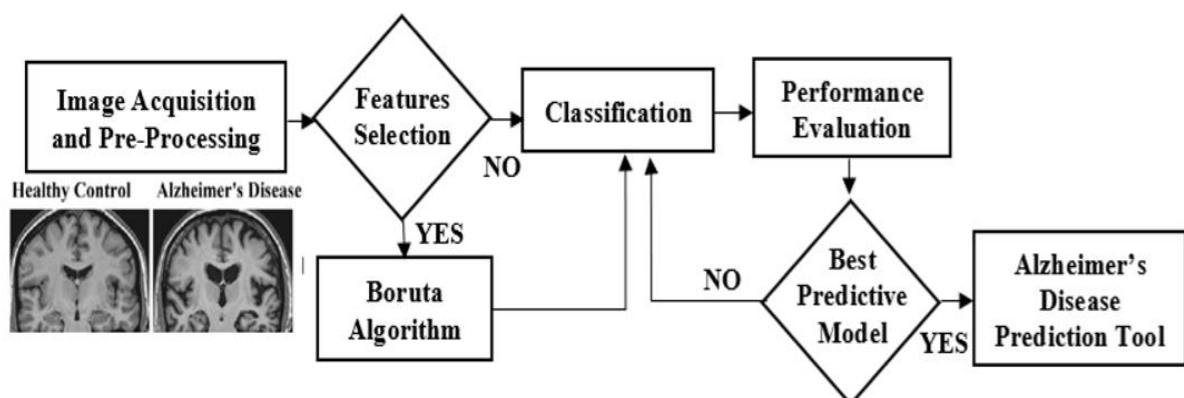

Figure 1. Research workflow

Helping Material:
You can consult the following links for better understanding of the project:

For dataset:
https://www.oasis-brains.org/#data
Research articles related to the projects:
- ➢ https://iopscience.iop.org/article/10.1088/1742-6596/1921/1/012024
- ➢ https://ieeexplore.ieee.org/document/8697386
- ➢ https://iopscience.iop.org/article/10.1088/1742-6596/1372/1/012065/pdf

Tools:
You can use any of the following tools
Matlab, Weka, Python

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Fresh and rotten Fruit classification using Deep Learning Techniques

Project Domain / Category

Image Processing

Abstract / Introduction

We will use deep learning algorithms to predict either fruit is fresh or rotten.

The first step will be to label the images, for this purpose we can use different available tools like LabelImg. Then we will setup environment apply data augmentation,train our model and check the results.

Functional Requirements:

1. There are six classes given in the data set, you need to annotate all the images manually.
2. We can use data augmentation to artificially increase number of images.
3. Next step is to annotate the images according to the different classes provided in the data set in required format using LabelImg.
4. Once the data set is annotated ,environment must be set.
5. Next step is to split the data in test and train.
6. Then the model can be trained.
7. You can set environment on your own machine or use google colab.
8. Model must be retrained if desired accuracy is not achieved by enhancing data set or changing training parameters.

Tools:

- Python
- jupyter notebook

DataSet:

https://www.kaggle.com/datasets/sriramr/fruits-fresh-and-rotten-for-classification

Supervisor:

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MATLAB-based Drowsiness Detection System

Project Domain/Category
Image Processing

Abstract / Introduction
Image processing is the method of performing operations on an image in order to improve it or obtain useful information from it. Image processing has various applications in fields such as medical, defense, industry, remote sensing, pattern recognition, and video processing, among many others.

Image processing could also be used for drowsiness detection. Driver fatigue is the leading cause of 50% of all traffic accidents. Drivers become sleepy when driving due to drowsiness. If drowsiness could have been recognized earlier, it could have saved a lot of lives. In this project, we will develop an application that will detect a driver's fatigue or drowsiness and inform him or her.

Functional Requirements:
1. The system should be able to get an image of the vehicle driver.
2. The image of the driver should be obtained using a digital camera.
3. The system should be able to take a live image as input and then turn it into a series of images that are then used to perform various operations.
4. The system should be able to detect the face of the vehicle driver.
5. The system should be able to detect the eyes of the vehicle driver.
6. The system should be able to detect whether the driver is drowsy or not by using the eye status (open or closed).
7. The system should be able to track the moments of the eyes through eyeball moments and display messages accordingly. For example, left, right, straight, etc.
8. There should be a "Missing face" message if the eyeballs are not visible or the driver is not looking straight.
9. A proper interface using MATLAB should be created for all these activities.
10. Use different built-in functions of MATLAB where applicable.

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

Tools & Technologies:
Preferred tool and technology: MATLAB (Any latest version of MATLAB)

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Rice type prediction using Deep Learning Techniques

Project Domain / Category

Image Processing

Abstract / Introduction

We will use deep learning algorithms to predict rice type.

The first step will be to label the images, for this purpose we can use different available tools like LabelImg. Then we will setup environment apply data augmentation, train our model and check the results.

Functional Requirements:

1. There are four classes given in the data set, you need to annotate all the images manually.
2. We can use data augmentation to artificially increase number of images.
3. Next step is to annotate the images according to the different classes provided in the data set in required format using LabelImg.
4. Once the data set is annotated, environment must be set.
5. Next step is to split the data in test and train.
6. Then the model can be trained.
7. You can set environment on your own machine or use google colab.
8. Model must be retrained if desired accuracy is not achieved by enhancing data set or changing training parameters.

Tools:

- Python
- jupyter notebook

DataSet:

https://www.kaggle.com/datasets/muratkokludataset/rice-image-dataset

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IoT enabled Greenhouse | Mushroom Farming Monitoring and Control System

Project Domain / Category
Automation / Digital Logic Designing

Abstract / Introduction
Plants such as flowers and vegetables are grown in a green house. Greenhouses warm up during the day when the light shines through them, warming the plants, soil, and structure. Green houses aid in the protection of crops against a variety of illnesses, particularly those that are soil-borne and splash onto plants when it rains. The greenhouse effect is a natural occurrence that is beneficial to humans.

Many farmers fail to make a profit from delicate crops like mushroom farming because they are unable to control two critical parameters that govern plant development and yield. High humidity can cause crop transpiration, condensation of water vapors on various greenhouse surfaces, and water evaporation from the humid soil if the greenhouse temperature falls below a particular level. This system comes to the rescue in such situations. In this project you will develop a fully functional monitoring and control system for a small scale garden.

Functional Requirements:
- Temperature sensor is used to control the fan when the temperature rises.
- The soil moisture sensor detects the water level and activates the pumps as the level drops.
- The LDR sensor detects the absence of light and the bulb begins to glow.
- It will be easier to monitor and control the system this way.
- All of the required sensors will be managed by your controller. User will receive the updates on mobile application or web portal.

Non-Functional Requirements:
- Easy to operate
- Able to bear harsh environment

Hardware Requirements:
- Microcontroller (any)
- Temperature sensor
- Light sensor
- Soil moisture sensor
- Air temperature and humidity sensor
- Relays
- LDR sensor
- LCD display module
- Mini Fan
- Light Bulb
- Water pump
- Water Sprinkler

Tools

- Arduino Kit/Raspberry Pi or Any other Single Board Processors
- C/C++ Programming Language
- Assembly Language
- Circuit Designing Software's (OrCAD Pspice, WorkBench)
- Keil Embedded Development Kit
- Circuit Components (Resistors, Capacitors, oscillators etc.)

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

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Voice Controlled based Smart Home for Handicapped Peoples

Project Domain / Category
Digital Logic Design

Abstract / Introduction
Home automation is the future and an important part of a house. Home automation is highly reliable in the system for controlling house electrical appliances and other home-based ornaments like temperature, humidity, etc. As technologies improve the home automation system is becoming smarter and can regulate certain tasks automatically and autonomously. The home automation systems are cost-effective and reduce the consumption of energy in the household and cut the cost of electricity bills.

The voice-controlled smart home automation system helps to control electrical appliances by using voice commands. The system uses a Bluetooth module for data transmission for controlling the functioning of electrical loads. The Bluetooth can receive an input signal from any device which has Bluetooth compatibility such as a smartphone. Smart home automation is most beneficial for handicapped or aged people. The system solves the problem of switching on/off electrical appliances because when the user just has to give a voice command to control the appliance or electrical loads. The system is designed in such a way users can control all appliances at once or can control each separately. The system works by interfacing the on/off switches of electrical appliances or loads by using a mechanical relay or solid-state replay, after connecting relays in the system the electrical switch works as a two-way switch.

The voice command is sent by using software designed for controlling the system, a built-in microphone, and a voice recognition system implemented in the device. A micro-controller-based design is implemented in the system, the microcontroller receives an input signal from the user device and sent a signal to the respective relay for turning on/off electrical appliances connected with a system such as bulbs, and fans, air conditioner units, etc.

Last, one of the major functions of the system is to call for help. Your system must be capable for generate a signal for help based on voice input.

Functional Requirements:
Our Complete System will have:
- Two Smart Rooms with
    1. 1 Fan & 2 Bulbs in each room.
    2. 1 1.5 Ton AC Control for each room.
    3. 1 Smart LED/TV for each room.
    4. Smart Help Indicator generation Mechanism.
    5. Complete Temperature & Humidity status of both rooms on Mobile Application.
    6. All interfaced devices must be controlled from the Mobile Application based on their Voice Signals from the user.
    7. The system can control the AC Temperature from Mobile application using Voice Commands.
    8. The system can control the Channels & Sound of the TV/LCD using Voice Commands.

9. The system can generate emergency signal or HELP signal based on Voice Input.

- **A Mobile Application:**
  1. Has Voice Communication Module to communicate with your Home Automation System to control all linked/interfaced devices.
  2. Display the current Temperature & Humdity Status of your Rooms.
     - You have to design a System for 2 Rooms.
  3. For each room:
     - Your system must be capable to control the devices (A Fan, Two Bulbs & 1 Air Conditioner).
     - The system can turn ON/OF the Fan/Bulb/Air Conditioner & Smart TV/LED.
     - The system Can increase/decrease the temperature of the interfaced Air Conditioner.
     - The system can change the channel and increase/decrease the volume of the TV/LED.
     - The application must have a module to call/SMS an emergency number based on the voice input for help.

- **Smart Home Module:**
  1. The module can communicate with Mobile application through any medium (GSM/GPRS/Wifi/Bluetooth).
  2. Smart Home Module must have the temperature, humidity, and devices status shown on the LED/LCD interface.
  3. Your smart home module will be placed in the home and will have all stated devices (2 FANS, 4 Bulbs, 2 AC & 2 Smart TV/LED).
  4. The module must have the ability to act on the voice commands received from a mobile device using with GSM/GRPS/Wifi/Bluetooth interface.

Tools:

It is an open project.

You can use any Mobile Application Development platform.

You can use any controller/any Single-Board Microcontroller kit.

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Collaboration Filtering and Content based Urdu Health Recommender System (CFC-UHRS)

</div>

Project Domain / Category

Information Retrieval

Abstract/Introduction

With the advent of Machine Learning and NLP techniques, the quest for searching information over the Internet has been increased. Amongst wide-spread applications of online searching, the healthcare is amongst the top searched areas. For English and some other western languages, a plethora of techniques have been designed and developed to provide relevant information about electronic disease information (EDI) to the users and recommend them answers related to different diseases, their symptoms, Disease Type, Doctor Advices, and relevant doctor/consultant accordingly.

Moreover, the delivery of accurate and complete information to the patients in an understandable format and language increases his/her knowledge and changes the way of thinking, which is usually referred as patient empowerment.

In the context of UHRS, the Collaborative Filtering (CF) technique can be interpreted as follows: "If patients share similar disease profiles/health conditions, then they would have similar treatments/healthcare services".

In UHRS, the Content-based Filtering (CB) approach suggests healthcare services that fit the patient's health condition/disease situation and are similar to those assigned to him/her in the past.

In this Project, we aim to develop and design CF and CB based URDU Health Recommender System (CFC-UHRS) System mainly targeting disease information which will be comprised of five attributes that are: disease, disease type, symptoms, precautions, doctor advices, and relevant consultant/doctor.

As such, providing valuable information to users for health-related issues, based on CF and CB, in the form of suggestions, approved by their caregivers, can significantly improve the opportunities that users have to inform themselves online about health problems and possible treatments. In this context, the proposed project contributes URDU health recommender system that will provide the user with information related to disease like disease name, disease type, symptoms, and precautions as well as information of an appropriate consultant for the disease.

Functional Requirements

The application should be able to:

1. Provide a user-friendly interface (UI) that allows users to search disease related information like disease name, disease type, symptoms, precautions, doctor advices, and relevant consultant/doctor from medical related corpus by entering disease name (optional) and disease symptoms.

2. Display disease name, disease type, and symptoms and recommend doctor advices, precautions, and relevant consultant/doctor using Collaboration Filtering (CF) and Content Based (CB) recommendation techniques.
3. Provide registration and login interface for admin and doctor.
    a. Admin will be allowed to add, delete, and verify doctor and disease.
    b. Doctor will be allowed to add and update patient and disease record.

Tools / Application Platform: **Python**
Database: **MySQL**

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DOSNET – Denial of Service Attacks in Simulated Environment

Project Domain / Category
Network Security/Programming

Abstract / Introduction
There are several types of DOS attacks that have different characteristics such as the distributed nature and low data rate attacks. Understanding the nature of DOS attack is important to ensure the proper security controls to guard against it. This project aims to develop and simulate the different DOS attacks in and analyze their behavior.

Functional Requirements:
- Model a typical multilayer hierarchical network. It will consist of an access layer, distribution/aggregation layer, core layer and service layer. The service layer will host application servers such as web, email etc. The users will connect both via wires and both wireless.
- Design and development of application(s) for ICMP (Ping) Flood attack, SYN Flood, Ping of Death, Slowloris, NTP Amplification, HTTP Flood, Zero-day DDoS Attacks, Volume Based Attacks.
- Network performance and Utilization Analysis with/without attacks.
  - Throughput
  - Goodput
  - Packet loss
  - Delay
  - Jitter
  - Network utilization

Tools:
Languages: C/C++, Shell Scripting AWK or Python
OS: Linux OS e.g., Ubuntu, CentOS, NS3 Simulation Environment.
IDE: Eclipse/any other

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Prediction of TV Show Popularity based on Sentiment Analysis

Project Domain / Category

Information Retrieval

Abstract / Introduction

TV show popularity prediction using Sentiment analysis is one of the most interesting and challenging tasks. Episode of a particular TV show released on weekends or holidays may attract more audience than those on weekdays. Furthermore, since different episodes are usually released on different days, the popularity prediction for TV shows is one of the interesting tasks.

Easy prediction of TV show which is trending based on individual ratings can be done. Good, bad and neutral comments can be predicted based on reviews or comments. Due to this the visitor will get to know the show popularity. Reality TV is the new mantra of television producers and channel executives.

The main purpose of this project is to find the ratings based on the user's comments. Nowadays, most of the television shows are reality shows based on singing, acting, morning shows and Ramadan transmissions. There are many shows telecasting in different channels. There are many ways to find out the view count. We can find out which show has the highest rating and considered as the most viewed show. Application developer will use a database of sentiment based keywords along with positivity or negativity weight in database and then based on these sentiment keywords mined in user comment is ranked and predict the popularity.

Functional Requirements:

1. **Admin Panel:**
   a. **Login:** Admin need to login into the system by inputting the login credentials.
   b. **Add Pages:** Admin will add page details such as page name and page link (details of TV shows).
   c. **Graphical Representation:** Admin can generate 5 graph (Pie Chart & Bar Chart) based on Age, Gender, Location, Comment's Sentiment based on peoples review on each TV Show. This will help the users to know about the popular/trending TV shows.

2. **User Panel:**
   ❖ User login's to the system/application by using his/her user ID and password.
   ❖ User can edit his/her profile details along with display picture.
   ❖ User will post comments on the uploaded TV shows posted by the admin.
   ❖ User can also view comment of other users posted on different/uploaded TV shows.
   ❖ Users should be able to comment on stored TV shows only once. The system stores each comments of the users for further processing and find out the sentiments and their weightage and store it in database.

- ❖ The stored comments of the users will be analyzed by the system with the help of sentiwordnet dictionary and will rate/rank the show accordingly.
- ❖ User can easily decide whether the uploaded TV shows by the admin/ system are good, bad or worst based on sentiment classification.

Tools:
- ❖ SQL 2008
- ❖ Visual Studio 2010
- ❖ Senti Word Net Dictionary
- ❖ Wamp Server

Note:
1. SentiWordNet Dictionary will be used for sentiment classification tasks only.
2. You may use any other platform for coding in which you have command, but make sure all the mentioned FR's should be completely implemented.

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Tracking and distance measuring android Application

Project Domain / Category
- **Networking**

Abstract/Introduction
This application will track and monitor the movement and the distance between two users while travelling on roads from any location at any time. This is an android application which is developed to find out the distance and time between two users by the exchange of messages. This application will use Global Positioning System (GPS) and Global System for Mobile Communication/ General packet Radio Service (GSM/GPRS) technology.

Using this application, users will calculate their co-ordinates and this information will be shared with the intended user who is a receiver. The information sent by the first user will be used by the application at receiver side to calculate the time and distance that will take the user to arrive at sender's location. A database for this application will store the information from other users and its own coordinates. This application will keep sending and updating the speed and co-ordinates after some intervals.

Functional Requirment
The Co-ordinates will be collected and published using GPS/GPRS on application database.
The user who wants to measure the distance with any other will first calculate his co-ordinates using GPS of android device, this information will be shared with intended receiver. Distance and time will be monitored/calculated on the basis of the Coordinates that will be updated after every 5 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.

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Ambulance Booking App

Project Domain / Category
Mobile Apps

Abstract / Introduction

"And whoever gave life to a human (*by saving a life*), it is as if he had given (*saved*) life to all mankind." (The Holy Quran: Part 6, Surah Al-Maa`idah, Verse 32)

An ambulance is a vehicle equipped to provide emergency care to sick or injured people and to get them to and from hospital. It plays a vital role when an accident occurs on the road or in case of any medical emergency and the need arises to save a human life. However, manual booking of an ambulance at times of emergency can take away precious time as it is a time-consuming process which may increase the risk of death for the victim.

Ambulance Booking App is an Android based application which has three modules; User (*Patient/Guardian*), Operator (*Ambulance Driver*) and Staff (*Hospital Receptionist*). A user can select the ambulance type, pick-up point and hospital. However, in case of emergency, the user needs to select the pick-up point only. The system will automatically book the nearest ambulance and hospital accordingly. Upon booking, operator receives a notification for confirmation. After confirmation, user receives operator's contact details instantly, operator can view the pick-up and drop location on Google Maps and staff receives a notification for necessary arrangement. Furthermore, ambulance movements in real-time will be easily monitored through Google Maps.

Functional Requirements:

Functional requirements for this app are as follows:

  I. **Modules:** The app must consist of three modules; User, Operator and Staff
      1. User (*Patient/Guardian*):
              • Register and Login.
              • Add/update profile (name, age, gender and cell no etc.).
              • View on-going bookings.
              • View records of previous bookings.
              • Book an ambulance in advance (*for regular check-ups*):
                  - Select pick-up point and hospital.
                  - Set date and time for pick-up.
                  - Choose ambulance type.
              • Go for emergency booking:
                  - System will automatically book nearest ambulance and hospital.
              • Locate ambulance on Google Maps.
              • Pay service charges.
              • Give feedback and ratings to ambulance service.

      2. Operator (*Ambulance Driver*):

- Register and login.
- Add/update profile (name, age, gender and cell no etc.).
- Add/update ambulance details (vehicle number, type, size etc.).
- Receive notifications.
- Accept or reject booking.
- View directions of pick-up, drop point and navigation on Google Maps.
- Change status to picked/dropped.
- View records of previous bookings.
- Define service charges.
- View feedback and ratings.

3. Staff (*Hospital Receptionist*):
   - Register and login.
   - Add/update profile (name, age, gender and cell no etc.).
   - Add/update hospital details (address, location etc.).
   - Receive notifications.
   - Locate user location and track ambulance movements on Google Maps.
   - View records of previous bookings.

II. **Authentication:** App should provide registration and login pages for user, operator and staff; store credentials at Firebase Authentication.
III. **Databases:** Firebase Real-Time Database should be used as an online server for storing all data; use JSON format in this regard. However, for app internal storage, SQLite or Room database should be implemented.
IV. **Google Maps:** User pick-up point, hospital location and ambulance movements should be trackable through Google Maps.
V. **Online Payment:** App should provide interface to pay service charges online by using E-Wallet; provide add money (*using debit/credit card*) and view balance options. Without paying for the previous booking, new booking will not be available.
VI. **Search Feature:** By using it, bookings related to particular user/operator can be viewed; provide filters based on specific location and date.
VII. **Notifications:** App should send proper notifications to user, operator and staff with high priority so that the needy could be helped timely; use Firebase Cloud Messaging or Firebase In-App Messaging or both in this regard.

Tools:

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

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Android Based Furniture Purchasing Application

Project Domain / Category
Mobile Application

Abstract / Introduction
The furniture purchasing application allows users to search for and purchase various furniture items. The project is made up of a list of furniture items that are exhibited in various types and designs. The customer has the option of browsing these products by category. If a user choose a product, he or she can add it to their shopping cart. The products can be seen in ascending or descending order based on their names and prices.

On each page of this application, an innovative floating cart will appear, displaying the products currently in the cart with the minimum information. First of all, the user must first register with the system before being allowed to view the products. The user can choose from three payment options: debit, credit card, or cash on delivery.

The admin will add the products. In the my orders column, the user can check his order history or the progress of the current order. Admin will be responsible to change the status of the orders. This application will help the people to buy the furniture online without wasting their precious time by going to the market.

Functional Requirements:

The functional requirements for this android application are:

- **User Registration:** To view and purchase products, the user must first register.

- **User Login:** User will login to the system and look at numerous furniture items.

- **Home**: The home page has five items from each category allowing the user to see the app's clarity, and the items should be clickable.

- **Product Categories:** The furniture items shall be organized and can be viewed in categories.

- **Filters**: Filters can be applied to items in ascending or descending order based on their names and prices. The items shall be organized in alphabetical order by default.

- **Add to cart:** Users can add furniture items to their shopping carts.

- **Floating Cart**: Every page of the application will have a floating cart that allows the user to verify their products added into the cart.

- **Payment Method:** The user can choose from three payment options: debit, credit card, or cash on delivery by providing the necessary information for each option.

- **My Orders**: In the my orders column, the user can check his order history or the progress of the current order.

- **Admin**: The admin will add the products and will be responsible to change the status of the orders.

Tools:
Android Studio
Java language
Database (SQLite or Firebase)

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Android Battery Saver

Project Domain / Category
Mobile App

Abstract / Introduction
Now a days because of number of apps on android mobile phones the battery is continuously consumed. Battery level is very important when you are traveling even in routine life it is difficult to charge the mobile phone frequently. There is a need to develop a mobile app to save the battery. This mobile app keep an eye on the battery level and generate alert to the user if battery is draining fast. This mobile app can help the user in saving the battery.

Functional Requirements:
The bulleted list of functional requirements is;
1. User should be able to register in the mobile app by entering user name, email, password, contact no and address.
2. User can login the mobile app by giving user name and password.
3. The mobile app check the applications using the battery and also determines battery level.
4. After the login the user can see the batter level and list of applications consuming the battery.
5. It should allow user to force stop the application which is consuming most battery.
6. User get the options set the battery saver mode.
7. When battery saver mode is selected the app should reduce the brightness and stop the most important apps.
8. User can also schedule the mobile saver mode. Saver mode should be on automatically on its schedule date and time.
9. The user have option to kill the most consuming battery mobile apps when screen is turned off.
10. Mobile app should also create the user log.

Tools:
Android Studio, SQL Lite

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Android Based Car Rental App

Project Domain / Category
Mobile Application

Abstract/Introduction

The "Car Rental App" project deals with renting cars to the users based on their preferences. It consists of a user interface where the customers can view the models, descriptions and prices of different cars available and can choose from them.

So, this system provides users with accurate data and representation of a large number of available cars which could not have been possible with the manual car rental system. It can be implemented by cab operators to track their day-to-day operation.

Functional Requirements:

The functional requirements and basic flow for this android application are;

1. Registration:
   - Users will be able to create an account by signing up a form.
   - Profile Screen will show the user his/her details (His/her name, Address, Postal Code, note regarding address.
   - Registration Confirmation by the System.
   - User can see the history of his rental.

2. Car registration:
   - The car owner will be able to enter details about their cars i.e. model, seats available, brand, etc.
   - Registration Confirmation by the System.

3. Explore car by category:
   - Display list of available cars to user in the mobile app view.
   - User can select rent a car with and without Driver option.
   - User will select the desired car for rent and click book now button.

4. Payment Method:

- Allows users to rent an online car, and performs the transaction using online payment methods.

5. Feedback:

- The screen will show a wide text area and the submit button so that users can send feedback.

6. Generate Report:

- Daily, monthly, and yearly report should be generated.

