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An Autonomous Institution, Affiliated to Anna University,
Approved by AICTE, Accredited by NAAC with 'A+' Grade

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Project ID	21
Problem Statement	Academics lab slot booking

Description

Students academic lab slot booking based on their availability.

Phase Notes

Stage 1 Planning and Requirement gathering

Stage 2 Design UI/UX and Prototyping

Stage 3 DB Designing and Implementation

Stage 4 Backend Development

Stage 5 Integration and Testing

Stage 6 Deployment

1. Introduction

1.1. Objective

The objective of this document is to provide a comprehensive overview of the Academic Lab Slot Booking System. It will outline the system's goals and functionalities, describe the system's interfaces, detail the system's operations, specify the constraints within which it must function, and explain how the system will respond to external factors. This system is designed to allow students to reserve lab slots according to their availability, promoting optimal use of lab resources and fitting students' schedules.

1.2. Project Scope

This software system serves as a portal for the Academic Lab Slot Booking System, allowing students to reserve lab slots based on their availability. It offers a comprehensive analytical dashboard for administrators to oversee lab usage. Administrators can approve or reject booking requests, and once approved, students can schedule their lab sessions accordingly. The system tracks the days between the booking date and the current date to manage scheduling conflicts, ensuring efficient use of lab resources. This approach helps optimize lab utilization, prevents overlapping bookings, and accommodates students' schedules effectively.

2. Overview

2.1 Users

1. **Students**

   Students can submit applications for lab slot bookings by logging into their college mail id, monitor the status of their booking, schedule lab sessions following approval, and review their booking history.

2. **Faculty**

   Faculty members can provide marks for lab work by logging into their college mail id, track how much of each experiment has been completed by students, and oversee the progress of lab activities.

When a student book a slot it will notify the certain faculty about the slot booking.

