

Report

OOP Assignment 1

Introduction:

Timetabling system developed for Bahria University H-11 campus aims to efficiently manage the scheduling of courses, teachers, rooms, and students. Initially implemented in the Software Engineering department, the system can be extended to other departments within the university.

Components: Students:

Represented by the Student class, each student has a unique ID, name, email, and section. Teachers: Represented by the Teacher class, teachers have a unique ID, name, and email. They can be assigned to courses. Rooms: Represented by the Room class, rooms have a room number and capacity. They can be assigned to courses. Sections: Represented by the Section class, sections have a name and can include multiple students. Courses: Represented by the Course class, courses have a course code, name, assigned teacher, assigned room, and enrolled students. Time: Represented by the Time class, time slots are defined with start and end times.

Functionality: Teacher Wise Timetable:

The system generates a timetable showing courses taught by each teacher on each day. Student Wise Timetable: The system generates a timetable showing courses enrolled by each student on each day. Room Wise Timetable: The system generates a timetable showing courses scheduled in each room on each day. Day Wise Timetable: The system provides the timetable for a specific day, showing courses, teachers, rooms, and sections. Query Support: The system supports queries such as identifying teachers teaching at a specific time, and retrieving the timetable for a particular day.

Implementation: Classes:

Implemented classes for students, teachers, rooms, sections, courses, and time slots. Timetable Class: Developed the Timetable class to manage the scheduling of courses and provide functionalities like teacher-wise, student-wise, room-wise, and day-wise timetables. Dynamic Allocation: Utilized dynamic memory allocation for objects like rooms, teachers, and students to manage their lifetimes effectively. Data Structures: Utilized maps and vectors to organize and manage course schedules efficiently.5. Sample Output: The system provides interactive options to generate different types of

timetables and supports queries. Example output includes teacher-wise timetables, student-wise timetables, room-wise timetables, and day-wise timetables.

Future Enhancements:

The system can be extended to support more complex scheduling scenarios, such as handling multiple sections for a course. Additional features like conflict resolution and optimization algorithms can be incorporated for better scheduling efficiency.

Conclusion:

The developed timetabling system provides an effective solution for managing course schedules in Bahria University H-11 campus. With its modular design and flexible functionalities, it can be easily adapted and scaled to meet the scheduling requirements of other departments within the university.

This report summarizes the key aspects of the timetabling system developed for Bahria University H-11 campus, highlighting its features, implementation details, and future potential.