# BS Projects

Please follow the projects check-list for better project execution, control and delivery.

Display/hide assigned projects

## 1. Video stream Image identification

### Dr. Onaiza Maqbool

*Offered: October 2024*          *Assigned:*          *Student:*

The project is concerned with design and development of a mobile app that is meant as an aid to a home security system. The app should let the user identify various images of interest from a video stream available from home cameras. The user should be able to suggest what he/she wants noted and the app should have the ability to report the relevant statistics. For example, I may want to know how many trucks or motorcycles passed in front of my home during a certain time span, and at what times. As a further enhancement, it may also contain features like calculating speed or identifying outsiders etc.

## 2. Analysis modelling tool and assignment checking aid

### Dr. Onaiza Maqbool

*Offered: October 2024*          *Assigned:*          *Student:*

The project is concerned with design and development of a web app that will allow students to develop the use case model and the detailed design model. The app will have a development mode (which allows students to make mistakes), a tutorial mode (that corrects mistakes) and a checking mode (which allows students assignments to be checked for mistakes). A special feature will involve checking consistency across diagrams e.g. between the use case diagram and text, or between text and system sequence diagram (SSD), or between SSD and sequence diagram.

## 3. Arabic Synonym index and finder

### Dr. Onaiza Maqbool

*Offered: October 2024*          *Assigned:*          *Student:*

Arabic, like any other language, has word synonyms. The purpose of this project is to develop a software application (web based) that will allow to maintain a list of synonyms for words, and then allow them to be searched in the Quranic text. It will be possible for a non-Arabic reader to enter a word in transliteration form in English for searching. The application will indicate all the places where a word and its synonym exist both as a list, as well as actual locations. The software will also allow a user to test his/her knowledge of Arabic words and synonyms through quizzes.

## 4. Local Issues Classification

### Dr. Ayyaz Hussain

*Offered: October 2024*          *Assigned: October 2024*          *Student: Tariq Hussain*

Local issues are highlighted in national newspapers, but they are not communicated properly to the relevant department(s). This purpose of this project is to automatically extract the local issues from national newspapers, identify type of issues based on their contents and communicate to relevant department(s) and stakeholders. The system will also keep track of the issue(s) to see whether they are resolved by the relevant department within prescribed time.

## 5. Eye Tracking Application for the Detection of Autism Spectrum Disorder

### Dr. Ayyaz Hussain

*Offered: October 2024*          *Assigned: November 2024*          *Student: Ayesha Ikram*

Develop an eye tracking application that can detect Autism where affected person/child does not give/maintain eye contact with other individuals. Autism is a neurological developmental disorder where a person struggles to maintain eye contact, social interaction, communication challenges along with other developmental delays. Early intervention can play a significant role in child's development; hence, early detection is very important. Symptoms usually start at the age of 6 month but due to the lack of understanding, parents misinterpret it and wait for its official diagnosis till the age of 3 years which misses his early years of learning. Detecting autism through infant's eye tracking (eye movement patterns and focus areas) can be a helpful tool to start therapies as early as possible. There is a need of an eye tracking application that can capture eye movements and focus areas while watching a video/an image for specific time frame. These movements can then be compared with typical individual eye movement patterns. Machine learning model like neural networks can be used for training and classification of typical/non typical individuals.

## 6. Image Forgery Detection

**Dr. Ayyaz Hussain**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Areeba Naz*

Use of digital images in different fields is growing significantly. These images are widely used in forensics and public safety, for example suspect photos, crime scenes and biometric photos etc. Availability of image manipulation tools has made digital image validity a problem. Most common type of forgeries are copy move forgery and splicing. In this project, student has to develop software for image forgery detection using different artificial intelligence and image processing techniques.

## 7. Use of AI to enhance the engagement and Learning capabilities of Students Suffering with Autism

### Dr. Muazzam A. Khan Khattak

*Offered: October 2024*     *Assigned:*     *Student:*

The project will mostly focus on developing an application which will check the student engagement using videos, chats, audios and interactions. It will be helpful to identify those students and help them to learn those topics in which they are facing difficulty. The activities/emotions that we ll focus on: engaged, happy, unhappy, active, passive, angry, detrack, normal.

