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Stay Ahead

Academics Lab Slot Booking

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PROBLEM STATEMENT : STUDENTS LAB SLOT BOOKING BASED ON THEIR AVAILABILITY

MEAN STACK:

The MEAN stack is a collection of JavaScript-based technologies used to build full-stack web applications. MEAN is an acronym that stands for MongoDB, Express.js, Angular, and Node.js.

FRONTEND	Angular
BACKEND	(Express.js + Node.js)
DATABASE	MongoDB

PROBLEM STATEMENT:

Challenges in Academic Slot Booking and Management Systems:

The current system for academic slot booking in educational institutions faces several challenges:

- Inconsistent Booking Process: Different departments manage slot bookings separately, leading to duplicated efforts and varying procedures.
- Schedule Conflicts: Students and faculty often receive overlapping booking options, causing confusion and missed opportunities.
- Venue Management: The system will provide a list of available labs, each with a capacity of 50 seats. Students can see real-time seat availability, and bookings will close once a lab is full.
- Faculty Attendance Management: Faculty will have access to a complete list of registered students for each lab session, with features to mark attendance and view student details.

1. INTRODUCTION:

In educational institutions, lab slot booking is often complicated and disorganized, creating several challenges. Students have to deal with different departments, faculty, and venue options to find their preferred slots. This system aims to simplify the process, allowing students to book lab slots easily based on their availability and preferences. By making the process more accessible and efficient, it seeks to improve overall academic management within the institution.

1.1 CHALLENGES FACED:

Complex Selection Process: Students must navigate multiple departments, faculties, and venues, making the booking process complicated.

Scheduling Inefficiencies: The complexity often leads to confusion and scheduling conflicts.

Lack of Real-Time Information:Students struggle with unclear real-time visibility of available slots and venue capacities, making it difficult to make informed decisions quickly.

2.SYSTEM OVERVIEW:

2.1. User Roles

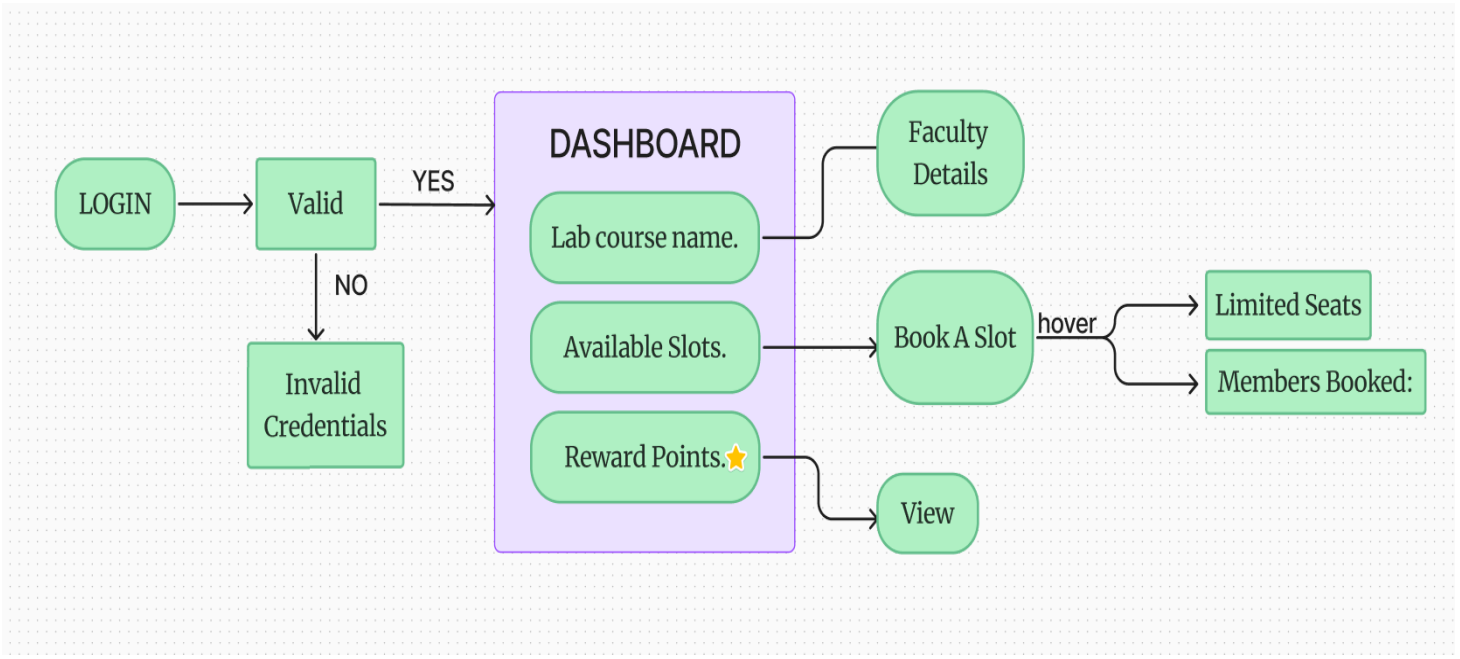
1. **Students**
    - Students can register their preferred timings to book academic slots for the upcoming semesters without any issues. They will provide details like course name, experiment number, name, roll number, and the timings allotted by their course faculty.
2. **Admin**
    - The Admin can view every student's marks and reward points, along with details like department, year, name, roll number, and completed experiments. The Admin also has access to edit and view details of students, faculties, and the rewards team.