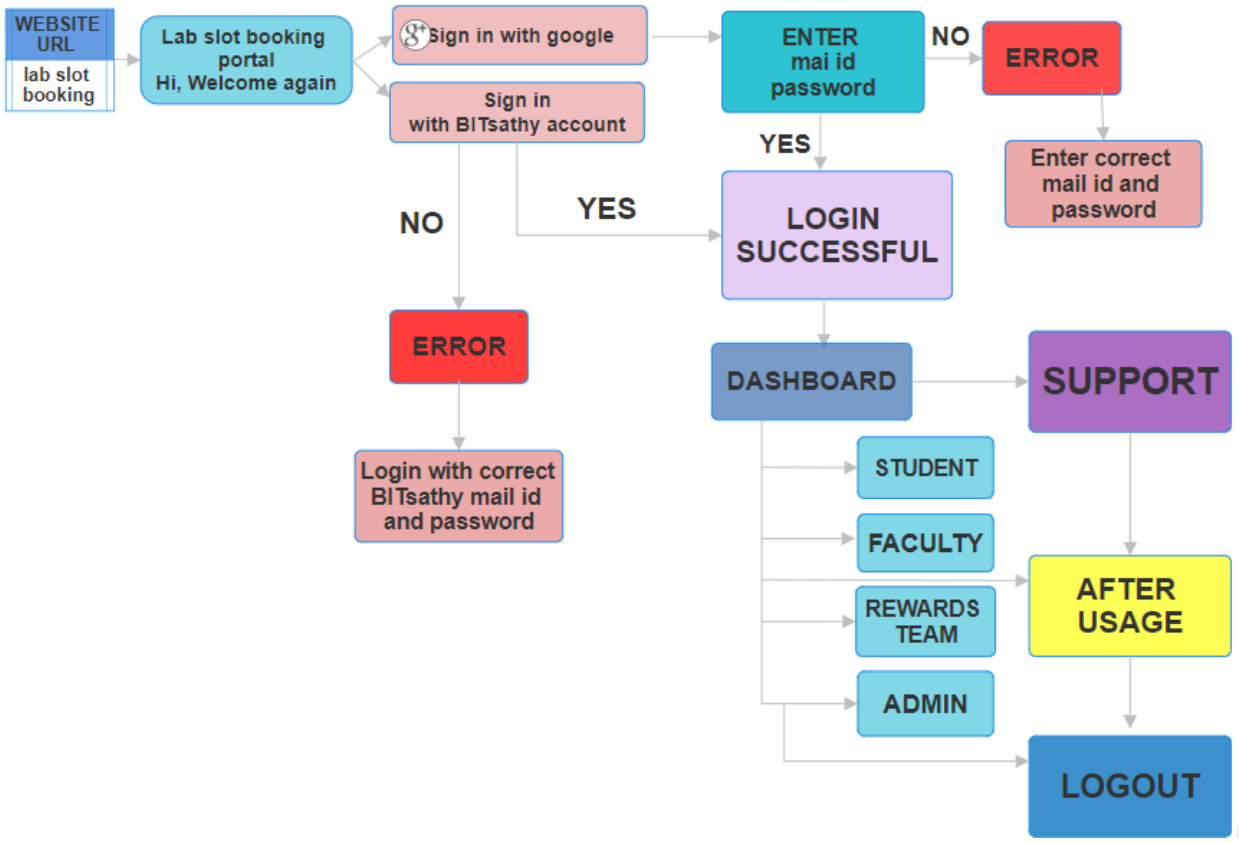
3. **Rewards Team**

The rewards team can access all aspects of the system except the settings. They are responsible for allocating reward points to students based on their lab performance and completion of experiments.

4. **Admins**

Administrators have full control over the system. They can view and can also edit all submitted lab slot booking applications, approve or reject applications with suitable remarks, schedule lab sessions, and edit all settings and configurations within the system.

Flowchart for dashboard



2.2. Features

1. **Login and Registration**

   Students can register for their labs and faculty , rewards team , admin all can log in with their college mail id.

2. **Lab Slot Booking Submission**

   Students can input relevant details regarding their lab slot booking application like name , roll number , department , subject name and its code and can select date and timing for the particular experiment choosen. Upon completion, the application is submitted to the admin interface for review and further processing.This student lab slot booking can also be viewed by the certain faculty members.

3. **Application Status**

   Students can view the current status of their lab slot booking application and see history logs in the "Activity" section.

4. **Lab Session Scheduling**

   Students with approved slot bookings can schedule their lab sessions based on availability and approval status.