## 8. IoT Based Mother and Fetus Health Care Monitoring

### Dr. Muazzam A. Khan Khattak

*Offered: October 2024*     *Assigned:*     *Student:*

The project aims to develop an IoT based smart device/belt to measure and get real time data. We will gather information about BP, temperature, sugar level, movement and position of the fetus. We will also develop an application to further analyse the received data and take the necessary measures accordingly in consultation with Doctors/Nurse.

## 9. AI Based Image Analysis to Identify Plant Disease

### Dr. Muazzam A. Khan Khattak

*Offered: October 2024*     *Assigned:*     *Student:*

An app will be developed whenere Images from Plant leaves will be captured and will be further analysed to find the type of disease as well as the level of disease and recommend the necessary medicine or pesticides to the farmers. The drones can be used to gather videos from a field and analyse them to separate the healthy and compromised crops.

## 10. Offline Urdu/pashto Handwriting detection using deep learning

### Dr. Muazzam A. Khan Khattak

*Offered: November 2024*     *Assigned:*     *Student:*

This project aims to design an application using deep learning and CNN, which can detect the writer's handwriting using computer vision and pattern recognition. Here we will train and label the given data set using deep learning techniques then we will test with accuracy rate. This application will help to digitize the handwritten based text data in MS word format.

## 11. Organic Food Traceability Using Blockchain

### Dr. Muazzam A. Khan Khattak

*Offered: November 2024*     *Assigned:*     *Student:*

This project proposes a blockchain solution to improve traceability in the fruit supply chain. This will enhance transparency, traceability and consumer confidence in the fruit industry. This project will automate processes with the fruit supply chain. Develop a blockchain-based traceability system for the fruit supply chain. We will implement smart contracts to automate processes and ensure data integrity.

## 12. QAU Super App

### Dr. Rabeeh Ayaz Abbasi

*Offered: October 2024*     *Assigned: October 2024*     *Student: Ahmad Fayyaz*

Currently, the information about different entities of the Quaid-i-Azam University are scattered. For example, to see the route of the university transport, the students have to visit the notice board of the transport section. Similarly, timetables of different departments of the university remain part of the departmental notice boards. The purpose of this super app is to bring scattered information to one place. The initial modules of the app would be: 1) Transport Scheduling and Tracking. 2) Timetable management. 3) Administrative notifications. The app would be developed as a mobile app, however, it might be extended as a web application.

## 13. LLM based Intelligent Educational Guidance System

**Dr. Rabeeh Ayaz Abbasi**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Abdullah Shafique*

Students after their high school are not much aware of what subjects they should choose based on their educational interests and career prospects. The goal of this project is to develop a Large Language Model (LLM) based application which would augment knowledge about careers and potential universities in Pakistan to existing LLMs using a Retrieval Augmented Generation (RAG) model. The student would first need to understand the architecture of LLMs and how they can be augmented using RAG models. Only the students who are exceptionally good in AI should apply for this project. The student should be willing to do related research. The student will have to create their own dataset and develop their own models.

## 14. Helping Children with Proper Internet Usage

**Dr. Rabeeh Ayaz Abbasi**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Farhan Abbas*

Internet has enabled humans to share and access knowledge globally. Among countless benefits of the internet, it has a few drawbacks as well. When the internet is inappropriately exposed to young children, it might play a negative role in their physical and mental growth. The goal of this project is to use machine learning algorithms to predict whether a child is going to use the internet in a negative way based on the physical activity of the children. The student taking this project should be well versed in AI and willing to put efforts in doing relevant research. Dataset required for the project will be provided to the student.

## 15. TransitNet Optimizer

**Dr. Rabeeh Ayaz Abbasi**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Muhammad Bilal*

Public transportation engineers have to rely on manual survey to define Public Transport (PT) routes. This is a time consuming, tedious, costly, and error-prone approach. This projects aims at acquiring mobility patterns of people from cellular network and using them for defining new PT routes and optimizing existing routes. The project TransitNet Optimizer will be an interactive, web-based solution designed to enhance public transport networks by utilizing aggregated mobility patterns derived from cellular data. The system will include PT network optimization algorithm(s), an interactive data manipulation interface with efficient backend management, and multi-layer visualizations of the results for effective interpretation. It will offer PT management authorities a computational solution that aids in making informed decisions for PT service planning and operations, ensuring higher efficiency and improved route planning.