Tools & Language:

- IDE: Android Studio
- Programming language: Java
- Database: MySQL / Firebase/ SQLite

Note: If you need any further assistance regarding tools, feel free to contact me.

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Book Bank

Project Domain / Category:
Mobile Application

Abstract / Introduction:
The Book Bank will be an android application that assists users in reading, buying, and selling books. The purpose of this app is to make reading books convenient. It provides free access to some books for reading. You can sign up for access to the books you want. This app allows users to sell their books. You can search for specific books based on your preferences. Users can also earn money by selling their books. Users are able to carry all their books in one app. It is suitable for all types of users. Users can get rid of the burden of carrying books. With this app, you can read and buy all kinds of books.

Functional Requirements:
1. The login system for each user (Admin, Buyer, Seller, and Visiting User) shows its dashboard correctly with appropriate functionality. Buyers and Sellers can register through signup.
2. Seller can add details of a book with price tags and descriptions.
3. Buyer can add books to their shopping cart for buying.
4. Buyers and sellers can use the search to find books.
5. A limited number of pages are available for the reading session of all books.
6. Admin can check the details of the books as well as demand and supply.
7. Payment methods such as (Credit/Debit Card, Cash on delivery) are available for purchasing.

Tools:
1. IDE: Android Studio, Visual Studio
2. Programming Language: Java , Dart
3. Database: Firebase
4. Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

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Community Grocery Store App

Project Domain/Category

Mobile Application

A community grocery mobile application that will facilitate the people living in a housing society. The user can open account in this app with Rs. 5000 and order from the list available on the application. The particular order will notify to the owner of grocery store. The owner will deliver the products to the particular house and user will notify that order received. The order amount will deduct from the balance. User can track particular date wise order and check remaining amount. User can cancel the order before the message reading receipt.

Functional Requirements:

Admin

- **Register a user with required credentials and user id and password**
- **Cancel the registration**
- **Enter category wise grocery products pictures with price**
- **Update product price through the following methods**
    - **Update prices of the product in excel sheet and upload excel sheet to update prices.**
    - **Enter product IDs in notepad with prices and upload notepad file to update prices**

User

- User can login in the application with the given user id and password
- User can add and remove products in the cart
- User will click order button available in the card to place order
- The order button will be deactivate once available balance has been utilized.
- Store owner will get notification and send order through delivery boy
- User receive order and click acknowledgement button available against particular order
- User can check status of pending amount. Available balance always show on top of the application
- User can check any particular placed or active order
- User can scroll down complete available category wise product list

Tools and Technology

Students are required to develop a mobile app and student can use any mobile app development technology.

Note: The students are required to develop above requirements according to the client's desired functionality. If anything is unclear then student must ask to supervisor.

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Daycare Manager

Project Domain / Category
Mobile App

Abstract / Introduction
Early education and care systems play a very significant role in the growth of children, preparing them for school and warranting parents the opportunity to engage in the workforce. It is believed that children need a warm, safe, colorful environment and diversified experience that focuses attention on 'play'. By making these things available, a child will grow and develop at a pace that is just right for them.

The daycare strives to provide quality care for all the children through age-appropriate activities that will help the children grow physically, emotionally, mentally, and socially. High standards for all staff are maintained and the child ratio is kept small to ensure adequate care for each child. This application will make it easy to track and keep a record of children and their parents. The implementation project will make it easy for a parent to track children, provide adequate information about children, and register children both new and returning. It will allow parents to log into the application to see the child's activity for the entire day.

Functional Requirements:

- **Sign-Up and log in:**
    1. First of all, the user (Admin, Parent) will encounter the login screen which requires the user to log in to the application.
    2. The login system for each user (Admin, Parent) shows its dashboard correctly with appropriate functionality.
    3. For new users, there will be an option to create an account on the login screen, which will lead the user towards the further process.
    4. Using email, social media accounts, or phone numbers, it should be easy for customers to register and log in.
    5. Forgot password and remember me options should be available.

- **Admin dashboard:**
    1. Admin should be able to create/update his/her profile.
    2. Admin should be able to view new registration requests from parents and can approve/reject requests.
    3. Admin should be able to view/edit registered children's records.
    4. Admin should be able to view/edit child fee records and notify accordingly.
    5. Admin should register a babysitter.
    6. Admin should be able to view the list of registered babysitters and assign a babysitter to a newly registered child and share babysitter details with the parent.
    7. Admin should be able to resolve and manage parents' complaints.
    8. Admin should be able to notify the complaint status (pending/in-process/resolved) to the parent.

- **Parent dashboard:**
    1. The parent should be able to register his/her child in daycare.
    2. On successful registration, the parent should be able to pay the monthly fee online via credit/debit card/ jazz cash / easy paisa options.
    3. The parent should be able to view the babysitter profile assigned to his/her child.
    4. The parent should be able to send a request/complaint to admin/support in case of any issue.
    5. The parent should be able to view his/her complaint status (pending/in-process/resolved).
    6. The parent should be able to view live monitoring of his/her child via **CCTV camera access** in the application.
    7. The parent should be able to contact (call/WhatsApp icon) babysitter immediately anytime during live monitoring.

Tools:
5. IDE: Android Studio
6. Programming Language: Java / Kotlin
7. Database: MySQL, Firebase
8. Unified Modelling Language (UML): Star UML

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Easy Auto

Project Domain / Category
Mobile Application (Android)

Abstract / Introduction
If a person decides to purchase a vehicle, he/she will be overwhelmed by multitude of options – ranging from hatchbacks to SUVs. Such decision making and final purchase is a hectic job, but the story doesn't end here; remembering pre-defined maintenance timeline and scheduled service is also quite cumbersome. Majority people don't know exact inspection and service deadlines and end up in a higher maintenance cost.

Easy Auto app will try to tackle these problems. It will not only assist in buying an ideal vehicle that fits to the requirements, but also help in after-sale services and maintenance tasks.

Functional Requirements:
Module I: Purchase Decision
M1.1: The app will provide the best vehicle(s) available in the market to purchase after taking input from the user on these factors (not limited to only these – you can add as well):

- Seating capacity
- Luggage/trunk space
- Engine size and technology
- Fuel type and advertised economy
- Driving modes availability
- Off road/on road driving (4- or 2-wheeler)
- Safety features

M1.2: The app will show all nearest dealerships/showrooms of the selected car based on the **current location** of the user.

Module II: Maintenance Services

M2.1: The app will have a comprehensive maintenance section which will have month wise or odometer-reading wise maintenance timetable which user can view.

M2.2: The app will notify the user of next upcoming maintenance activity (monthly or odometer-reading whichever comes earlier).

M2.3: The app will calculate total distance covered by the car using GPS. For accuracy, user will have the option to override this reading.

M2.4: After a particular maintenance service has been done, the app will take total cost incurred and will save it in a database for comparison purposes for the next same maintenance service.

M2.5: All maintenance services will auto update for their next schedule.

An example maintenance chart is available in this link:
https://www.suzukipakistan.com/customer-care (click on Schedule Maintenance tab)

Tools:

Language: Java / Kotlin / C#

IDE: Android Studio / Eclipse / Microsoft Visual Studio with Xamarin

Database: SQLite / SQL Server

Supervisor:

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Food Donation and Collection System (Android)

Project Domain / Category
Mobile Application (Android)

Abstract / Introduction

According to the data provided by Food and Agriculture Organization (FAO), one-third of food produced for human consumption is wasted globally, which accounts for almost 1.3 billion tons per year. At the same time, WHO estimates that a 20% of the population face extreme food shortages. The world needs to come up with a solution that can avoid food waste so that it can help to feed the needy.

In this project, we have proposed an android-based Food Waste Management system which will connect different eateries (hotels and restaurants etc.) with the welfare organizations. These eateries will add into the application, the information about their excessive food.

The welfare organizations will be able to see this information and connect with the relevant eatery to collect the food which is then distributed among the poor communities to battle against starvation & malnutrition. The welfare organizations can also raise a request for food supply from restaurants through this application.

Once the request is accepted, the NGOs can collect the food from the restaurants for its distribution. In this way this android-based food waste management system will help restaurants to reduce food waste and will help in feeding the poor and needy people.

Functional Requirements:
The system comprises of three major modules with their sub-modules as follows:

Admin:
1. **Register:** User can register using personal details. The user can register by either using Email account or Mobile phone number.
2. **Account Verification:** After user submits the registration, he/she needs to complete the verification because it is allowed to log into the system.
3. **Login:** After successful registration, the user will be able to log into the system.
4. **Manage Restaurant/Hotels:**
   - **List restaurant:** List all the restaurants available
   - Add/Register New Restaurant

5. **Manage NGOs:**
   - View All the NGOs registered into the application.
   - Add/Register New NGOs
   - Update/Delete the information of registered NGOs.
6. **View Food Waste Requests/Offers:**
   - Admin can view the details of all the offers for the food submitted by the restaurants and hotels.
   - Admin can view the details of all the requests for food submitted by the welfare organizations.

Restaurant:
1. **Register:** Any restaurant or hotel can register themselves into the system. During the registration, the restaurant must fill its complete information such as Name, Address, Contact No etc.
2. **Login:** After successful registration, the user will be able to log into the system.
3. **Manage Profile:**
   - View/Update Profile
   - Change Password
   - **Post Offers for Food Donation:** If any registered restaurant has any food to donate share, it can post the details about that through the online form. Such a food type, number of persons for which the food is sufficient etc.
   - **View Food Donation Requests by NGOs:** Restaurants can view the requests for the food posted by the NGOs and if they have any excess food to share/donate, it can contact with the NGO through in-application messaging system and/or directly contacting with the NGO through the cell phone.
   - **View Donation History:** Restaurants can view the previous history of their food donations.

NGOs:
1. **Register:** NGOs can register themselves into the system. However, there must be a mechanism that makes sure that only government registered NGOs can register and use the system. The system must devise a mechanism to prevent the registration of any fake NGO.
2. **Login:** User can login in his personal account using the logic details
3. **Manage Profile:**
   - View/Update your profile
   - Change Password
4. **View Donation Offers:**
   - View Food donation offers posted by restaurants
5. **Add Donation Request:**
   - NGOs can post the requests for food donation. This request will be received by the registered restaurants as a push notification.
   - The donation request must include the number of the persons for which the food is requested.
6. **Manage Employees:**
   - Add new employee
   - Update employee details
   - View employee profile

7. **Records:**
    - View restaurant history

Tools:

Android Studio

Java or Kotlin

Firebase or any other database

Important Note: You are advised to read all the functional requirements very carefully and do some research beforehand to make sure that you will be able to implement it. The university will not offer any financial assistance for using any paid APIs in the project implementation.

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Food Donation App

Project Domain / Category

Mobile Apps

Abstract / Introduction

This app lets the restaurants and households donate the food (that is not yet expired and no longer needed) to those in need. Restaurants or household food donors will register themselves with the app. Similarly, people who need food will also get themselves registered with the app. The third category of the users is volunteers, who also need to register with the app. All the types of registered users need to specify their locations and other information while registering. Whenever a donor has excess food, it will enter the food item it is willing to donate, its quantity/weight, and expiry date in the app.

Similarly, the needy persons will also enter the food (and its quantity/weight) they need in the app. Volunteers will be assigned the needy people based on the proximity of their locations. Whenever a donor has decided to donate some food item, the volunteers whose assigned needy people have requested that the food item will be alerted. The first volunteer responding to the donor will be asked to collect food from the donor and deliver it to the needy person. The volunteer will mark the food delivered (item and quantity) after it has completed the task. The volunteers' and donors' points will be accumulated based on the food items they have delivered to the needy people to reward them later.

Functional Requirements:

1. A user can get registered with the app by choosing one of the following roles:
   a) Donor
   b) Beneficiary (a person who needs food items)
   c) Volunteer

2. The app automatically assigns a beneficiary to a volunteer, which has the closest location whenever a beneficiary or a volunteer gets registered.
3. When a beneficiary needs a food item, it will enter the item and its desired quantity/weight in the app.
4. When a donor has excess food, it will enter the food item, quantity/weight, and expiry date in the app. Whenever a food item is available, the following steps will be taken:
   a) The volunteers whose assigned beneficiaries need the entered food item will be alerted.
   b) The alerted volunteers will request the donor that they need the food item (all of it or a specific quantity/weight).
   c) The donor will approve the volunteer's request and notify him/her.
   d) The volunteer will collect the food from the volunteer's location and deliver it to the beneficiary.
   e) Once the volunteer has delivered the food item, app will automatically deduct the delivered quantity/weight of the food item from the total committed by the donor. Also, one point each will be added to the volunteer's and donor's accounts.

5. The food item committed by the donor will be marked as unavailable by the app automatically once its expiry date has passed.

<u>Tools:</u>

Android Studio (or any other mobile app development IDE)

Database: Online DBMS (like Firebase or any other of your choice)

Note:

Mobile app development typically requires systems with good computational power. See the exact system requirements for Android Studio in the following link:

https://developer.android.com/studio

You are advised to enroll in this project only if you have the needed computational resources.

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MobiTracker - Mobile based Smart Tracking System

Project Domain / Category
Mobile Apps, Web Programming

Abstract / Introduction
Everyone needs some kind of tracking facility to look after their vulnerable loved ones (Kids, elderly parents, pets, etc.) or precious assets (Car, bike, etc.). Cellular networks 4G are growing and dedicated SIM-enabled tracking sensors are very handy but not very common due to national telecommunication regulatory policies.

Alternatively, the idea is extended and software based solutions (mobile apps) are introduced for smart phone with GPS-sensors. Such apps not only helps in locating the lost cell-phones but can also be used for tracking its carriers. Google's Find My Device is a good example for reference. However, the major limitation of such solution is that the owner needs to initiate the query/search.

The key objective of this project is to develop a tracking system that shall transform a mobile with GPS sensor into a smart tracking device.

The two main components includes mobile app and the central/cloud server. Mobile app needs to be installed on the target device and will help in sending the device current location data to the server when triggered or after certain time interval (time interval can be either fixed or dynamic depending upon how fast it's moving).

User can use any browser to view the location history on the web-server along with conventional on-demand/user-initiated real-time location tracking. The system shall also support geo-fencing e.g. the app must generate alerts (email, SMS, call etc.) when the devices/carriers goes out of the user-defined region.

Functional Requirements:

1. User registration on the Web-server.

2. Enable users to register their mobile devices.

3. Enable users to see online/offline status of their registered mobile devices.

4. Enable users to view the location history of selected mobile device along with real-time location tracking over Google map.

5. Enable users to define/create geo-fences and specify their preferred notification method.

6. Android app that shall send device location data to the Web-sever.

7. Android app shall be able to run the background.

8. Synchronize user setting on Android app and Web-server.

9. Generate conditional alerts/notifications (email, SMS, call etc.) e.g. when device goes out of user-defined region or get disconnected.

Note: students shall also consider and develop mechanism to ensure smooth working of the desired system e.g. adjust GPS location update frequencies, handle GPS location errors, etc.

Tools:
- Android Studio (preferably)
- Any tool for Web-server development (.Net/PHP etc.)

Make sure that you already have or can arrange a PC/Laptop with desired system requirements for Android development before enrolling for this project.

Supervisor:
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Online Bank Loan Management System

Project Domain / Category
Android Mobile app.

Abstract / Introduction

This is an android mobile app. to maintain an online loan management system that is mostly used in banks. The application is designed to keep records about the customers who have taken a loan from a bank. Mobile app., has two main interfaces, one is for customers and the other is for the admin which manages all the bank accounts.

In customer interface, a user can register into the system by using their email ID and password. Customer can get the details about all terms and conditions for a loan application and also can apply online for a bank loan. Customer also see the details of their bank loan account, like number of installments, the amount of per installment, due date of the installment, interest rate, etc.

In the admin interface, a registered user can login to the Loan management system using their email id or the user id and password. After signing in to this system, there are the options to add new application also maintain the data of those customers who visit the bank for loan information for follow up cases.

There are many other options also available like to keep checking the reputation rate, adding new accounts, check the customer's loan amount, interest rate, and unpaid amount, etc. New and unique ids are given to everyone who gets registered over this system and to the customers who take the loan.

Functional Requirements:

1. **Admin:**

The admin is the one who verifies the user or the customer who is going to register itself on the loan management system. There can be only one account with admin and all other accounts can be either by user or customer. The admin cannot see the details of the bank loan accounts, only user and customer can see it. Admin can only add or delete accounts.

2. **User / Customer:**

A user can register into the system by using their email ID and password. Customer can get the details about all terms and conditions for a loan application and also can apply online for a bank loan. Customer also see the details of their bank loan account, like number of installments, the amount of per installment, due date of the installment, interest rate, etc.

3. **Adding New Accounts:**

The first option that is provided in the loan management system is adding new customers or users which are most important. When a new customer goes to a bank, then he or she might have an account or might want to open one. A customer who has an account in the bank can only take a loan so even if a user comes to take a loan, his or her account must be opened in the bank first.

4. **Keeping Loan details:**

Another function that this software provides is keeping the details of the customer loan. For example, how many installments have been paid by the user and how many are left. How many installments were not paid by the customer in the past etc.? When will the loan be over and what kind of loan is taken by the customer?

5. Monthly instalments and interest rate:

The interest rate may be increased or decreases according to government policies. Therefore, it is very important to know the interest rate of the customer according to which customer will pay the amount. A number of the installments might get increased or decreased if the customer wants.

6. Bank details:

In this module add the details of rules and regulations of a bank. It also includes the bank name and branch details, etc.

Tools:

- Latest version of Android Studio installed on your PC or Laptop
- Any database tool (SQLite, or Firebase)

Supervisor:
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Online Book Store App

Project Domain / Category
Mobile Apps

Abstract / Introduction
In the last few years a lot of businesses have moved online. The recent lockdown due to COVID pandemic has further increased the share of online businesses. In this project students will develop an online book store and review App. The App will allow bookstores/publishers/individual sellers to add their books to the App. The buyers can then search and purchase their required book. It will also allow users to read and write reviews about the books that are helpful in making decision about buying a book. In addition the App will also handle complaints in case of a dispute between buyer and seller.

Functional Requirements:
The App should have three type of users;

<u>Admin</u>: The administrator or owner of the Bookstore App.

<u>Seller</u>: Seller of books like bookshop/ publishing company/ individual seller.

<u>Buyer</u>: Customer who will purchase books and write reviews.

1. The buyer and seller should be able to register with their personal information.

2. The buyers and sellers should be able to login and logout.

3. The seller should be able to add information (title, genre, author, publishing company) about the book to sell.

4. If the book becomes out of stock the seller should be able to add that information.

5. The buyers should be able to search books using title, genre, author or publishing company.

6. The buyers should be able to write review about a book and give a star rating. The buyers should be able to read reviews written about the book.

7. After selecting the book the buyer should be shown the list of sellers that sell that book. The buyer places the order and the seller ships the book to the buyer who pays with cash on delivery option.

8. In case of a dispute the buyer can make a complaint to the admin about the seller. The admin will receive the complaint and reply to the buyer after taking necessary action.

9. The admin should be able to add or remove a genre.

10. The admin should be able to see the statistics about sales like number of books sold by a particular seller or number of particular books sold.

11. If required, the admin should be able to remove a seller from the app.

Tools:
IDE: Android Studio

Programming Language: Java, Database: MySQL, Firebase

Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

Supervisor:
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Online Car Mechanic App

Project Domain / Category
Android Mobile Application

Abstract/Introduction
Now a day's people have difficulty to find professionals mechanics for car maintenance and repairing work and once professional mechanic found, they may demand for high charges for little work. Proposed App will provide easy solution in finding such car mechincs at good rates. Many of the car machainc services provider can register with our android app by giving detail of area, rates etc. so that we have a database of those car mechince . For example Mr. Ali have a problem in his car, he will first register with our App. After registration, he will give description about the problem faced by the car. After that nearest mechanic will contact him through App, for this both mechanic and the user need to on the location service so that machanic can easly find out the user location.

Functional Requirements:

1. Admin will be responsible to manage portal and authenticate different user's i.e. mechanic and car owner that need services.
2. Admin can view all the registed car owner and mechanics who are registered with the app.

3. Application should have facility to provide difference categories of car so that owner of the car has registered his car and give his detail descrition about car problem under the car category.
4. Application should have the facility to register different maintenance /repairing car mechanics by entering required information (Name, CNIC, address, city, country, Mobile number, Picture etc.) on application.
5. Application should provide the interface to registered user with the applicaiton and submit description of work with pictures.
6. Only nearest registered mechanic will be contacted, and near location of car owner and mechanic should be tracked by location service, that service should be the feature of the application.
7. Once nearest machaince tracked through location service he can contact with the car owner through chat interface or through call on registered number.
8. Once the car problem is solved , car owner can give his/her review about the services and rate his service by giving 1 to 5 start with how much money pay for the services of mechanics with description of solved issue.
9. On the given stars and review, rating of the mechanic should be maintained for all the customers, so that next time of one or more option given to the car owner , he/she will choose mechanic according to provided rating.

Note:
- These are basic requirements of the application. Students may add further functionalities to make the application more useful.
- Virtual University of Pakistan will not provide any kind of hardware for this project; student has to arrange the required hardware by himself/herself.

- VU will not pay for any license of the software, the libraries /toolkits/APIs used in this project.
- It may also be noted that your android devices must support all features necessary for this project.
-

Tools:

- Android Studio
- MySQL
- Google Developers Console
- Google APIs

Supervisor:
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Online Medical & Herbal Store

Project Domain / Category

Web Application

Abstract / Introduction

In this era of technology all over the world, many businesses are shifting towards the online mode. In view of this, the main objective of this project is to develop a website "Online Medical & Herbal Store" through which the registered users (customers) will be able to search and buy different available Medical & Herbal items from anywhere. This website will contain the Medical & Herbal items in different categories(Syrup, Tablet and Capsule etc.). Any User can visit /search the available Medical & Herbal Store items, but only the registered users will be able to buy/place order. Admin will manage users, orders and information of the whole website. This website will be helpful for users to buy any Medical & Herbal Store items without physically visiting to Medical & Herbal Stores. It will also be beneficial in terms that not only local users could be able to purchase the Medical & Herbal items but also the users from different places anywhere in the Pakistan as well as in the World could purchase.

Functional Requirements:

User:

- User Registration

- User Login

- Search Facility (by name, by price, by category etc.)

- User can add any number of Medical & Herbal items (available in the stock) in shopping cart and can proceed for order

- The Customer will get flat 12 % discount on all items.

- User can select any payment option (credit card or cash on delivery)

- User can check his/her order status (approved/pending/cancel/delivered)

- User can check his/her order history

- User can submit his/her review about quality and timely delivery of purchased item(s) and can give feedback about website services

- After successful completion of transaction, user will receive confirmation message and a copy of the shopping receipt on his/her given mobile number or in email

Admin:

- Admin will manage the stock of Medical & Herbal items on the website

- Admin can view available stock, list of registered users, total bookings/orders, shipping orders, pending orders, feedback etc.

- Admin can manage and change the percentage of discount rate

- Admin can Add/update/Delete item category

- Admin can Add/update/Delete Subcategories

- Admin can delete any existing user

- Admin can update information of any existing user

- Admin can check the complete history of orders

- Admin can approve or cancel any order

- When admin will approve or cancel any order then message/email will be sent to the related user

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

Supervisor:
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Online Medical System

Project Domain / Category

Mobile Application.

Abstract / Introduction

Now-a-days there are many applications which can help users in providing solutions to many problems related to their daily life including our intended application.This project is also covering an important feature of mobile Apps, which is an android based online medical system. This app serves the purpose of establishing an online interaction between the doctor and the patient. Generally when doctors are not available or not reachable to patients and vice versa, this app will facilitate both the patients and doctors to interact/communicate and allow patients to seek some help from the doctor regarding patient's health condition and concerns. Some of its features are given as, it can be used for booking appointments, send/view prescriptions, and it can be used as a communication tool between doctors and patients both in text and voice messaging means. Installing this application can help in handling the overall procedure of making appointments, communicating, send/view prescriptions and refer the patient to other doctors and so on.

Functional Requirements:

The users (Doctor, Patient and administrator) should be able to register/login to the application.

The three main Modules in our Application:

1. **Doctor Module**:
   - After login the doctor can send prescriptions to a specific patient both in text as well as in upload image form.
   - Doctor can view the list of scheduled appointments for a specific date.
   - The doctor can view a specific patient's previous record
   - There should be an interface for the doctor to communicate with users both in text as well as in voice messaging form.
   - The doctor can send broadcasted health tips visible to all the registered patients, each health tip should expire automatically after 24 hours.
   - The doctor has the option of block/unblock any patient.

2. **Patient Module**:
   - After login the patient can request for scheduling an appointment with the doctor.
   - The patient can view prescriptions received from a specific doctor.
   - There should be an interface for the patient to communicate with users both in text as well as in voice messaging form.
   - There should be an option for the patient to instantly make a call in the case of an emergency.
   - The user should be able to update his/her profile.
   - The patient can view health tips received from doctor.
   - The patient can view a specific doctor's weekly schedule.