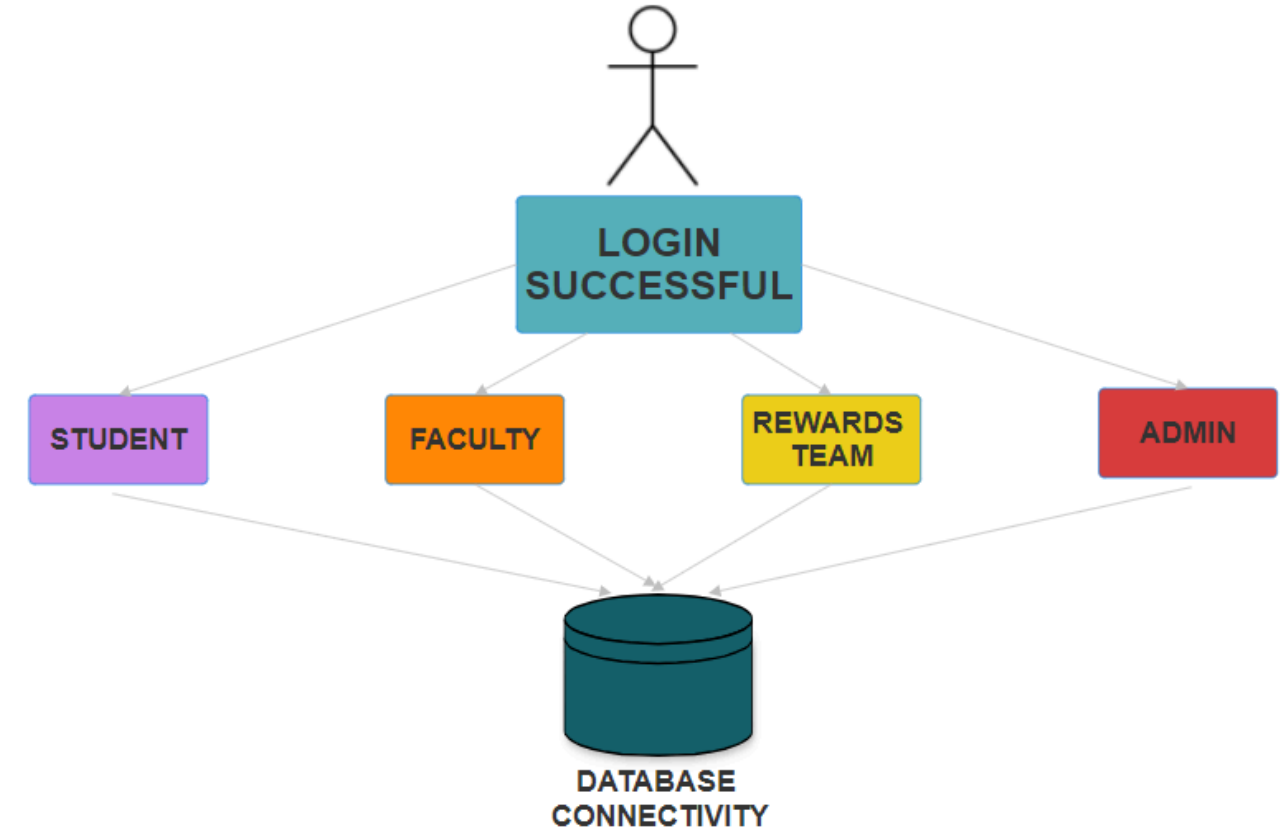
5. **Admin Access**

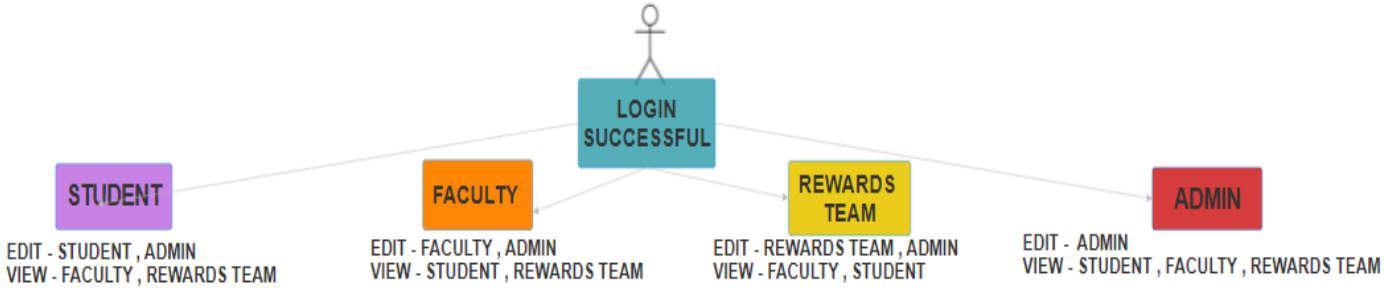
   Admins can view all submitted lab slot booking applications, view application details, approve or reject applications with suitable remarks, and schedule lab sessions.

6. **Admin’s Analytical Dashboard**

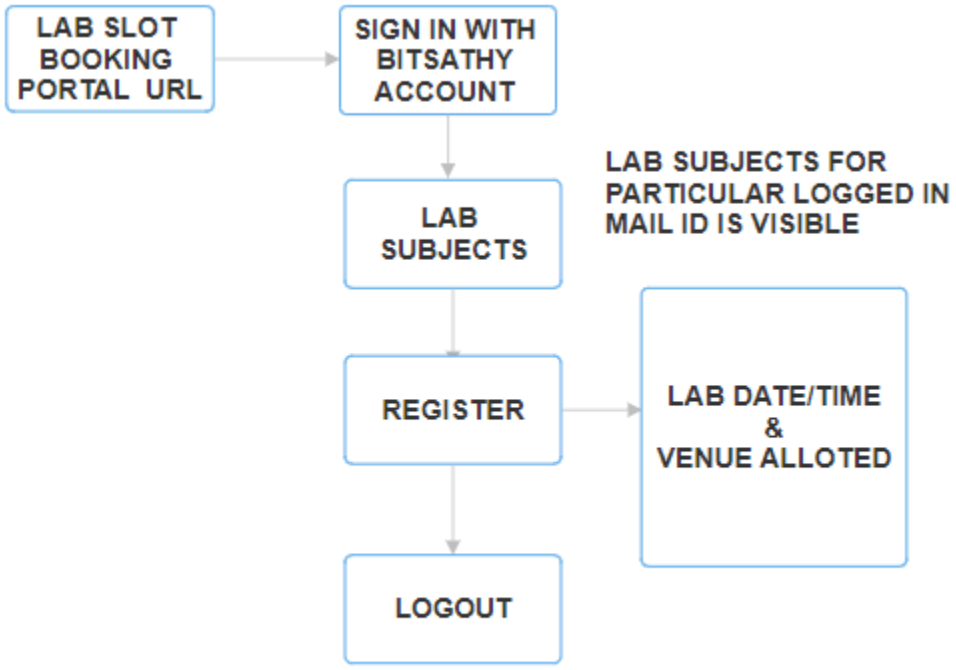
   Admins can view the number of applications by category, lab session requests, and see the latest logs of applications for allotting the venues for students.

