Namal University, Mianwali

Department of Computer Science

Project Proposal for

University Timetable Management System

CSC-225: Software Engineering

Fall 2025

Requirement Provider (Client):

Abdul Rafay

Submitted By:

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1 Introduction

In any education system, time management is very important for both teachers and students. A managed schedule helps everyone stay organized and focused. It is important to balance study time, free slots, and other activities. When a timetable is clear, well planned, and clash-free, students can easily follow their routines and teachers can take their classes without confusion. It defines the schedule of classes, allocates venues, assigns instructors, and ensures that academic activities are processed in an organized manner. Therefore, a proper, efficient, and effective timetable to support smooth learning process in the university.

2 Problem Statement

3 Project Objectives

The major objective of this project is to implement a management system that will provide a platform for creating and managing class schedules and timetables effectively for faculty and students of the university. This project aims to replace the typical paper-based system and provide a centralized digital solution.

The key objectives are:

- To provide a platform where administrators can conveniently create, update, and manage timetables for all departments and courses.
- To help administrators in finding and resolving clashes between classes, instructors, and class venues.
- To implement role-based access for administrators, faculty, and students.
- To design a user-friendly web interface that provides ease of use for all users.
- To allow students and faculty to view updated schedules online whenever changes occur.
- To store previous timetable records for future reference.

4 Stakeholder Identification

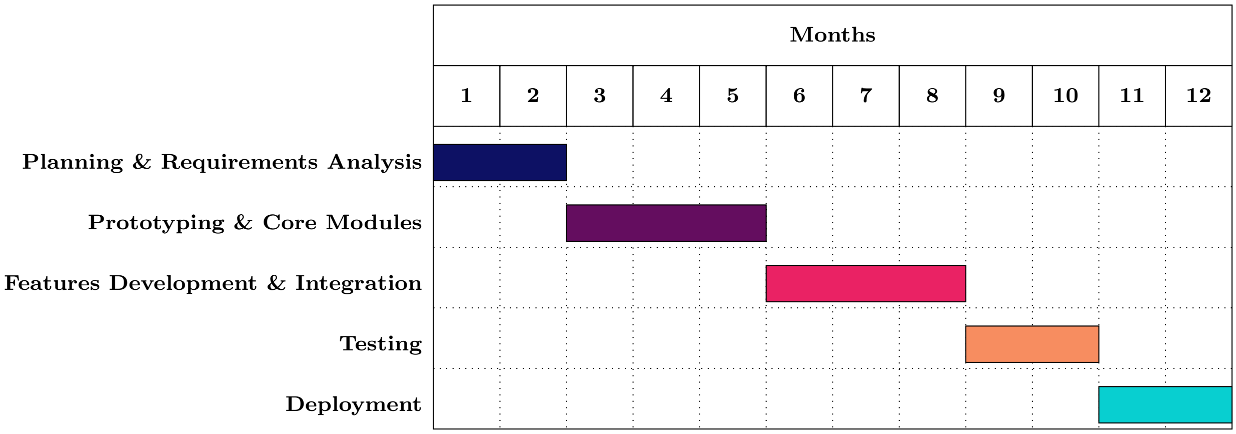
5 Software Development Methodology

For this project, we will use the **Agile (Scrum)** development process. The reason for choosing Scrum is that this project has many constraints due to the multiple roles involved in it, and we need to have continuous communication with Client/RP. Even after extensive requirement analysis, requirements might evolve, Client may want more features, or might not features already developed. So, having an iterative approach is beneficial for effective development and Scrum will provide us a facility to accommodate these changes. In Scrum, system is divided into sprints where each sprints is communicated with Client, feedback is noticed and changes are applied which in result rectifies the overall system. Continuous involvement of stakeholders shall assure us that developed system meets user requirements and needs and issues are identified early which makes development effective. According to one year development schedule, project will be divided into phases as **Scrum sprints**. **Each sprint spans one month**, hence there are 12 sprints such as:

Phase	**Duration**	**Activities**
Planning & Requirement Analysis	2 month	Requirement gathering, defining project backlog, and sprint planning.
Prototype & Core Modules	3 months	Develop core modules (user authentication, database setup, basic CRUD operations), front-end interface, and first testing.
Feature Development & Integration	3 months	Develop additional features (advanced modules) and integrate modules, do unit and integration testing.
Testing & Refinement	2 months	Perform system testing, bug fixing, perform refinement based on user feedback.
Deployment & Final Evaluation	2 months	Final deployment and user training.

Table 1: Project Schedule in Sprints

One-Year Agile (Scrum) Development Timeline



6 Tools and Technologies

- **Backend:**
  - MySQL or PostgreSQL (if advanced features are required)
- **Programming Languages:**
  - Node.js for server-side scripting
  - HTML, CSS, JavaScript (or any framework like React/Angular)
- **Web Server:**
  - Apache or Nginx (if better performance is needed with high traffic)

7 References

[1] B. Joy, "Software Engineering Project: Robo Hatch," *GitHub Repository*, 2021. [Online]. Available: `https://github.com/basudebjoy/Software-Engineering-Project-Robo-Hatch/` [Accessed: Nov. 8, 2025].

[2] University of Washington, "Beer Recommendation System Project Proposal," *CSE403: Software Engineering Course*, 2012. [Online]. Available: `https://courses.cs.washington.edu/courses/cse403/12sp/Projects/proposals/brdmstr-proposal.pdf` [Accessed: Nov. 8, 2025].

[3] H. Techie-Menson and P. Nyagorme, "Design and Implementation of a Web-Based Timetable System for Higher Education Institutions," *International Journal of Computer Applications*, vol. 7, pp. 1–13, 2021.