3. **Admin Module**:
   - The core responsibility of the admin is to confirm, reschedule or cancel any request of appointment from the patient's side.
   - The approved appointment has to be made visible/notified to both the doctor and the patient.
   - An admin can add/update/delete/block any doctor/patient to the app.

Tools:
- IDE: Android Studio (or any other mobile app development IDE)
- Programming Language: Java/Kotlin
- Database: Online DBMS (Firebase, MySQL or any other)
- Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

Supervisor:
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Peer to Peer Ride Sharing Service

Project Domain / Category
Smartphone Application (Android)

Abstract / Introduction

Peer-to-peer ridesharing is a recently emerging travel alternative that can help accommodate the growth in urban travel demand and at the same time alleviate problems such as excessive vehicular emissions. The booking of cabs requires third-party businesses to carry out the payment process, vehicle-tracking, etc. Each of these mediators will take a significant fee per transaction. This will not only increase the cost for the passengers but also present a cut in the drivers' salaries. Ridesharing firms are currently facing a labor dilemma, arising from the fact that their relationship with employees is exploitative in nature. Firms are facing numerous lawsuits over their labor practices. Because the entire system is centralized, labor laws are framed solely by corporate executives with no consideration given to the actual employees. A peer-to-peer ride sharing service enables customers to discover rides extemporaneously, by conferring first hand with neighboring hosts through android application. Peer-to-peer transport services allow drivers (peers) to offer on demand transport to those in need of a ride (peers) using their private vehicles. Peer-to-peer networks cope with a variety of hosts, for instance private cars and public transportation vehicles. The heuristic searching technique will be used to search the cars. GPS and maps will be used to locate the car. Route matching algorithm will be used to match driver and passenger locations by using google maps API.
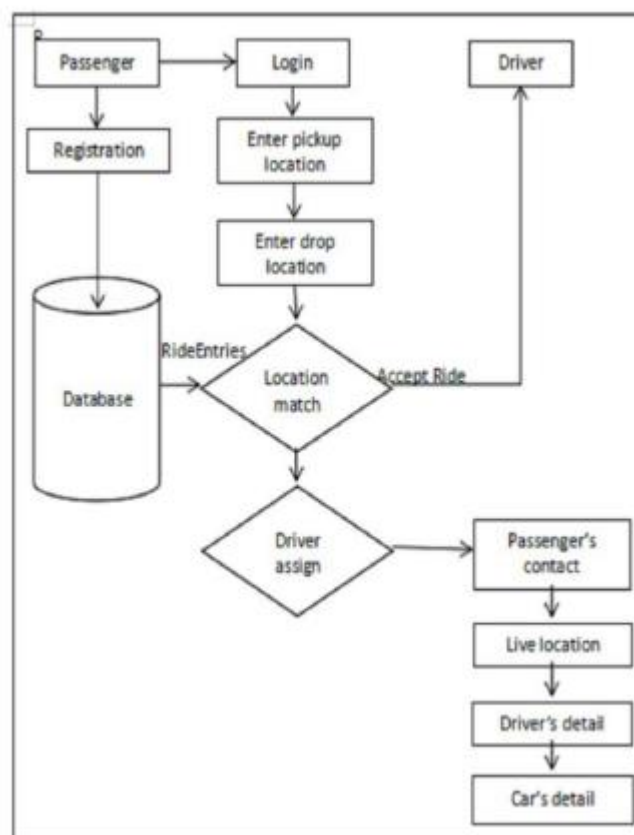
Figure 1Flow diagram of carpooling system.

Reference:
https://www.e3s-conferences.org/articles/e3sconf/pdf/2020/30/e3sconf_evf2020_03004.pdf

Functional Requirements:

The bulleted list of functional requirements is;

1. User shall be able to register to the system.
2. User shall be able to login to the system.
3. User shall be able to select the role whether as driver or passenger.
4. User shall be able to add pickup location.
5. User shall be able to add drop off location.
6. System shall be able to match the requested locations.
7. System shall be able to assign the driver to the passenger.
8. Driver shall be able to accept the ride.
9. System shall be able to display passengers contact to the driver.
10. System shall be able to show location of the passenger to the driver.
11. System shall be able to display drivers detail to the passenger.
12. System shall be able to display cars detail to the passenger.
13. System shall be able to end the ride.

Tools & Languages:

Android Studio or any other

MySQL / Firebase/ SQLite database

Java or any other

Note: Supervisor or University are not liable to provide any paid resource required for project development.

Supervisor:

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QR Code Smart Attendance System

Project Domain / Category

Mobile App

Abstract / Introduction

QR Code Smart Attendance System aims to digitize the ongoing traditional paper-based methods for attendance and will overcome the issues that arise in recording the attendance. With this system, teachers can use QR code technology to record the attendance of their classes. Students' can scan their unique QR codes attached to their ID cards. Once the QR code is scanned, the system marks the respective student's attendance in the system after the successful verification and validation. The server application (Teacher's side application), can be used to see previous attendances of the students to generate the final report.

Functional Requirements:

The bulleted list of functional requirements is;

1. There should be two different applications i.e. one for students (client) and the other for teachers (Admin).
   a. Client application should be developed in a Smartphone environment, however, for server application, Web-based application or Desktop application can be developed, depending on the interest and skill of the student.
   b. Data between these two applications should be synchronized using the cloud.
   c. For security purposes, there should be some biometric or credential based authentication.
2. Teacher's application should show the complete history of the students' attendance
3. QR Code should be attached to students' ID cards, and students scan their own ID cards to scan the QR code.
4. Sessions should be created in applications so that student doesn't have to log in again and again.
5. Teacher defines the timing and subject so that, only in between that time attendance can be recorded for a specific subject.

Tools:

Students can use any development environment with the prior approval of their supervisor. For computational resources the Virtual University of Pakistan will not bear any expenditures, therefore, students have to manage at their own.

Supervisor:

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Skype ID: axharkhaskheli / https://join.skype.com/invite/aOjUXrsu7tCw

<h1 style="text-align:center">Task Manager using GPS</h1>

Project Domain / Category
Mobile Application

Abstract / Introduction
Many of our daily life activities are location based and we may forget to keep track of all the activities associated with a certain place. In order to keep track of all the activities associated with a certain place, this application will remind the users about any task when he is at a certain location. This application will require GPS (Global Positioning System) services of the mobile to keep track of the current user location. User will add the tasks associated to a particular place in the application along with the location. Application will continuously monitor the location of the user and will generate a notification or alarm to intimate the user as he reaches at the task location. This application will also allow the user to automatically change mobile sound (ringer) settings associated at a particular location like turning on vibration mode in Mosque. All data will be saved in the cloud storage so that you can get the same record even after changing your device.

Functional Requirements:
1. The users will need to register with the application using his/her email address for the first time use. These credentials will help him to store and retrieve his/her data on cloud storage. Users will be required to log into the application only once (for first use).
2. The application will show the current location of the user on the map and all the pending tasks pinned at the particular location associated with the task.
3. The application will provide an interface to add a task associated with a particular place and select the location of the task. The application will continuously monitor the location of the user and will generate a notification or alarm to intimate the user as he reaches the task location. It will also provide an option to set a reminder type either in the form of a notification or alarm ringer.
4. This application will also allow the user to automatically switch the mobile sound profile (i.e. Sound, Vibration, Silent, etc.) settings associated with a particular location. The user will add a sound profile setting for a particular location. The application will provide an option to select a particular location from the map (i.e. mosque, office, etc.) and associate a sound profile setting defined in the mobile to that place.
5. The application will provide an option to automatically switch to the default sound profile or show a reminder to manually switch settings when the user leaves that location.

Note: All the data should be synced properly with the cloud storage so that you can get the same record even after changing your device.

Tools:
Android Studio/Eclipse or any appropriate IDE supportive for Android
SQLite or Firebase or any database of your choice
Google Map API

Supervisor:
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Project Domain / Category
Mobile Application

Abstract/Introduction

Reading has a number of benefits including improving your memory and vocabulary, helping you learn new things, and improving focus and concentration. Now the problem is to select a good book for reading, as now a days time is most precious thing and everyone want to save its time and eventually everyone needs to make its time most productive. The main idea of "Towards Book iOS app" is to show its readers best books to read which helps them to grow their habit of reading books.

Main Roles of the system:
There will be five options in its side menu;
- · Profile
- · Best Books
- · My Favorite Books
- · Book Recommender
- · Logout

Core Functionality:
Core functionality and basic flow of the app will be as follows:
1. First of all, the user will encounter the home screen which consists of a list of Top 20 Books around the world.
2. The user will select a book of their choice, which in turn leads user to Book's complete details. (Author Name, Price, Availability etc)
3. App will also allow user to bookmark its favorite book.
4. There will be another option which asks users few questions and on the basis of their questions, App will recommend books to user.
5. The user will have to register before bookmarking a book if he/she is not registered already.

The other Screens will work as:
- **Profile.**

    Profile Screen will show the user his/her details (His/her First name, Last name, Age, Gender, Favorite Hobby, Personality type)
- **Best Books.**

    This screen will show the list of best books, user can search a book from the list
- **My Favorite Books.**

    This Screen will show all the Books which user bookmarked.
- **Book Recommender.**

    This screen will show some questions to user and a submit button, when user submit those questions, then on the basis of those answers we will suggest user some books he/she might like.

There will be a need for a backend web API that will handle all backend tasks such as managing all Books, Best Books, Categories of Books (Books for jolly person etc. and user data etc.

Tools & Language:
- IDE: XCode on mac-book
- Programming Language: Swift5 and latest versions
- Backend Server-side scripting technology: PHP
- API Testing Application: Postman
- Code Editors: XCode, Sublime, PHP storm Visual Studio, etc.

Note: If you need any further assistance regarding tools, feel free to contact me.

Supervisor:
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Your Shopify Store mobile app.

Project Domain / Category
Mobile Apps.

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

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

The mobile application must be Android-based, and its data is to be managed using SQLite. Also, the application should be easily accessible to users, secured, scalable, and well-performing. Those criteria are what would make the application stand up from a simple application to a product that can be delivered and used by real-life clients. However, the focus is more on implementing the application using the new tools before considering these enterprise application features.

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

Supervisor:
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Algorithm Visualizer for Data Structures

Project Domain/Category
Web Application

This is a web application where students can learn the data structures algorithms graphically by interactive visual learning. They can actually see the working behind any DS algorithm.

Description:
You have to program the algorithms graphically in which a user can see how an algorithm is working. Be it an array or linked list and likewise, you have to show it graphically and then show it step by step working in any interactive lively way. User first have to complete the tutorial. After then, the user can enter his / her values for an algorithm to work with for better understanding and learning.

You can grasp the idea behind the project from the website www.log2base2.com which is a famous visual learning platform.

Functional Requirements:

Following requirements should be fulfilled:

1. User should be able to register / login the website. Registration needs a payment done by the user. You can add dummy payment procedure in the system.

2. User can click on any topic which leads to the running script for algorithm visualization with default values. (see the idea from the above mentioned website). You can use any theme for visualization.

3. After the completion of the script with default values, user should be able to input values of his choice and should be able to visualize the algorithm again with new input values. You should follow the same theme as used for default visualization.

4. User can mark any topic as complete and can track his learning progress. Progress can be tracked through short quizzes at the end of each topic. Learning progress can be shown in charts form.

5. Admin can edit/delete the user information.

6. Admin can handle the payment records of users.

7. Admin can add new courses to the website.

8. Website should include the following algorithms for visual learning:

   a) Arrays with all operations (insertion, searching, sorting, deleting an element)

b) Linked list with all operations (doubly linked list, circular linked list)

c) Queues with all operations

d) Stack with all operations

e) Binary Search Trees

f) Graphs

g) Binary Heaps

Note: The best project will get the opportunity to be deployed. VU will not pay anything at any stage for this project.

Tools:
Visual Studio (latest version) with .net Framework + SQL Server (latest version) or any other tool of choice.

Development Language:
C# (C sharp) with SQL or any other web development language of choice.

Supervisor:
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Skype ID: anumliaqat1989

Almas Shoes Store

Project Domain / Category
Web Programming

Abstract / Introduction
Almas shoes store is using an online platform for selling and buying shoes through their website. The main aim purpose of this project is to manage all the details about the shoes etc. There are two types of users available for this project first one is customer and second one is admin. Admin can add new system user, shoes, shoes type, stock etc. Customer can login and view the shoes and purchase shoes online by paying online.

Functional Requirements:

There will be two modules i.e., admin, and customer.

Admin:
1. Admin can manage a new customer. He can edit his/her information and manage the all the order details of the customer.
2. Admin can manage the product .He can upload the all the shoes product available in the store. He can edit or delete it and can view list of all product.
3. Admin can manage the sells item. He can edit or delete it and can see the list of all sells item.
4. Admin can manage the product type. He can edit or delete it and can view list of all product type. Product type means that either shoes is for a men or women.

Customer:
1. A customer has to fill up the sign up form for registration.
2. After registering, he must login. After login, a customer can view the all shoes available in the website.
3. Customer can add his desirable shoes into shopping cart.
4. Customer must checkout the item, in order to purchase shoes.
5. After checkout, order form will be available. Customer must fills it and click on the order.
6. Payment mode will be cash on delivery.

Tools:
PHP Language and MySQL Database for developing Almas Shoes Store

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Automated Trading System of Tokens/Coins

Project domain/category
Web based application

Abstract/introduction

Blockchain is a rapidly growing technology and there are a lot of blockchain based tokens/coins being traded on exchanges like "Binance". But only experienced and professional traders know that how to buy and sell these coins/tokens to gain maximum profits. So, we need an automated trading system where professional traders and investors both will register themselves. This system will allow any investor (who does not have trading experience) to link his exchange account with any professional trader. Using Rest APIs and WebSockets, the system will be able to perform all buying and selling actions (done by the professional trader) in the exchange account of every investor who will link his account with that trader. So automatically every investor will be able to get same profit percentage that is gained by professional trader.

Functional Requirements:

User interface:

1: A search engine optimized web home page that will display the introduction of our system, the performance of our professional traders, and the way the investors can link their accounts with any specific trader.

2: Sign up and login page for investors and professional traders

3: A dashboard for each user where he can view his account balance, his profits, his open trades, and the historical data of all his closed trades.

Admin Panel:

1: Admins should be able to view details of all users specially email id, API key of exchange account, API secret of exchange account, account balance, status of the user i.e., professional/investor etc.

2: Admins should be able to view the historical data of all trades of all users.

Especially coin pair, time of trade, the amount that was used in trade, action type i.e., buy/sell, buying or selling price, profit or loss, Final balance and portfolio of all assets being traded by any user.

3: Admins should be able to view overall monthly and yearly performance data of all professional traders. All traders that have gained more profit will be on top of the list.

Rest APIs and WebSocket's:

1: WebSocket's that will gain continuously reports of all actions being done by every professional trader registered with our system.

2: REST APIs that will perform every action of each professional trader in the accounts of all investors linked with that trader according to the portfolio percentage.

Tools:
1: Python language
2: Django framework
3: PostgreSQL database
4: Binance exchange to trade tokens/coins

Useful links:
How to create API on Binance exchange:
https://www.binance.com/en/support/faq/360002502072

Trading rules of Binance API:
https://www.binance.com/en/support/faq/360004492232

Documentation of an open-source python library useful for Binance API trading
https://python-binance.readthedocs.io/en/latest/

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Automatic Question Paper Generator

Project Domain / Category
Web Programming

Abstract / Introduction
Examinations are integral part of any educational institute. In school education, examinations are conducted four times a year. A typical schedule of exams in schools is as follows:
- First term exams   -   after 3 months of start of classes
- Second term exams   -   after 6 months of start of classes
- Third term exams   -   after 9 months of start of classes
- Final term exams   -   after 12 months of start of classes

For each exam, a question paper of each subject is manually developed by the concerned teacher and submitted to the composing staff for typing and printing. Suppose, a school has 10 classes and in each class 5 subjects are taught, therefore, 50 papers are needed to be developed and composed on computer for each examination. It requires a lot of time and effort to develop such huge number of question papers for each exam.

Furthermore, this activity is repeated for each term-examination which results in duplication of effort and huge waste of time and resources. The time and effort can be saved if there is a computerized question paper generation system that randomly selects questions from a computerized question bank and generates the question paper automatically.

You are required to develop this automatic question paper generation system. For it to be accessible from any computer or location, it should be an online web application.

This web application will consist of two modules:
- Question Bank
- Question Paper Generator

Functional Requirements:

1. All the functionality of this web application should be available after login only.
2. There will be two types of accounts to use this web application:
    a) Admin
    b) Teacher

    Role of Admin:
    - Admin will add, delete, modify classes and subjects.
    - Admin will add, delete, modify teacher's accounts.
    - Admin will assign classes and subjects to teachers in the web application.
    - Admin will have full access to the entire functionality (e.g., view question bank and generated papers) of the web application

Role of Teacher:

- After login, teacher can change the password.
- Teacher should be able to add, delete and modify the questions and answers of his/her subject and class only.
- Teacher should be able to generate the question paper of his subject and class.
- Each teacher should be able to view the question bank of his/her subject and class only. The question bank of subjects and classes that are not assigned to a particular teacher should not be visible to him/her.

Question Bank:

3. Question bank part of web application should provide interface to view, add, delete and modify questions and answers.
4. For adding each new question, following information needs to be selected first:
   - Subject
   - Class
   - Chapter no.
   - Topic name
   - Type of question
   - Total marks of question
   - Estimated time to solve the question (in minutes).
5. Following types of questions are allowed:
   - Multiple Choice Questions (MCQ) of 1 mark each
   - Short questions of 2 and 3 marks
   - Long question of 5, 8 and 10 marks
   - Fill in the blanks of 1 mark each
   - Diagram questions in which students are asked to either label the diagram or identify it.
6. Teacher should be able to define new categories for the questions as well.
7. In web application, name of teacher who developed/modified the question should be displayed against each question. But this should not be part of generated question paper.

Question Paper Generator:

8. Web application should provide interface to generate a question paper after selecting the following information:
   - Class
   - Subject
   - Syllabus (i.e. number of chapters and topics)
   - Type of question
   - Quantity of each type of question
9. Generated paper should display the following information in formatted way along-with selected questions:
   - Name of the school on the top and middle of paper in heading style
   - Class
   - Subject
   - Total marks of paper
   - Total marks of each type of question

- Total time allowed

10. Questions should be randomly selected from the syllabus and no question should be repeated (i.e., selected twice).

11. Generated paper should be printable and downloadable as Microsoft Word and PDF file.

Tools:
Front-end:
HTML, CSS, JavaScript, Boostrap
Back-end:
PHP, MySQL

Supervisor:
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Be Aware

Project Domain / Category
Web Application

Abstract / Introduction
Everyone wants to be aware of the happenings around him/her. Be Aware is an android application which help the users to know the latest News, articles and interesting happenings like concerts, social gatherings or any social event in their vicinity.

This application will keep public updated regarding anything happening locally and in the city.

Functional Requirements

There are two applications for this system: one for the admin and one for the user. News are grouped into categories like News, Social Events and Concerts etc.

User Requirements:
- The user has to register into the system providing his personal details to use this application.
- The user can also update his details as well.
- The user has to login into the system to add or view the news.
- The user can add news selecting a city or locality in the respective category.
- The user can add a picture and a title related to the news.
- The user can use only 500 words to elaborate the news.
- The user can view the news based on the city selected at the time of registration.
- List of User's published news should be displayed so he can view/update/delete the news and can also view action taken by admin if any.
- The user can only view the news of his city but can add news related to other cities.
- If the user finds any news is not true or offensive he can report it to the admin and admin shall take some action.
- The latest news is shown first and so on.
- The system should provide swipe to move to the next or previous news with transition effects.
- User can request the Admin to add a new category.

Admin Requirements:
- Admin can Add/Update/delete the categories. Only admin has the right of categories. User cannot add/delete/update a category.
- Admin will monitor if any abuse or irrelevant or fake news added by any users and will take some action.
- Admin should login into the system to monitors news or reports by the users.
- Admin can view all the news of all the cities.
- Admin is responsible to monitor any news is been reported to him to cross check.

- Admin can either delete the news or modify it if offensive or abusive language spoken in the news.
- If a user has posted some abusive, violent or fake news, his account should be disabled for at least one month and a warning email should be sent to the user registered email account.

You have to develop a database according to the above mentioned requirements.

Note: These are the basic requirements. Students must include all necessary functionality.

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

Supervisor:
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<p align="center">**Bikes** 🏍 **Zone**</p>

Project Domain / Category

Web Programming

Abstract / Introduction

This is an online bike purchase and rent a bike store that has listings of various bike along with their features (company, color and model) and price. This system allows user to buy a bike by viewing inventory online. System allow user to check various reviews submitted by different users and even comment on them. Credit card payment facility is available. This system also consists of 'Rent a Bike' feature where user can ask admin for bike on rent. The visitor who visits the system must register himself/herself by filling up personal details. After registration user can login to the system with his/her username and password in order to access the system. User can check various bike listing and can view each bike feature. User may select the product and can add the product to shopping cart. User can make payment through credit cards by clicking on credit card payment option. User must register himself/herself for posting a review about the rented bike or bought bike. This application is a combination of both sales and inventory management of the bike. User can easily purchase bike or rent a bike by using this system. User does not have to come to shop to purchase the product. User can view the bike in effective Graphical User Interface. User can view features of each bike and can compare the products in order to purchase a better product.

Functional Requirements:

Admin:

1. Login.
2. Approve user.
3. Add, remove and update bike's company, models, colour and price.
4. Manage rented bikes, available for rent bikes and new bikes for sale. For this purpose on home page you give option to navigate for renting a bike or buying a bike.
5. Keep bikes for rent and bikes for sale on different pages. Both the options should be on index page.
6. Generate reports for both rented bikes and sold bikes (reports should be daily, weekly, monthly, yearly). Both the reports should be separate from one another.
7. On the basis of reports admin can calculate gross profit (separate for rent a bike and buy a bike) for the month, half year and year.
8. For calculation of gross profit for the sold bike should be calculated by taking the difference in amount of retail price and sold price.
9. Database should be relational. You have to use primary keys and foreign keys to make database relational.

User:

1. Register using user register page.
2. User can buy a bike.
3. User can rent a bike which is available.
4. User can give review on the bike (for both rented and bought).
5. When user clicks the bike which is available for rent it should automatically be marked as occupied (number of days of occupied should be also displayed).

6. When user clicks on rent a specific bike there must be a page open where user can give the details like hours or days for occupying for rent.
7. User can buy a bike using online portal and can add or remove to the cart.
8. After adding to the cart a user can use two modes of payments (cash on delivery and credit card) when checkouts.
9. User can search the bike by company, colour, price, and model on each page.

Tools:

Languages: C#, Asp.net,SQL, PHP, CSS, HTML, JavaScript.

Tools: Visual Studio, Dreamweaver or any other supported tool for above languages.

Database: Mysql, SQL Server, WampServer, Xampp.

Supervisor:

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Choices Clothing Store

Project Domain / Category
Web Programming

Abstract:

"**Choices Clothing Store**" is website that will offer you different clothing options with home delivery facility. Clothing options/categories can be for Men, Women, Stitched, Unstitched and ready-to-wear etc. There will be two users of this website: Admin and Customer. Admin can add new categories or new products in to the database. The customer would be able to view the products and add these items into the cart. The aim of this website is to reduce the effort of the customer to go out and visit any market to purchase any clothes. This website will also reduce the manual effort of the Admin needed to manage transactions, maintaining, updating purchases and stock management in the website.

Functional Requirements

Modules:

Customer Module:

- Sign Up/Login: The customer can view/search the products without registration. Sign Up or login is compulsory for purchasing any product.

- System can store the buying history of the customer. Customer can view his order history. After receiving the package successfully, customer can update the order status to "received".

- The customer can also give feedback/review about any purchased product.

- The customer can add products to the cart, check out through cash on delivery or using debit or credit card.

- The customer has the authority to delete his account from the website.

- The customer can Logout his account.

Admin Module:

- Add an Admin/ Login: The main admin can add any other person as admin.

- The admin can add/remove categories and products or edit existing products or categories. A new category can be a child category of another category.

- The admin can view, manage orders, confirm/cancel orders manually.

- The admin can manage the stock of each product. Also, the website can generate warning if stock of any product will be less than 20.

- The admin can manually add or delete any customers.

- The admin can Logout his account.

<u>Required Web Pages:</u>

<u>Tools:</u>

Software Requirements:
- Operating System: Windows 7 and above
- HTML, CSS, Bootstrap (Front-end)
- Adobe Dreamweaver/ Sublime
- MYSQL(Backend)
- PHP (Server side programming)
- XAMPP — Web Application Server

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Cinema Management System

Project Domain / Category
Web Application

Abstract / Introduction
Cinema is a popular medium for information and entertainment and shows mutual harmony among people.

A Cinema management system is a web application that manages essential operations of the cinema theatres. The software automatically manages multiple theatres to sell movies tickets and provide an ultimate centralized management solution.

Functional Requirements:
There are three interfaces for this system: Admin, Non-membership users, and Membership users.