2.2. Key Features

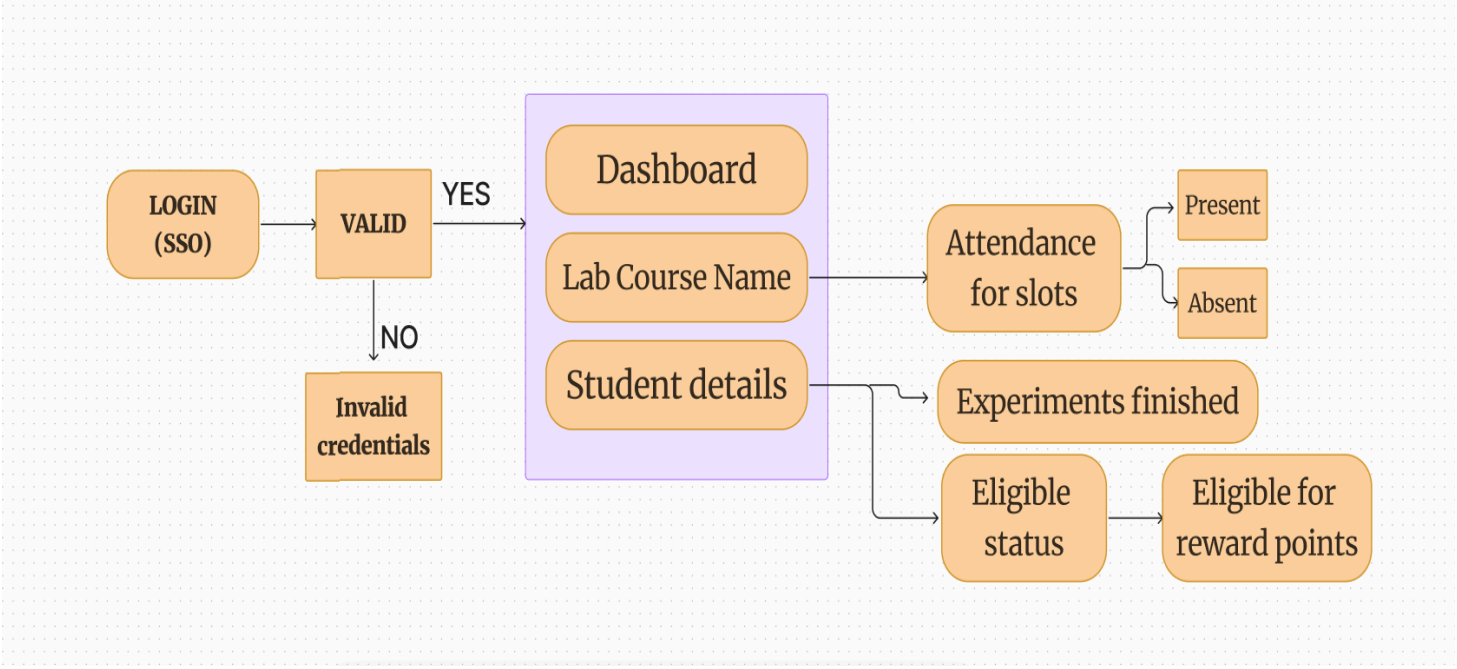
1. **Login**
    - Students can log in to the portal using their college email ID**.**
2. **Registration**
    - Students can register by entering their name and roll number. When selecting a department, the system will automatically display the relevant lab courses for that department. Default timings set by the lab faculty are provided, and students can choose their preferred slots, experiment numbers (either in sequence or randomly), and the venue assigned by the faculty.
3. **Dashboard**
    - The student dashboard shows booked slots, timings, marks awarded by faculty, reward points, and the student's personal details.