## 16. News Monitoring Desk

**Dr. Akmal Saeed Khattak**

*Offered: October 2024*     *Assigned: November 2024*     *Student: Hamza Safeer*

This is a web-based application. This application will monitor online news to give insights from relevant news to assist key stakeholders of industry. The analytics will be beneficial in financial sector, news industry, entertainment industry, political and organizational policy making, etc. The news monitor will be useful in terms of gaining insights to improve and educate society.

## 17. Web-based birds and fish trade system

**Dr. Akmal Saeed Khattak**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Alisha Shahid*

This project provides a platform to sell and buy lively birds and fish at a reasonable price. This web-based application also helps provide and guide bird lovers and fish farmers with adequate information. It will focus on everything related to different kinds of birds also covering feeds, cages, etc. In the long run, this will help homegrown businesses. The student is expected to implement the project using MERN stack technologies.

## 18. Android-based tourist application

**Dr. Akmal Saeed Khattak**

*Offered: October 2024*     *Assigned: October 2024*     *Student: Muhammad Junaid*

This project's main focus is to promote Pakistan's soft image. This application will connect travel companies offering tour packages with tourists. The other phase of the project will focus on providing information related to sightseeing places of Pakistan that the tourists must not miss to visit. This phase will provide search and recommendations to tourists regarding tourist spots in certain regions. The frontend of this project will be implemented in react-native and for the backend python will be used.

## 19. Pakistan's higher courts search and question-answering system

**Dr. Akmal Saeed Khattak**

*Offered: October 2024*     *Assigned: November 2024*     *Student: Zakir Matloob*

This project is a web-based search system to find and ask for information related to the legal cases of Pakistan's higher courts. This project is specifically designed for practitioner lawyers to prepare for their client's legal cases in the court of law. Common people can get legal information to update his or her knowledge of the standing of law in specific matters. The project includes two phases: search and question-answer system. In the search phase system, the data will be crawled from higher courts official website. The search phase of the project involves web scrapping, preprocessing, vocabulary extraction, indexing, integration of web interface, query benchmark collection, ranking, and evaluation. The question-answering phase of the project includes a chatbot on the crawled data that will answer queries related to laws, legal orders, lawyers, and judges' information. This project will be implemented using python libraries and web framework Django.

## 20. FYP Coordination and Archive System

### Dr. Akmal Saeed Khattak

*Offered: November 2024*      *Assigned: November 2024*      *Student: Shoaib ud Din*

This project will facilitate the project coordinator in terms of FYP coordination management among faculty members and assigning projects to students. Faculty and students will have separate profiles and logins. The process of FYP coordination will be automated through this web-based application. Faculty members will upload project descriptions which will be visible to the project coordinator. The project will share all projects with the project committee and the project committee can give feedback. Upon receiving feedback, the project coordinator can either approve or disprove some projects. The approved projects will be shown to students. Students can then show willingness to a maximum of three projects. The potential supervisors can then lock the student's name against their respective final-year project. One of the focuses of this project will be on the archive of submitted projects so that the projects can be searched and browsed easily and efficiently. This archive will be visible only to the project coordinator. This web-based application will automate the process of FYP coordination and the archive system of the final year project. The preferred technologies include MERN stack or Python web framework Django or NextJS.

## 21. Course Retrieval App

### Dr. Akmal Saeed Khattak

*Offered: November 2024*      *Assigned: November 2024*      *Student: Jamshaid Ahmed*

This project can be a web-based or an android-based application that focuses on finding a relevant course. First, the user gives a query to find a relevant course. The app or system will provide a ranking of relevant courses. This ranking will be based on a score that will be computed by analyzing the crawled sentiments of different courses from online platforms. This score will determine the suitability and recommendation to users looking for some relevant and useful courses on the desired course information need. One aspect of this project is to organize courses category-wise to present users with a knowledge and technology-oriented platform. The preferred technologies are React Native / Flutter for an android or ios based application and MERN / Python web frameworks Django or Flask for a web-based application.

