Progressive Education Society's

Elab System

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P.E.S's Modern College Of Engineering

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- Data Dictionary
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Project Introduction

- The ELab is built on the premise that teaching lab experiments online may be done more effectively and inexpensively. Students without access to physical laboratories or in situations where equipment is unavailable due to scarcity or high cost can also be given access to the labs. As well as bridging the digital divide and geographic boundaries, this enables them to compete with pupils at schools with richer resources. The experiments are accessible at any time and from any location, eliminating the temporal restrictions associated with having limited access to a physical lab.

Company Profile

- Abhinav DigiCompSoft Services Pvt. Ltd., 915, Satyaniwas, Near Raut Baug, Dhankwadi, Pune 411043, www.abhinavdcs.com

- Foundation Year – 2012
- Services – Websites - Responsive static HTML, Wordpress, e-commerce (WooCommerce, Magento, Prestashop).
  Mobile Apps - Native Android and native iOS apps, Flutter Apps.
  Cloud based solutions - CRM, Payroll, Inventory & Invoice, 3D Modelling, MIS.

- Products – AbhinavMIS, CRM, DigiInvoice, DigiTime

- Clients – Matrix Solutions, Lucoled NV (Netherlands), Cosign NV (Belgium), Pooja Communications, Abhinav Education Society (Pune).

AS-IS Sysyem

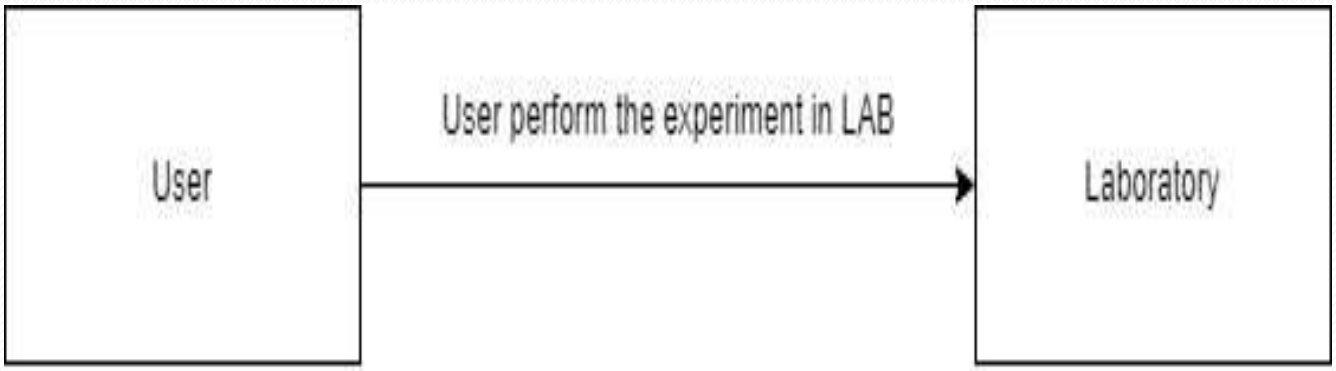


fig:- 1 AS - IS System

AS-IS system limitations

- Limited experimentation: Some AS-IS systems may not allow for a wide range of experimentation or may only support a limited number of experiments. This could be due to a lack of equipment or software capabilities, or the need for expensive materials that are not readily available.
- Inadequate data collection: The current system may not be equipped to collect and store data from experiments, which can be a valuable resource for both students and instructors.
- Limited scalability: If the current AS-IS system is not scalable, it may not be able to support a growing number of students or experiments. This could result in slow or unresponsive system performance, or the need to invest in costly upgrades or infrastructure.

TO-BE System

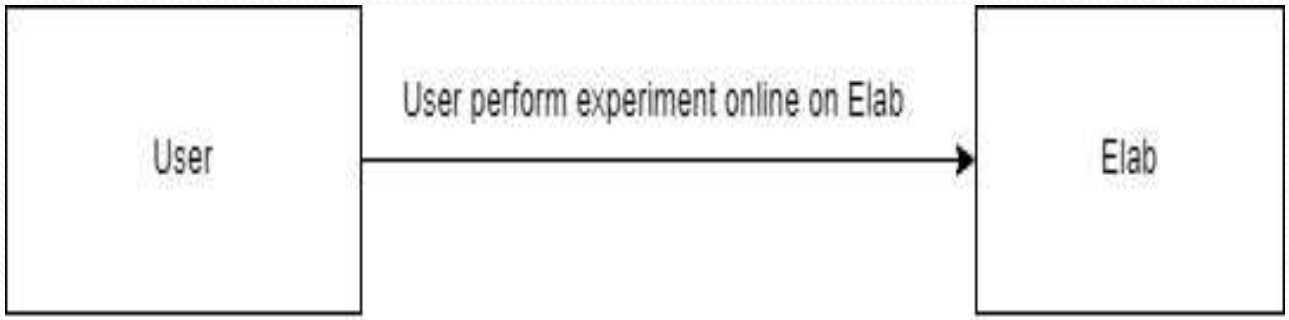
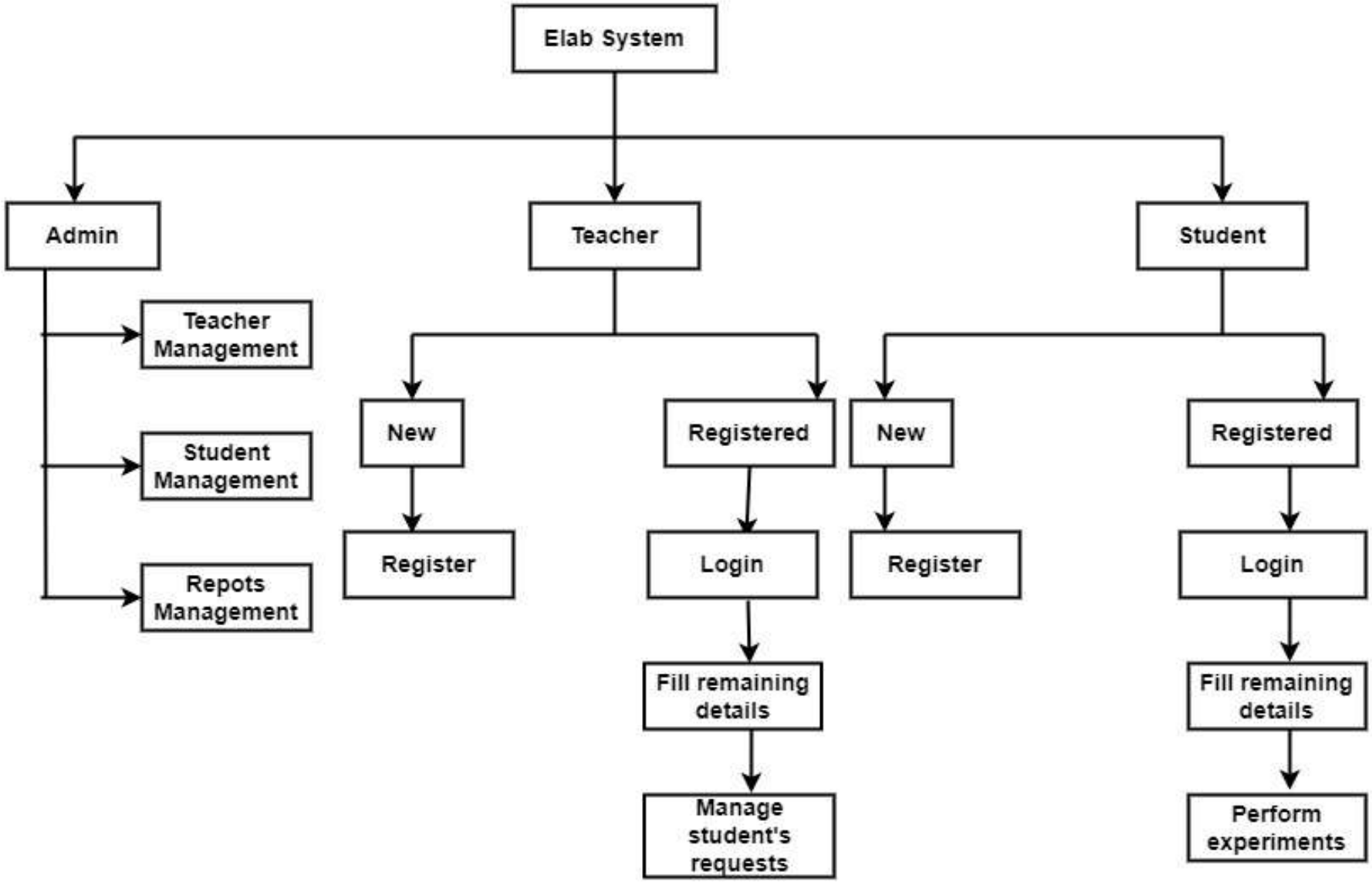
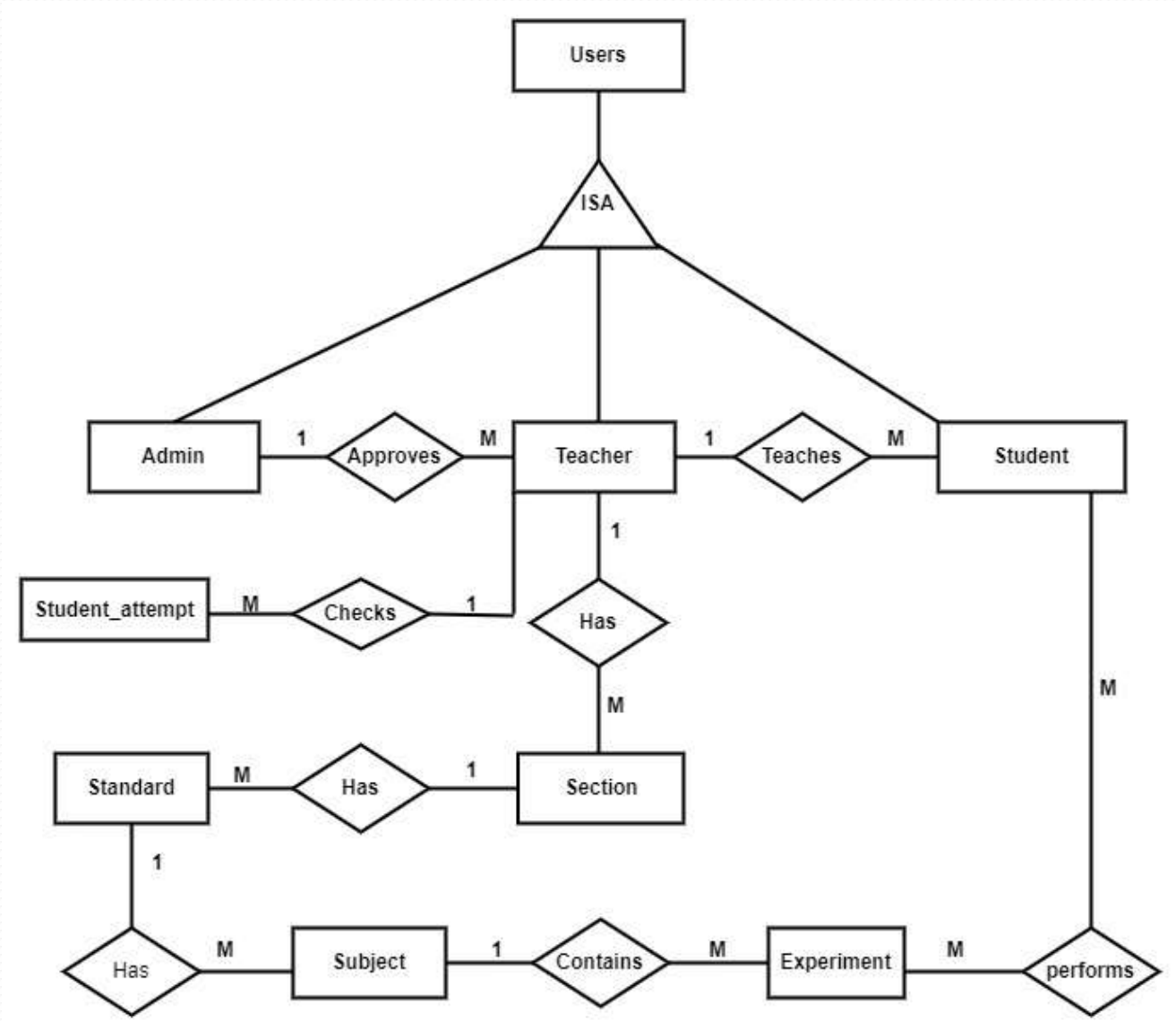


