Namal University, Mianwali

Department of Computer Science

Fair and Unbiased Assessment System

Project Proposal Document

Course Code	CSC-225
Course Name	Software Engineering

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1. Introduction

Traditional assessment methods in Pakistan's education system still mainly rely on manual grading. Some institutions are shifting toward online assessments, but rapid progress in this area has not yet been observed. The traditional method of grading and checking cause problems and unnecessary workload for faculty members. These issues can affect the accuracy and fairness of student evaluations. Therefore, advancement in the field of assessment is necessary for Pakistan's education system.

A web-based tool called **"Fair and Unbiased Assessment System"** is designed to assist university instructors in evaluating students using Artificial Intelligence. The system's main goal is to ensure that each student is assessed equally, fairly, and without errors. Teachers will be able to upload student responses, which the AI model will evaluate and grade using either model answers or predefined rules.

2. Problem Statement

The Manual Grading and Assessment System in Pakistan causes issues. The issues in this sector are like Human errors, the person who takes the assessment may make some errors and have a different mood, one error is biasness, the faculty person has some likes and dislikes, and according to them the person gives good or bad marks, the other error is inconsistency and delayed in the assessment, the person is busy with some moments and for quick response the person made some mistakes.

This is very challenging to ensure fairness and consistency for all students because the evaluation process is still heavily dependent on the the judgment of instructor even in the case where online submissions are available. As a result, an AI based Web application is required to help teachers to evaluate quizzes and assignments in a fair, accurate, and effective manner. This will help to decrease the problems between students and teachers.

3. Project Objectives

The primary objectives of the Fair and Unbiased Assessment System are:

1. To develop a web based system which can markquizes assignment and as well as assignments with the help of artificial intelligence and modern technologies etc
2. The system aim to be minimize the human errors and biases regarding to the grading process and make the grading process very fair and transparent
3. To minimize the teacher's workload make the regarding process very fast and clear without any bias
4. Records the student performance and assessments in the data base so that we can track them easily

5. To allow the faculty members to review, verify and edit AI-generated results
6. The aim to develop the system to provide the transparency and academic integrity to make the education system more reliable and trustworthy .

4. Stakeholder Identification

There are many stakeholders involved in this **Fair and Unbiased Assessment System**. They are connected through different roles with this system, but every person has its important role to make the software successful and good

Stakeholder	**Role**	**Relation to the System**
University Instructors	They are Primary users of software. They will review assesments of student made by AI and give response.	These user use system on every assessment to check the student work very fast.Their feedback helps improve grading accuracy.
Students	The students take feedback and their marks fairly .	The assignments and quizzes are checked by the software without any biasness and mistakes.
System Administrator	They for maintain and manage the system technical operation.	Givig Access of user accounts, make data secure, update is issues occur and fix technical issues.
Uni Management	They see the implementation and monitor, how the system work.	They check and balance of implementation and see that any rule of assessment not break.
Developers	They responsible for developing the web based software.	They code the software, integrate AI tools and functionalities.
Requirement Provider	RP provide the proper guidance and if any changes required.	Review the progress of the system and ensures the all the problems are fixed.
IT Department	They resposible of running software on network within the university.	Check the system runs smoothly on the network and provides technical support.

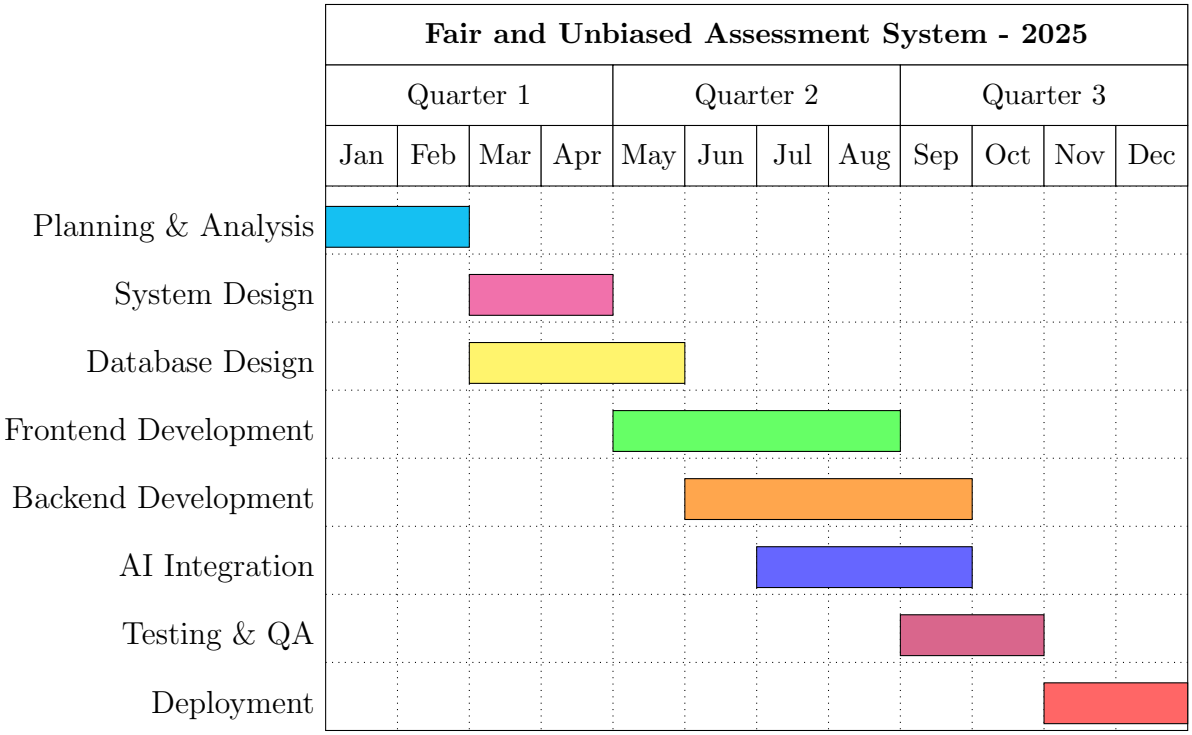
5. Software Development Methodology

We will use the **incremental software Development** for this project which allow this project to develop in a series .Each function is add one by one and after completion of one function, we move toward the next functionality. ensuring the testing , feedback and improvement after the completion of each functionality.

Tentative Schedule

- **Weeks 1–2:** Requirement gathering and analysis with RP.
- **Weeks 3–4:** System design and prototype creation.
- **Weeks 5–8:** Implementation of project, develop the project in multiple increments.
- **Weeks 9–10:** Testing and evaluation.
- **Weeks 11-12:** integration and documentation

Project Timeline - Gantt Chart



6. Tools and Technologies

1. **HTML, CSS, JavaScript (Front-End Development)**
   These tools are used in the development of the front-end. HTML is used to make

the structure, CSS improves the design and layout of the page, and JavaScript is used to make the page interactive and handle form validation.

2. **React.js (Front-End Framework)**
   React.js is used to make a dynamic and responsive interface. It allows the creation of reusable components, making the system faster and easier to maintain.

3. **Node.js with Express.js (Back-End Development)**
   Node.js provides the server-side environment, while Express.js handles the API routes. Together, they enable smooth communication between the database and the AI module.

4. **MongoDB (Database Management System)**
   MongoDB stores student records, assessments, and grading data. It is a NoSQL database that provides fast data access and flexible storage.

5. **Git & GitHub (Version Control and Collaboration)**
   Git is used to track changes in code, and GitHub provides a collaboration platform where all team members can work together without any data loss.

7. References

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