## 22. Automobile Spare Parts and Accessories Portal

### Dr. Akmal Saeed Khattak

*Offered: November 2024*      *Assigned: November 2024*      *Student: Muhammad Hamza*

This web-based application provides a platform to search and filter loads of information related to automobile spare parts and accessories. The website will provide a wide range of firms' spare parts and accessories for cars. The spare parts and accessories include tyres, engine oil, oil filter, air filter, batteries, brake shoe, fog lights, lights, bumpers, and others. This project will be developed in MERN stack technologies.

## 23. Web Based Nursery Farm Application

### Dr. Akmal Saeed Khattak

*Offered: November 2024*      *Assigned: November 2024*      *Student: Hania Naeem*

This web-based application focuses on connecting the end user and nursery farms. The nursery farms register through admin. The application searches for suitable nursery farms in the vicinity of the end user. It mainly provides the sale and purchase of plants, flowers, pesticide spray, and other items related to the nursery. This application will provide and search information related to different categories of plants and flowers. This full stack application will be developed using MERN stack.

## 24. Skilled Labor Service App

### Dr. Akmal Saeed Khattak

*Offered: November 2024*      *Assigned: November 2024*      *Student: Khairullah Khaliq*

This is an android and web-based application to find skilled labor services in the near vicinity. This project has two aspects: skilled labor and customers requiring services regarding electricity, plumbing, water tanks, electric appliances, gas heaters, and others. A skilled labor must register through an admin. The registration is done once the given information is provided and the skill set of labor services is tested. Once a skilled labor is registered, he must maintain his place by providing satisfactory services. Initially, certain points will be added to the profile of skilled labor. If there are continuous complaints or the points go beyond a certain threshold based on feedback of the customer, the skilled labor can be removed. This app will provide search facilities to customers who need the services mentioned above. The app will provide a reasonable resource within the vicinity of the customers. The app will connect skilled labor and customers. AI-enabled features will be included to make this app desirable and successful. The preferred technologies include MERN stack, React Native, SQL Database, Python web framework Django, or Flask.

## 25. Shopify - E-commerce site to shop carpets and rugs

**Dr. Akmal Saeed Khattak**

*Offered: November 2024*        *Assigned: November 2024*        *Student: Fatah Ali Khan*

This web-based platform sells carpets and rugs from different companies at a competitive price. The application will provide end-to-end connectivity through a user-friendly interface connected to a backend server to interact with the database for various shopify related operations. The preferred database is either MongoDB or PostgresSQL.

## 26. Cross Language Web Chat

**Ms. Memoona Afsheen**

*Offered: October 2024*        *Assigned: November*        *Student: Hamna Imran*

Web chat is quite an important part of any tech support department. We are now living in a global village. A company can have clients from anywhere. It's quite difficult for any tech guy to text chat and voice chat with other language speaking customers. We want a system where a chat system should handle all the language related problems. Customer will text chat or voice chat in his own language and the tech guy will communicate on his own. The system will handle all the language translations, in real time, including text and voice, automatically, at the server end. Google translation api free version is recommended for use. The following can be the main features of this application: User Registration and Authentication: • Users can create accounts and log in securely • Integration of social media login (e.g., Google, Facebook). Language Selection: • Users can set their preferred language for the chat interface. • Dictionary of supported languages for user selection. Real-Time Translation: • Messages sent in one language are translated to the recipient's preferred language. • The option to display the original message alongside the translated text. Text and Multimedia Messaging: • Support for text, images, and emojis in chat messages. • Option for sending voice messages (with optional transcription). Chat History: • Users can view their previous conversations. • Option to search chat history based on keywords. Group Chat Functionality: • Users can create and join group chats with real-time translation. • Ability to set group language preferences. Notifications: • Real-time notifications for incoming messages. • Option for email notifications for missed chats. User Profiles and Status: • Customizable user profiles with profile pictures, statuses, and language preferences. • Status indicators (Online, Offline, Do Not Disturb). End-to-End Encryption: • Implement secure socket layer (SSL) protocols for secure communication. • Encrypt messages for privacy.