fig:- 2 TO BE System

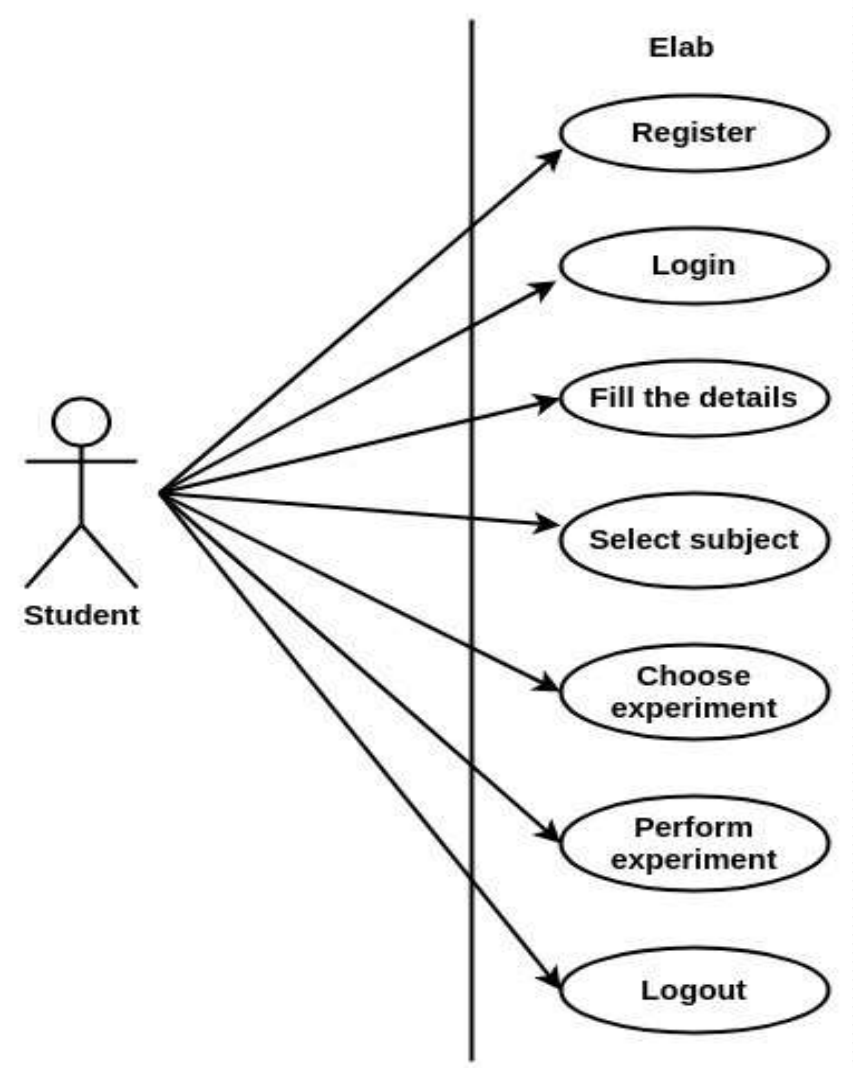
Module Hierarchy Diagram



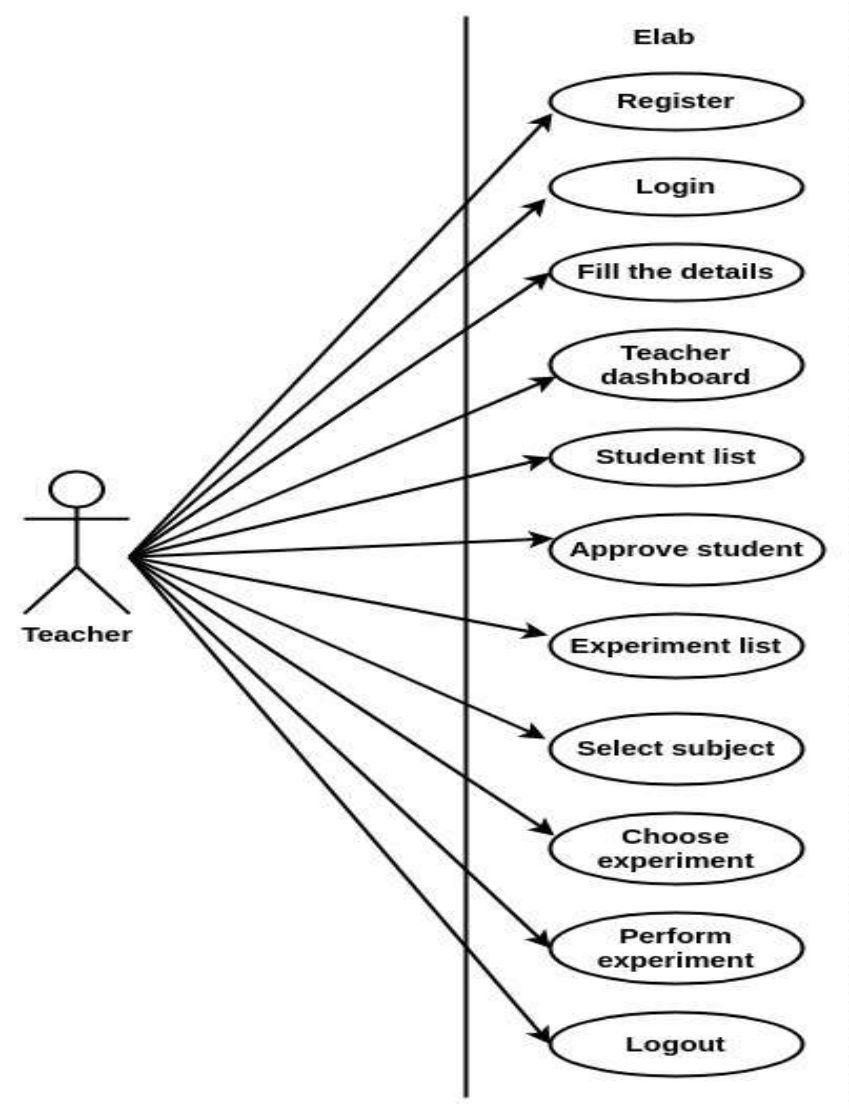
Entity Relationship diagram



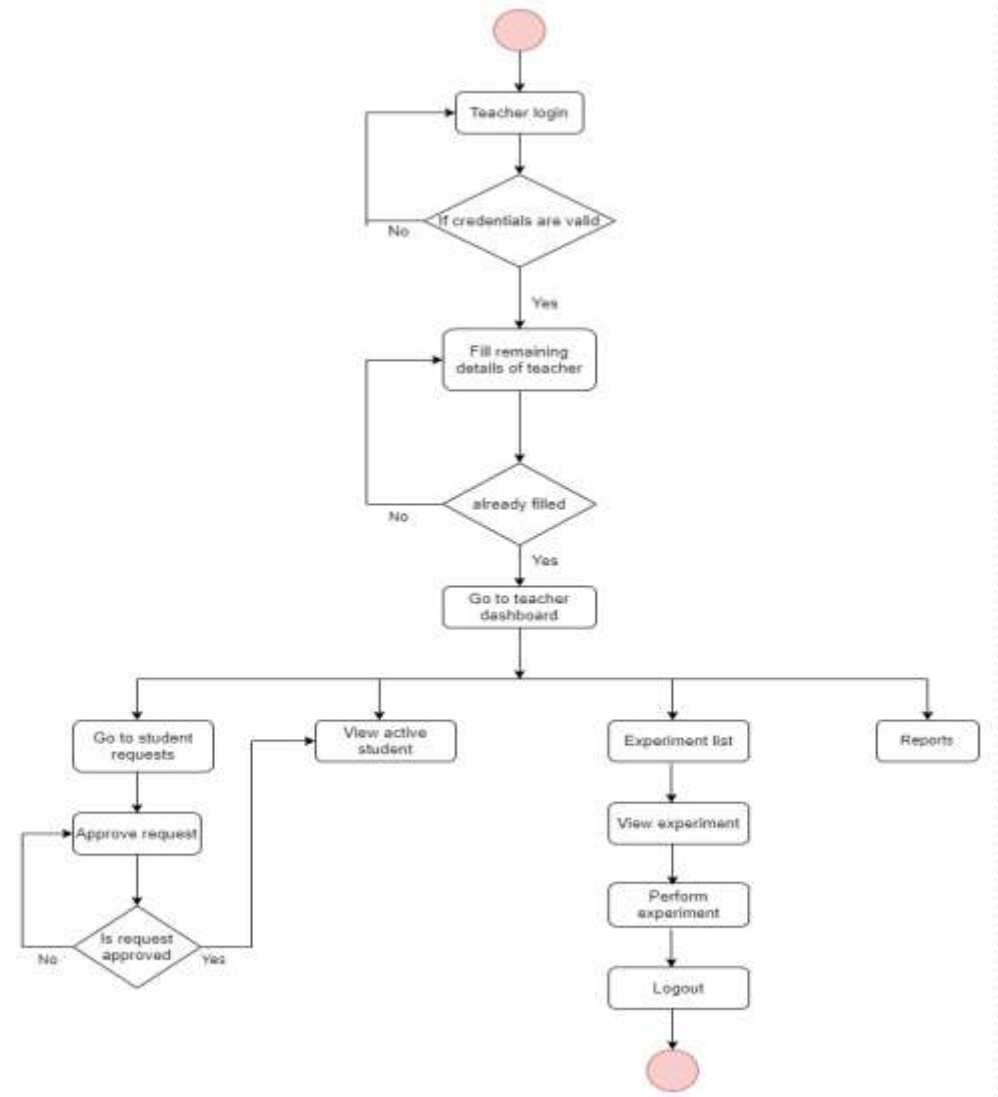
Use case Diagram of student