User Requirements:
- All users can view the available movies, show time and ticket price.
- All users can view available seats in theatres.
- To become a member a user has to register into the system by providing personal details and make an online payment.
- The membership user can book tickets only and get a special discount.

Admin Requirements:

- Admin should login into the system to schedule a movie.
- Admin has to add a detailed summary of movies and show time on the application.
- Admin can book tickets for non-membership users.
- Admin has to manage the tickets price.
- Admin will give special discounts to membership users.
- Admin also ensure that one ticket is sold against one seat.

You have to develop a database according to the above-mentioned requirements.

Note: These are the basic requirements. Students must include all necessary functionality.

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

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<center>**Crime Reporting & Investigation System**</center>

Project Domain / Category

Web Based Application

Abstract / Introduction

Different crimes are happening every day in the world. Each region has crimes and their type and intensity will be different. A large number of these crimes go unreported either because there is no law enforcement in the region, people are scared to reveal their identity to police, or the people find it cumbersome to physically access police stations. Also, crime goes unreported, because people don't have enough evidence to help police with the investigation or the police may ignore their complaint. The information regarding the crimes needs to be transmitted instantly and remotely without the technical issues and needs to physically access the police station. It is very important to incorporate the technology into the crime reporting system. In this modern era, it is essential to have a well-organized and widely available method for reporting criminal activities to the relevant authorities. To overcome these issues, we are going to develop a crime reporting and investigation system. It will be a web-based application accompanied by the real-time relay of information to the security agencies. A crime reporting and investigation system not only guarantee the informer's safety and secrecy but also stops cases and reports from being deleted or removed and guarantees information integrity. The automatic crime reporting system has an incredible potential to assist informers to report crimes anonymously or by providing their details using mobile phones. It also assists police to provide proper security and reduces the manual work in crime reporting.

Functional Requirements:

User Specification:

This automated crime reporting system has following users.

1. Informer/Reporter
2. Investigation officer/ Police
3. Senior Officer
4. Visitor

Functional requirements as per the Informer/Reporter

1. Reporter needs to be registered in the crime reporting system to use the system. The system provides the interface with fields for the Reporter's name, Email ID, Contact number, Address, and password.

2. Reporter can log in to the system before accessing any system functionality. The system provides the interface with fields for username and password.

3. Reporters can report a crime happening around them. They can attach evidence in the form of files such as an image, audio, video, or document. But for the time being, we are restricting the reporter to only attach the evidence in the form of an image or a document. The reporter can report the crime according to the type of crime i.e., Assault, False

Imprisonment, Kidnapping, Robbery/Theft, Murder, Rape, Drug Crimes, Harassments, or defamation.

4. Reporters can view all the crimes they have reported so far.

5. Reporter can track the changing status of the reports as updated by the investigation officer working on the incidence.

6. Reporter can report any lost item remotely.

Functional requirements as per the Investigation officer/ Police

1. Investigation Officers can register in the system. The system provides the interface with fields for Officer's name, Email ID, Contact number, Rank, Department, Address, and password.

2. Investigation Officers can log in to the system before accessing any system functionality. The system provides the interface with fields for username and password.

3. Investigation Officers can search for a crime or the incidence based on the type of crime.

4. Investigation Officers can make progress updates on the case from time to time as they work on it.

5. Investigation Officer can check the details of the reporter/informer.

6. Investigation Officer can see the list of all reports registered in the system.

7. Investigation Officer can download the attachments with the reports.

Functional requirements as per the Senior Officer (SO)

1. Senior Officer can register in the system.

2. Senior Officer can log in to the system.

3. Senior Officer assign the crime reports/case to Investigation officer.

4. Senior Officer can add the news regarding crimes.

5. Senior Officer can add the awareness campaign.

6. Senior Officer can see the list of all reporters.

7. Senior Officer can search the reporter.

8. Senior Officer can see the list of all investigation officers/police.

9. Senior Officer can search the investigation officers/police.

10. Senior Officer can see the list of all the crime reports.

11. Senior Officer can see the status report of all the crime reports registered in the system i.e., status can be pending, assigned to an officer, complete, incomplete, in progress.

12. Senior Officer can manage the crime reporting system.

Functional requirements as per the Visitor
1. Visitors can view the crime news.
2. Visitors can View the awareness campaign.
3. Visitors can view the Home, about us, and contact us page.

Tools and Language:
Visual Studio / Dream viewer / any other
MySQL / MongoDB / any other
HTML / CSS / Bootstrap / JavaScript

Note: Supervisor or University is not liable to provide any paid resource required for project development.

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Crockery -Online

Project Domain / Category
Web Programming

Introduction

The online mode of a business facilitates its customers / clients to place order for the goods and services online without physically visiting the business centers according to convenient time. In view of this, the proposed project aims to develop a website titled as "Crockery -Online" that will facilitate its registered users (customers) to buy the different varieties of crockery items. The website will display the available items category wise along with item image, brand/company name, price, number of items available in stock, users reviews about the product (if any) and related description etc. in proper design and layout. A user will be able to purchase / make order against available items after getting registered on the website and passing through the payment method (cash on delivery). The website will provide interactive interfaces and rich search facility of finding the different types of crockery items through different filters. The website will allow its registered users to record their comments/ reviews against any purchased item. The comments / reviews will be published on the website with the item information. Besides, the registered users will be able to submit their complaints / feedback regarding the website services. Online order placing of the crockery through the proposed website will remove the overhead of physically visiting the markets for this purpose.

Functional Requirements:

Following are key functional requirements of the proposed system:

1. User Registration/Sign Up, Sign In

There will be proper interfaces for user registration and Sign In for the following three types of the users of the website:

- Visitor (Unregistered User)
- Registered user (Customer)
- Registered user (Administrator)

Roles of the users will be as follow:
- Visitor will be able to visit the website to search his/her relevant crockery items on the website.
- A user registered as a Customer will be able to place order on the website.
- The Administrator (Admin) will have all the rights/privileges of information management regarding the items, stock management, as well as user management. Admin will approve the registration requests from the other users (customers).

2. Email Notification and Verification

An unregistered user will register him/her on the website. On submitting the registration information, an email notification will be sent with a confirmation link to the user's given email ID. On confirmation through link, the Admin will approve the registration requests from users. An email notification will also be sent to the registered user on approval or rejection of any request.

3. Admin Panel

There will be proper Admin Panel / Dashboard comprising of interactive interfaces through which the Admin will be able to add/ delete and update all information such as description, price, stock, images of crockery items. In addition, by using this Admin Panel, the Admin will be able to perform category management as well as user management (accepting /rejecting the user registration requests).

4. Display of Information on the website

The item name, quality, material (plastic, wood, clay, steal, glass, stone etc.), category (Cookware, Bakeware, Storage Pots, Dinnerware etc.) brand/company name, thumbnail image, price and number of items available in stock, related description, new Arrival, Sale (if any), comments/reviews by the registered users etc. should be displayed on the website in proper design. On clicking the thumbnail, the website will maximize the image.

5. Placing Order on the Website

The website will allow the registered user(s) to make order against their selected items. There will be proper interfaces on the website in this regard. The user will first have to select the item to put into the shopping cart, and then will have to pass through any of the payment method i.e. cash on delivery.

6. Confirmation Email on transaction (Order Placing):

A confirmation email on successful transaction will be sent to the user's provided email.

7. Search Facility

The website will provide rich search feature through which all types of users should be able to search information on the website using different filters and keyword such as:
- o Name
- o Brand / Company Name
- o Category Wise
- o Material (plastic, wood, clay, steal, glass, stone etc.) wise
- o Price Wise

o New Arrival

o Sale

o Best Sellers

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

8. **Comments / Reviews**

The registered users will be able to submit their comments / reviews on the website against any purchased item.

9. **Complaints / Feedback**

The registered users will be able to submit their complaints / feedback regarding the website services through related interface on the website. This information will be submitted to Admin.

Tools:

1. PHP and MySQL (You can choose any framework such as Laravel)

2. Bootstrap or any other CSS Framework

3. Any JavaScript library/ framework such as jQuery, Vue Js, react Js or angular Js

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Design and Development of an Online Event Management System for Colleges

Project Domain / Category
Web Application

Abstract/Introduction

This project is an online event management system / website which enables college management to effectively organize all indoor and outdoor events held in college and outside of college. The project will provide a centralized interface to management persons to plan events like nature tour, sport competitions, Job Fairs, Book Club, Live Concerts, Food Festivals, Quiz Competition, and Speech Competition etc. Separate interfaces for online registration feature will be provided to the students to register themselves in various events. Parents of the students have also access to this interface to see the present and upcoming events.

Admin Interface will be used by college administration and its credentials will be shared with owner / top management. Through this interface, they can create various types of events during the academic year. Different types of events like recreational and educational and health related activities can be managed through this admin interface. Complete information like the date, time, eligibility criteria, expected outcomes and rewards for each event will also be made through this interface. This interface should also enable college administration to answer student's queries. Afterwards, they will also be able to monitor the success and failure rate of each event organized. On **User Interface**, each student can view the list of all events which have been organized, being organized now, or will be organized in near future. He / she can register him / herself in the event and can read all important information about that event that has been shared by the college administration. He / She can also post a query for each event in case of any difficulty in understanding terms and conditions.

This web application will be developed using ASP.NET / PHP as the front end and SQL Server / MYSQL as a back-end. The database will store all necessary information about the events and the related information.

Functional Requirements:
1. The systems must have two different views:
   - **Admin View**
   - **User View**
2. In **Admin View,** the user have full rights and can create user accounts for students / Parents. Specific users can create, update or delete information of any event.
3. There should be a search interface on **Admin View** which helps the top management to search any event and its details.
4. Through **User/Student account,** the user can view the list of all events which have been organized, being organized now a days, or will be organized in future. He / she can register him / herself for the event and can read all important information about that event that has been shared by the college administration. He / She can also post a query for any event in case of any difficulty in understanding terms and conditions.
5. The system shall provide convenient interface for the creation of event category (Recreational, Educational, and Health etc.), events, venue, participants, expected outcomes and rewards.

6. The system should also store and display pictures of each event held in college.
7. The system shall be capable to provide an interface to the college administration to contact the parents of students who have register themselves in any event.
8. The system shall provide Password Recovery facility using Email.
9. The system should provide the interface to store the information of each event's class / category, date, time, eligibility criteria, expected outcomes, rewards, and venue etc.

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

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Design and Implementation of Enterprise Office Management System

Project Domain / Category
Web Programming

Abstract / Introduction

The main theme of the office management system is to provide its clients with a mechanism using which office operations can be automated with a computer program. The management system will store all the data as it is done in databases for manual file keeping. Due to automation property, manual and paperwork will be decreased. According to a survey conducted most the offices lack the management systems due to which many of the problems have arisen such as resource wastage, extra manpower usage, manual file handling. Using this system, the administrator would be able to manage its staff by managing the attendance, tasks, progress, leaves, and many more things. On the other side, the staff would be able to manage its profile, view its progress and tasks, apply for leave and launch a complaint.

The system will consist of two main active users which are the supervisor/administrator and the employee. In the designed system, admin should have to right to delete/change employee's accounts. Moreover, this system should have a task portion where the admin should be able to allocate tasks to any employee individually. Admin should also have the privilege to check the attendance and performance of employees based on different task completion. The second main user, the employee should have the right to launch any complaint that can be directly forwarded to the admin. Moreover, employees should be able to use this system to apply for leave, the notification of which should be forwarded to the admin. The system should provide a special property of displaying a number of tasks assigned, accomplished tasks, and in-progress tasks.

Functional Requirements:

Admin Panel

- Admin can login into system.
- Admin can delete/ edit information of Employees.
- Admin can keep the track of attendance and progress.
- Admin can assign tasks and update tasks.
- Admin can manage salary.
- Admin can manage Notice Board.
- Admin can generate various reports.
- Admin can manage leave applications.

Staff Panel

- Employees can create accounts.
- Employees can log in into the system.
- Employees view and edit account information.
- Employees can view their progress.
- Employees can apply for leave.
- Employees can launch a complaint.
- Employees can view the notice board.

- Employees can view attendance.

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

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DHopebook

Project Domain / Category
Web application

Abstract / Introduction
Nowadays, people are more interested to know authentic details online about their any particular disease like what could be all possible symptoms, lifestyle, complications regarding that disease, etc. Many websites are already developed for this purpose but there is a need to add 1 more unique feature online that is real success stories of those patients that survived that particular disease and are survivors now so this would be a ray of hope for others who are already battling or suffering from that disease. Survivors can explain what challenges or conditions they faced, and how did they get there? What was involved? What treatment did they have? What is their present condition as a result of this treatment? What things can they do now that they couldn't do before? The main goal is to help and convince potential patients to take the next step, and have faith. This would be so helpful for their mind and health and with this hope and faith, there would be more chances for their recovery. So there is a need to design and develop a user-friendly web app like a colorful notebook, each page display details of a particular disease with success stories of survivors that how they recovered from this disease, and how long it took? so this can be a great option for patients to put their minds at ease when it is thinking the different scenarios so with this web app, users or patients would be able to get all details about any minor or major disease and also able to read success stories of people or survivors who fought with that disease and now living a healthy life.

Functional Requirements:

Admin

1. Admin can login into the system
2. Admin can verify doctors or survivors details.
3. Admin can delete/ edit information of disease or success story.
4. Admin can block any doctor or survivor.
5. Admin keep track of all the activities.

Doctors:

1. Doctors can register into the system.
2. After verification, doctors can login to system.
3. Doctors can write content on disease related to their specialization.
4. Doctors can review survivor's story and approve or reject that with comments.

Users:

1. Users can be patients/Survivors/Guest.
2. Users can search about any disease by using Disease Search Engine.
3. User can read all details about any disease and survivors success stories without logging in.
4. In order to post their story, they need to first get registered.
5. After verifying from admin end, they can login and post their story.

Tools:
Php, bootstrap, HTML5, AngularJS, MySQL, JQuery,

Supervisor:
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Driving School Management System

Project Domain / Category
Web Programming.

Abstract / Introduction
This is web-based project which can reduce human efforts to a greater extent. The project will facilitate the training school to efficiently manage their training programs, handling and communication with students for the program. The driving trainers has to handle several students at a time. This will provide drawback in terms of communicating with students for his or her driving category schedule or test. This application automates manual tasks by managing all records of student's admission, Attendance, vehicles and trainers. It will maintain the record of entire students of driving school. There are two users of the system, one is admin and other is student. Admin is having control over all modules of the system. Each student is provided a unique user id and password. They can login in to the driving school management system with this id and password. After logging they will see basic driving tutorials accessible on the portal, they can choose to book their slot in a training program, they can mark their attendance and can see the results of their training program.

Functional Requirements:
Following are the functional requirements for the project:
1. Online admission for students in the training program. The admin can manage overall students during the training program.
2. Student can book their time slots according to their wish during the program.
3. Student can mark their attendance on the portal and the admin can have attendance records of all student.
4. The admin can manage the vehicles and trainers for the program.
5. The admin can manage different programs and tutorials for the students.

Tools:
You are free to use any tool provided that all the functional requirements are met properly.

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Efficient Doctor Patient Portal

Project Domain / Category
Web Application

Abstract / Introduction
Efficient doctor patient portal is online management system, which provides convenience to doctors and patients. It is use to book appointments between doctors and patients. The goal of this portal is to provide medical progress. Doctors can manage their schedule and appointments with help of this system. All the empty slots will be visibly available to the patients, which can be booked by the name and id card No. of any particular patient. The system makes it easy for doctors to manage their availability on various dates and timings. Admin maintains the medical history of the patient into the database so that every time any particular patient logs into the system, he/she can easily access their complete medical history whenever needed. In addition, it helps the doctor to refer their patient's medical history for any further prescriptions. This allows for an automated patient doctor handling system through an online interface. This system will also provide ratings of the doctors. The user can pay online for their appointments.

Functional Requirements:
Admin:
1. Admin can login into system.
2. Admin can add/edit/delete services into system.
3. Admin can add/edit/delete information doctors and patients.
4. Admin can view list of patients and doctors registered into the system.

Patient:
1. Patient can register into system
2. Patient can login into system.
3. Patient can check appointment availability.
4. Patient can book appointments online.
5. Patients can search doctors by name and location.
6. Patient can search doctors based on his requirements (like search doctor according to specialty or area wise)
7. Patients can check their medical history.
8. Patient can rate doctors.

Doctor:

1. Doctor can register into system
2. Doctor can login into system.
3. Doctor can view appointments of patients.
4. Doctors can manage their availability by date and time.
5. Doctors can manage their schedule.
6. Doctor can view patient's medical history.
7. Doctor can view patients ratings.

Tools:
- HTML,CSS, JavaScript (Front-end)

- MYSQL (Backend)
- PHP (Server aspect programming)
- XAMP (Web Application Server)

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E-Home Interior Safe Solutions(EHIS)

Project Domain / Category
Web Application

Abstract / Introduction
A home requires constant maintenance for the overall safety and comfort of both you and your family members. To keep accommodation in optimal condition, you must repair all broken utilities and install latest commodities to make your home more functional for today's environment.

Unfortunately, it is a challenge to locate a reliable, professional, and safe home improvement service online in Pakistan. Moreover, the cost involved always remains to be an issue and most technicians charge more than required for simple tasks. To end the dilemma , EHIS Solutions came up with an innovative idea to provide home and office owners the flexibility to receive service at their doorstep though an e commerce website. We at EHIS Solutions offer our services to through a website to a wide range of clients including residential, commercial. Following services will be offered with 24/7.

- Paint work
- Furniture Polish
- Installation of CCTV cameras and fire smoke detectors
- Solar panel system installation
- Installation of window blinds and curtains
- Installation of window and door safety grills
- Kitchen remodeling
- Gardening service

Functional Requirements
Administrator Panel:
Admin will be with maximum privileges to access the system. He/She keeps user login details, can manipulate data and do all the transactions.Furthermore

1. Create and manage their account.
2. Keep the record of all users (Skilled persons/customer/Clients, and labor.etc)
3. Keep agreement between Skilled persons and administrator(owner) on quality.
4. Add/update/delete specific Home interior and safety services.
5. Admin can verify service provider and customer.
6. Admin manages all the categories of service.
7. Admin can take the payment from the customer.
8. Admin can add the new advertisement.
9. Admin can send notification to the customer and service provider.
10. Admin can give order for service instrument to the shopkeeper.
11. Admin can also comment to user.
12. Record the client/customer feedback
13. Record the skilled person/labor feedback
14. Add/update/delete customer/client.
15. Keep the record of /customer order or request status.

Service Provider:

Service provider can do registration and get verified by administrator.

1. Verified service provider after login can view the services ordered by user of his category.
2. Service provider send acknowledgement to the user.
3. Service provider coordinate with customer and take details of work and generate code of work for customer through website.
4. Service provider use the map for the service provision by finding his location.
5. Service provider visits at the place of customer and verify the code with the customer and then do his work.

Customer panel:

1. Customer can do registration as member or can enter as guest.
2. After login customer search for the particular service and receiver the list of available services.
3. Customer can selects the service and request for the service.
4. Customer can get acknowledgement as reply and get code which is unique for every user.
5. Create an account or register him/herself on EHIS.
6. View the Services
7. View the rates/prices
8. Place the order by selecting the mode of payment.
9. Confirm the order.
10. Delete the order before confirming it.
11. Submit feedback.

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

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E-Services Facility for a Housing Society

Project Domain / Category
Web Programming

Abstract / Introduction
The housing societies are increasing in numbers in all the major cities and people are moving in the housing societies to have a better living standard. However, they might have to face many issues related to the common services like Cable, Internet, house maintenance and repairing in their housing societies. So, a housing society needs to have a web application that can be used by the residents to available common services provided by the society. They needs to engage the electricians, plumbers and different other service providers to provides facilities to the residents. Both the users (residents) and service providers need to get register themselves with the application for using it.

Functional Requirements:

1. The system consists of an admin panel and a user panel. Admin panel is handled by the administrator (admin) appointed by the society administration.
2. Admin will register different service providers (workers) within the application.
3. Only the society residents can register with the application using the registration interface by providing the relevant data. The admin will confirm the registration after verifying the provided data.
4. Admin will add the various categories for the offered services. The user will select the relevant category to available the services.
5. Application will provide an option for the user to set a particular time slot for the service to be taken according to his availability.
6. User give their feedback related the availed service. The application should also provide a rating system for rating the service provided by the worker so that society administration can use this feedback for betterment of their services.
7. The user may be offered a payment plan to avail any service provided by the society. It can choose the monthly payment plan or service based payment plan.

Tools:
HTML/CSS, PHP, MySQL, Xampp
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Event Bidding App

Project Domain / Category
Web Application

Abstract / Introduction
The COVID-19 pandemic has reshaped our world, businesses are shifting towards the online mode in greater numbers and frequency. With that in mind, this web application will provide a solution to the event owners to make all the arrangements of their important life events comfortably sitting at home, thus eliminating the hassle of unnecessary bargaining and negotiation. This platform lets the event owners choose their event organizers, covering all aspects from venue, menus, and decor to each nitty-gritty detail. The app will also allow event organizers to reach a large audience and offer their services through this platform.

The idea behind this web application is to act as a bridge between the event organizers and the event owners. This application will involve the bidding process where the event owner/buyer will request a bid from organizers providing the event requirements, the system will notify all suitable candidates and the interested candidates will place their bids, for organizing the event, accordingly. The event owner will choose the event organizer taking into account all the necessary aspects.

This web application will be a very convenient solution for the buyers as it will eliminate the hassle of visiting multiple places and submitting demands every time. On the other hand, the organizers will be able to enjoy the perks of the internet to reach and cater a large audience through this platform.

The web application has primarily two users, the event organizer (supplier) and the event owner (buyer).

Event Organizer (Supplier)

The supplier should be able to register, log in, and set up his profile with all the details like location name, owner, address, contact details, guests capacity, pictures, menu details, decor options, etc. He should be able to add any new location anytime. To avoid any fraudulent activity and random requests he should be able to view the buyer's profile. The supplier should be able to receive the suitable requests and customize the proposal and bid against each request.

Event Owner (Buyer)

The buyer should be able to register, log in, and fill out a request form with all his requirements such as event type, city, date, time, number of guests, and budget to request bids from multiple suppliers. He should be able to view the bidding proposal and make his choice of event organizer who will stage the event. The buyer should be able to view the event organizer's profiles, reviews, and ratings to make his final decision. He should also be able to give feedback to the suppliers.

Functional Requirements:

- A user will first sign up as an event owner (buyer) or an event organizer (supplier) and then login into the system.
- The event organizer should be able to set up his profile with all the details.
- The event organizer should be able to update the profile.
- The event organizer should be able to set up his booking calendar reflecting his availability and unavailability.
- The event owner should be able to view the profiles, ratings, and reviews of the event organizers.
- The event owner should be able to fill out a bid request form for his event clearly stating all the requirements.
- The system will generate a notification to all event organizers meeting the requested criteria.
- All selected organizers should be able to view the bid request.
- The event organizer should be able to create a customized bid proposal and place it against each bid request.
- The owner should be able to view the list of event organizers who are meeting the criteria and have been notified.
- The event owner should be able to omit any unsuitable event organizer.
- The event owner should be able to view the request status.
- The event organizer should be able to view the status of active and expired bids.
- The event owner should be able to accept or reject the bid proposal.
- The system should prepare a receipt against the approved bid for both the owner and the organizer.
- The accepted bid should only be viewable to the event organizer whose proposal has been accepted for further processing.
- The system should add the event to the event organizer's booking calendar.
- The event owner should be able to give feedback to the supplier.

Tools:
Microsoft Visual Studio, SQL Server
Language: C#
Platform: ASP.NET MVC

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Eye Glasses Sales Management System by using Chatbot

Project Domain / Category
Web Application

Abstract/Introduction
Chatbot is a software used to conduct an online chat conversation via text or text to speech conversation through live human agent. Chatbot facilitate engagement of people and services by improving customer experience role in B2C (Business to Customer) E-Commerce applications for the purchasing of online products. Chatbot employs the Natural Language Processing combined with some essence of Artificial Intelligence and Machine Learning in E-Commerce environments.

The core aim of this project is to design a web-based Eye Glasses Sales Management System using Chatbot. The users (customers) of this system will be able to place an order for the wide range of Eye Glasses for different age groups and gender. Chatbot will assist the customers in selecting the Eye Glasses and will recommend the suitable Eye Glasses as per customer gender and age. It will also recommend Eye Glasses on the basis of customer requirements and demands like budget, color and shape specifications. Proposed application aims to provide an effective business environment to the customers.

Functional Requirements:
Eye Glasses Sales Management System using Chabot is demonstration of B2C E-Commerce domain. It provides an environment for different categories of customers as per their gender and age bands. After selecting the Eye Glasses as per their choice, chatbot will provide customer support by showing list of Eye glasses suitable for the face shape and adaptive to specific customer need.

The proposed system will have the following main users:

Admin, Sales Manager, Distributors, Customers.