3.User


LOGIN SUCCESSFUL
STUDENT
FACULTY
REWARDS TEAM
ADMIN
DATABASE CONNECTIVITY


LOGIN SUCCESSFUL
STUDENT
EDIT - STUDENT , ADMIN
VIEW - FACULTY , REWARDS TEAM
FACULTY
EDIT - FACULTY , ADMIN
VIEW - STUDENT , REWARDS TEAM
REWARDS TEAM
EDIT - REWARDS TEAM , ADMIN
VIEW - FACULTY , STUDENT
ADMIN
EDIT - ADMIN
VIEW - STUDENT , FACULTY , REWARDS TEAM

3.1 Flowchart



4. System Requirements Specification

4.1. Functional Requirements

Student

- Students can register and log in.
- Faculty can provide marks and track experiment completion.
- The rewards team can access everything except settings and allocate reward points.
- Admins have full control with access to an analytical dashboard and dedicated features.

Lab Slot Booking Application

Students can submit applications with appropriate details.

Application form contains:

- Name
- Roll number
- Department
- Lab course
- Experiment number and title
- Total seat available

Application Status

- Students can view the current status of their application.
- If application is accepted, the venue for the lab is shown.
- If the application is rejected, the remarks are shown for what reason it is rejected.

Appointment Scheduling (After Approval)

Students with approved lab slot bookings can find the availability of venue and the date and timing for the lab session.

Faculty

- Faculty members can view a list of all submitted lab slot booking applications by students.
- Faculty members can view details of each application.
- Faculty members can provide marks for lab work and track experiment completion status.

Rewards Team

- The rewards team can view a list of all submitted lab slot booking applications.
- They check whether the student is eligible for gaining reward points or not.
- If the person is eligible he/she can be awarded with certain reward points and the reward points are added to the existing reward points.
- If the person is not eligible then no reward points are allocated.

- The rewards team can view details of each application and allocate reward points based on lab performance and experiment completion.

Admins

- Admins have full access to a list of all submitted lab slot booking applications.
- Admins can view details of each application and approve or reject applications with suitable remarks.
- Admins can schedule meetings for accepted lab slot bookings and manage overall lab scheduling efficiently.

3.2. Non-Functional Requirements

- **Performance**
  - The system must respond to user actions within 2 seconds to ensure efficient usability and must handle a concurrent user load of at least 100 users without significant performance degradation.
- **Security**
  - User data must be encrypted during transmission and storage, and access to sensitive functionalities should be restricted to authorized admin users through secure authentication mechanisms.
- **Usability**
  - The user interface should be intuitive and user-friendly, with clear and concise error messages provided to guide users in case of input errors or system failures.
- **Reliability**
  - The system should be available 24/7 with minimal downtime and should have a backup and recovery mechanism in place to prevent data loss in case of system failures or crashes.
- **Scalability**
  - The system should be designed to accommodate an increasing number of users and data volume over time, and it should be scalable to support additional features and functionalities as per future requirements.

Backend

1. Student entity

Login

student email	String (college mail id only acepted)
password	Hash code

Form submission by student

student name	String
roll number	String
department	String
lab id	String
experiment number	String
date and timing	Sting
faculty	String
seats available	String

2. Faculty

Login

faculty email	String (college mail id only accepted)
password	Hash code

Form notified to faculty for acceptance for slot booking

faculty name	String
department	String
date and timing	String

venue	String
experiment number	String
form accept or reject	String

Mark allotment

faculty name	String
department	String
completion status	String
experiment number	String
mark obtained	String

3.Rewards team

student name	String
department	String
Completion status	String
Mark obtained	String
reward points	String

4. Admin

student name	String
faculty name	String
department	String
date and timing	String
venue	String

TECHNOLOGY USED

Component	Tech stack
Front End	HTML, CSS, JavaScript
Backend	PHP
Data Base	MySQL
Server	Apache
Operating system	linux

TIMELINE

Deadline	Status
26/07/2024	Under review
	Not started
	Not started
	Not started
	Not started
	Not started