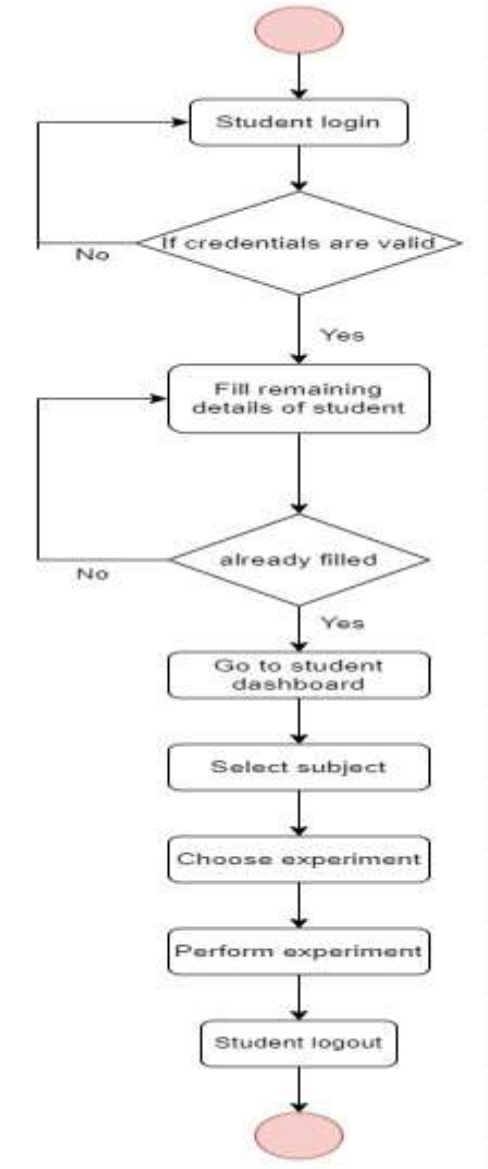
Use case Diagram of Teacher



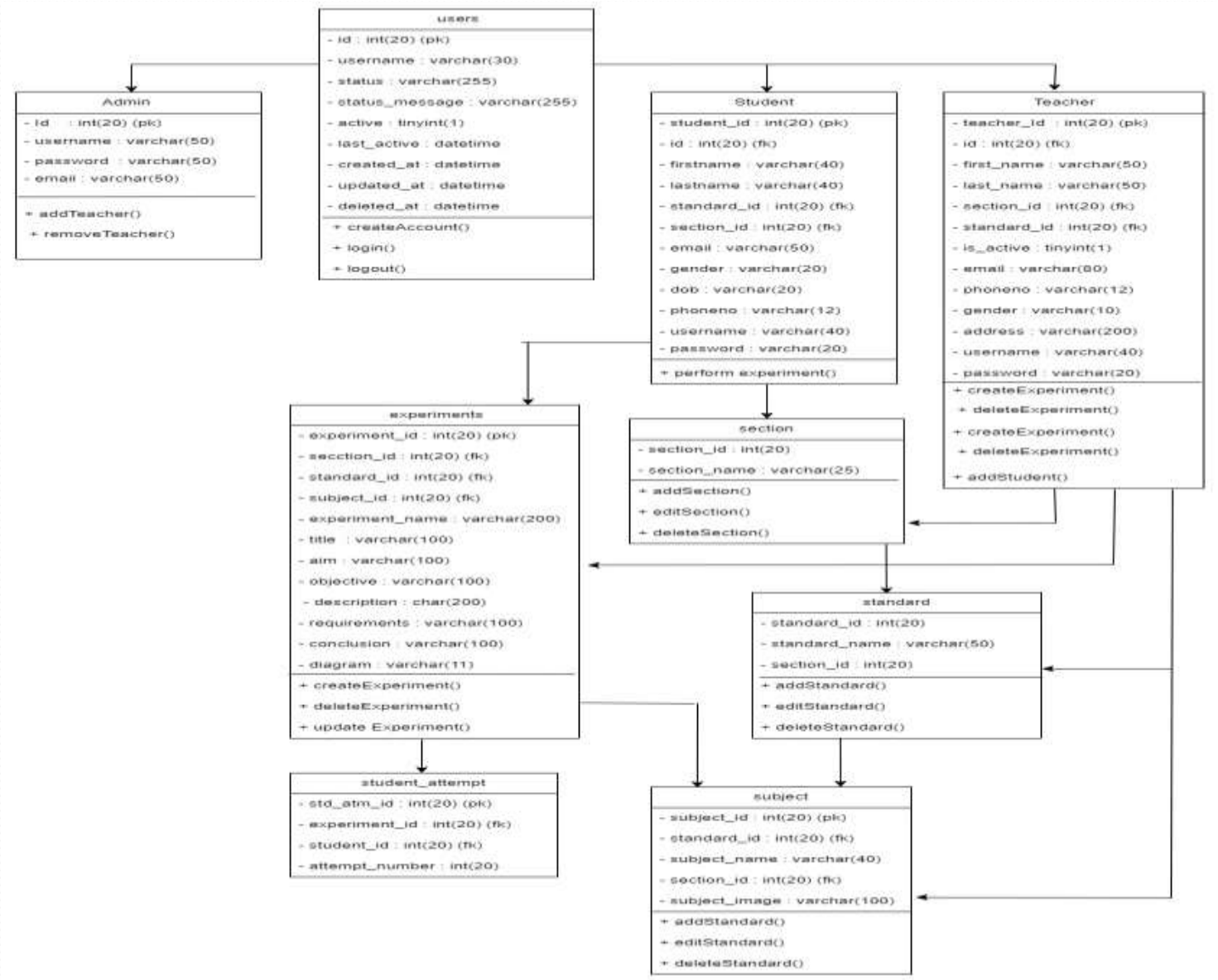
Activity Diagram for teacher:



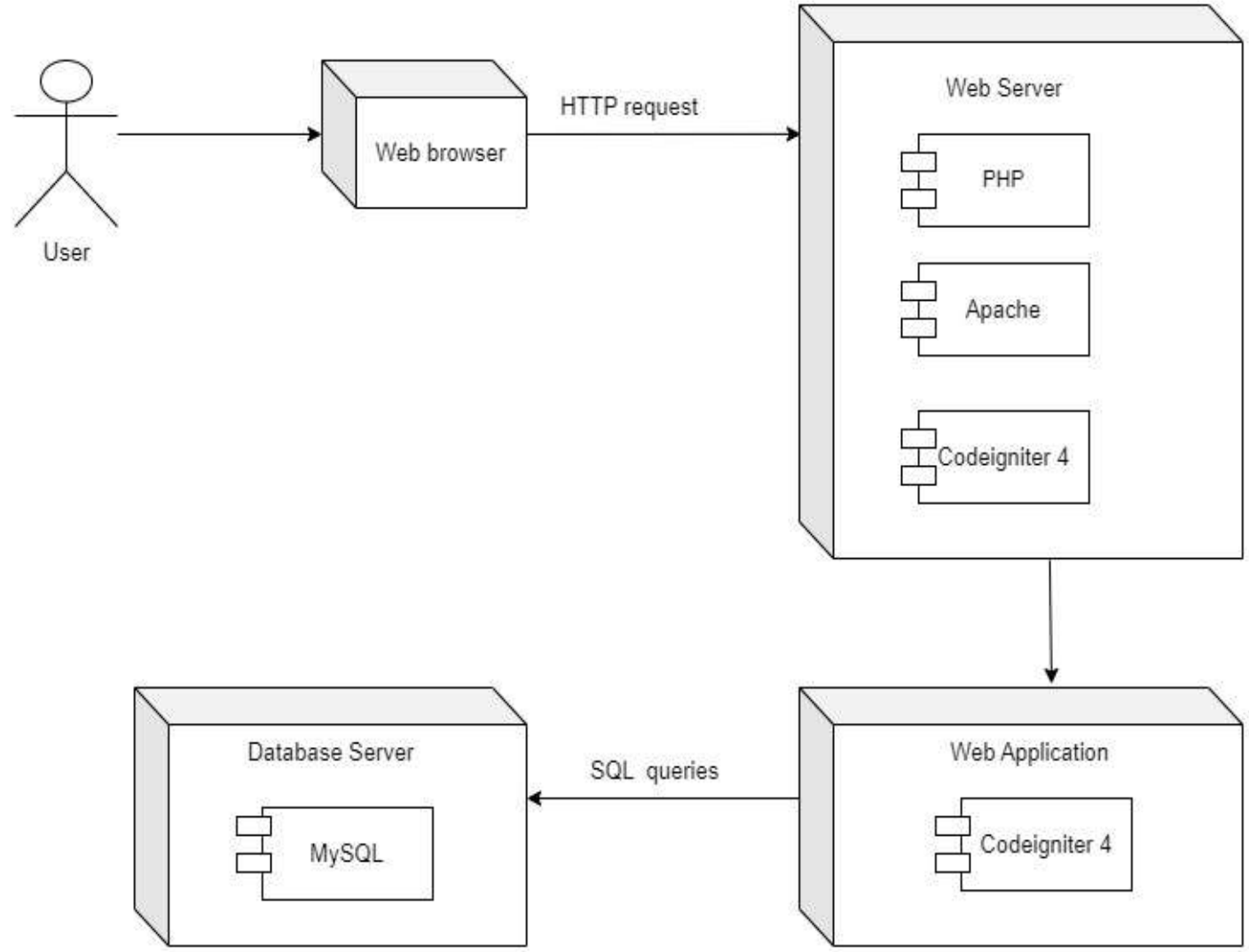
Activity Diagram for student:



Class Diagram



Deployment diagram



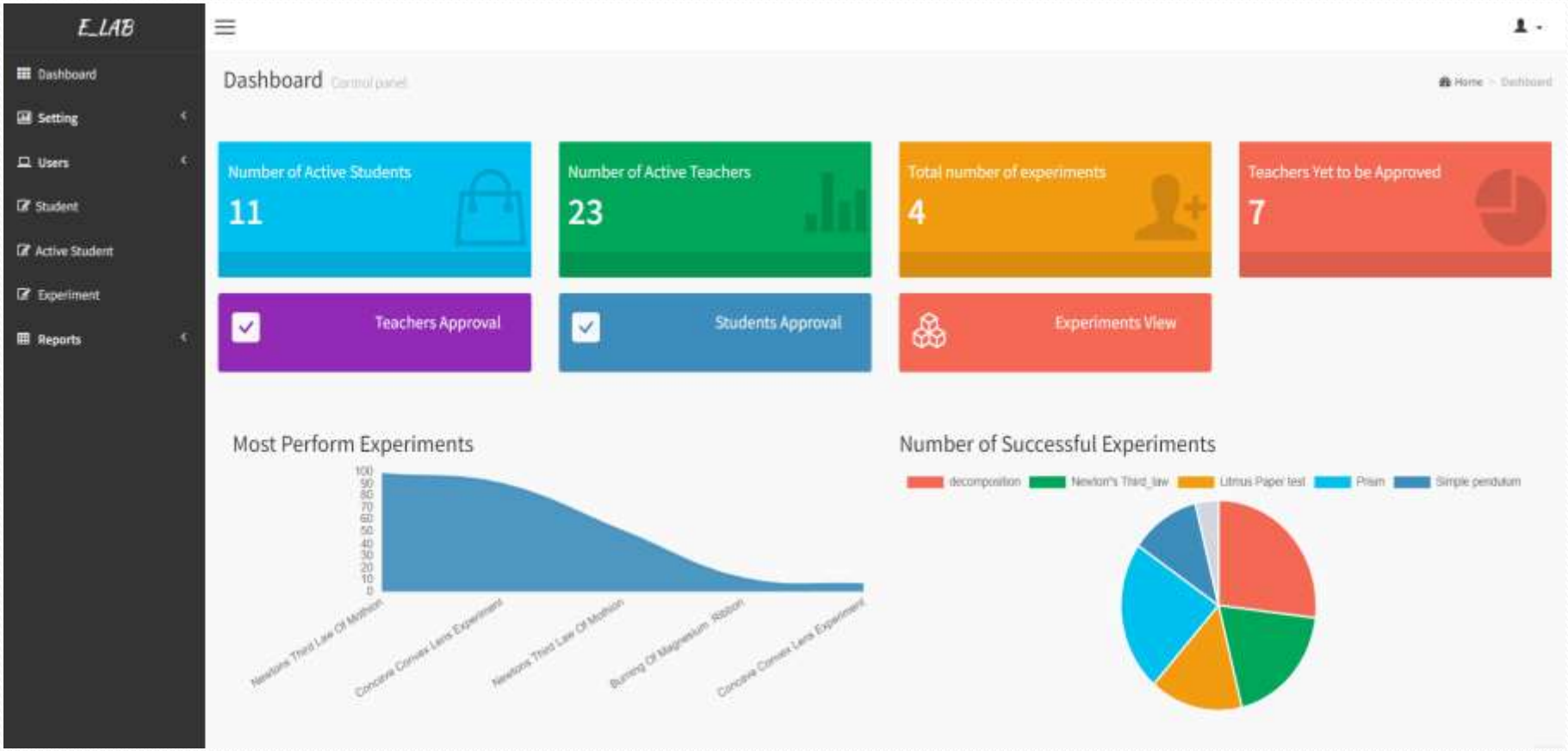
Data Models

- Users: This component would include information about the users of the system, such as their name, email, password, role (student, instructor, etc.), and any other relevant information.
- Experiments: This component would include information about the experiments being conducted, such as the name, description, equipment required, duration, and any other relevant information.
- Equipment: This component would include information about the equipment being used in the experiments, such as the name, description, specifications, and any other relevant information.
- Data: This component would include information about the data being collected during the experiments, such as the type of data, the format in which it is collected, and any other relevant information.
- Results: This component would include information about the results obtained from the experiments, such as the data collected, any calculations or analyses performed, and any other relevant information.
- Reports: This component would include information about the reports generated from the experiments, such as the format in which they are generated, the data and results included, and any other relevant information.

Screen Layouts

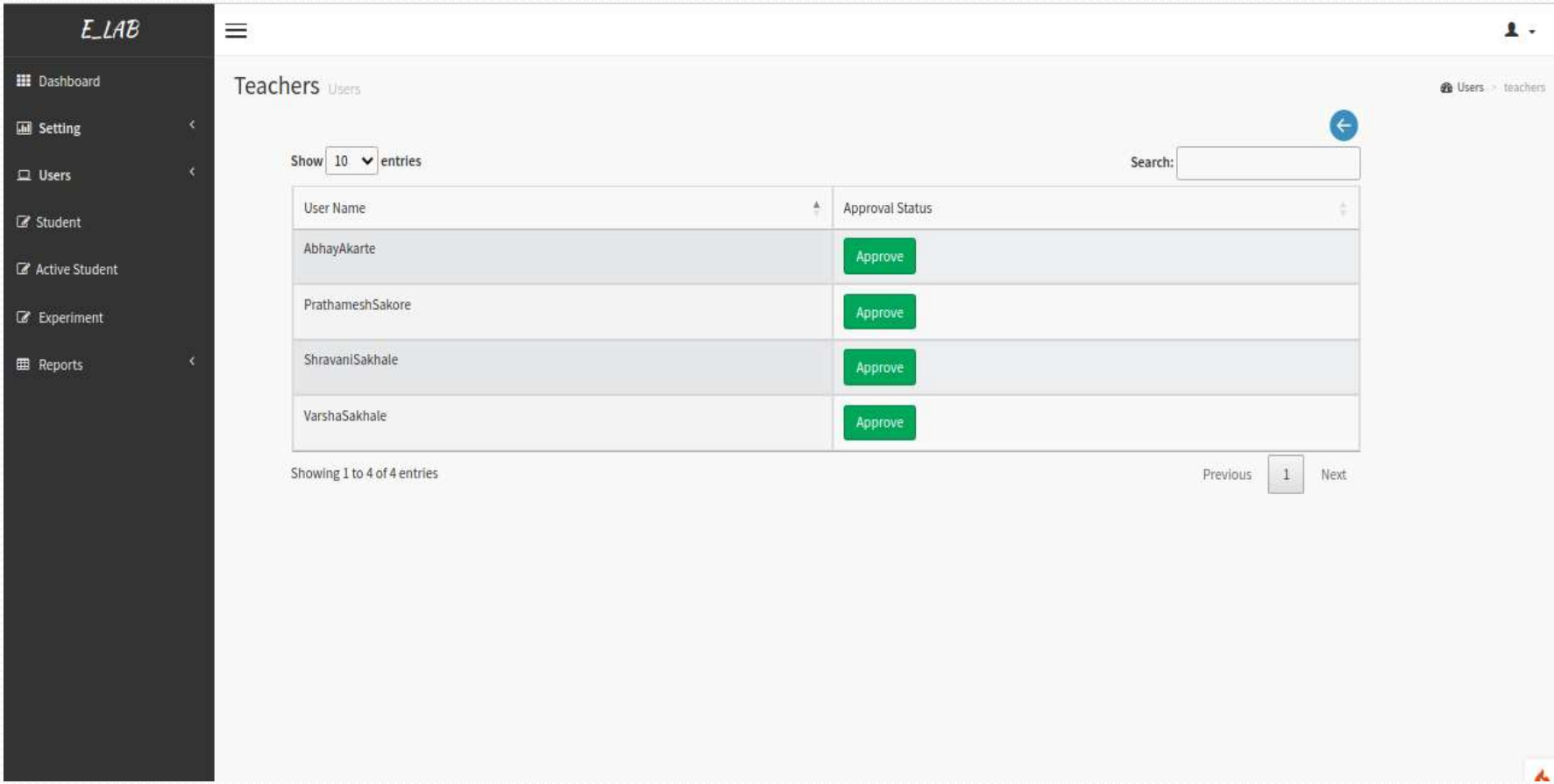
Admin Dashboard :

This is a admin dashboard where admin can handle teacher and student details and has right to approve the request of teacher.

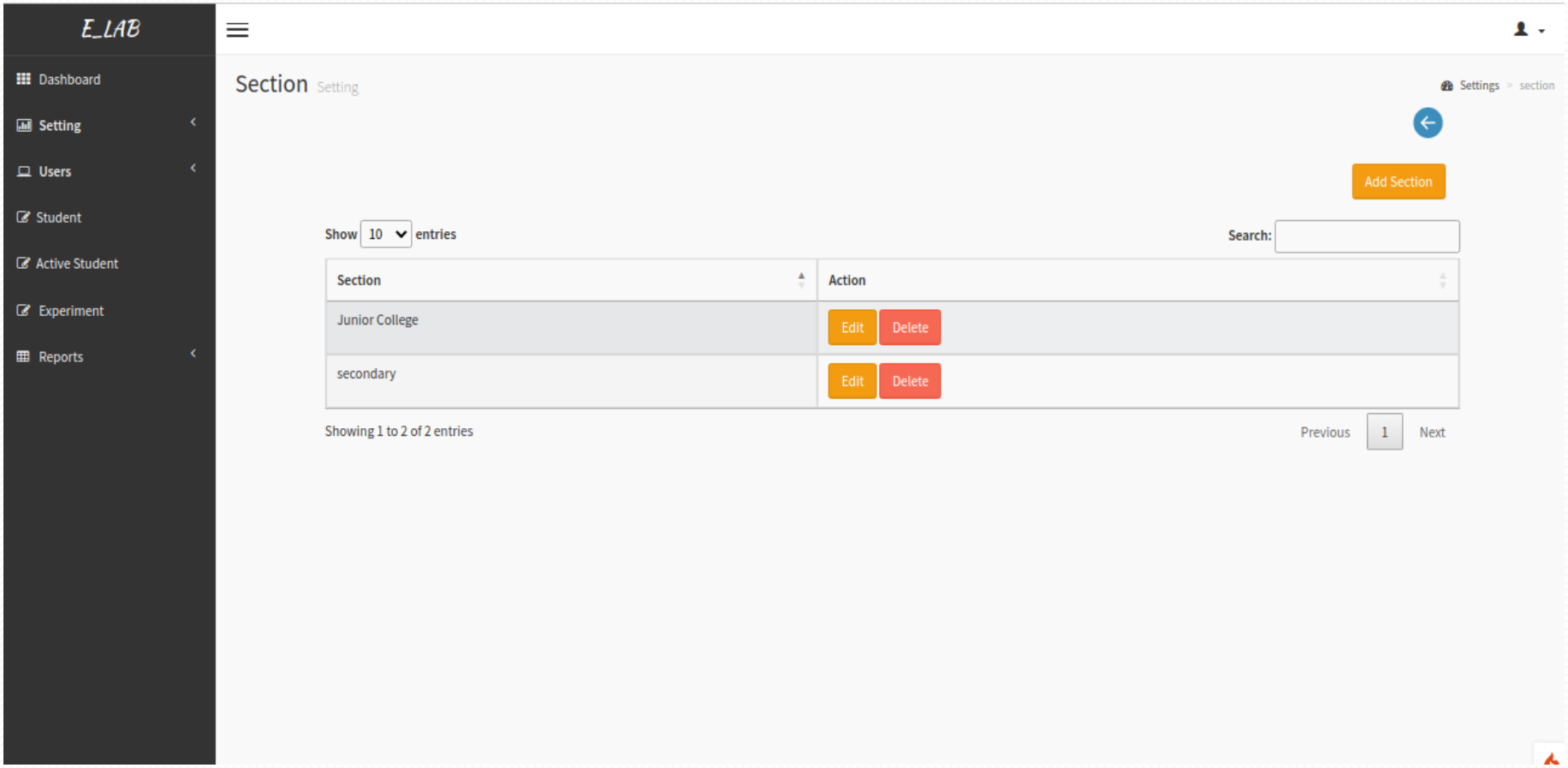


Admin approves teacher's request :