1. Registration module: It will facilitate the registration process for all kinds of users. Admin will approve and perform activation of the different user's accounts and registration requests.
2. Login Module: After successful registrations, all types of the users will be able to login to the system using their registered email and password.
3. Pop up window should be displayed at the bottom right of the system by prompting the customer for any kind of guidance related to Eye Glasses selection.
4. Customer will go for Eye Glasses selection module where the chatbot will assist the customers to select the Eye Glasses as per customer needs.
5. Geographical area allocation module: Admin will assign the different areas to distributors across Pakistan. Different sales manager will work under specific distributor for easy distribution of Eye Glasses in different areas of Pakistan as per the demands. Customers will be able to view the different sales manager in Google Maps to assess the fast and easy shipment of Eye Glasses to the customer address.
6. Conversation Flow Module in chatbot be responsible to ask the question from users related to Eye Glasses and will suggest the most suitable type of Eye Glasses (indoor or outdoor) as per customer demand. To make conversation flow smooth and efficient, it's important to apply the best practices for developing chatbot. For this purpose, supervised/unsupervised Machine learning and deep learning algorithms be used, while taking into account of business objectives and customer' expectations.
7. After the conversation flow is completed, search result module will personalize merchandising of Eye Glasses, recommendations can be helpful for the customers to find

specific Eye Glasses specifications as per the facial structure. After selection It will show the list of Eye Glasses as per customer demands. A conversational interface will allow the system to ask probing questions and understand the customers' intent clearly.

8. Search result module will display the list of Eye Glasses like imported/local, price related characteristics and specification.

9. Discount module will be activated in case the customer may be looking for discount. In case customer fall into one of the given categories like (Army officers, Teachers).

10. Chatbot will assess the customer behavior from historical data and suggest the Eye Glasses according to his budget and demand.

11. Supervised/Unsupervised Machine learning module for Chatbot should already be "taught / trained" common questions so that it will be able to answer customer questions related to specific Eye Glasses and respond immediately to customer' queries.

12. Once the customer has selected the required Eye Glasses, the payment module will be initiated; chatbot should properly guide the customer of different payment options. The system will facilitate the three payment options as per the user choice i.e., credit card, debit card and through cash on delivery.

13. The proposed system should have customer support module. It should guide the customer about the Eye Glasses' guarantee in case of damaged for specific time period.

14. For successful human-like interaction, visual module is also used in chatbot for perfect tone and dialect. To achieve coherence, a character is used to effectively communicate in audio synced with the text to help out the customer for specific Eye Glasses.

15. There should be Frequently Asked Questions module to generate a chatbot's list of pre-programmed queries and responses.

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

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Find Me Hostel
A Java Based Web Application

Project Domain / Category

Web Application

Abstract/Introduction

Travelling is part of life and we all have experienced some good or bad traveling in our life. Many things affect the traveling toward different cities in which finding a good hostel is one of them. As people move towards different cities for their meetings, to earn, to learn (in universities/colleges), etc. so it is very difficult for them to find a good place and get settled there. Since it is the age of computers so by using the technology and in order to overcome their difficulty, We decided to provide a solution in the form of a web application so people can find the hostels or hotels for the respective cities or required locations and can book the seat or room for them (Sharing or single). Our web application has mainly two users except admin.

1. Customers
2. Property Owners

Customers View

Our web application may provide the following information to the registered customers or visitors Hostel type, Location, Area, Rent Amount, Miscellaneous Charges, contact information (only to the registered users), and other different Option Like UPS, Wi-Fi, Generator, Security and so on. In order to book a room, users must register himself/her-self first, and then he/she can book the room.

Property Owners View

Owners will be able to register their data and property information on our website. They need to enter the information exactly and clearly. They can send requests to the admin if they need to change some information about their property.

Functional Requirements:

7. Registration
   - User will register themselves.
   - Property Owner will register their property and information.
8. Hotels/Hostels
   - Admin can add, delete or modify the details of Hostels if required.
9. Search and Booking
   - User can search for the hostels based on required city and room types one by one and can book them.

Tools:

- Eclipse or IntelliJ for Java Web Development
- Apache Tomcat
- Java Development kit
- My SQL
- JAVA, JSP, Databases

Important links:

JAVA

https://www.w3schools.com/java/default.asp

Servlets

https://www.javatpoint.com/servlet-tutorial

JSP

https://www.javatpoint.com/jsp-tutorial

https://www.tutorialspoint.com/jsp/index.htm

JAVA JDBC

https://www.youtube.com/watch?v=3OrEsC-QjUA

SQL

https://www.w3schools.com/sql/

Servlets and JSP

https://www.youtube.com/watch?v=OuBUUkQfBYM

Html and CSS

https://www.youtube.com/watch?v=7mdEvKyLoYM

https://www.youtube.com/watch?v=J5KxiOnIrKg

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HealthCare

Project Domain / Category
Web Application.

Abstract / Introduction
Health safety is the basic need of every human being, but people do not give special care to their health issues due to different reasons. For example, sometimes it can be impossible for a person to visit a doctor for the regular checkup. Now you will develop a web application for the online assistance of both patients and doctors. Basic information which will be provided online for the further guidelines and prescription will include:

Hemoglobin (HB), Body to Mass Index (BMI), Platelets, Blood Sugar (BS) and the Blood Pressure (BP).

Based on the provided information doctor will review the symptoms, tests and then will prescribe the medicine accordingly.

Functional Requirements:
Major functional requirements/silent features of your project application will include:

1. Two major user roles are, Patient and Doctor.
2. Signup/Singin functionalities for both Patient and Doctor.
3. It is the must to login first for the selection of desired doctor.
4. Qualification and expertise details for each doctor will be given in the form of list.
5. The patient will able to book an appointment with the relevant doctor using date and time.
6. List of symptoms which a patient will provide as a basic will include: Hemoglobin (HB), Body to Mass Index (BMI), Platelets, Blood Sugar (BS) and the Blood Pressure (BP).
7. Maximum number of patients who can book appointment with a specific doctor is 15.
8. Only empty date and time slots can be selected by a patient for the further treatment.
9. Doctor will have an option to view a graphical repot of types of diseases the patient came with.
10. Doctor will have an option to view a graphical repot of total appointments for each month.

Tools:
Python
SQL Server

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Hotel Management System

Project Domain / Category
Web Application

Abstract / Introduction

Suppose we have a hotel name "XYZ Hotel" and the hotel owner wants to shift the overall activities of hotel proceedings to a website. So, we need to build a website that contains a home page of the hotel. Through the home page, a user can check the prices of different rooms in the hotel. The user will have to become a registered user to book a room in the hotel and only available rooms will be displayed to the user.

The hotel management system will have a separate admin panel which will contain the functionality of managing the users, hotel employees, and the room prices of the Hotel.

Functional Requirements:

1. User login and sign up.
2. Admin login.
3. User should be able to select dates for room booking.
4. Only available rooms should be displayed to the user.
5. User should be able to book a room online.
6. Payment status of room booking should be displayed to the user.
7. Admin should be able to manage the Room prices.
8. Reports in the form of graphs regarding the Hotel e.g Total number of rooms booked monthly and number of vacant rooms should be displayed on admin dashboard.
9. Admin should be able to See and update the list of hotel Employees.
10. Admin should be able to modify the information of hotel employees.
11. Admin should be able to change the rooms booking or cancel the rooms booking.
12. Admin should be able to see the list of registered users.
13. Admin should be able to change the information of users.
14. Admin should be able to delete a hotel employee or user.

Tools and Technologies:

PhpStorm/Visual Studio code, Xampp, Laravel/Codeignitore (Framework), PHP , javascript

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Free Online Course Certification System

Project Domain / Category
Web Programming, Database

Abstract / Introduction
In online course certification system, users/students can get "**online certificate(s)**" of the available **course(s)**(offered by an academic platform) after the course(s) exam (MCQ's based).

All course details including the content like topics, sub topics, books, questions for exam will be uploaded and controlled by an "**Admin**" side. Any user/student can access the courses after a successful sign-up.

After sign-up, user **"reads the content"** of the course and then **"Take an exam"** of the respective course. If the user achieves the mentioned score, he/she can get a certificate of that course automatically in .**Pdf** format, otherwise he/she needs to take exam again.

Functional Requirements:

Admin Panel/Side:
1. Admin can login and logout on a separate panel.

2. Admin can enter course categories.

3. Admin can enter course details (basic info., course content, questions) categorically.

4. Admin can enter course content (topics/subtopics).

5. Admin can enter course questions of (beginner, medium, expert) level.

6. Admin can approve/reject a user/student registration.

7. Admin can reply a query on a support system with in the system.

8. Admin can view the courses attempted by the users.

User Panel/Side:

1. User can register himself.

2. User can login and logout on a separate panel.

3. User can read the content of the available course(s).

4. User can take exam of the respective course(s) by selecting the mode of exam (like beginner, medium and expert) type.

5. User can view the attempted courses like attempt history.

6. User can download the course certificate after completion.

7. User can put a query/ticket regarding a course to the admin.

8. User can update his/her account details except (registered email).

9. User can get additional certificate if completes all the course for the respective category.

Tools:

IDE: Visual Studio
Languages: C#
Front End: HTML, CSS, Java script, Bootstrap
Back End: Asp.Net C#
Web Application: Asp.Net **Web forms** Application
Database Server: Microsoft SQL Server (2012+ version)

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Household Online Services

Project Category:
Web Programming

Abstract/Introduction

Human living requires the facilitation through services like Plumbing, Electrical, Electronic, Mechanical, Pest Control, Home Paint, sweeper, gardener and Machine Repairing etc on regular basis.

In traditional way it can be done through a personal visit to location and person or through mobile call.

But now a days It is difficult for Client to find any service in emergency at any time and place like this. To make it possible at anytime and place we need to develop a website which will help client to find out solution for any problems related to household. Our website will provide a platform for all kind of household services at any time and place. This project facilitate the client that he/she don't have to visit to service provider's office/location, he/she can easily book his/her order for services via this application and he/she can also pay the payment online on website. It will also facilitate the client for online payment, map navigation and also advertisements and offers.

Functional Requirements:

Three users of the system will be Admin,Service Provider and Client .

Administrator:

Admin will be with maximum privileges to access the system. He/She keeps user login details, can manipulate data and do all the transactions.Furthermore

Admin can verify service provider and client.

Admin manages all the categories of service.

Admin can manage the payment from the client.

Admin can add the new advertisement.

Admin can send notification to the customer and service provider.

Admin can also comment to user.

Service Provider:

Service provider can do registration and get verified by administrator.

Verified service provider after login can view the services ordered by user of his/her category.

Service provider can send acknowledgement to the client.

Service provider can coordinate with client and take details of work and generate code of work for client through website.

Service provider can use the map for the service provision by finding his/her location.

Service provider can visit at the place of customer and verify the code with the client and then do his/her work.

Client:

Client can do registration as member or can enter as guest and book the service.
After login client search for the particular service and receiver the list of available services.
Client can select the service and request for the service.
Client can get acknowledgement as reply and get code which is unique for every user.
Client can do the online payment for services.
Client can give the feedback on the provided services.

Tools & Technologies (Only Mentioned)
 C#, JAVA, Database –MySQL

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Intelligent Date Sheet Generator

Project Domain / Category
Web Programming

Abstract / Introduction
Every academic institution deals with testing their students on regular basis through exams. Scheduling the exams of students within a decided period is a difficult task. Because there are lots of checks that need to be considered before the scheduling of exams like duration of each paper, start and end time constraints, courses in the same group and capacity of the examination hall. Intelligent date sheet generator is a web-based application that will take all the required parameters and generate a date sheet for the exams of students.

Functional Requirements:
Following are the functional requirements of intelligent date sheet generator (IDSG) application.
- ➢ Student's login to check own specialized date sheet.
- ➢ Teacher's login to check the date sheet of courses assigned to the teacher.
- ➢ Admin login which will be used to manage all the activities given below:
- ✓ Enter courses detail with the prerequisite courses list.
- ✓ Provide a list of students who need to be scheduled for exams.
- ✓ Provide the list of courses whose exams need to be conducted.
- ✓ Create groups of courses on the basis of prerequisite courses. The exams for courses in the same group cannot be scheduled on the same day.
- ✓ Select a range of days to select the start and end day of the exams through calendar.
- ✓ Decide the number of sessions per day.
- ✓ Decide the duration of each session and break time between each session.
- ✓ Generate a date sheet on the basis of provided parameters.
- ✓ Option to check the date sheet of a specific student searched through student ID.
- ✓ Option to check the schedule of a specific course, this schedule will provide the list of students who will appear in the exams of that course.
- ✓ Show the schedule of exams of a specific day.
- ✓ Show the schedule of exams of any selected date range.

Note: Students will provide detailed requirements in the SRS document.

Tools:
PHP, ASP.Net, MS SQL, MySQL

Supervisor:
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Job Recruitment Online

Project Domain/ Category

Web Application

Abstract / Introduction

The students are required to develop a web application for Job Recruitment Online. The job market in Pakistan is challenging these days for both recruiters and job seekers. There is need of a platform that facilitates organizations to find the best candidate with minimum expenditure. The job seekers also want to get job offers avoiding contacting organizations in the old fashion. Now the candidates will have the opportunity to get offers from a variety of organizations through a centralized system through Job Recruitment Online.

Functional Requirements:

Following is the list of functional requirements:

1. Job seekers, Recruiters, and Administrator are the three types of users.
2. Login for all users.
3. After login, job seekers will create their resume and indicate the job sector he/she is interested in. Following are the job sectors that should appear as a drop down menu:
   a. Accountancy, Banking and Finance
   b. Engineering and Manufacturing
   c. Agriculture
   d. Health
   e. Property and Construction
   f. Education
4. Job seekers will get updates from the relevant organizations if their resume appeals to them and will get the notifications in the dashboard.
5. The recruiters will put their requirements of vacant positions after logging in.
6. The relevant job sector must be selected followed by uploading the job responsibilities.
7. The web application will match the relevant job sectors and recruiters will be able to view the prospective candidates by getting the notifications in the dashboard.
8. The recruiters will then contact the potential candidates directly through their phone numbers.
9. The application will show the record of total applications posted by Job seekers and companies in the form of graph.
10. Another graphical report of successful job seekers and recruiters will be generated for each month.

Tools: Python and SQL Server Only.

Supervisor:

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Lahore City Steer

Project Domain / Category
Web Application

Abstract / Introduction
Lahore City Steer is a web based application which provides services like Emergency Services, Business Services, and Transport services etc. nearby you in Lahore City to a new traveler or people who are living in this city. In the previous existing tour guide systems, city information can be get by the users manually like city guides, roots maps and travel guides. The cities are increasing day by day, the infrastructure of cities is updating on daily basis, and modifications are not possible in these books and manual guides.

To search corresponding information of city through books and manuals is a tedious job. To overcome above issues, this web based application will help to find what you are looking for in a convenient way. City information is updated on daily basis by Admin. City information can be easy to remember and search. People can access information from this application 24x7 days. Users give feedback through emails to the management.

The application contains various service information of Lahore City like Emergency Services (Ambulance, hospital, fire and police services), Transport Services (Trains time tables, and city bus time schedule, local car driver info.), and Health Services (hospitals and private clinics) etc.
Each service is having the location details and contact numbers.

This web based application has 2 modules
- Admin
- User

Functional Requirements:

Admin:
1. Admin can login into system.

2. Admin can add/edit/delete services into system.

3. Admin can add/edit/delete information into various services area wise.

4. Admin can view list of users registered into the system.

5. Admin can view feedback sent by users.

User:
1. User can register into system

2. User can login into system.

3. User can view all the services of Lahore City.

4. User can view service information.

5. User can search services based on his requirements (like search hospital according to specialty or area wise).

6. User can send the feedback to the admin about the system.

Note: Add at least 5 services of Lahore city of your own choice.

Tools:
- HTML,CSS, JavaScript (Front-end)
- MYSQL (Backend)
- PHP (Server aspect programming)
- XAMP (Web Application Server)

Supervisor:
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Lahore Dhaaba Ordering System

Project Domain / Category
Web Application

Abstract / Introduction

Lahore Dhaaba Ordering System (LDOS) is a web based application through which people of Lahore can order Dhaaba food online using the internet. Now a day's readymade food is easily available but conventional homemade food and its taste is a different matter. In our busy schedule fresh and homemade food preparation is difficult in early mornings. But it is made possible by Lahore Dhaaba Ordering System (LDOS).

Lahore Dhaaba Ordering System (LDOS) can be easily accessible to the Lahories (customers) and saves their time. This system eliminates the use of ordering through phone that causes incessant load on the workers in taking and processing orders whereas online ordering automates this process. Customers can place order for dine-in/takeaway or select delivery option. In case of delivery, a rider will carry homemade food and deliver the same before our lunch time. This web application allows customers to directly order a food item from Dhaaba for their lunch online. Customers can select payment option such as cash payment, QR scan or COD (cash on delivery). This application will be beneficial for customers as well as for dhaaba businesses.

Functional Requirements:

The system will consist of following Modules:
- Customers
- Dhaaba
- Admin

For Customers:

Customers should be able to:
- Signup/sign-in
- Browse through different menus and deals along rates.
- Customize the list according to the following criteria:
    - All
    - Food category
    - Budget
    - Deals/ Discounts
    - Discount on Cards
    - Ratings
- Place the Order for Dine inn
- Place the Order for Takeaway (Collect/Get it delivered)
- Got an email notification on order.
- Track the Order
- Helpline/Call for Complain
- Report a Problem

For Dhaaba:

- Dhaaba will subscribe to create their profile
- Dhaaba will get a list of areas to select in which area they are operational.
- Dhaaba can create/edit/delete Category Page
- Dhaaba can create/edit/delete deals and discounts
- Dhaaba can create/edit/delete branch or restaurant
- Dhaaba can take/reject Order
- Dhaaba can generate/print payment receipt
- Dhaaba can communicate with customers through feedback/comments

For Admin:

Admin should be able to:
- Signup/sign-in
- View the admin dashboard
- Add new feature
- Manage accounts
- Track daily/weekly/monthly report

Tools:
PhpStorm, NetBeans, Sublime Text, Php, JavaScript, jQuery, CSS, bootstrap, MySQL

Supervisor:
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Loyalty Points Management System

Project Domain / Category
Web

Abstract / Introduction
Loyalty points are those points which you get on purchase of a specific amount. Later, you can use these points to get discount or other incentives. This is the way to attract the customers again to the shop anything. These loyalty points can be of two types like if you do purchase with cash, then the shop/brand will give you a card in which points are added and you can get discount on next purchase by swapping this card. Other is if you shop through online payment i.e., through credit card, then points will be added to your account and can be used on next purchase.

This project deals with the XYZ store (You can give any name to the store) which is an online shopping store of general products. This store gives loyalty points to its online customers, the customers can use these points on next online purchase from store to get discount.

Some of the important points for the system are as follows:

1. An interface of the store where products are displayed.
2. Loyalty point calculator: On total purchase add some points to the customer account which he/she can use on next purchase. For example, on purchase of 5000, add its 10% amount to their account.
3. Increase the percentage with the amount of total purchase.
4. On the basis of loyalty points customer will get discount on next purchase, but there are some conditions to use this like this discount will be applicable on current/newest items only.
5. You cannot use points to purchase the items which are out of season or on sale or already discounted items.
6. You can use these points on online purchase through credit card only.

Functional Requirements:

You have to work on following requirements of this system:

1. User registration is required in the system.
2. Login after successful registration, forget password option must be available.
3. Display all the products of the store category wise, i.e., products related to skin should be in category skin care, health related products should be in Health category. Similarly, make 4-5 categories of the products.
4. User can add the products in the cart and on successful placement of order he/she will get loyalty points according to their purchase.
5. Loyalty points must be mentioned with each product.
6. On next purchase, there must be an option to use earned loyalty points.
7. There must be an expiry date for loyalty points.
8. Customer can view the list of items on which the loyalty points are applicable.

9. Customer can view its points, its expiry date, remaining points after purchase in his/her profile.
10. Total amount of purchase and percentage according to its range must be available for customer.
11. Admin can have all control of the system like he/she can access the users' data.
12. Admin can view the items on which loyalty points are applicable and can manage these items/products.

Tools:
Python, SQLite

Note: You have to use only mentioned tools, so before selecting project make sure you have enough knowledge about mentioned tools. After that it will not be changed in any case.

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Meeting Scheduler

Project Domain/Category
Web Application

Introduction
In professional/official environment meetings are very important. Meetings help people feel included, trusted, and that they are important team members. At the same time it gives them the opportunity to contribute to the success of our companies. Meetings provide opportunities for our team members to contribute their ideas and also letting them know our expectations, needs and wants from them.

Meeting scheduling is a challenge for its organizer. Manual meeting coordination is more tedious. There are lot of things to do like contact the participants, ask them about their availability preferences, and inquire about their possible dates of availability. After these steps one could reach to possible date that could be acceptable for all participants. This is a real time challenge faced by the organizers in manual meeting scheduling process.

This proposal is being presented to address the challenges of manual meeting process. The goal of this proposal is to develop an automated meeting scheduler which could coordinate among the members digitally.

This is a web based application. Fundamental functional requirements of the application are given below:

Sign-up
Any user can Sign-up in the application. On successful registration email should be dispatched to the user on his/her email address. SMS confirmation will be an additional feature. Possible information attributes for the sign-up process could be username, email, password, timezone, earliest time, latest time, created at, updated at.

Sing in
There will be an interface for the users to sign-in the application. It means only authorized users will be able to use the application.

Meeting Schedule
Any user can initiate the meeting schedule process. By default the initiator is the host of the meeting. Host has the provision to invite the participants. There may be different meeting statuses like Proposed or Confirmed. Meeting may have various information attributes, some of those may be title, description, start_time, duration, status (proposed, confirmed), password, created_at, updated_at etc.

Host may propose different meeting dates with times and participants will be able to choose the possible date as per its availability preference. Host will finalize the date and fix the meeting at a particular date. Once it is fixed then every participant will give his/her feedback whether he/she attending the meeting or not.

Host may upload the meeting agenda with the meeting for meeting members. At the end of the meeting host may associate the minutes of the meeting.

These are very precise and fundamental requirements of the project. You may introduce more features and increase the scope of the project.

Tools & Technologies
You may choose any tool and technology for the development of this web application. You should make that choice in which you already have a hands on experience.

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MP3 Music World

Project Domain / Category
Web Application

Abstract / Introduction
Music plays an important role in the lives of people and can be mood changing. We can simultaneously work, shop, and listen to music. For expressing our feelings we can use the music as well. The purpose of this web application is to provide a platform where a user can easily find his/her desired track or music, can download it or can create a playlist according to his/her choice and can play it on the website.

Functional Requirements:

Admin
Admin will log in from the login panel.
Admin will add Music category.
Admin will add Artist.
Admin will add music according to the Artist.
Admin will manage the user account.
Admin can delete the user account.
Admin can Logout from the site.

Registered User
Registered user can search for the desired music by the song name or by artist   name.
Registered user can download the music.
Registered user can create a playlist.
Registered user can add more music to a playlist.
Registered user can remove the music from the playlist.

Un-Registered User
Un-Registered user will only be able to search for the music.
Un-Registered user will not be able to download the music.
Un-Registered user will not be able to create a playlist.

Tools
HTML, CSS, JavaScript, jQuery, Bootstrap (Front-end)
MYSQL (phpMyAdmin) Database
PHP (Server-side programming)
XAMPP — Web Application Server

Supervisor

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<div align="center">

Nilam Ghar
Online store to sale and purchase items

</div>

Project Domain / Category
Web Application

Introduction / Abstract

In the era of technology, it is trending to buy and sell things online where you have an open market place to choose and purchase items of your need in competitive pricing. So, Nilam Ghar is an online store to sale and purchase used and new items by customers / users.

Working / Functional Requirements

Registered Seller upload the item name along with item's pictures (maximum 4, minimum 1) that are available for sale along with short description, category of item, start price, condition, status (new / used), available stock, address and contact number. After uploading item, the advertisement is approved by web Administrator (admin). Admin can approve ads in two ways;
1 - approve all newly uploaded ads of specific seller
2 - approve pending ads one by one for all the uploaded items
After approval of advertisement by Admin, the ad will be published / visible on web.

Category of item for sale is of these major and sub types described below:

Mobiles
Tablets
Accessories
Mobile Phones
Others

Vehicles
Cars
Car Spare Parts
Bikes
Bike Spare Parts
Cycles
Cycle Spare Parts
Others

Home Appliances & Electronics
Computers & Accessories
TV & Radio
Cameras & Accessories
Home Appliances
Kitchen Appliances
AC & Coolers

Fridges & Freezers
Washing Machines & Dryers
Others

Furniture & Decoration Items
Sofa & Chairs
Beds & Wardrobes
Home Decoration
Tables & Dining
Garden & Outdoor
Painting & Mirrors
Rugs & Carpets
Curtains & Blinds
Office Furniture
Other Household Items

Books, Sports & Hobbies
Books & Magazines
Musical Instruments
Sports Equipment
Gym & Fitness
Others

Kids
Kids Furniture
Toys
Prams & Walkers
Swings & Slides
Kids Bikes
Kids Accessories
Others

You have to mention these types manually by entering it in Database / table once. There must be a privilege to enter / facilitate new categories in future.

