Mobile + Web Based Knowledge Sharing Social Media Platform

Higher Diploma in Software Engineering

Final Project Proposal

23.2F

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Abstract

In the environment of swift software engineering, it is essential to have the platform that relates learning with experience. Here is the plan of the creation of a modern and innovative platform for knowledge sharing, a social media aimed at connecting students and resource people to improve the educational process.

This application will be in the form of a mobile application that can be installed in various mobilities, as well as a web based application and it will have social networking elements combined with effective tools that will help in the education. The essence of students / resource people will be control of the profile, online chats in real time, work with courses and assignments, and an individual outlook for employment with the help of machine learning.

Thus, the goal of our platform is to eliminate the issues related to the lack of integration of resources, the inability to get access to the industry materials, and the existence of various administrative problems. It will create a synergy of the learners and experts, who will regularly give and receive knowledge.

The ultimate objective that we have set for ourselves is to build a responsive system of knowledge creation and exchange as well as career management. By integration of new technology and use of the friendly interface we plan to make a great difference not only for the Software engineering educational system but also for the students population in the world.

Object Oriented approaches have been used in developing. Php, html, JavaScript ect has used to develop the website. Flutter, Dart extensions ect has used to develop the mobile app. Firebase ,mySQL and rest APIs have been used to create to databases.

Any web browser such as Edge, Chrome, Firefox can be used to access the website and any android version can be used to access the app in any environment such as windows or Linux.

Acknowledgment

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1 Introduction

In statics of dispelling educational frontiers more and more existing fronts are observed to be reaching by the processes of software engineering education. Nowadays, therefore, flexibility in sharing ideas and experiences, cooperation easily and interchange of knowledge determines productivity in this rapidly growing profession. Our proposal sets out on a voyage of changing the face of software engineering education through the creation of a uniquely constructed knowledge sharing social media platform that goes a notch higher than the traditional forms of learning to comprise of a society of learners, and resource people.

As we endeavor this system, we respond to the existence and influence of the digital society in the educational system. Our vision is to get not only platform but a community where the sharing of knowledge will happen, where students and various resource persons will meet for purposes of creating, learning, and practically applying different knowledge. Thus, uniting the topical features of the mobile application and the stability of the web application, we want to equip the user with the tools that will improve the learning process and create the further successful career.

Some of the features that are integrated into the system include creating user interfaces for individual user accounts, chats, assignments and submissions,courses,and even machine learning algorithms to predict the career path of users besides enhancing identification with the users through individual personal accounts, chats, course generation, and future career path predictions.

Given today's world where knowledge is available in a vast amount but the problem is how to organize this information our platform does not only provide the ideas but also encourages the interaction and life long learning culture. Preserving the serving of the need of software engineering students, and owing to the introduced resource people we want to set a new standard of the educational platform- the standard in which Innovation touches education, and knowledge has no limits.

2 Problem Definition

In the realm of software engineering education, several challenges hinder the seamless acquisition and application of knowledge, thereby impacting both students and resource sharing people:

- **Fragmented Learning Resources**: Current educational systems do not support the unification of obtained materials and industrial information as the source of continuity for the student's educational process, which creates a problem of weak combined sources for learning.
- **Limited Access to Resource People**: The real life experiences and information regarding the software engineering practices are difficult for the students to access and this hinders them from easily closing the gab between theory and practice.
- **Uncertainty in Career Pathways**: This way students go through their studied years and their further career without any guidance on which specialization in software engineering is more suitable for them.
- **Administrative Inefficiencies**: It is common for educational administrators to face difficulties in the management of the multiple roles of the users, the security of the platform as well as the encouragement of pertinent activity among the users.
- **Engagement and Collaboration Barriers**: In case of traditional methods of learning, students cannot interact much with other students and resource people, which negatively impacts peer and expert tutelage.
- **Lack of Predictive Insights**: Present platforms fail to consider the opportunity of using information that can be obtained from the interactions between learners and institutions to identify relevant careers based on academic accomplishment and learners' ambitions.

To overcome these concerns hence suggesting the following innovative approach to creating a social media solution. Using smart models like Machine Learning for Predictive Analysis and having Integrated and Unified modes of Communications as the core strategies, we propose Free, Open, and flexible learning integrated ecosystem that opens new gates of learning opportunities and hands-on experience for the learners of it industry. Altogether, it is our goal to create the change to reimagine the learning approach to software engineering with the goal to help as many learners as possible to succeed in the world that is increasingly digital and hence more competitive.

3. Proposed Solution

3.1 Project Scope

The idea of this project is to create a highly evolved knowledge sharing integrating social media specifically designed for software engineers. The application will exist in two modules, mobile and web; and will provide several basic features to facilitate the learning process and improve communication between students and resource people.

In this system intends to establish a multifaceted application which focuses on improving the learning experience of students, and the administration of content in a streamlined manner by the students themselves, and the overall management for system administrators. Students and the resource people amongst them will be able to log in and out, update their profiles, and even use the chats and chat groups. Resource people will be able to create courses, add assignments, and enroll students for specific courses as well as view student answers to definite questions. This particular means that students will have the ability to search for courses, demand for assignment and even check on their scores. Student Affairs have directed supervision over the entire system including adding resource people and ordinary student accounts, viewing and editing them, and even deleting them. Also, the system shall also consist of a section where the machines will help the learners in choosing favorable careers according to the scores they acquired in their examinations thereby adding value to learners' educational experience.

3.2 Objectives of the Project

The main goal of any e- learning platform is to maximize the learners knowledge. Thus, in pursuit of these objectives, our platform has the potential to revolutionize the learners' educational process, especially the software engineering students, thereby enabling them gain all the necessary knowledge, skills, tools, and support that would assist them throughout their studies and practice.