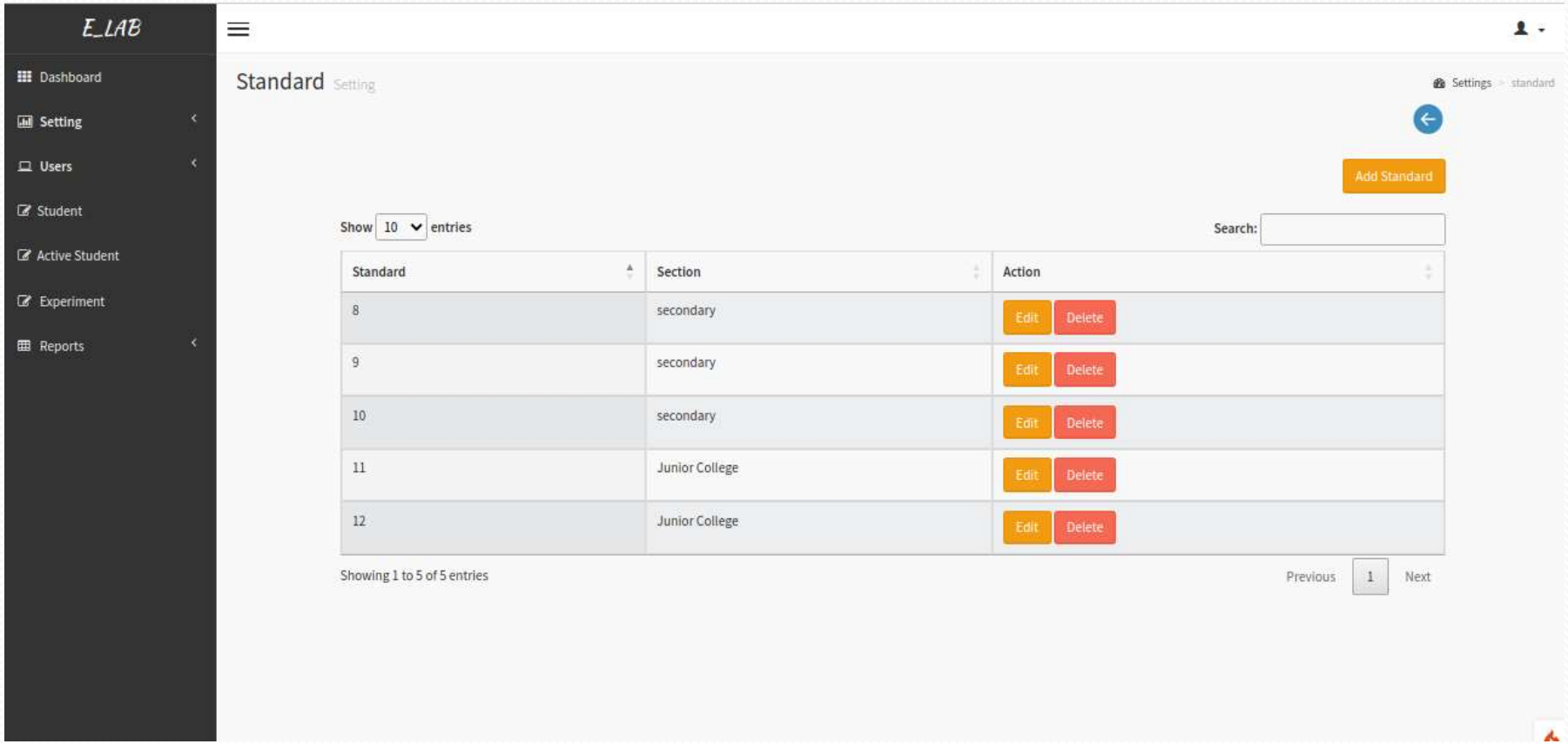
Here admin can see the list of those teachers who have already registered but cannot login until the admin has approved the request.



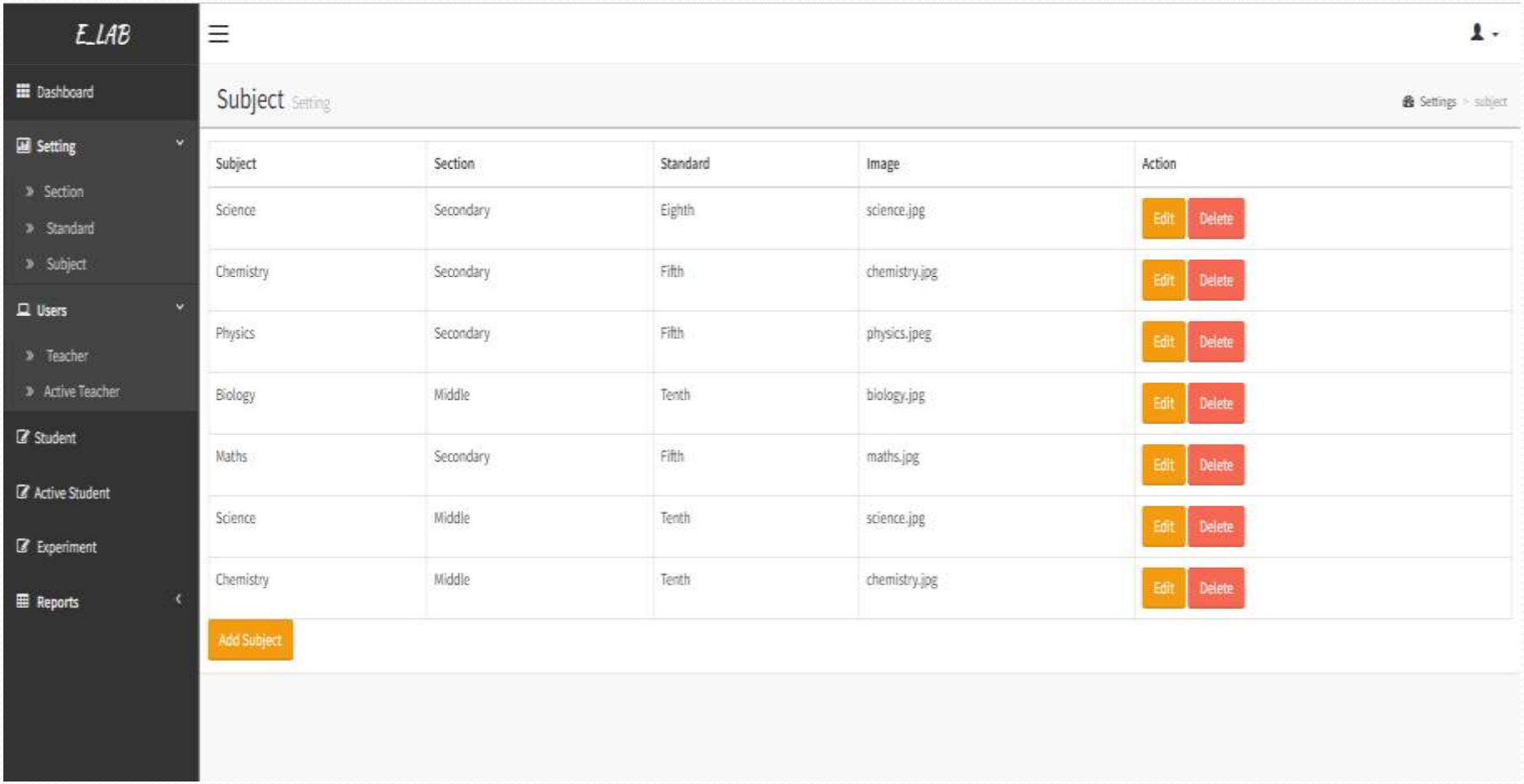
Section :


E_LAB
Dashboard
Setting
Users
Student
Active Student
Experiment
Reports
Section Setting
Settings > section
Add Section
Show 10 entries
Search:
Section
Action
Junior College
Edit
Delete
secondary
Edit
Delete
Showing 1 to 2 of 2 entries
Previous
1
Next