## 27. Automated Research Paper Analysis

**Ms. Memoona Afsheen**

*Offered: November 2024*        *Assigned: November 2024*        *Student: Umer Farooq*

In today's research environment, scholars and students often encounter a vast and overwhelming amount of literature from various digital libraries. Sifting through research papers to extract key details like the title, authors, abstract, introduction, methodology, datasets, results, and conclusion can be a laborious and time-consuming task. This project aims to create an automated system that retrieves research papers from different digital libraries, uploads their PDFs (manually), and neatly organizes the main components into a CSV or Excel file. In this project, the student will develop a web application that allows users to search for research papers from popular digital libraries (e.g., Google Scholar, IEEE Xplore, ACM, ScienceDirect, PubMed, etc.), remove duplicates, remove selected search results, provide a way to upload research papers against any search result, and implement a robust PDF extraction system capable of parsing and extracting relevant sections from uploaded research paper PDFs. Tools and technologies that can be used to develop such a system are Python (backend), React/Angular (frontend).

## 28. Fitness Community Platform

**Ms. Memoona Afsheen**

*Offered: November 2024*        *Assigned: November 2024*        *Student: Khalil Afzal*

A web application that connects fitness enthusiasts. Users can track workouts, share progress, and join challenges. The web version can manage profiles and analytics, while the app focuses on logging workouts. Users may be able to post workouts targeting different muscle groups and workout routines, helpful tips, post achievements, and collaborate on challenges. Users can earn points or rewards on completing daily challenges. The app could feature interactive elements such as achievements, leaderboards, and virtual rewards. Users can follow friends and fitness influencers for motivation. Technologies: React or Angular for the web and Node.js for the backend

## 29. Tutor searching portal

**Ms. Ifrah Farrukh Khan**

*Offered: October 2024*        *Assigned: November 2024*        *Student: Ahsan Tariq*

This webpage will search the tutors of different subjects available in the area. It will send messages to the tutors for registering with the admin. It will also provide the chatting facility to the requesting student. It will also provide the links to online resources of the subject. Resources should be approved by the teacher. This project will be implemented in MERN stack technologies.

## 30. Group Image based Class Attendance System

**Ms. Ifrah Farrukh Khan**

*Offered: November 2024*        *Assigned: November 2024*        *Student: Basid Ali*

This application will take a group image of class and then after separating picture of each student and then it will compare the image with database entry of the student and will mark the attendance, by default it will mark absent. User can view the details of any student by focusing camera on the person. This application will provide the total number of lectures conducted and the percentage attendance of each student.

## 31. Sensor Based high/low temperature indication system

**Ms. Ifrah Farrukh Khan**

*Offered: November 2024*  *Assigned: November 2024*  *Student: Arbaz*

This application will provide an interface for the user it will be the 2D map of a house. It will receive temperature data from the sensor and will show the rise/fall in temperature in the room and will generate alarm if the temperature rise/ fall greater than/ less than some threshold value. There will one sensor in each room and will be centrally connected with the computer system monitoring the values.

## 32. Social Multimedia Space Discovery Tool

**Dr. Umer Rashid**

*Offered: October 2024*  *Assigned: October 2024*  *Student: Muhammad Farhan Alam*

Social media allows users to create, share, and exchange multimedia content over the web via virtual communities, i.e., Facebook, Twitter, Instagram, LinkedIn, YouTube, etc. The content generated via social media sites are multimedia-based, diverse, and heterogeneous. The users want to interact with the multimedia content in an integrated and usable way. The Social media aggregator tools allow users to collate posts and updates on specific topics via social media feeds. However, the discovery of contents is cumbersome. In this project, the student will design and develop an interactive multimedia-based social space discover tool to explore multimedia-based content. The tool will (i) aggregate the social media content belonging to different media formats from multiple sources, (ii) manage the archived multimedia contents, and (iii) provide the exploration of multimedia content. The objective of the tool is to provide usable interaction with multimedia content in an integrated, interactive, and usable way.

## 33. Personalized Multimedia News Aggregator Tool

**Dr. Umer Rashid**

*Offered: October 2024*  *Assigned: October 2024*  *Student: Muhammad Shahzaib*

The news aggregator tool gathers the latest news from various sources and aggregates the news-related content over a single location. The aggregated news content is multimedia-based since it belongs to different media formats (i.e., HTML web pages, video clips, images, audio, etc.). The personalized news aggregator tool may satisfy the news information needs of the users in a unified way. In this project, the student will design and develop a multimedia news aggregator tool that considers the specific information needs of the news users and aggregate the multimedia-based news content belonging to different media formats (i.e., HTML text, videos, image, audio, etc.) on the interested topic from several sources. The objective is to provide a usable and interactive exploration of the user's desired multimedia-based news content in personalized settings.

