GPA Calculate Web Application

Python Programming and Group Project Challenge– UGC 22.2

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Introduction

1.1. Background and Context

University students often face challenges in tracking and understanding their academic performance, particularly regarding their Grade Point Average (GPA). Additionally, students are frequently interested in exploring potential job opportunities based on their academic achievements.

Creating a Q&A web application aims to address these needs by providing a user-friendly platform for students to inquire about their GPA, understand its significance, and explore job options aligned with their academic performance.

1.2. Motivation

Many students struggle to navigate their academic journey and make informed career decisions. Creating a tool that empowers students with accurate GPA calculations, career insights, and educational resources aims to enhance their confidence and decision-making.

1.3. Problem Statement

University students face challenges in managing their academic performance and often lack a streamlined process for understanding their Grade Point Average (GPA) and exploring career opportunities aligned with their academic achievements. The absence of a comprehensive tool results in a need for a user-friendly Q&A web application that facilitates GPA calculations, provides insights into job options based on GPA, and offers educational guidance for informed decision-making.

1.4. Project Objectives

- **GPA Calculation Module**

  Develop a user-friendly interface allowing students to input course grades and credit hours.

  Implement an accurate GPA calculation logic based on the university's grading scale and credit hour system.

1.5. Project Scope.

- **User-Friendly Interface**
  Design an intuitive and user-friendly interface to ensure accessibility for individuals with varying levels of technological proficiency.

- **Job Information Integration**
  Integrate the application with a reliable job database or API to provide detailed information about career opportunities corresponding to different GPA ranges

- **Interactive Q&A Features**
  Implement a Q&A system that enables students to ask specific questions about their GPA, academic performance, and career prospects.

- **Scalability and Deployment**
  Design the application to be scalable, considering potential growth in user numbers. Explore deployment options, such as cloud platforms or dedicated servers, for accessibility and performance.

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Methodology

2. Methodology

2.1.Systems Design and Overview

- **Overall Approach**
  The development of the University GPA and Career Guidance web application will follow a modular and scalable approach, ensuring ease of use for students and efficient maintenance. The application will be built using the Flask web framework for Python, providing a lightweight and flexible foundation.
- **System Overview**
  The University GPA and Career Guidance web application will consist of a Flask-based backend handling GPA calculations, job information integration, and user authentication. The front end will feature an intuitive and responsive interface with dedicated sections for GPA input, job exploration, Q&A, and educational content. The system will utilize a relational database for user profiles and job data. Q&A and community features, along with robust security measures, will enhance user

engagement and data protection. The application will be scalable, deployable on cloud platforms, and continuously improved based on user feedback.

2.2.System Components

- **Interactive Elements**
  Forms for GPA input, job search filters, and a Q&A interface will enable seamless user interactions.
- **GPA Calculation Logic**
  A dedicated module will process user-submitted grades and credit hours to calculate the GPA based on the university's grading scale.
- **Job Information Integration**
  The application will communicate with an external API to fetch real-time job information based on GPA ranges.
- **User Profiles and Data**
  A relational database, such as MySQL will store user profiles, GPA data, and other relevant information.
- **Q&A Module**
  A dedicated module will handle user questions, answers, and discussions. Experienced users or mentors may participate in the Q&A section to provide guidance.

2.3.Technologies and resources

- **Frontend Technologies** - HTML5, CSS3, JavaScript
- **Backend Technologies** - Python Flask, MySQL
- **Version Control** - GitHub

Project Plan

3. Project Plan

3.1.Deliverables

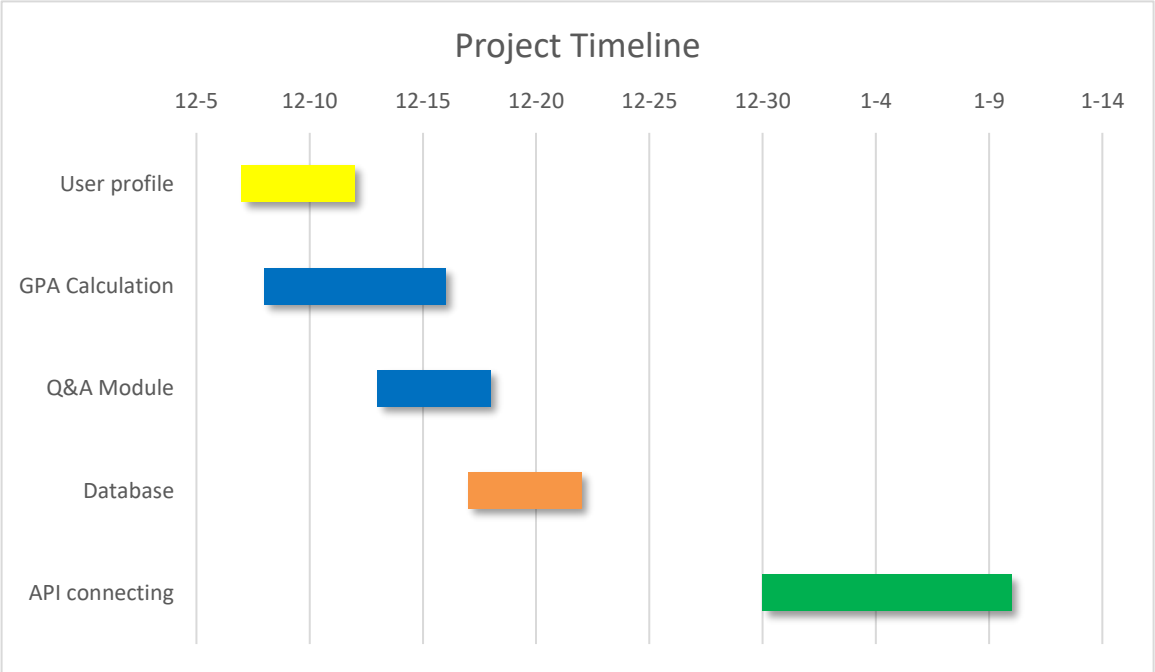
- Displayed GPA results for users with a breakdown of individual course grades.
- Job recommendations tailored to the user's GPA range.

- A dynamic Q&A platform facilitating user interactions and guidance.
- Enhanced understanding of the significance of GPA and its impact on career opportunities.
- Optimal user experience on various devices.

3.2.Work Distribution

Backend Developers - R.A.K.R. Ranasinghe T.P.G.P. Nanayakkara B.G.D.M. Beligala	• Develops the Flask-based backend, handling GPA calculations, job information integration, and user authentication. • Collaborates with the database administrator for efficient data management
Frontend Developer - W.M.V.R. Wijethunga W.H.M.N. Jayawardana	• Designs and implements the responsive and intuitive user interface using HTML, CSS, and JavaScript. • Integrates interactive elements such as GPA input forms, job search filters, and Q&A interfaces. • Ensures a seamless user experience across various devices.
Database Administrator - A.M.J.M. Adikari	• Designs and maintains the relational database for storing user profiles, GPA data, and job information. • Collaborates with backend developers to optimize database queries for efficient data retrieval.
Q&A and Community Features Developer - W.M.A.J. Weerabahu K.D.R. Laksika	• Implements the Q&A module, facilitating user interactions and mentorship. • Collaborates with the frontend developer for a cohesive user interface

3.3.Project Timeline



4. References

- College GPA Calculator - https://gpacalculator.net/college-gpa-calculator/
- IEEE Explore - https://ieeexplore.ieee.org/document/10084961