Standard

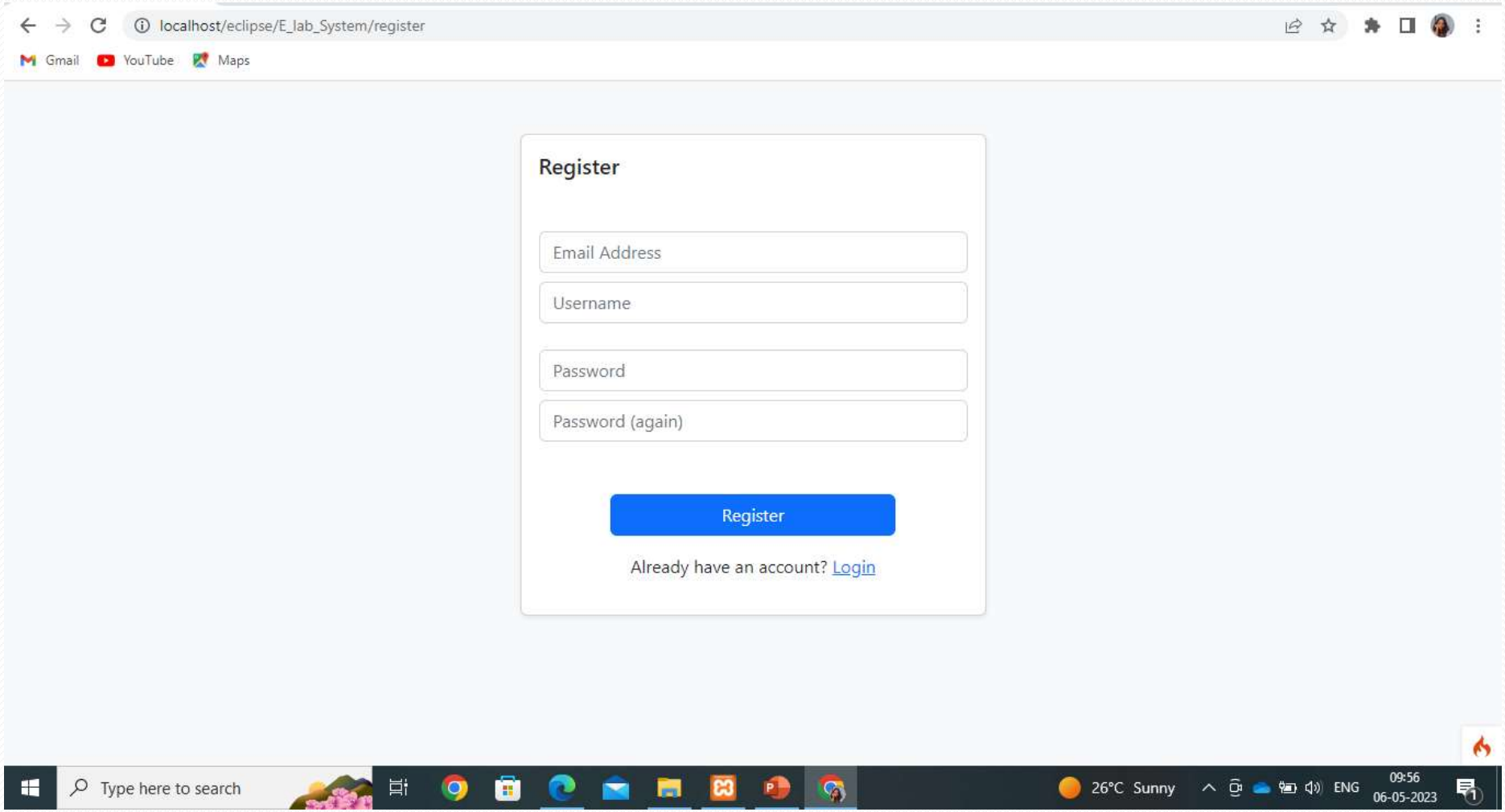

E_LAB
Dashboard
Setting
Users
Student
Active Student
Experiment
Reports
Standard Setting
Settings > standard
Add Standard
Show 10 entries
Search:
Standard
Section
Action
8
secondary
Edit
Delete
9
secondary
Edit
Delete
10
secondary
Edit
Delete
11
Junior College
Edit
Delete
12
Junior College
Edit
Delete
Showing 1 to 5 of 5 entries
Previous
1
Next

Subjects


E_LAB
Dashboard
Setting
Section
Standard
Subject
Users
Teacher
Active Teacher
Student
Active Student
Experiment
Reports
Subject Setting
Settings > subject
Subject
Section
Standard
Image
Action
Science
Secondary
Eighth
science.jpg
Edit
Delete
Chemistry
Secondary
Fifth
chemistry.jpg
Edit
Delete
Physics
Secondary
Fifth
physics.jpeg
Edit
Delete
Biology
Middle
Tenth
biology.jpg
Edit
Delete
Maths
Secondary
Fifth
maths.jpg
Edit
Delete
Science
Middle
Tenth
science.jpg
Edit
Delete
Chemistry
Middle
Tenth
chemistry.jpg
Edit
Delete
Add Subject

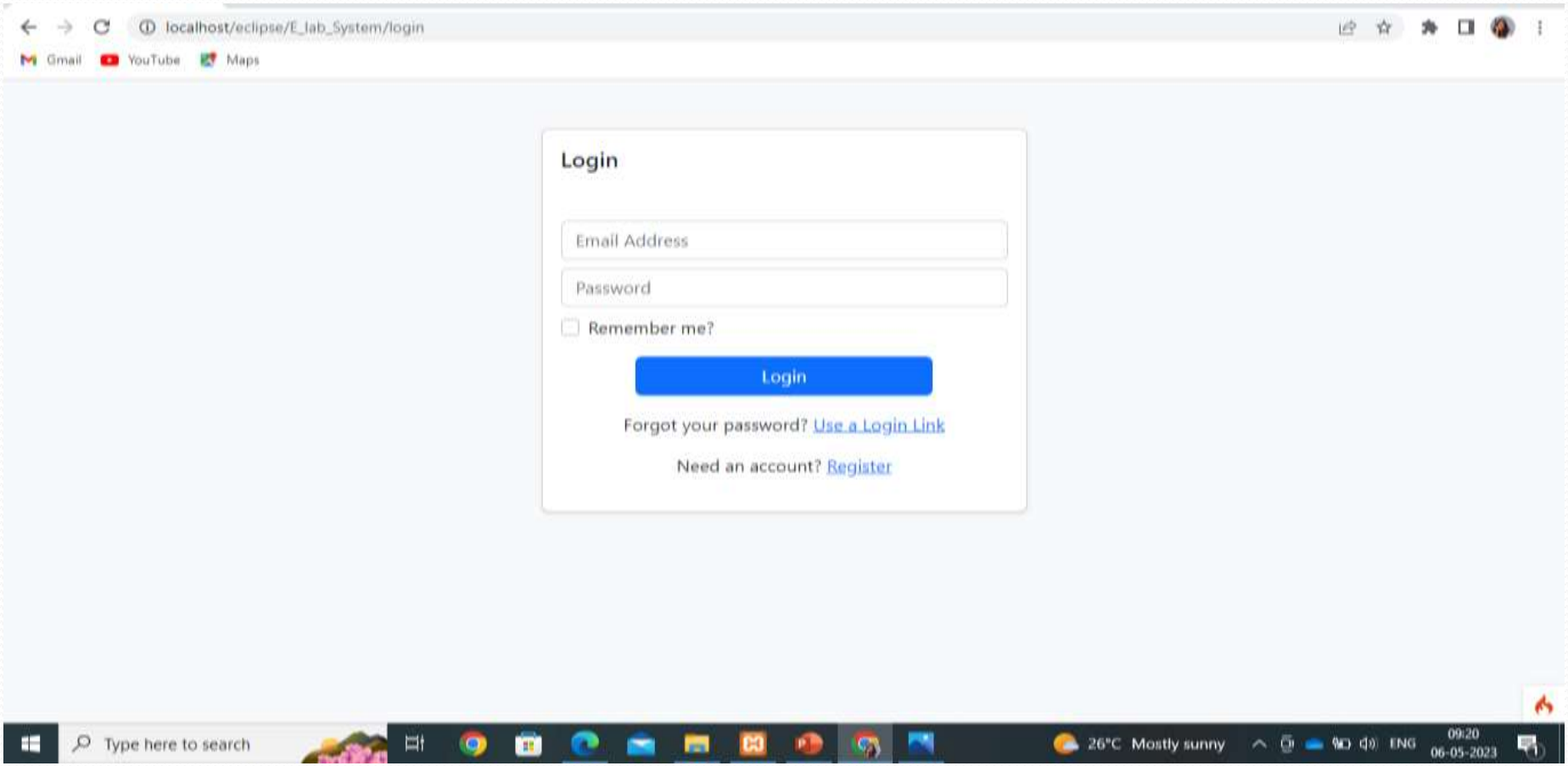
Registration form :

This is a registration form where teacher and student can register.

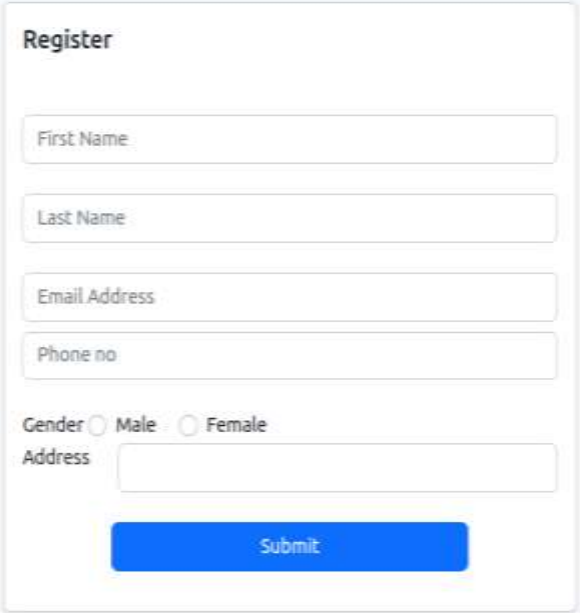


Login Page :

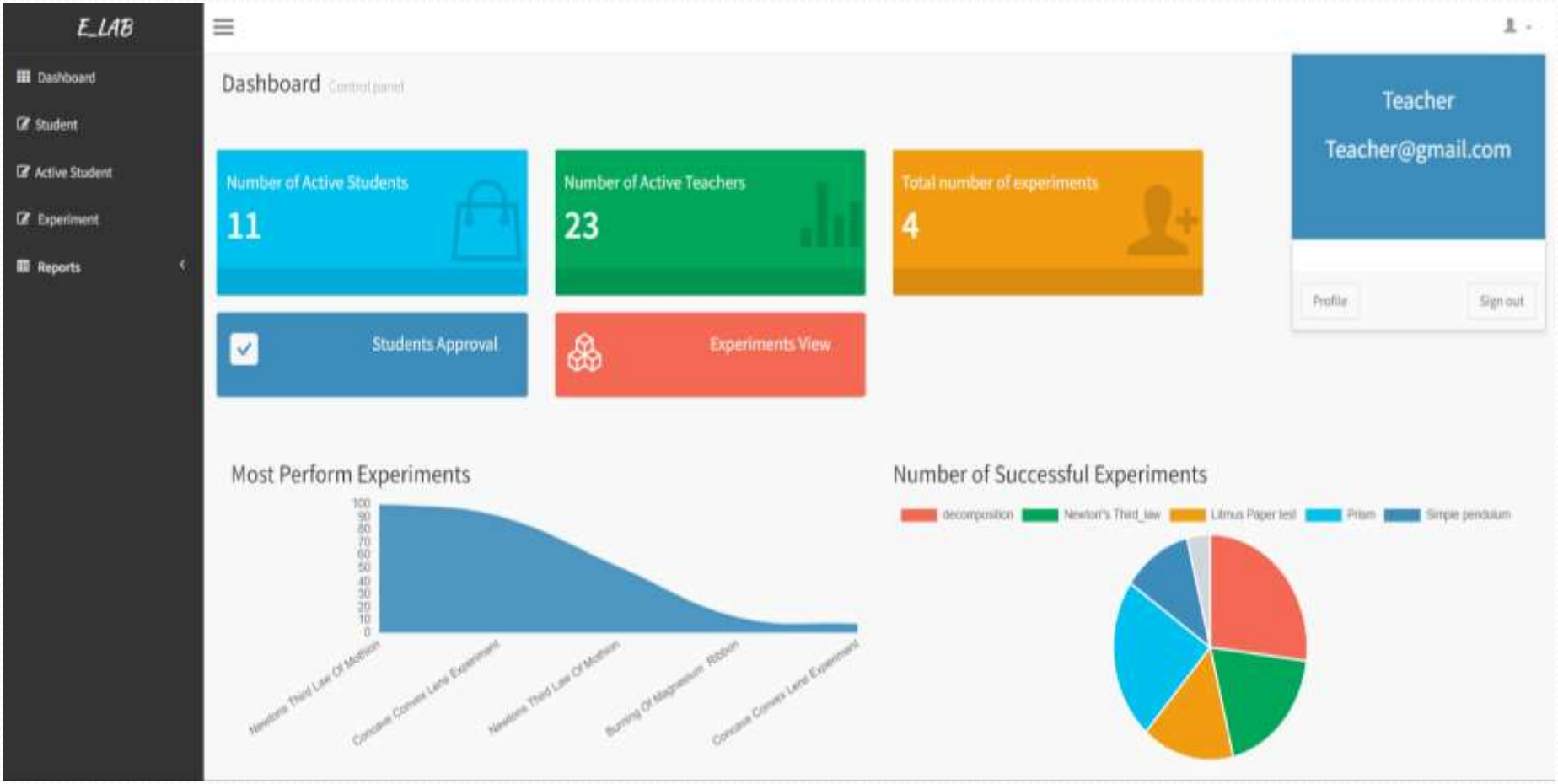
After registration teacher and student can login.