A registered user can buy or sell items on the web store. So, when user logins to the web site, site asks about the role of user at the time of entering. There must be an option to switch user role at anytime of user login. For example, if a user selects a role of seller at the time of login, after entering few items for sale, he / she must have a privilege to shift role from seller to buyer without logged out. After changing the user role, content of website would be changed accordingly.

If a user is interested to buy an item at a time, user have to show interest to make contact number visible for query about the product. Then buyer have to press Add to Cart button to

process order. Name of buyer, credit card information and price of purchased item(s) is picked from database that was already entered by the user at the time of registration. User has to enter pin code to process order. Then the item is marked as sold and repository of item is maintained accordingly in database.

Seller can delete / update or add new items at any time. For deleted items, Record of previously sold items should remain in the respective table / database but those items will not be shown / available for sale after deletion of respective item. While updating an item, the seller is only allowed to update item's pictures, price and available stock.

If an item's repository is zero then the advertisement for that item must not be visible for sale to customers.

Now for admin reporting, we require two reports to display (PDF or HTML format)

1 -Active users on web store along with total items available for sale (items with zero repository are not included in this)

2 - Comprehensive report of Total revenue generated by users / sellers. For example, if admin wants to see the report of revenue generation by seller XYZ or all sellers, then the report must have

      A- Seller Name and Total revenue generated by the seller

      B- A complete tabular report (three columns) having seller name, generated revenue along with user registration date

Tools:

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

Supervisor:

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Olive Cultivation for Economic Development and Poverty Alleviation

Project Domain / Category

Web Programming

Abstract:

"**Olive Cultivation for Economic Development and Poverty Alleviation**" is a web application to facilitate the customers to search and get the required information about the olive promotional project proposed by Olive Creatives Company. It will provide sufficient information about current running project. The project is initiated on experimental basis to promote the cultivation of olive crop and the use of the olive oil for the alleviation of poverty and generation of employment opportunities for youth. Olive farms are indeed very profitable in the mid and long term. The application will display the types of products and customer can purchase the products online. The aim of this application is to get a current status reports, the total area covered and net production of olives in this project as well as profits ratio. So, it will benefit public as well as future investors to estimate the growth rate of these projects in Pakistan. The proposed system will be a great step to globally introduce the current project in much more efficient way.

Functional Requirements

Modules:

This web application will have following modules:

- Home Page
- Purchased Trees Record
- Planted Trees Record
- Area Covered
- Digitized Pictures
- Add Products To Carts
- Place Orders
- Profit Ratio Reports
- Annual Production Report
- Register Complaints
- About
- Contact
- FAQ

Customer Module:

- View/Search: The user can view/search the available products on without registration.
- The customers can add the products in shopping cart.
- The customers can place the orders of any product after registration.
- Users can search Province wise, District/City wise information.
- Registered customers can also give feedback about services provided.
- Registered customers can also register complaints about quality of products and services provided.
- Application will show complete history of the project with monthly/annual status reports.

Admin Module:

- Login for the main administrator.
- Add an Admin/ Login: The main administrator can add any other person as admin.
- Login authentication for the admins.
- Admin can add/remove categories of products or edit existing categories.
- Admin can insert, delete, view and update records.
- Logout

Tools:
Software Requirements:

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

Supervisor:
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Online Application for School Transport Management System

Project Domain / Category
Web Application

Abstract / Introduction
In this project, we will build a web based application named as "Online Application for School Transport Management System", in which the admin will provide the available transport type and the user can select appropriate transport according to his/her specifications for his/her children(s). The admin can generate the bill and the user can pay the bill.

Admin panel features:
1. The admin can login/logout.

2. The admin can add different transport types such as "bus, coaster, carry daba" etc.

3. The admin can add different information for each transport type, such as "Name of the transport", "route of the transport", "fee of the transport", and "total number of seats", "driver picture", "driver phone number", "pick and drop time", etc.

4. The admin can edit and delete any particular transport type.

5. The admin can approve the user request for a particular transport.

6. The admin will provide the available seats chart from which the user can select his/her own choice seat(s).

7. Once the user selects a seat, it will be automatically deducted from the available seats chart, so that any other user cannot select it.

8. The admin can generate the monthly bill for the user according to the selected transport type, route and number of seats. The generated bill must be visible to that particular user.

9. The admin can view the uploaded paid bills and verified.

10. The admin can manage the expenses and can generate different reports.

11. The admin can manage the earnings and can generate different reports.

User panel features:
1. The user can register.

2. The user can login/logout.

3. After the login, the user can view all the available transport type and transport details such as transport picture, driver picture, driver name, driver cell number, route, pick and drop time, charges etc.

4. The user can select a transport type based on their availability.

5. After the selection of transport type, the user will select a seat based on their availability from the seats chart.

6. After the selection of seat, the booking request should be sent to admin.

7. After the approval of admin, the particular transport type and seat number will be allocated to the user.

8. The user can view and download the monthly bill.

9. The user can upload the paid bill.

10. The user can generate the paid bills reports on monthly and yearly based.

Tools:
XAMPP Server, MySQL, PHP language
Supervisor:
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Online Bank Loan Application System

Project Domain / Category:
Web Application

Abstract / Introduction:

Online banking, also known as internet banking is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank to provide customers access to banking services in place of traditional branch banking. Online banking significantly reduces the banks' operating cost by reducing reliance on a branch network, and offers greater convenience to customers in time saving in coming to a branch and the convenience of being able to perform banking transactions even when branches are closed. Internet banking provides personal and corporate banking services offering features such as viewing account balances, obtaining statements, checking recent transactions, transferring money between accounts, applying loans and making payments.

  Getting loans is one of the tiring and complicated process through banks. It may take weeks even months for loans to get approved and people have to visit the loan office again and again for documents and verification. Here our proposed project automates the loan process from both, bankers as well as customer's side. It provides the ease to the customer with simple, easy-to-use online loan apps compatible with all the devices, you can conveniently get approval of a loan while sitting in your home. Often, even after getting your loan approved, the process of getting the loan amount transferred to you can take time and get complicated. But that is not the case with online loan apps that offer a direct transfer option of loan amount to customer's account. Customer can be sure that he/she get a reasonable interest rate, tenure, loan amount, and other benefits when take a loan with Online Loan App.

Functional Requirements:

Admin(Bank Side):
1. Bank must add various loans schemes provided along with rate of interest and required document.
2. Bank must also provide the rules and regulation for customers for applying loan.
3. Bank must also provide the basic inquiry form to be filled by customer for applying loan.
4. Bank must have proper check that only authorized customers can login viva their credentials.
5. Bank must keep the secrecy of customers information.
6. Bank must also apply proper checks for the approval/rejection of loan application on basis of rules.
7. Bank must inform customer about the status of their loan application via email and sms.
8. The bank system server also gets the person location and his image secretly by tracking the computer through which he submits documents to the bank server needed for bank verification.
9. The bank may now cross verify customer details and also request extra documents by sending online alerts to the customer email.

Customer(User Side):

1. Customer have to register with essential credentials.
2. Customer have to login with their credentials to access banking system.
3. Different loan schemes with respective categories(like house loan, car loan, financial Aids etc) must be viewable to Customer.
4. Customer will apply for loan.
5. Customers can track their loan status and update information/ documents accordingly via proper interface.

Note: More functional requirements can also be added by students, as per their understanding during development.

Tools:
Php, C#, Java, XML My SQL,WAMP Server(Student can use tool of their own choice too)

Supervisor:
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<h1 style="text-align:center"><u>Online Diet Plan Finder</u></h1>

Project Domain / Category
Web Programming

Abstract / Introduction

A healthy diet is essential for good health and nutrition. It protects you against many chronic noncommunicable diseases, such as heart disease, diabetes and cancer. Diet Plan is essential for different health related issues such as reducing weight, gaining weight, diabetes, blood pressure and cholesterol etc. Many people are looking for a best diet plan according to their health conditions but fail to find a perfect one.

This web application / web site will provide a number of diet plans provided by different verified nutritionists for different health conditions. A registered user can visit the web site, enter specific details, search diet plans for his / her health condition and select a best diet plan from the given result. The diet plans in search result will display only one meal for free. However for complete diet plan a registered user must purchase it if it is not free.

Functional Requirements:

This system will have four different users:

1. Administrator
2. Nutritionist
3. Registered User
4. Unregistered customer

• **Functionalities of Administrator**

    1. Add/Approve/reject user registration requests
    2. Add / update /delete /Approve/reject nutritionists
    3. Add / update /delete health conditions (weight loss, weight gain, high cholesterol etc.)

• **Functionalities of Nutritionist**

    1. Registration/login to the system
    2. Add/update contact details
    3. Upload and update profile, the profile must include Nutritionist's name, Nutritionist's Picture, Nutritionist's introduction, qualification, experience etc.
    4. Publish/update/delete diet plans for different health conditions with rates
    5. View and reply registered users' feedback
    6. View and reply registered users' messages
    7. View own diet plan ratings by customers

- **Functionalities of registered user**

1. Registration/login to the system
2. Add/update contact details
3. Search listed diet plans by different parameters such as (Health condition, Pricing, ratings, nutritionist's experience, etc.)
4. Purchase a diet plan
5. View only one meal plan for free
6. Send messages to nutritionists and view replies
7. Send messages to administrator and view replies
8. Give feedback to a diet plan after ordering and view replies
9. Rate a specific diet plan after ordering

- **Functionalities of Unregistered customer**

Search listed diet plans by different parameters such as (Health condition, Pricing, ratings, nutritionist's experience, etc.) but cannot view the details of any diet plan unless get registered.

- **Payment Method /Gateway**
You can use any third party payment gateway.

Tools:

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

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Online Hostel Mess Management

Project Domain / Category
Web Application

Abstract / Introduction
Hostel is a place where the people, working or studying out of station, live. They usually prefer purchasing meals instead of cooking. Online Hostel Mess Management, a web application comes with the idea to facilitate the people living in hostel and hostel mess staff. Mess manager can display the mess menu. Those who opt for mess, can place orders regarding meals. Users have to deposit money first at hostel mess counter to get mess services. User can order for meal after viewing menu. User can also give feedback against current order. System will generate reports for mess manager monthly and annually.

There will be three types of users of this application.
- Administrator
- Mess Manager
- Mess User

Functional Requirements:
Here is a list of functional requirements:
1. Administrator can manage the users of website.
2. Registered Mess Manager can display menu.
3. Registered Mess Manager can manage registered user's deposits.
4. Registered Mess Manager and registered mess user can check mess user's attendance.
5. Registered Mess Manager and registered user can check mess user's remaining amount.
6. Registered user can view menu.
7. Registered user can order meal.
8. Registered user can give feedback of the current order.
9. System will generate reports for mess manager monthly and annually.

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

Tools:
Microsoft Visual Studio, SQL Server, Asp.net;
Note: You are advised not to switch the tools. If you do so, you will handle the technical side yourself.

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Online Mobile Phone technician finder and Mobile Repairing

Project Domain / Category
Web Programming

Abstract / Introduction

Pakistan has a large number of Mobile Phone users and the number is still increasing rapidly. Many latest mobile phones / smart phones are very costly hence if a mobile phone got damaged due to some incidence then it is not feasible to replace it with a new phone and repair is mandatory. Repairing of latest smart phones is also costly due to high price of associated hardware component(s) and service charges for the repair. A highly technical and experienced mobile phone technician diagnoses the mobile phone issues correctly, selects right hardware component (if required) and always satisfies the customer.

Using this web application many technicians can offer there services and a mobile phone users can search for the best mobile phone technician on the basis of different parameters and request for repair service. Upon accepting the repair service request the technician will receive the mobile phone from customer premises and check the mobile phone. If the mobile phone can be repaired then technician will quote the charges using this application otherwise technician will send back the mobile phone and collect checking charges. If mobile phone is repairable and the customer accepts the quoted charges then technician will repair the mobile phone, send it back to the customer and collects the repair charges after customer thoroughly checks his/ her mobile phone. If customer rejects the quoted charges then technician will send the mobile phone back and collects checking charges from customer after customer thoroughly checks his/ her mobile phone. In case of any dispute the administrator can resolve the issue.

Functional Requirements:

There are mainly four users under this system.

1. Administrator
2. Mobile Phone Technician
3. Registered customer
4. Unregistered customer

1. Functionalities of Administrator

a) Approve / disapprove Mobile Phone technicians' registration request
b) Add, Edit, Delete and View customers
c) Add, Edit, Delete and View Mobile Phone repairing categories (Screen broken, signal problem, camera problem etc.)
d) Add, Edit, Delete and View Mobile Phone types
e) Add, Edit, Cancel and View mobile phone repair orders
f) Check mobile phone repair order status
g) View Mobile Phone technicians' rating
h) View and reply customers' messages.

2. Functionalities of Mobile Phone Technician

a) Register
b) Login
c) Add, edit, delete and view personal profile
d) Add, edit, delete and view repairing services provided by technician
e) Manage repairing service requests
f) Cancel repairing service requests
g) Update repairing service request status
h) View and reply customers' feedback
i) View and reply customers' messages
j) View ratings by a customer for a given service

3. Functionalities of Registered customer

a) Register
b) Login
c) Add, Edit, Delete and View contact details
d) Search and view Mobile Phone Technicians according to specific filters (Mobile Damage Type, Expected Service Charges, Technicians' location and rating etc.)
e) Request for Mobile repair service
f) Check service status
g) Send messages to Mobile Phone Technician and view replies
h) Send messages to administrator and view replies
i) Give feedback to Mobile Phone Technician after service status is completed and view replies
j) Rate a specific service after service status is completed

4. Functionalities of Unregistered customer

Search and view Mobile Phone Technicians according to specific filters (Mobile Damage Type, Expected Service Charges, Technicians' location and rating etc.)

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

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Online mobile shop

Project Domain:
Web Programming

Abstract:
This is an online mobile purchase shop that has listings of various mobiles along with their features (company, color and model) and price. This system allows the users to buy a new mobile by viewing inventory online. System allows a user to check various articles submitted by user and even comment on them. Credit card and cash on delivery payment facility is available. The visitor who visits the system must register himself by filling up personal details. After registration user can login to the system with his username and password in order to purchase a mobile. User can check various mobile's listing and can view each mobile feature. User may select a new mobile and can add it to the shopping cart. User can make payment through credit cards by clicking on credit card payment option. User must register himself for posting a review about the mobiles. This application is a combination of both sales and inventory management of the mobiles. User can easily purchase a mobile by using this system. User does not have to come to shop to purchase. User can view the mobile in effective Graphical User Interface. User can view features of each mobile and can compare with other mobiles in order to purchase a better one.

Functional Requirements:

Admin:

1. Login.
2. Approve user.
3. Add, remove and update mobile's company, models, colour and price.
4. System should generate reports for new sold mobiles (reports should be daily, weekly, monthly, yearly).
5. On the basis of reports admin can calculate gross profit for the month, half year and year.
6. Gross profit for the mobiles sold should be calculated by taking the difference in amount of retail price and sold price.
7. Database should be relational. You have to use primary keys and foreign keys to make database relational.

User:

1. Register using user register page.
2. User can buy a new mobile.
3. User can give review on the mobiles.
4. User can buy a new mobile using online portal and can add or remove to the cart.
5. After adding to the cart a user can use two modes of payments (cash on delivery and credit card) when checkouts.
6. User can search the mobiles by company, colour, price, and model on each page.

Tools:
Languages: C#, Asp.net, SQL, PHP, CSS, HTML, JavaScript.
Tools: Visual Studio, Dreamweaver or any other supported tool for above languages.
Database: Mysql, SQL Server, WampServer, Xampp.

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Online On Demand Fuel Delivery

Project Domain / Category
Web Application

Abstract / Introduction
The purpose of this project is to develop a website which will offer online delivery of fuel on demand. At some areas, the fuel stations are situated at very long distances. In such cases,   if a vehicle gets stopped on the road due to shortage of fuel, the owner of the vehicle have to manually drag his vehicle towards the nearest fuel station, then it will be very hard for him. This situation can become hard if the location is new for the vehicle owner.

The proposed system is to develop a website to deliver the fuel to those users who need to refuel vehicles at any location and time. In this website there will be three modules such as Admin, User and Fuel Station. Admin will approve the fuel stations registered in the website. Fuel Stations can register themselves to provide fuel delivery service to the users. Fuel Station will add its complete information such as its address , google map location, and the kind of fuel it provides.Users can search for fuel stations by their location , fuel station name and can book the fuel for their vehicles online.

Functional Requirements:

User Module
- ✓ Register
- ✓ Login
- ✓ Search Fuel Station
- ✓ Place order
- ✓ Make Payment
- ✓ Get Delivery

Fuel Station Module
- ✓ Register
- ✓ Login
- ✓ Create Fuel Station
- ✓ Update/Delete Fuel Station
- ✓ Receive order
- ✓ Approve Status

Admin Module
- ✓ Login
- ✓ Approve/Reject Fuel Station
- ✓ Approve/Reject Users

Tools:

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

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Online pet's care pharmacy and clinic

Project Domain / Category:

Web Programming

Abstract / Introduction

The purpose of this project is to build a website which provides information about pet's care . It will be like an e-pharmacy and e-clinic where anyone can get consultation about pet's health from doctors and can buy medicine online.

Web page should have different categories of pet's (cat, dog, birds, fish) and names of medicine with brands . On home page you can display information about your website and pets. Home page should have tabs like registration, login, pet's category, clinic, medicines and contact us. Any user can search and view medicine and doctors detail by applying different filters but only register users can make an doctors appointment and can select, add medicine to cart. At checkout time, more information will be needed to complete the transaction. Usually, the users will be asked to fill the basic details or select a billing address, a shipping address, and payment option such as debit/credit card information or cash on delivery.

As our website also provides facility for online consultation about pet's care and medication, For this purpose veterinary doctors can get registration. A Doctor can recommend medicine , Users can also make an appointment for physical visit.

Functional Requirements:

User panel:
➢ Any User can search view medicine by applying filters (name, price, brand name etc).
➢ He/she should get registration to make an doctor's appointment or place an online order for medicine.
➢ He/she should be able to select and add medicine to cart and place order.
➢ He/she should be able to select payment method.
➢ The user should fill a form by providing his /her name, contact number, postal address, city, delivery and payment method (cash on delivery/online by using credit/debit card) at checkout.
➢ He/she should be able to make an online doctor's appointment or send messages and view Doctor's answers about pet's health.
➢ Only users who have taken doctor's appointment can post messages.
➢ He/she should also be able to view other's messages and Doctor's answers.
➢ He/she should be able to add reviews and feedback about medicine, doctor and website.

Doctor penal:
➢ He/She should get registration.
➢ He/She can confirm/ reject appointments according to their availability .
➢ He/She can view user's messages and can answer messages.
➢ He/She can view physical visit's appointment requests and respond to request according to their availability.

Admin panel:

- ➢ Admin have access to monitor everything on the website.
- ➢ He/ She can add, view and update medicine information.
- ➢ He/ She can create, view and update pet's categories.
- ➢ He/ She can add payment method.
- ➢ He/ She can add Doctors and can view doctors information.
- ➢ He/ She can can view user's reviews and feedback.
- ➢ He/ She can generate profit and loss reports.
- ➢ He/ She can generate medicine's sale report.

Tools:

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

Supervisor:

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Online Portal for Hospital Out Patient Department (OPD)

Project Domain / Category
Web Application

Abstract / Introduction
Hospital Out Patient Department (OPD) is a key department of Hospital Management System, where outdoor patients are registered, examined and treated on daily basis. There are huge number of patients in Out Patient Department (OPD) related to different departments that are required to be managed by hospital's administration on daily basis

Hospital OPD Portal is a web portal, which can be used to convert the manual OPD system in hospitals into online system. All the manual processes including reservation, doctor's assignment, room assignments, record keeping and payment system are shifted to the portal. Therefore, this system is designed to facilitate public on one side and reduce efforts, cost, and energy of human resource at hospital level on other side.

Administrators can create/edit departments, add doctors to departments, assign rooms to doctors, check payment status, check online reservations, update patients' registrations, update the information depending on the availability of the doctors. While users can search the concerned departments and doctors, pay online, and reserve their appointment on the specified day.

This project is a smart online appointment system that provides patients an easy way of reserving an OPD appointment online. This is a web-based application that overcomes the issues of managing and booking appointments according to patient's choices or demands. The system provides an additional feature of online payment, which will be compulsory for every patient.

Functional Requirements:

- **Administrator Login**: An authorized admin can login to the system to
    o Add the departments
    o Add doctors to the concerned department
    o Assign rooms to doctors
    o View/update department, rooms, doctor's assignments
    o View the Patients Queue
    o View/update patient's registration
    o View real time updated status of patients
    o View/update daily transactions
    o Search a particular record of patients, doctors, departments etc.
    o Generate various reports
- **User Login**
    o After sign in to the system, the user can
    o view the appointment page
    o search department of his/her choice
    o select doctor of choice
    o make payments online

- o make online request for appointment
- o receive detail of appointments

- **Doctor Login:**
    - o A doctor can login to the system
    - o can view his/her status
    - o can view the assigned room on particular date
    - o can view the list of patients to be examined
    - o can view the detail of examined patients
    - o can view the list of un-examined patients

Tools:

Front-end:
- ➢ HTML
- ➢ CSS
- ➢ JavaScript
- ➢ PHP

Back-end:
- ➢ MySQL

Supervisor:

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Online Repairing Services

Project Domain / Category
Web application

Abstract / Introduction
Maintenance is the process of keeping something in proper condition by taking care of up keeping to avoid the breaking down or bringing something to properly working condition. Repairing is an activity that involves finding and fixing that may be faced by us every now and then while performing maintenance. Repairing is a tiring process of diagnostics and resolution of problems that may occur during the maintenance. In today's busy life it is very difficult to find certified professional mechanics for this purpose. This application will help users to find the overall maintenance categories such as janitorial services, security services, plumbing services, electrical services, air condition repairing services, water damage repairing, painting services, finding masons, car repairing services etc. This application will help users to find and perform repairs online via professional people.

Functional Requirements:
1. Users will be able to create an account by signing up a form.
2. The form will consist of basic information such as name, address, phone# and email address for future reference.
3. Administrator will create different categories that may be available to the users such as janitorial services, security services, plumbing services, electrical services, Air condition repairing services, water damage repairing, Painting services, finding masons, Car repairing services etc.
4. Administrator will be able to enter details of each categories.
5. For each category administrator will create profiles of the repairing personal available.
6. The profile will contain complete details about the offered services, previous experience and contact details.
7. User will be able to view different categories.
8. User will be able to view different professional available for maintenance along with their details.
9. User will be able to check the free available slots for appointments.
10. Users will be able to book an appointment.
11. While booking user will provide the nature of repair and their preferred maintenance personal for the job.
12. Upon booking, a request will be sent to the concerned maintenance personal.
13. Users will be able to check a rough estimate of the repairs.
14. Users will be able to pay online.
15. Users will be able to write a review regarding the quality of services provided.
16. Maintenance personals will be able to view requested appointments.
17. Maintenance personals will be able to confirm an appointment.

Tools:
PHP, MySQL, Xammp, Notepad++.

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Online Student Counseling System (SCS)

Project Domain / Category
Web programming

Abstract / Introduction
Counselling is the process that comprises of various kinds of events such as guiding students towards colleges and universities, extending back up support for course registration, providing adequate guidance in acquiring the information related to respective college registration process. The proposed online Student Counseling System (SCS) will be used to improve the facilities related to counselling process in spite of many other virtual counselling schemes are existing these days. The proposed system will assist the students in getting essential help about the educational procedures for universities and colleges after getting educational, family background etc. This online personal counseling system gives support to universities and colleges through which they can eliminate the paper usage for counseling and guiding the students towards their university courses.

Functional Requirements:
The system will be implemented through three key modules, which are Admin, Counsellor and Student (User). All these modules should be integrated among each other. The design of said system should be based on simplicity and user friendly.

1. Admin has personalized login Id and Password.
2. Admin may induct a fresh counsellor with its customized details and create login id and password.
3. Admin can add new questions by emphasis various options and their suitable response.
4. Admin can view and analyse about the user information.
5. System allows admin to view/edit/delete a query.
6. Counsellor can login through admin provided login ID and Password.
7. User will create a new profile including, Personal Biodata, educational background and family history etc.
8. Counsellor can review the user's profile, educational background and family history etc.
9. Counsellor can give his feedback to the admin regarding the working of system.
10. Student can access the system by providing valid credentials access modules such as viewing their own profile.
11. Student will communicate with the counsellor through an interface like chat by which he/she can put further questions.
12. Counsellor will answer those questions and will guide further about future.
13. User can login his account using id and password.
14. Counsellor can view their own profile and edit/update their details like contact no., email id and age.
15. User can change their current password with new one whenever required.