## 34. Thriend.io: Automated Management and Engagement Tool for Threads

**Dr. Umer Rashid**

*Offered: October 2024*  *Assigned: November 2024*  *Student: Muhammad Shamil*

On the social media landscape, the sharing platform-like threads face challenges in maintaining consistent engagement in frequent posting replies and managing interactions across a wide range of user bases. The objective of this project is to design and develop an automated web tool to manage and optimize user engagements, particularly on the Threads platform. The tool automates services like post-creation, scheduling, and periodic updates. The tool also allows users to maintain a steady presence on the platform with minimal manual effort. The tool enables advanced features that include auto-commenting, reply to management, auto-posting, etc via a minimum number of clicks. The tool helps the users to maximize content reachability and engagement. It also exploits AI techniques to create and optimize. In design and development, we will employ MERN stack technologies (MongoDB, Express, React, and Node.js).

## 35. E-commerce Product Price Analysis and Social Media Automation Tool

**Dr. Umer Rashid**

*Offered: October 2024*  *Assigned: November 2024*  *Student: Waqas Ahmed*

In e-commerce, product sellers/brokers usually buy products from various online stores/inventories and sell the products at reasonable profit margins. However, the brokers face problems in (i) finding the products since they are available over multiple online stores/inventories with a reasonable deflection in prices, and (ii) publicizing the products over social media sites. we intend to design and develop an automated web tool for price comparison and social media marketing for an e-commerce-based business. The tool searches for product prices from multiple online product inventory/vendor platforms and suggests the best prices for listening on e-commerce-based seller sites. The tool will also generate SEO-optimized content, hashtags, and videos for social media marketing to enhance publicity via fewer efforts/clicks. The tool will be designed and developed by employing MERN stack technologies (MongoDB, Express, React, and Node js). The objective is to streamline the business transaction/operations in e-commerce and scale the business in terms of product selling.

## 36. Aurdino / Android-based Smart Watch

**Dr. Mudassar Azam Sindhu**

Smart watches have become quite common these days and are quite popular among health and sports enthusiasts. The goal of this project is to design and build our own prototype smart watch using a micro-controller like the Arduino and using appropriate sensors like the pulse sensor, the blood pressure sensor and pulse oximeter sensor etc. The watch will in general show the current time, step count and calories burnt on the main display. Plus, the readings from the sensors through the controller and displaying their values on a OLED display for the controller. The student will also build an accompanying android app that will be used to connect with the smart watch and show readings/history on the dashboard of the app.

## 37. Aurdino / Android-based Smart Tracker

### Dr. Mudassar Azam Sindhu

*Offered: October 2024*      *Assigned: November 2024*      *Student: Muhammad Shahzaib*

Parents usually worry about their kids when they are at school or away in the playground. Likewise, vehicle owners also need to track their vehicles. Generally smart phones can be used to share location, travel path of an object but these can be expensive. For such purposes, this project aims to develop a low cost Aurdino-based tracking system which will be used to provide the whereabout and path of an object (kid/vehicle) which needs to be tracked. This will make use of the GPS module of the Aurdino board. An accompanying Andriod app will also be developed which will provide a more sophisticated visualization of the location/ track of the object in transit. This prototype will have the potential to reduce cost of monitoring by eliminating the cost of smart phone atleast at one end plus it can be tailored to monitor / track more than one persons / vehicles using the single app but with instances of the GPS modules attached to the desired number of objects.

## 38. Web Application Parsing

### Dr. Mudassar Azam Sindhu

*Offered: October 2024*      *Assigned:*      *Student:*

This project is going to benefit those students who are studying the course on compilers. They can get hands on experience of implementing some of the parsing algorithms which will be discussed during the course on compilers. These include the recursive descent, predictive parsing, shift-reduce parsing algorithms etc. The student will implement these algorithms and show the visualization of the parsing of a string using the selected algorithms. This will enable those learning the course to see how different parsing strategies work and whether a particular is successfully parsed or not using the parsing strategies mentioned above.