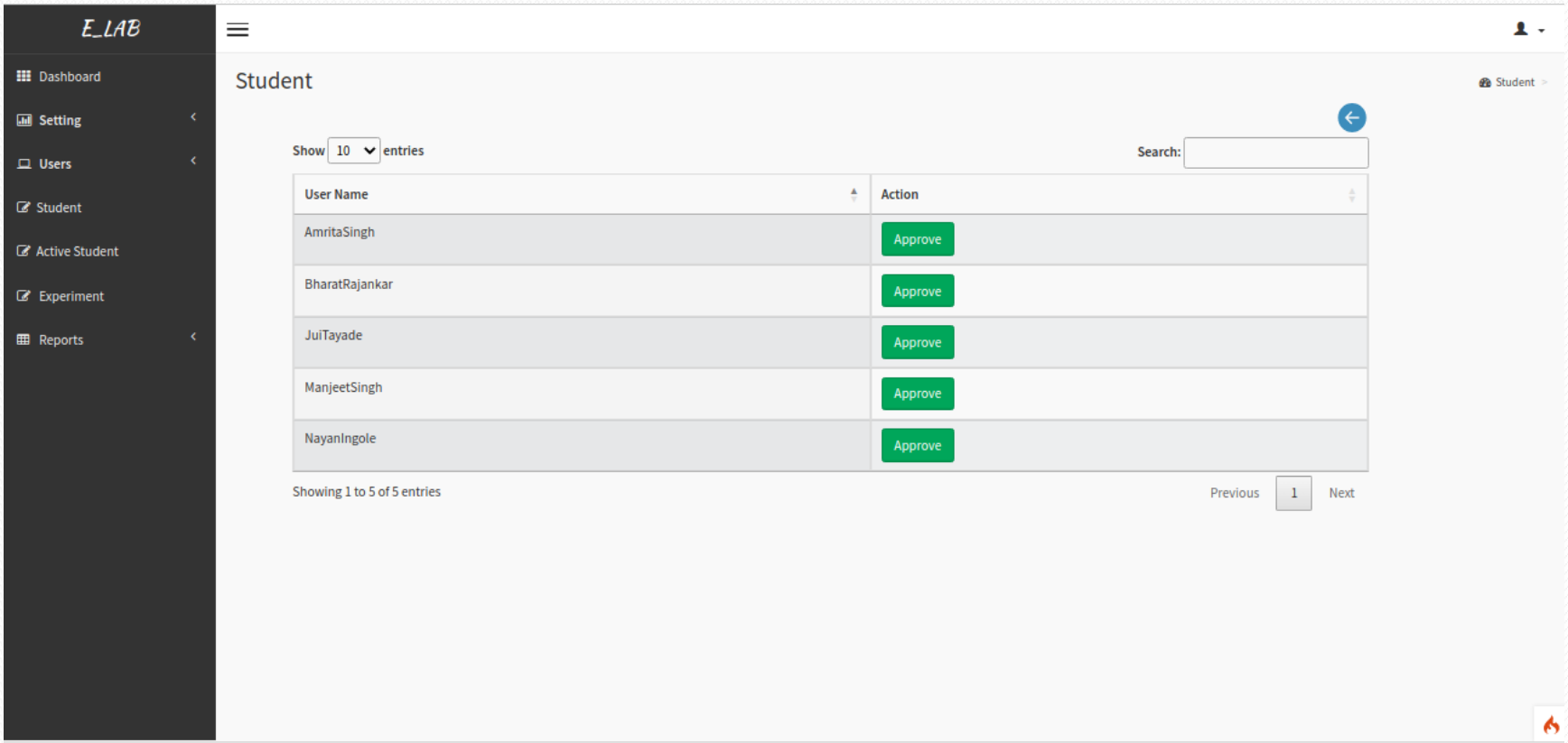
Details to be filled after teacher's login :



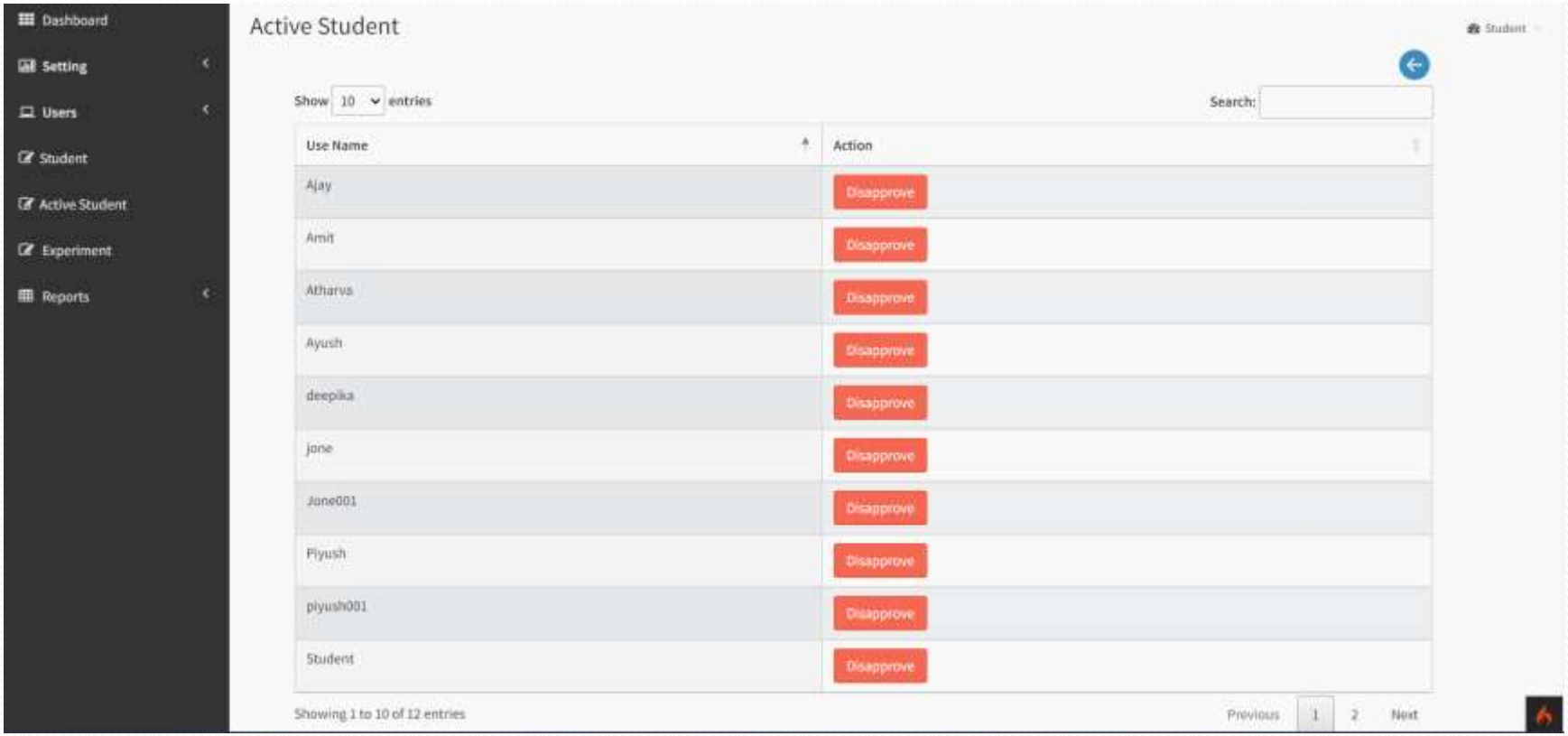
Teacher Dashboard :



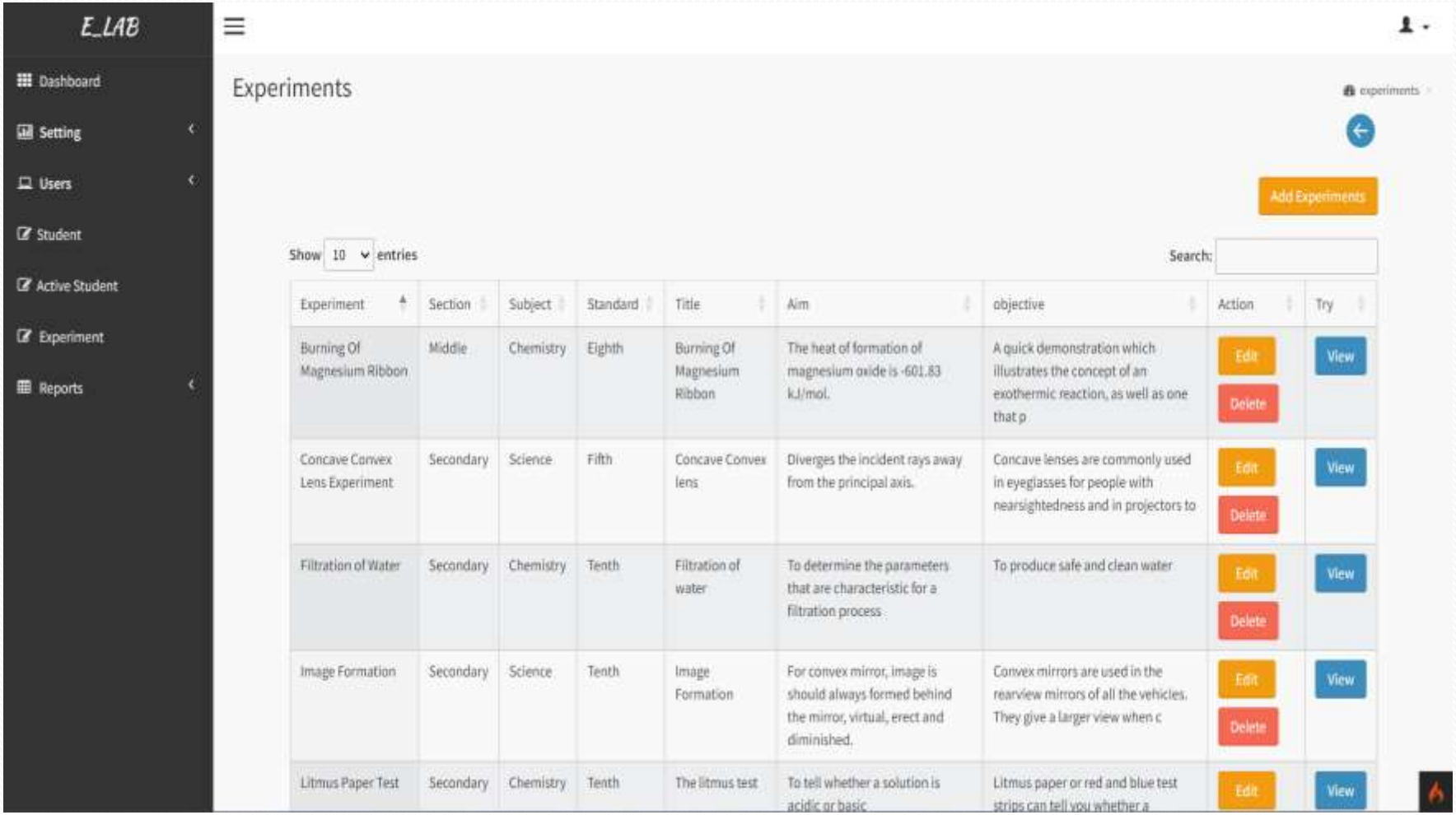
Teacher approves student request :