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

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Online Bus Reservation and Ticketing System

Project Domain / Category
Web Application

Abstract/Introduction
This project (Online Bus Reservation and Ticketing System) plans to enable passengers or travelers to reserve/book their seats by making online reservations. As we know that the world is turning or going to be a global village with almost each and every aspect of human effort is getting computerized. This system is thinking to make available their seat reservation online.

This project intends to design and implement an online reservation system to overcome the inconveniences related to manual system. Here we will mainly design a computer program

- That will replace the already existing manual system.
- Enable passenger's to make their seat reservation easily.

Functional Requirements:
1. **Admin Panel can perform the following activities.**
   - Can login/logout
   - Add/delete/update schedule
   - Change sear/ fair
   - Reject/cancel traveler's requests
2. **Passenger/traveler's panel.**
   The passenger/traveller can
   - Register
   - Login/Logout
   - Search available seats with dates and time
   - Reserve seat(s)
   - Cancel request for seat
   - Edit/update reservation of seat(s)
   - Check fair

System Requirements:
- Minimum 350MB Hard Disk space for installation.
- 4GB HD space required for a typical live system with 1000-2000 events.
- Recommended minimum CPU - Pentium 4, 3.2GHz.
- Network card.

Tools:

The implementation of this computerized system will be carried out using
- Php & MySQL.

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Online Retail Management System

Project Domain / Category

Web Application

Abstract/Introduction

It is a web-based Retail Management System for XYZ Shop. 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 login first, to use the system.

- Purchaser
- Seller
- Auditor
- Admin

Responsibilities and functions of each user are given below:

Purchaser:

1. There is only one purchaser in the system which can purchase different product items from any wholesaler within the area. The purchaser can buy one or more product items from one wholesaler.
2. Purchaser can access and browse the system and buy product items from the list (shows in the system).
3. The information which a purchaser can access include 3 non-editable and 6 editable contents:
    a. Non-Editable
        - Product ID
        - Product Name
        - Shelf No (Where it will be placed)

    b. Editable
        - Purchase Product Quantity
        - Purchase Product Price
        - Purchase Total Price(Calculated automatically)
        - Wholesaler name
        - Wholesaler Phone no
        - Wholesaler Address

Seller:

1. Seller is responsible to manage the records of sold products. There may be many sellers in the systems. The seller can sell one or more products to one buyer.
2. The information a seller can access include 3 editable and 4 non-editable contents:

   c. Editable
      - Product ID
      - Product Name
      - Shelf No (Where it was placed)

   d. Non-Editable
      - Seller ID
      - Sale Product Quantity
      - Sale Product Price
      - Sale Product Total (Calculated automatically)

Auditor:

1. There is only one auditor.
2. The system which an auditor can access include 13 non-editable contents:

   - Product ID
   - Product Name
   - Shelf No (Where it will be placed)
   - Purchase Product Quantity
   - Purchase Product Price
   - Purchase Total Price(Calculated automatically)
   - Wholesaler name
   - Wholesaler Phone no
   - Wholesaler Address
   - Seller ID
   - Sale Product Quantity
   - Sale Product Price
   - Sale Product Total (Calculated automatically)

Admin:

1. Admin is the power user and has the rights of each user. He can add/remove the Purchaser, Seller and Auditor.

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

Supervisor:

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Online Review Builder

Project Domain / Category

Web Application

Abstract / Introduction

Online reviews are a great way to engage your audience and get feedback from them. Online review can be conducted in any number of ways including

- To get product feedback
- To conduct market analysis
- To get customer service feedback
- Get employee satisfaction

The purpose of this project is to develop a Review Builder that can generate different kinds of review forms for different domains and industries. The generated review forms could be available to the internet users on web. Both graphical and text reports are required to show the reviews being conducted so that results can be used in the future for business purposes.

Functional Requirements:

1. Online review builder will have users i.e Admin, Reviewee (Feedback taker) and Reviewer (feedback Giver).
2. Reviewee and reviewer will be able to register first by Signing Up. Admin will be able to handle the registration of the Reviewee and reviewers to conduct the reviews.
3. The proposed project will be able to register the reviewee and reviewer
4. Reviewee will be able to create review from the different domains and industries by giving basic information i.e Organization name, address, Phone number etc.
5. Reviewer will be able to open the review form to fill it.
6. Each review form will further consist of different type of questions and each question has its own type e.g. there can be multiple choice questions, Questions having true/false answers and so on and short answer types.
7. The system will be able to generate both graphical and text reports.

Tools:

Python (Preferred One), PHP, MySQL, HTML, CSS, Bootstrap etc.

Supervisor:

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Online Seating Plan Organizer for an Examination

Project Domain / Category
Web Application

Abstract / Introduction
To conduct an examination, one of the main concerns is SEATING PLAN, it means how the students should be seated in a designated space. Normally during exam days, students of different grades are taking exams on the same days. It is a common practice to mix different grade students in such a way that students having (same grade and same subject) should not be sitting next to each other. This is done in order to avoid the use of unfair means among the students.

To perform this task manually, it's a kind of hectic job especially when the number of participants are large. The purpose of this application is to do this task swiftly and on the spot taking into consideration the existing circumstances and existing equipment. Following are some abstract level functional requirements. Student will provide detailed requirements in software requirement specification document.

Functional Requirements:
Our required application should provide following functional requirements.

1.   Application should be an online system which can be accessed from anywhere, means, doesn't have to be installed first to use it.
2.   This application should have two major modules, admin and seating plan organizer.
3.   The user will give the number of seats available in the designated area, the number of students along with each student's id, name, grade and his subject. The number of rows and columns in that area should also be entered.
4.   The application should save this data in the backend database for further or in future use.
5.   The application should generate a seating plan in which no two students of same grade and subject should be sitting next to each other, means:
➢   If a student A has the first seat in a row, then the seats on his LEFT, RIGHT and BACK shouldn't be occupied by the same grade and same subject student.
➢   And if a student A is sitting somewhere else in a row then the seats on his LEFT, RIGHT, FRONT and BACK shouldn't be occupied by the same grade and same subject student.
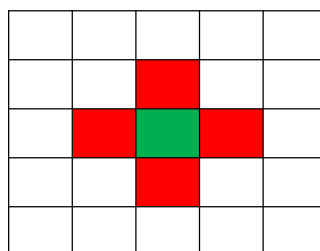
[e.g. the green one is the participant so the participants sitting in red boxes must meet the required criteria i.e. no one should be of the same grade and same subject.]

6.   The admin module will take care the users login to the application and to the database in order to resolve any issues related to the database.

7.   The generated seating plan should be displayed on the screen and should also be printed.

8.   If in some peculiar situations, some manual changes need to be made, the application should allow this too.

Tools:

PHP

MySQL

Use of any framework is not allowed.

Supervisor:

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Online Skin Care Store and Consultation

Project Domain / Category

Web Application

Abstract / Introduction

The purpose of this project is to develop a website to facilitate common users. It will be like an e-store where users can buy their required products online and can get consultation. Users can get their products and suggestions well on time. It will be a great opportunity for the sellers to increase their products sale. The website should have different categories of skin care products like masks, treatments, moistures, lotions, face wash, shampoo, body wash, eye care, lips balm, sunscreen etc. under each category all related option (types of moistures, names and types of lotions and shampoo with brands names, types and names of facewash, body wash, types of masks, types and names of treatments and types of sunscreens) should be available. A user should be able to search and view the products by applying different filters but only registered user can buy products, after selecting product he/she will be able to place an online order. At checkout time, more information will be needed to complete the order. Usually, the customer will be asked to fill the basic details or select a billing address, a shipping address, and payment option such as debit/credit card information or cash on delivery.

This website will also provide facility for online consultation related to skin care products. For this purpose, experts can get registered. An expert (consultant) can recommend any skin care products to the user as per their requirements.

Users of this website will be:

- ➢ Individual user
- ➢ Consultant
- ➢ Admin

Functional Requirements:

User panel:
1. Any user can search / view products by applying filters (name, price, brand name etc).
2. He/she should get registered to place an order.
3. He/she should be able to select and add product to cart.
4. He/she should be able to select payment method.
5. The user will have to fill a form by providing his /her name, contact number, postal address, city, delivery and payment method (cash on delivery/online by using credit/debit card) at checkout.
6. He/she should be able to send messages to consultants and can view consultant's answers
7. He/she should also be able to view other's messages and consultant's answers.
8. He/she should be able to add review and feedback about product and website.
9. The user can login and logout.

Consultant Panel:
1. Consultant should get registration for consultation.

2. Consultant can view user's messages and can answer messages.

Admin panel:
1. Admin can view orders.
2. Admin can view reviews or feedback.
3. Admin can block any user.
4. Admin can add/remove categories or edit existing categories.
5. Admin can add view and delete different products.
6. Admin will be able to generate reports such as sales reports, profit & loss reports on a monthly basis.
7. Admin can add consultant and can view consultant information.
8. Admin can add payment method.
9. Admin will have access to monitor everything on the website.

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

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ONLINE SWEETS SPOT

Project Domain / Category
Web Application

Abstract / Introduction
The aim of this project is to develop an interactive website that facilitates the customers with the one-click functionality to order sweets for any occasion with different categories like Arabian Sweets, Pakistani Sweets, Turkish Sweets etc. make your own sweet basket etc. and customers can buy them at any time. The aim of this application is to reduce the efforts required to the customer to physically visit the Sweets shop to purchase the sweets/ sweets gifts to reduce the manual efforts required for the Store Administration to manage the transactions. The application will also help the administrator in maintaining and updating sweet purchases record.

Existing System
In conventional shops/stores, the customers have to physically visit the store and all the orders are taken manually. The stock is maintained on paper that takes more time and it also demands more human resources.

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

Number of Modules:

1. **Login/Registration Module**: In this module, the administrator or the customer will have to authorize his/her access to the modules of this online system.

2. **Sweets Categories Module:** In this module each and every operation related to the Sweets category and Sweets item quantity such as adding new Sweets item category/quantity, editing the existing Sweets item category/quantity, deleting Sweets item category/quantity, getting the lists of Sweets item category/quantity and reports of Sweets item category/quantity will be managed by the Administrator. Sweets items will be arranged and can be viewed in categories. i.e.
Pakistani Sweets/Arabian Sweets etc.

- Pakistani Sweets gifts for Karachi, Pakistani Sweets gifts for Lahore, Pakistani Sweets gifts for Rawalpindi and Pakistani Sweets gifts for all major cities etc.
3. **Personalized Sweets Gifts Basket**
    - Make your own sweets basket from different available sweets items.

Visit this link for Sweets categories options

https://www.fazalsweets.com/shop/

4. **Customer Module**: This module helps the customer, to create Account, Sign-in Search sweets category, Select sweets category/quantity, Buy sweets, Continue Shopping, View/Edit Cart, Checkout, Obtain Bill Information, Confirm order, and Delete Order etc.
5. **Admin Module**: In this module, interfaces for adding sweets items, adding category/quantity, modifying sweets items category/quantity, deleting sweets items category/quantity, Sale Record, Database's data Report, transactions history are included.

Functional Requirements:

1. A Login and registration facility for enabling access to system both for customers and Admin.
2. The customer can view/search the sweets categories without logging into the system or getting him/her registered.
3. To buy sweets, user should follow the registration and login process. Payment will be made through debit/credit card or cash on delivery.
4. Administrator will maintain the system through admin panel which consists of order bills, order Status add/update/delete the product details in the catalogue.

Tools:

Software Requirements:

- Operating System: Window 7 and above
- HTML, AJAX, JavaScript, CSS (Front-end)
- MYSQL (Backend)
- PHP (Server side programming)
- XAMPP-------Web Application Server

Supervisor:

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Online Task Management System

Project Domain / Category
Web based Application

Abstract / Introduction
The main objective of this project is to provide a paperless environment for office-based employees and employers. Employees working in a team have number of tasks on a daily basis like project activities, HR tasks, invoice generation, social media posts and so on. It is very difficult to manage all talks by using pen and paper or even by using excel sheets. This project offers such efficient environment that helps staff member has less contact with paper work. The project will help to get rid of the hassle of managing and maintaining physical files. This system will help team members to keep track the project tasks, their deadlines, track progress as well as manage the team in effective way. This system will dedicate a specific space to assign tasks, manage schedules, monitor progress. It will help in tracking the tasks and sub-tasks more efficiently, so managers will be able to meet the deadlines and targets. It will improve the managing capabilities of tasks for in-office as well as virtual teams and also boost up team collaboration capabilities. This system will have dedicated space to each task enables team member to share relevant information and work on thing together. Every employee assigned to specific task has complete access on that space and nobody left out ignorant. Team members can share their ideas, feedback and more information for effective collaboration over task so work will be done quickly. One more benefit of the system is to prioritize the tasks according to their importance. It will easily track the performance of all the employees. There is no need to call the employees on regular basis and ask for completion of their tasks.

Functional Requirements:
- The system shall allow users to login with their credential.
- The system should work with three interface one for employees, one for managers and other for administration.
- The system must notify the users if manager assign new task to them, via email.
- The system shall able to notify assignee if any information is added on their assigned tasks.
- The system shall notify the user/manager about completion of task.
- Closing of task by managers should also be notified to all assignees of the task(s).
- System shall able to send notification to all employees if anything added on notice board.

User (Employee) Panel Features
- The user shall able to check their assigned task on daily bases.
- The user shall able to write some feedback or additional information against each task.
- The user shall add/upload file in world, PPT, PDF any image and video format against each task.
- The user shall able to notify after completion task by clicking on completed button.
- The user shall able to add progress against task(s) on daily basis like in %.
- User must able to add required information on notice boards.

User (Manager) Panel Features
- The user/manager shall add new task(s).
- The user/manager shall pause the existing task(s).
- The user/manager shall close the completed task(s).

- The user/manager shall assign a user/employee or multiple users/employees to task(s).
- The user/manager shall check progress of on-going task(s).
- The user/manager shall add deadline against each task.
- The user shall prioritize tasks by giving numbers from 1 to 5.
- The user/manager shall able to change the deadline of task(s).
- User must able to add required information on notice boards.

Admin Panel Features

- The system shall able to keep record of all user' information by using administrative interface, like employee name, employee id, employee designation (employee or manager for accessing relevant interface).

Database Features

- The system must store all files of task completion uploaded by users.
- The system must have space for notice board to announcing daily news or notices.

Tools:

Java, PHP or any relevant tool used for developing web application

Supervisor:

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Project Domain / Category
Web Application
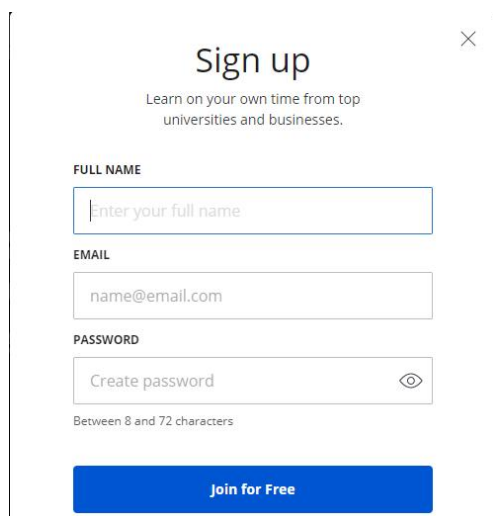
Abstract / Introduction
In online education system like VU, students are not well aware of advanced frame works (Asp.Net, Visual studio etc.) or languages(C#, C++, Java, PHP etc.) to build their projects or assignments. Also they cannot afford costly training programs offered by private training institutes. So, it was decided to build an online training academy for computer science and information technology students to offer training of advanced languages and frameworks and assist students to build their projects by helping them online.

Functional Requirements:
As a template website " https://www.coursera.org/" is referred. Some of its features are offered here to build in this project.

9. **Registration:**
   User will register on website. User will register on website using following type of information.

10. **Login:**
    User will login to website using following type of login information.

Welcome back

EMAIL

name@email.com

PASSWORD

Enter your password

Forgot password?

Login

11. Check following image for how should be Home page of website.

"Home" tab:
There must be a "Home" tab showing current available courses. Check following link for sample page.
https://www.coursera.org/home

coursera   Explore ▾   What do you want to learn?   🔍   neelam

Home   In Progress   Completed

Get Started with These Free Courses

Learn to Program: The Fundamentals	Code Yourself! An Introduction to Programming	Computer Science: Programming with a Purpose	Problem Solving, Python Programming, and Video Games
University of Toronto	The University of Edinburgh	Princeton University	University of Alberta
COURSE	COURSE	COURSE	COURSE

"In progress" tab:
In progress tab to show continued projects of that specific user who is logged in. Check following link for sample page.
https://www.coursera.org/in-progress
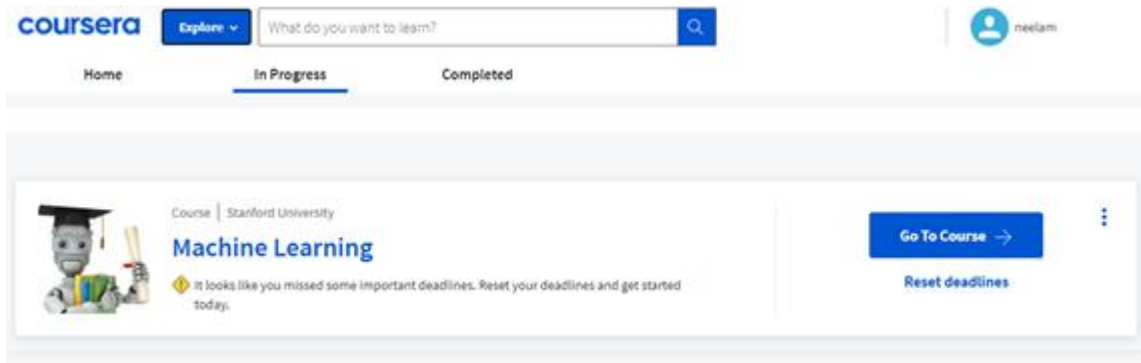
"Completed" tab:

Completed tab showing the entire courses user has completed. Check following link for sample page.

https://www.coursera.org/completed
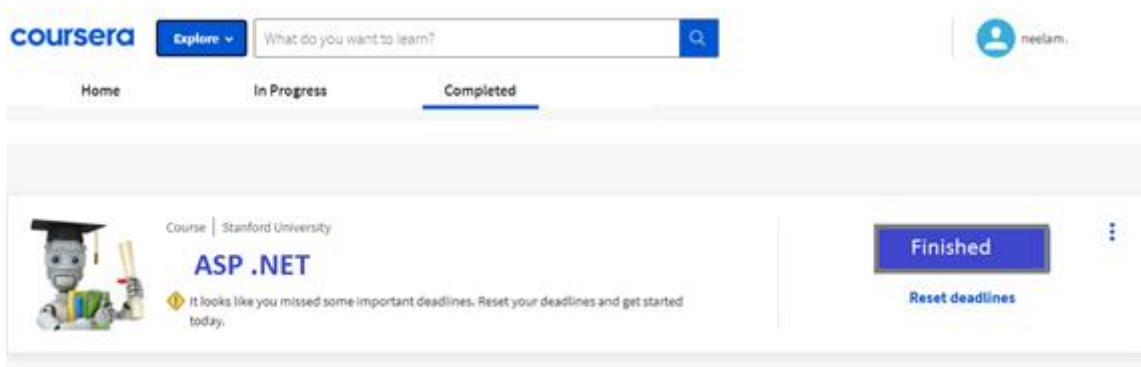
12. When user click on the new course in Home tab, it should go to next page having detail of that course along with **"Enrolment"** button. Visit following link for tabs available on course page. You are required to create only About, Instructor, Syllabus and Review tabs according to following sample links.

https://www.coursera.org/learn/learn-to-program#about
https://www.coursera.org/learn/learn-to-program#instructors
https://www.coursera.org/learn/learn-to-program#syllabus
https://www.coursera.org/learn/learn-to-program#reviews

When user click on Enrollment button, there must open a new page for enrolment of user. Check following sample page.

Click on Continue button, there will be a new page having all related study material of selected course.

Check following link for sample page.

When user clicks on Get Started button, it should go to next page for lecture video of week 1and handouts or reading material.

Check following link for sample page.

When user go back to home page of course, Enrollment button must toggle to "Go To Course" button, by clicking on it you will go to week 1 page of your course.

13. Admin:

On admin side, admin will manage course's status and add, update, delete video and reading materials from web pages. Update status of new courses, In progress and completed courses.
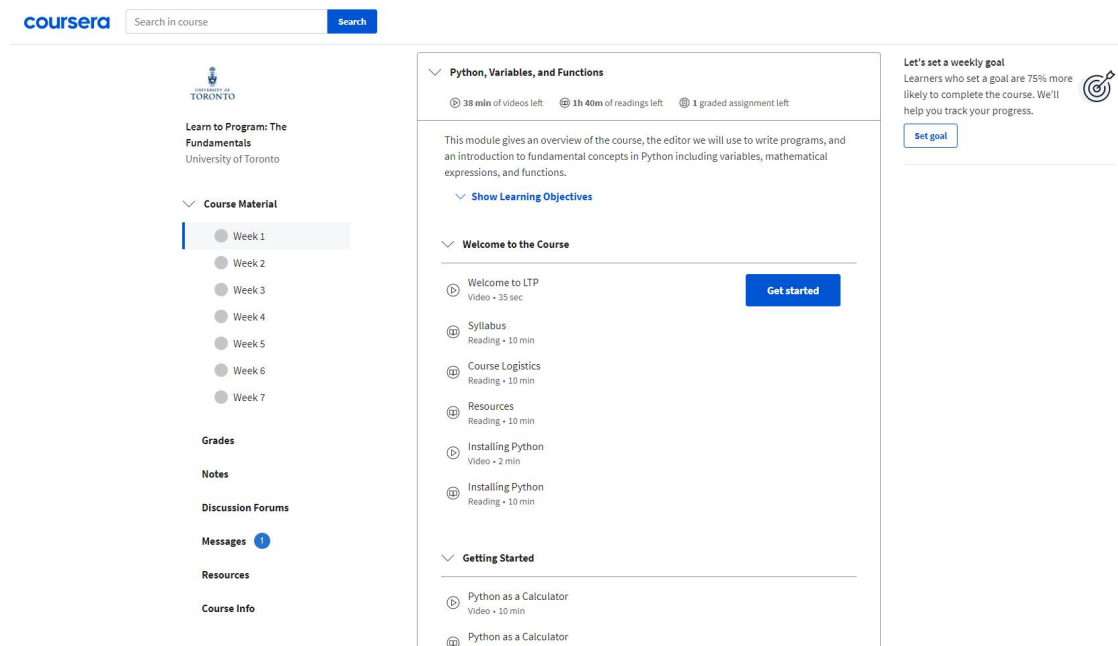
Tools:

Asp.Net frame work
C# language,
HMTL, CSS and any styling tools
SQL Server

Supervisor:

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PetMania.com

Project Domain / Category
Web Application

Abstract / Introduction
"PetMania.com" provides an online platform to buy, sell or adopt a huge variety of pets. It will make buying and selling process of pets easier. People can post their pets information on this website for sale or for adaptation purpose. Pets adaptation will be offered free of cost. They can also search information of pets which are available for sale or for adaptation. This website also provides Veterinarian facility for the pets. It will also provide training facility for better care of pets. These training sessions can be paid or free of cost depending on nature of training. People can also read different articles and educational videos regarding pet care on this platform.

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

1. There should be registration and login modules for Admin, Veterinarian, Pets Owners (seller), and buyer.

2. There should also be "Home", "About Us", "Terms and Conditions" and "Contact Us" pages.

3. Admin will maintain record of all Pets to be sold or adopt, Veterinarian, buyer and seller etc.

4. Add different categories/names of Pets such as Cat, Dog, Rabbit, Fish, Parrot, Horse etc., City, and Gender.

5. There should be an interface to add pets' information and pets should be searched based on options sale or adopt, by name, by city or by gender.

6. Along with each pet, add information of seller.

7. Pets will be delivered to buyer at doorstep. So, buyer can pay either online or via cash on delivery option.

8. In case of online payment, patients have to pay online via credit/debit card option.

9. The application should allow people searching for registered veterinarian if their pet is ill. They can book appointment online. Service type such as online consultation, home service or clinic based can be offered.

10. In case of online consultation, patients have to pay online via credit/debit card option.

11. Maintain record of each appointment. Maintain record of each session to better monitor pet health progress.

12. Make and manage training module, and add different articles and educational videos regarding pet care.

13. The application should provide interface through which buyer and seller can provide their feedback, suggestions and complaints.

14. The application should be able to store information of all reviews/feedback, suggestions and complaints etc.

15. There should be Admin module for whole application management.

Tools:
PHP, Microsoft Visual Studio (C#.Net), SQL Server

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Portfolio Creator

Project Domain / Category
Web Application

Abstract / Introduction
People and companies create their portfolios using different tools and platforms. These portfolios are of different style and structure. Companies who want to hire an employee can have difficulty in finding a potential employee because of different portfolio formats. This web application will help in maintaining a uniformity in portfolios.