## 39. LPG Shop management system (Mobile app for LPG dealer)

### Dr. Ghazanfer Farooq

*Offered: November 2024*      *Assigned: November 2024*      *Student: Muhammad Qasim Shabir*

Design a mobile app for LPG dealer. In this APP student will develop a mobile app that will keep track of empty and filled cylinder. How many cylinder are in stock ? and how many of them have been sold. Actually there are 3 types of cylinder 11.8kg, 15 kg and 45.4kg Similarly so other accessories related to LPG are Gas pipe, regulator, gas stove (choolay), gas tandoor, gas heater, lpg instant geysers. Student will develop an App to manage these.

## 40. Engine oil shop management system (Mobile app for Engine oil dealer)

### Dr. Ghazanfer Farooq

*Offered: November 2024*      *Assigned: November 2024*      *Student: Ali Mumtaz*

A mobile app is developed for Engine oil shop. It's a kind of inventory system that will keep track of all items in the shop. In this shop there are different brand oils with different volumes (in liters). The system will keep track of all the brands in stock. How many of them sold? And how many of them left in the stock. The system will also keep track of the customers, when the customer came for oil change, and what other accessories he bought. The system will generate daily, weekly and monthly reports as well.

## 41. Automated Real-Time FOD Detection for Enhanced Runway Safety

### Dr. S. M. Naqi

*Offered: November 2024*      *Assigned: November 2024*      *Student: Adnan Sultan*

This project aims to create an automated, real-time solution for detecting Foreign Object Debris (FOD) on airport runways, leveraging computer vision technology to address critical aviation safety concerns. The system will continuously monitor runway surfaces, instantly identifying and alerting airport personnel to any hazardous debris. By proactively detecting FOD, the solution reduces dependence on manual inspections, lowers the risk of incidents, and supports safer, uninterrupted airport operations.

## 42. AI-based Matchmaking System for Startup Founders , Developers, and Investors(VC)

### Dr. S. M. Naqi

Objective: To create an AI-based matchmaking system which analyzes user profiles, interests, activities and different metrics that connects founders (people who have idea), developers and investors on different startup platforms. Project Description: This AI-based system will enable founders to find the right developers to make their idea reality and to showcase their projects to the right audience while developers and the investors will find the opportunities that match their preferences and goals and based activity. Using data augmentation and the feature engineering will help the system to learn the whole distribution of the user space making the system provide hyper personalized recommendations and the system will also learn through the feedback as the user interaction at the platforms increases and we get more data to refine models decisions. Our system will get right details from the new user and try to give them relevant matches via clustering and grouping methods or different classic recommendation systems. Key Features: Collect Structured and unstructured data for the user skills, projects and preferences and storing them in their respective databases. Personalized matches based different users based on different metrics. Multi-model design and various ensemble methods to combine classical and deep learning algorithms to get the best performance Efficient and scalable for different platforms on cloud and on premises resources. Tools and Technologies: Programming: Python Development Platform: Google Colab Framework: TensorFlow or PyTorch Algorithms: Classical and deep learning recommendations Database: Postgres for tabular data and mongodb for unstructured data

## 43. A Platform for Startups, Venture Capitalists, and Innovators

**Dr. S. M. Naqi**

The Startup Networking Platform project aims to develop a comprehensive web application from scratch, providing a collaborative space for startups, students, and investors. This involves acquiring a suitable domain, setting up hosting, and designing an intuitive frontend and robust backend that supports secure user authentication and interaction. The platform will feature startup listings where entrepreneurs can showcase projects, a team- building module targeting student involvement, and a dedicated section where venture capitalists and incubators can explore potential investments and provide support. Additionally, it will facilitate the buying and selling of startup ideas and offer opportunities for idea pitching. The project will culminate in a fully tested, deployed web application, complete with comprehensive documentation for future maintenance and scalability. Tools and Technologies - Backend: Python & Django - Frontend: Tailwind CSS and JavaScript - Domain Management: Domain acquisition and configuration - Server Deployment: Cloud-based or dedicated server deployment for scalability and performance

33/43 projects assigned. 10 projects unassigned.