The Main Objective: To build a mobile based and web based new type of a knowledge-sharing social media dedicated solely for the students in a field of software engineering.

In order to fulfill the main objective following goals have to be achieved:

- **Facilitate Seamless User Experience**

Make the registration and sign in/sign out process of students and resource people as straightforward as possible.

Make certain that all its features will be available for both the mobile and web applications, and this would allow flexibility and convenience.

- **Promote Collaborative Learning and Knowledge Sharing**

Allow resource people to open group conversations and sections by which students can communicate with the resource people and other students.

Enable the addition of assignments by the resource people, enrolment of students and submission of assessments, thereby controlling the educational process.

- **Empower Students with Personalized Learning Tools**

Facilitate the students to make a request for particular courses that meets their needs and preferences thus enriching their learning process.

Develop machine learning models which will predict the best career path for the student according to his/her scores.

- **Enhance Engagement and Communication**

Integrate features that allow students to chat with resource people as they do assignments so as to create a constant online dialogue.

Create a system of notifications for the distribution of the important information about courses, due dates for the assignments, and other vital events.

- **Streamline Administrative Tasks and Ensure Platform Integrity**

Endow administrators with options to insert, manage and eliminate users and other people helping in the process, which will make user management easy and contribute to the platform's stability.

It is crucial to use advanced security measures to ensure users' information and the platform's outcome reliability.

- **Leverage Advanced Technologies for Enhanced Functionality**

Apply machine learning to try to diagnose student's exam results and give prognosis about the further occupation, which will assist in making the decision.

Ensure the use of analytics that measures the overall uptake and performance of the users that use the platform to enhance the platform.

- **Create a Comprehensive Resource Hub**

Create a course, assignment, and industry references library and be able to be searched to access one-stop information on software engineering.

- **Foster a Community of Continuous Learning and Innovation**

promote learners' interaction whereby learners can learn from each other and develop strong bonds with experienced workers.

Encourage the exchange of ideas, projects, inventions, and even sophisticated practices within the new learning community.

3.3 Functional Requirements of the System

- **Login Management Function**

  Designed to be used by students and resource people. This function provides the following functions:

  - Students and Resource People shall be able to sign in and sign up.
  - Students and Resource People shall be able to manage their profiles.

- **Resource People Function**

  Provides functionality for the Resource People only. It will not be available to any other student of the system.

  - Resource People shall be able to create group chats.
  - Resource People shall be able to create chats.
  - Resource People shall be able to create Courses.
  - Resource People shall be able to add assignments.
  - Resource People shall be able to add students for courses.
  - Resource People shall be able to view submissions.

- **Student Function**

  This is the Simplest Module. Student can use this. It provides flowing functions:

  - Students shall be able to create chats.
  - Students shall be able to request courses.
  - Students shall be able to do assignments.
  - Students shall be able to view Score.
  - Students shall be able to predict suitable career path based on their exam grades.

- **User Management Function**

  Only useable for the Admin User.

  - Admin shall be able to add students and Resource People.
  - Admin shall be able to view/delete students and Resource People.

3.4 Non-Functional Requirements of the System

The non-functional requirements are do not directly affect the system. But they are very special for success in the system. They Address safety and security, including different user levels with login credentials to control access to system functions based on their role.

These are the non – functional requirements for this system.

- The system should provide a user friendly environment including flexible interface.
- Person with average computer skills can work with the system with a short period of training.
- The system should be accurate and consistent, when manipulating the fed data in proper way and displaying correct information.
- The system should keep up security and reliability, because the system handles important data related to business processes of the company.
- Occasionally backups should be taken to maintain reliability the system should be reusable and maintainable.

4. Proposed Technologies

4.1 Technologies

- HTML – Hyper Text Markup Language is used to build the base interfaces of the system
- CSS – Cascading Style Sheets was used to make the system more attractive and user friendly.
- Php –used to build the system
- JavaScript- this is a programing tool to web development and used for validations.
- JavaScript based AJAX – Used to get data from server. Use of this avoid the requirement of refreshing it continuously.
- JQuery - Which is also based on JavaScript was used to implement some features.
- Flutter Dart Extensions
- Rest APIs
- Firebase

4.2 Tools

- Visual Studio Code - VS Code is a cross platform IDE for flutter Extensions.VS Code provides a dart tools with on-the-fly code analysis, error preventions.
- MySQL - all database related developments were handled using this because development tools, and administration objects are available with this software.

- PhpStorm - PhpStorm is a cross-platform IDE for PHP. PhpStorm provides an editor for PHP, HTML and JavaScript with on-the-fly code analysis, error prevention and automated refactoring for PHP and Java.Script code.

- Firebase / Postman - all database related developments were handled using this because development tools, and administration objects are available with this software.

- Android Studio – Used to display elumintaters.

5. Hardware Requirement

- Hardware recommend by all the software needed.
- RAM: 256MB or more.
- Hard Drive: 10 GB or more.
- Communication hardware to serve client request.

6. Software Requirement

- Web server software.
- Server side scripting tool: PHP-5.6.
- Front end design tool: Html5, CSS3, Java script, Word press, J Query.
- Database Tools : Firebase , Rest APIs , MYSQL DBMS
- App Design Tool : VS code , Android Studio
- Compatible operating system: Windows, Mac.

7. Project Timeline

Task Name	July				August				September			
	01	02	03	04	01	02	03	04	01	02	03	04
Proposal Submission												
Planning												
Analysis and Design												
Coding/Implementation												
Testing												
Final System Delivery												