This web application will have two types of accounts:
1. Company account
2. Personal account

From **personal account** user after signing up can add, update and delete his/her portfolio. He/she can view other's portfolios (Company/Personal). Such account is called as user login account.

For **company account** only company's HR manager can make account after verification of his/her designation. Such type of account is admin account. From this account a company can make its portfolio.

Functional Requirements:
Secure Login/Logout
It is a website that have following views:
- ✓ View without login
- ✓ User login view
- ✓ Admin login view

Dashboard(display the portfolio)
- ✓ Name
- ✓ Image
- ✓ Designation
- ✓ Company name
- ✓ Experience Table
- ✓ Education
- ✓ Certification

Manage Admin Portfolio
- ✓ Admin can add, delete and update.
- ✓ Verification as admin.
- ✓ Admin can view other's portfolios
- ✓ Admin add services/products.
- ✓ Admin can create departments.
- ✓ Admin can add Office address.
- ✓ Admin can add/delete employees to those departments
- ✓ Must link with its employees personal accounts and show them in a proper section
- ✓ Admin account can add illiterate employees account only.

Manage User Portfolio
- ✓ User can add, delete and update.
- ✓ User can search other portfolios to see.

Link Portfolios:
- ✓ Only Admin can link personal accounts
- ✓ To show them as there employee

Create Responsive Web Page:
- ✓ The web page should automatically adjust to different screen sizes and view ports that look good on all type of devices.

Tools:
- ✓ HTML, CSS, Javascript, jQuery or AngularJS As front end programming language
- ✓ Php,MySQL as backend database
- ✓ Notepad or Notepad ++
- ✓ Microsoft Project
- ✓ Microsoft Visio
- ✓ Microsoft PowerPoint
- ✓ Microsoft Word

NOTE:
Any other suitable tool and language can be used for web development and data base.

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Property Expo

Project Domain
Web Application

Abstract
Business industry is at boom now a days throughout the world. Local market of Pakistan is also emerging in every aspect. The real estate industry of Pakistan is at its peak in these days. Buying and selling of houses and plots are the part of real estate industry. People can use real estate forums to carry out property related work. Keeping the importance of real estate, a website is needed to be developed.

This website will help the buyer and seller of the property to buy and sell the plots and houses through the website and the one who is interested to give and take the house on rent shall also be entertained thought the website. Both buyer and seller can post the advertisements on the website for the plots on sale and houses on rent.

The main page of website should have three options to direct. One option should be "buy and sell plots" other option should be "buy and sell houses" and last option should be "houses for rent". The customer can post advertisement in any of the three categories. The website should also provide a classified advertisements postings. The one who posts the classified advertisements should be on the top of the page of every category. Customer can view the posted advertisements category wise on website.

Functional Requirements:
1. Login Admin (admin approval should be required for classified postings).

2. Registered Customer.

3. Admin can add, update and delete posts of the customer.

4. Advertisement posts should be categorised into three types (plots, houses for sale and houses for rent).

5. Advertisements should be having pics for the house for sale and houses for rent with the cell no. of the customer.

6. Location and city of the house and plot should be mandatory part of the advertisement.

7. Register customer can only post any advertisement after the successful registration on the webpage.

8. Admin can view the no of daily posts category wise.

9. Customer can view the webpage only and search for the desired advertisement.

10. Main page should have three categories of search on main page "buy and sell plots", "buy and sell house" and "rent a house".

11. After the selection desired category, the main page should direct to the specific category advertisements.

12. Location and city of the house and plot should be mandatory part of the advertisement.

13. Admin can view the reports monthly, weekly and yearly of the number of advertisements postings for each category.

14. Database should be relational. You have to use primary keys and foreign keys to make database relational.

Tools:
Languages: C#, asp.net, sql, php, CSS, HTML, bootstrap, JavaScript.
Tools: Visual Studio, Dreamweaver or any other supported tool for above languages.
Database: mysql, sql server, WampServer, Xampp.

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Restaurant Management System

Project Domain / Category
Web Application

Abstract/Introduction
Running a restaurant is hectic enough as it is, so why not make the day-to-day processes easier by having a system that will help ease the workload for you? Restaurant management System is specially designed for the purpose of keeping record of all transaction carried out in the restaurant on daily bases. In current marketplace, there is a great value for food, restaurants and its management. There is a day by day increase in the number of restaurants and food places that are emerging today. The Restaurant Management System helps the restaurant management to keep adequate record of all transactions carried out and does that will still be carried out by the restaurant and maintain the database of the restaurant. . It will be a windows-based application that has been developed to make all the operations fast and easy. The design of the Restaurant Management system is easy to use for every type of user because a lot of restaurants have salespersons which are not well qualified. The main objective of developing this system is to help every restaurant, whether small, medium-sized, or large, will benefit greatly by switching from manual restaurant management processes to automated or software-based ones.

Functional Requirements:

- Registration
    - The administrator can create a new user (Workers at Restaurant).
    - New user can login and logout.

- **User & Role Management:**

    - The administrator can create different Roles with permission as per your need.
    - Predefined roles – Admin & Cashier
    - Create unlimited users with different roles.

- **Contacts (Customer & Suppliers):**

    - Mark contact as customer or supplier or both.
    - View details of transactions with a contact.
    - View total of Credit/Debit balance amount.

- **Products:**

    - Manage products.
    - Classify products according to Brands, Category, Sub-Category.
    - Add products having different units
    - Add SKU number or auto-generate SKU number with prefixes.

- **Purchases:**

    - Easily add purchases.
    - Manage Paid/Due purchases.

- **Sell:**

  - Simplified interface for selling products
  - Add new customer from POS screen.
  - Mark an invoice for draft or final
  - Different options for payments
  - Customize invoice layout and invoice scheme.

- **Manage Expenses:**
  - Easily add business expenses
  - Categorize expenses

- **Reports:**

  - Purchase & Sale report
  - Tax Report
  - Contact Reports
  - Stock Reports
  - Expense Report

Tools: IDE for PHP and mySQL.

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Shopify Your Products Online

Project Domain / Category:

Web Application

Abstract/ Introduction:

Shopify is a web portal that provides various items of day-to-day use for customers. Customers visit the web portal of the ABC mall for purchasing products. Any user can get registered and can buy and sale products including computer/ accessories, food items, solar panels, batteries, cars etc.

Two types of customers are managed by the website Admin:

1. Un-registered Customer:

Can only search and view the products over the website and can purchase any available product on discounted rates. The mall will ship the produced at the customer's address.

2. Registered Customer:

Can buy and sale products on the website. In case he she wants to add his or her own product on the website then he or she will be charged 10% to 15% in dollars per sale. Customer can be registered by paying certain registration fee on the website.

The website has a list of items which can be shipped to the customers on demand at their door step. A costumer can select a product or products for purchase and will be added to the shopping cart as a customer "Order". At this time more information will be asked form the customer like billing address, a shipping address, and payment option such as debit/credit card information or cash on delivery.

Similarly, a registered customer can add his or her own product for sale by creating new "Listing" on the website which will show his or her product(s) on the website.

Functional Requirements:

- Admin will login to the portal
- Admin registers a customer
- Registered customer can login to the portal
- Searching (by name, by price, by item color etc)
- Admin can add/ delete/ update/ search any number of products in the stock
- Admin can monitor transaction history
- Admin can cancel or approve customer's order
- The Customer will get 5-10 % discount on total bill
- Registered Customer can add products on website
- Customer can check his/her order status (approved/Pending/Cancel/delivered)
- Customer can check his/her order history
- Customer can submit his/her review about purchased item(s) and can give feedback about website services

- After successful completion of transaction, user will receive confirmation message and a copy of the shopping receipt on his/her mobile number or in email
- Hosting the website on any free server over the Internet (Bonus marks will be given)

Tools: (Optional)
Students can select any option for tool selection from the following categories.

Category 1: Python, MYSQL, SQLite3
Category 2: PHP, MySQL, SQL Server, HTML, CSS, JavaScript, JQuery

Note 1: (Optional) for category 1, one of the IDE Jupyetr, VScode, Spyder, Django, Pycharm can be used for writing and running python code.
Note 2: (Optional) for category 2, Dreamweaver framework can be used for writing and running php, html, CSS code.

Note: *Students can also select any other tool as per his or her own choice other than the above categories.*

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Smart Dairy and Sweet Shop

Project Domain / Category
Web Application

Abstract / Introduction

People are getting busy day by day. In their busy routine, they find it difficult to find good quality of dairy and sweet products based on users positive feedback and with ease of home delivery service. In this scenario, Smart Dairy and Sweet shop is very convenient for these customers and it will also be beneficial for dairy and sweet shop managers as well who can easily find their customers and increase their dairy business sales by providing quality dairy and sweet products to customers.

Using this application, customers can register, login and view all the available nearby dairy and sweet shops. Customer can filter and select any shop according to their choice and previous ratings of their dairy and sweet products. Similarly, the dairy and sweet shop managers can also get customers by registering and logging into the website and setting up their dairy and sweet shop profile. After a customer orders a specific dairy or sweet item from a shop, the relevant dairy and sweet shop will deliver the order to the customer's address.

Functional Requirements:
There will be four users of this system.
1. Administrator
2. Dairy and Sweet shop Manager
3. Customer (Registered user)
4. Unregistered Customer (Guest user)

1. **Functionalities of Administrator**
   - ❖ Admin can Add, Edit, Delete and View Dairy and Sweet shop profile.
   - ❖ Admin can Approve / disapprove dairy and sweet shop' registration request.
   - ❖ Admin can Add, Edit, Delete and View customers.
   - ❖ Admin can Add, Edit, Delete and View Dairy and Sweet item categories.
   - ❖ Admin can Add, Edit, Delete and View Dairy and Sweet items.
   - ❖ Admin can Add, Edit, Cancel and View orders.
   - ❖ Admin can Add, Edit, Delete and View Dairy and Sweet shops locations on map.
   - ❖ Admin can Check order status.
   - ❖ Admin can View Dairy and Sweet shops' rating.
   - ❖ Admin can View and take action on customers' complains and feedback.

2. **Functionalities of Unregistered Customer (Guest User)**
   - ❖ Any unregistered customer (guest user) can only Search and view the registered Dairy and Sweet shops in the system.
   - ❖ Any unregistered customer (guest user) can only Search and view any items according to specific filters (item category, price, location and rating etc.) of any registered Dairy and Sweet shop.

3. **Functionalities of Registered Customer (Registered User)**
    ❖ Customers can register and login to the system.
    ❖ Customers can Add, Edit, Delete and View their profile details.
    ❖ Search and view Dairy and Sweet shops.
    ❖ Search and view any available items according to specific filters (item category, price, location and rating etc.) of any registered Dairy and Sweet shop.
    ❖ Order any available dairy or sweet item's from any registered Dairy and Sweet shop.
    ❖ Check order status.
    ❖ Give feedback or any complain about Dairy and Sweet shop if any issue caused during/after placing order.
    ❖ Rate a specific dairy or sweet item after ordering.
    ❖ Pay bill: Upon successful completion of any order, customers can either pay the amount to the concerned delivery person on the spot or can transfer the amount to the concerned Dairy and Sweet shop's account number available on the website.

4. **Functionalities of Dairy and Sweet shop Manager**
    ❖ Managers can register and login to the system.
    ❖ Managers can Add, edit, delete and view all all items, categories and all information of their Dairy and Sweet shop in the system.
    ❖ Managers can Add Dairy and Sweet shop's menu with specific details such as dairy or sweet item name, picture, price, delivery time etc.
    ❖ Managers can Manage orders.
    ❖ Managers can Cancel orders.
    ❖ Managers Update order status.
    ❖ Managers can View report of daily, weekly and monthly sale.
    ❖ Managers can View customers feedback and complains.
    ❖ Managers can View ratings of their own shop items given by customers.

[Note: Student can add/enhance requirements as per need and keeping the time span and scope in view.]

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

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Stolen Cars Repository

Project Domain / Category
Web Application

Abstract / Introduction
It becomes very important to maintain the record of stolen cars now a days, as in Pakistan, many cars are stolen on a daily basis. Law enforcement agencies, and people whose car has stolen will take benefit from it by checking cars online. Moreover, before buying a car, it would be a great idea to check it in a database. We will manage the record of stolen cars in any city.

Functional Requirements:
There will be three users general public/user,admin and police.

User panel:
1. The login availability.
2. Login for the public will be created based on CNIC no.
3. User will be able to enter the record of his/her stolen car.

Admin panel:
1. Login availability.
2. Admin will maintain database for all user's.
3. Admin will maintain database for all stolen cars.
4. An announcement should be made upon a new entry in the list of stolen cars.
5. Generation of reports regarding stolen cars on a daily and monthly basis.
6. Graphical representation of data for the past 1 year.
7. The retrieval of stolen car information by all users.

Police panel:
1. Login availability.
2. Police will be able to enter the record of a stolen car.
3. Updating any record upon recovery of a car by police only.

Note: Cars could be searched by all types of users on the basis of the Registration No, model, Chassis No, Engine No.

Tools:
PHP, MySql, Javascript, Jquery, CSS, Bootstrap, PhpStorm,

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Tailoron

## Project Domain / Category
Web Application

Abstract / Introduction
Tailoron is a responsive and easy to use tailoring shop management system that could help you manage your tailoring shop business very well with customers, their body measurements, orders & payments.

Functional Requirements:

1. System should have a stylish responsive Dashboard to quickly access all the main modules with proper navigation
2. System should have "Employee" module to manage Tailor staff's profile
3. System should have "Customers" module to manage customer's profile
4. System should have "Measurements" module to save customer's body measurements
5. Manage your customer easily with their measurements of all kinds of tailoring services you provide.
6. System should have "Orders" module to manage customer's Orders
7. Manage all your orders & payments and filter the order table for due date along search order for any customer or tailor staff.
8. System should have a "Manage Expenses" module to manage your shop well and get the clear sight of your business.
9. System should have a "HR" module to manage all your staff and their salaries (advance payment).
10. Reports (users, customer, services, orders, expenses and salaries). Reports should be viewed in responsive Data tables in web page and there should be print and export to PDF facility for all kind of reports
11. You should write Web server requirements to run your system at client's premises.

Sample Screen Shot for Dashboard:
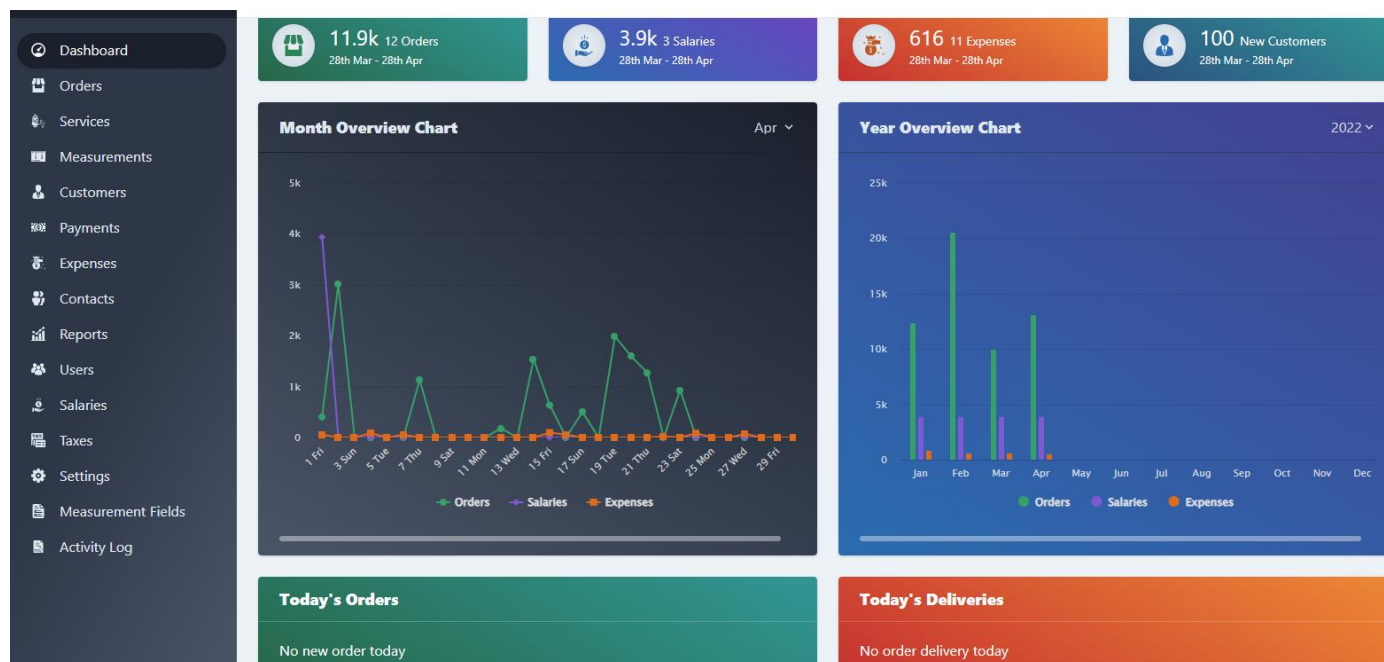
Tools:

Use Any Web Based Technology with proper Server side Programming language and easily available Database server. For example PHP / ASP.net / Java and MySQL / MS SQL database servers.

Supervisor:

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Travelers.pk

Project Domain / Category
Web Application

Abstract / Introduction
Travelers.pk is an online application for ticket booking for an Inter-city bus service.
Inter-city bus service is operating bus service within different cities. Currently it has three routes for which it is providing bus service.

Routes are as following:
Route 1- Lahore to Multan [via Lahore->Sahiwal -> Multan]
Route 2- Lahore to Khushab [via Lahore -> Sarghodha -> Khushab]
Route 3- Lahore to Rawalpindi [via Lahore -> Gujranwala -> Jehlum -> Rawalpindi]

It has 2 categories of buses in its fleet.
- ✓ Business class
- ✓ Executive class

Fare of Executive class bus is higher than Business class bus.

This website will provide the service for online ticket booking with fare calculation.
This site offers a ticket booking with following facilities.
A ticket for a complete route.
For example route 2 - Lahore to Khushab
A ticket for substation of a route.
For example route 2 - Lahore -> Sarghodha
A ticket from substation to end of route station.
For example route 2 - Sarghodha -> Khushab
 A return ticket

Travelers.pk website will provide real time seat availability and fare calculation when user want to book ticket. Fare calculation should be done w.r.t to bus selected.

Functional requirements:
As sited above, the purposed website will make online booking for travelers. However, additional mandatory requirement are as follows.
This site must be designed with GUI interfaces.
A schedule for bus times. Departure and estimated arrival for each station.
A passenger must arrived at the selected station 15 minutes before the departure of bus.
A application will update the status of the passenger before boarding the bus.
Application will update the seat availability according for upcoming stations.

1. Passenger:
A user must login the website in order to make a booking.

He must provide the passenger details along with traveling plan.

A passenger can schedule a advance booking maximum for 2 weeks.

Ticket information and status will be available in user's dashboard on this website.

2. Admin:

Admin can update the:

route information

Fare rate and return policy

Generate reports regarding route travelings, sales etc.

3. Fare charging:

A ticket booked must be charged online via debut card, cradit card after confirmation of ticket.

4. Ticket generation:

A confirmed ticket will be sent to the mobile number of the passenger via sms or email.

Discounts:

A discount must be provided on a return ticket for complete route.

Notes:

Functionality and scope the purposed website can be enhanced by student as required.

Student must write the return policy and fare rate according to his understanding.

Student will also write the SMS or email format of the confirmed ticket.

Bus numbers for a route.

Tools:

PHP, Xamp server, notepad ++, dreamviewer, javascprit, HTML, CSS etc

Supervisor:

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CS Department, VU.

UMS: Online University Management System

Project Domain / Category
Web Application

Abstract/Introduction

The Generic Automation for university will be a web based computerization for university ABC. The system should be generically developed, taking name, pictures of any university, it should display accordingly. 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.

- Registration Manager
- Fee Manager
- Course Instructor
- Exam Manager

    Responsibilities and functions of each user are given below:

Registration Manager:
    There is only one registration manager in the system which is responsible to add/update the student information such as name, Student Id, Degree Program, Date of birth, Age, Address, Courses enrolled.

Fee Manager:
    Fee manager is responsible to manage the fee record of every student such as fee deposited, fee remaining, installments etc.

Course Instructor:
3. There are many course instructors in the system.
4. The system which an instructor can access include following attributes.

  - Student ID
  - Student Name
  - Student Degree Program
  - Student Course (which he teaches)
  - Assignment marks
  - Midterm marks
  - Final Marks
  - Sessional Marks

Exam Manager:

> **2.** Exam Manager is responsible to maintain the records of complete course results and print the final transcripts.

Proposed Tools:

Java, Dotnet Framework, MySQL, SQL server etc.

However you can also use any other tool which meets the requirements.

Supervisor:

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Video Streaming Platform

Project Domain / Category

Web Application

Abstract / Introduction

In this project, you will develop a streaming website in which users will upload the videos and other users will view the videos. Online Video Player will be an integral part of this system.

There will be an admin in the system who will be able to view or control the videos uploaded by the users and may delete or suspend the videos.

Another major part of this system will be the monetization of the videos. A user will be able to monetize the videos. User will upload their video advertisements which will be played before playing a video. Ads will be played based on the tags or categories of the videos.

Functional Requirements:

There will be the following functional requirements:

1. A user will be able to register him/herself on the website.
2. Admin will be approving the account of the users.
3. A user will be able to upload edit or delete his/her video.
4. A user will upload the ad video.
5. A user will be able to run the advertisement on the other videos.
6. User will be able to rate the video and comment on it.
7. Number of views of each video will be recorded.

Tools:

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

Supervisor:

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Project Domain / Category
Web Application

Abstract / Introduction
This online job portal will facilitate users to create an interactive job vacancy portal for candidates. This web application will help updates both job seekers as well as the companies to apply for jobs and to recruit them. The objective of the app is to enable job-seekers to create their online resumes and find appropriate jobs while companies to publish their vacancies and find suitable candidates.

It enables job-seekers to post their resume, search for jobs, view personal job listings. It will provide various companies to place their vacancy profile on the website and also have an option to search candidate resumes. Apart from job-seekers and Companies (Job Provider) there will be an admin module to manage complete Portal as well as job-seekers and companies.

Functional Requirements:

1. The system shall be able to register users as candidates or job-seekers along with their personal profile maintenance including name, contact information, address, location, profile pic, email addresses etc.

2. The system shall be able to allow candidates to maintain their professional profile that includes professional summary, skills, personal qualification, experiences, certifications, publications, patents, honours and awards, languages interests, hobbies, causes, followings etc.

3. The system shall be able to allow candidates to upload their C.V in .PDF format.

4. The system shall be able to register companies as users and add their portfolio including introduction, web address, email address, postal address, employees, posts, events, followers, offices etc.

5. The system shall allow companies to post vacancies / jobs so that candidates can search. These job posting should contain job description with salary, required qualification and skills, job placements or locations and relevant necessary information like posting date, expiry date etc.

6. The system shall be able to export candidate C.V based upon all the information that candidate and entered online.

7. The system shall be able to download candidate C.V that he/she has already uploaded in .PDF format.

8. The system shall support audio / video content, where necessary.

9. The system shall support real-time communication among users (candidates and company representative) via online chat, audio and video call.

Tools:
Server-side Programming language: PHP
Framework: Laravel or CodeIgniter or Symfony any other framework of PHP of your choice
Scripting and Styling Languages: HTML , CSS
Client-Side Scripting: JavaScript, JQuery etc.
Database: MySQL with preferred IDE as PHP Storm or NetBeans or any one of your choice
Local Host Server: XAMPP or WAMP
Unified Modelling Language (UML): Microsoft Visio, IBM Rational Rose

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You Think We Wrap

Project Domain / Category
Web Application

Abstract / Introduction
Gifts are the special way to make people feel special and happy. And they can be of more use if you are able to customize them on your own way.

So, our website will provide you a way to customize gifts according to your own needs. Not only this, You can also select the way you want to decorate them in order to make them more presentable.

Functional Requirements:
This system will have two users: Admin & Customers

1. Registration/Login:
   Admin and customer can log in to the system.
2. Add items for gifts:
   Admin will add items for gifts like chocolates, dresses, perfumes, flowers, cakes etc. All the items of different categories should have a separate category, so that customers can browse according to their need, for example, if a customer just need chocolates, then your gift items should have separate category for chocolates, that should contain multiple choices for chocolates and customer can select any of them.
3. Add decorating items for gifts:
   Admin will add different items for decorating or packaging purpose, like baskets, wrapping sheets, etc. So that customer can select the packaging of their own choice.
4. Selecting Gift/Packaging:
   Customers will select gift and its packaging according to their own choice.
5. Payment Method:
   Customer can also pay online through our website and also by hand on delivery.
6. Review:
   Customer can also leave reviews on the website.
7. Marketing:
   If customer likes their services, they can also share their link directly from the website to their social media apps.

Tools:
C#, .net, Visual Studio, SQL Server

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