3.FLOW CHART:

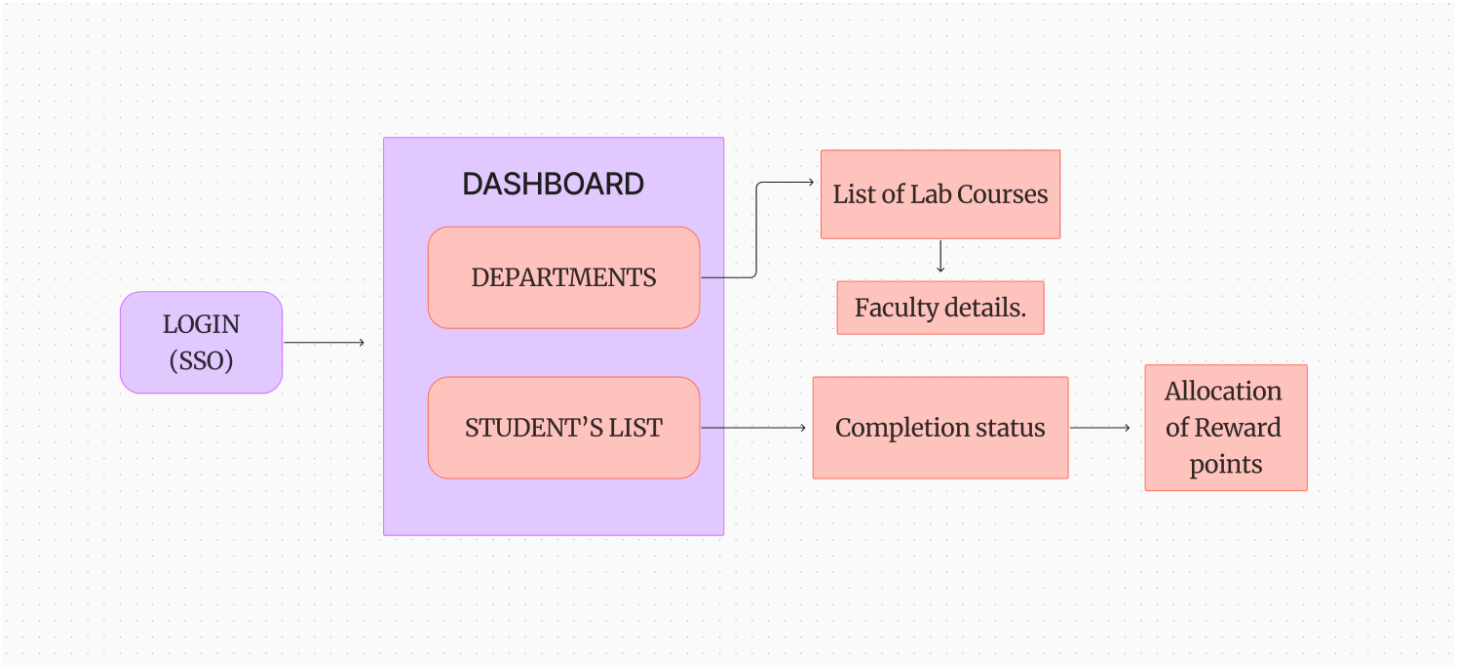
3.1 <u>USER INTERFACE (Student Side):</u>



3.2 FACULTY INTERFACE(Faculty Side)



3.3 REWARDS INTERFACE(Rewards team side)



System Requirements

- Performance:
  - The system should respond within 2 seconds.
  - It should support up to 500 users simultaneously without slowing down.
- Security:
  - Data should be encrypted both when stored and when sent.
  - Users must be securely authenticated, and only authorized users can access specific data.
- User Experience:
  - The interface should be easy to use, requiring minimal training.
- Maintainability:
  - Changes to specific data should not affect other data in the system.
- Reliability:
  - The system should be available at all times, with data recovery options in case of issues.
- Scalability:

- The system should handle a growing number of users and data without affecting performance.