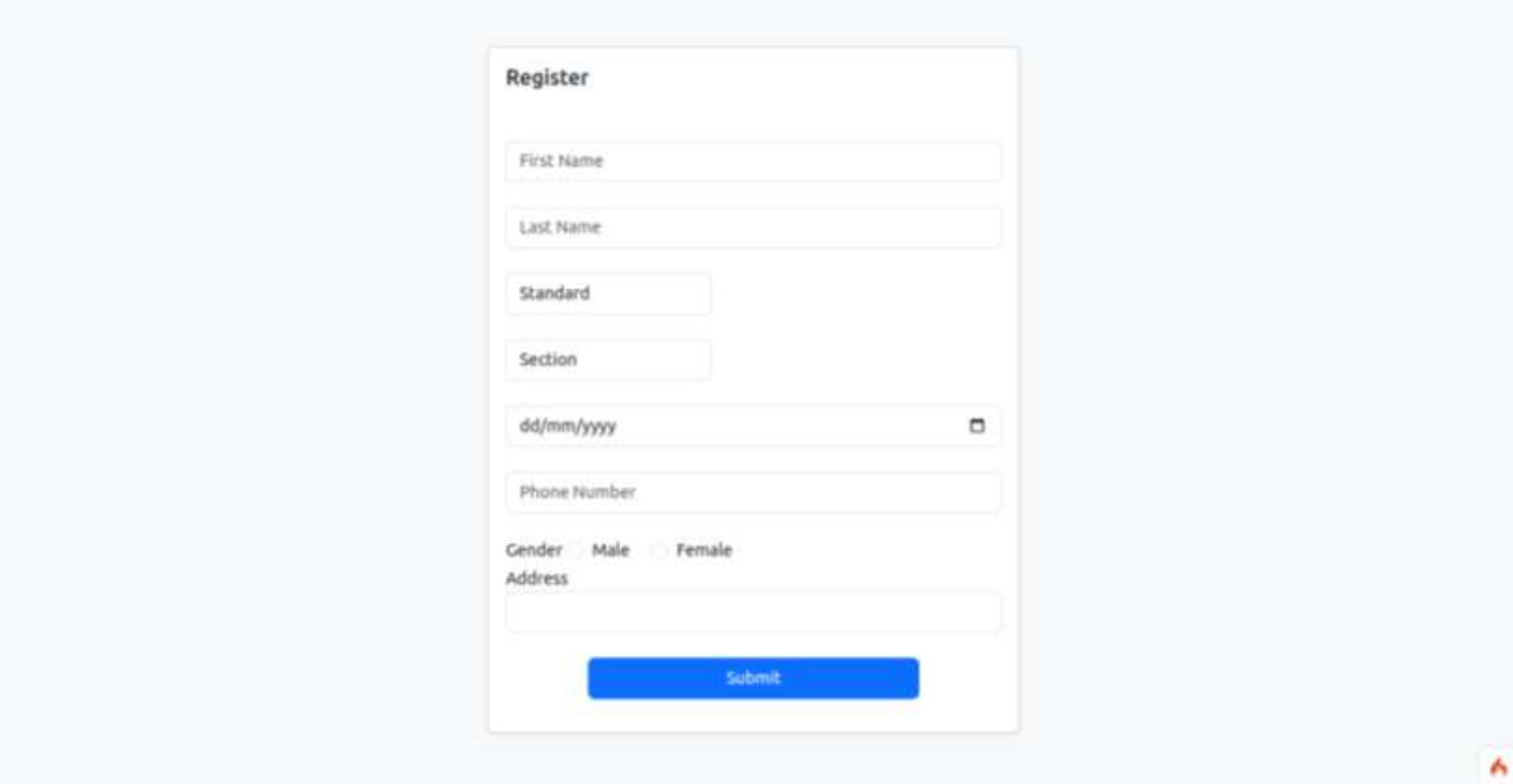
Active Students



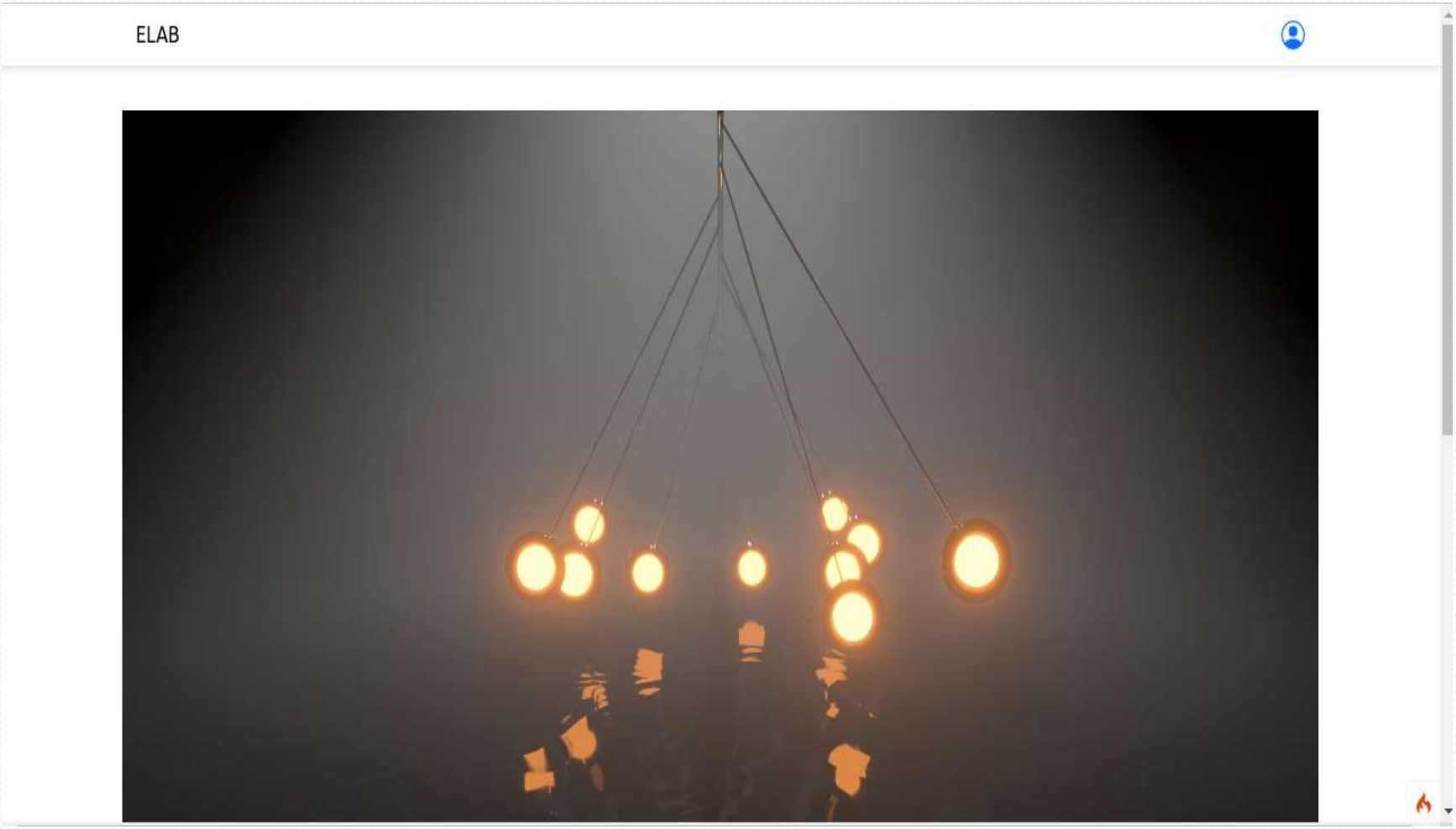
Experiment :


E_LAB
Dashboard
Setting
Users
Student
Active Student
Experiment
Reports
Experiments
experiments
Add Experiments
Show 10 entries
Search:
Experiment
Section
Subject
Standard
Title
Aim
objective
Action
Try
Burning Of Magnesium Ribbon
Middle
Chemistry
Eighth
Burning Of Magnesium Ribbon
The heat of formation of magnesium oxide is -601.83 kJ/mol.
A quick demonstration which illustrates the concept of an exothermic reaction, as well as one that p
Edit
Delete
View
Concave Convex Lens Experiment
Secondary
Science
Fifth
Concave Convex lens
Diverges the incident rays away from the principal axis.
Concave lenses are commonly used in eyeglasses for people with nearsightedness and in projectors to
Edit
Delete
View
Filtration of Water
Secondary
Chemistry
Tenth
Filtration of water
To determine the parameters that are characteristic for a filtration process
To produce safe and clean water
Edit
Delete
View
Image Formation
Secondary
Science
Tenth
Image Formation
For convex mirror, image is should always formed behind the mirror, virtual, erect and diminished.
Convex mirrors are used in the rearview mirrors of all the vehicles. They give a larger view when c
Edit
Delete
View
Litmus Paper Test
Secondary
Chemistry
Tenth
The litmus test
To tell whether a solution is acidic or basic
Litmus paper or red and blue test strips can tell you whether a
Edit
View

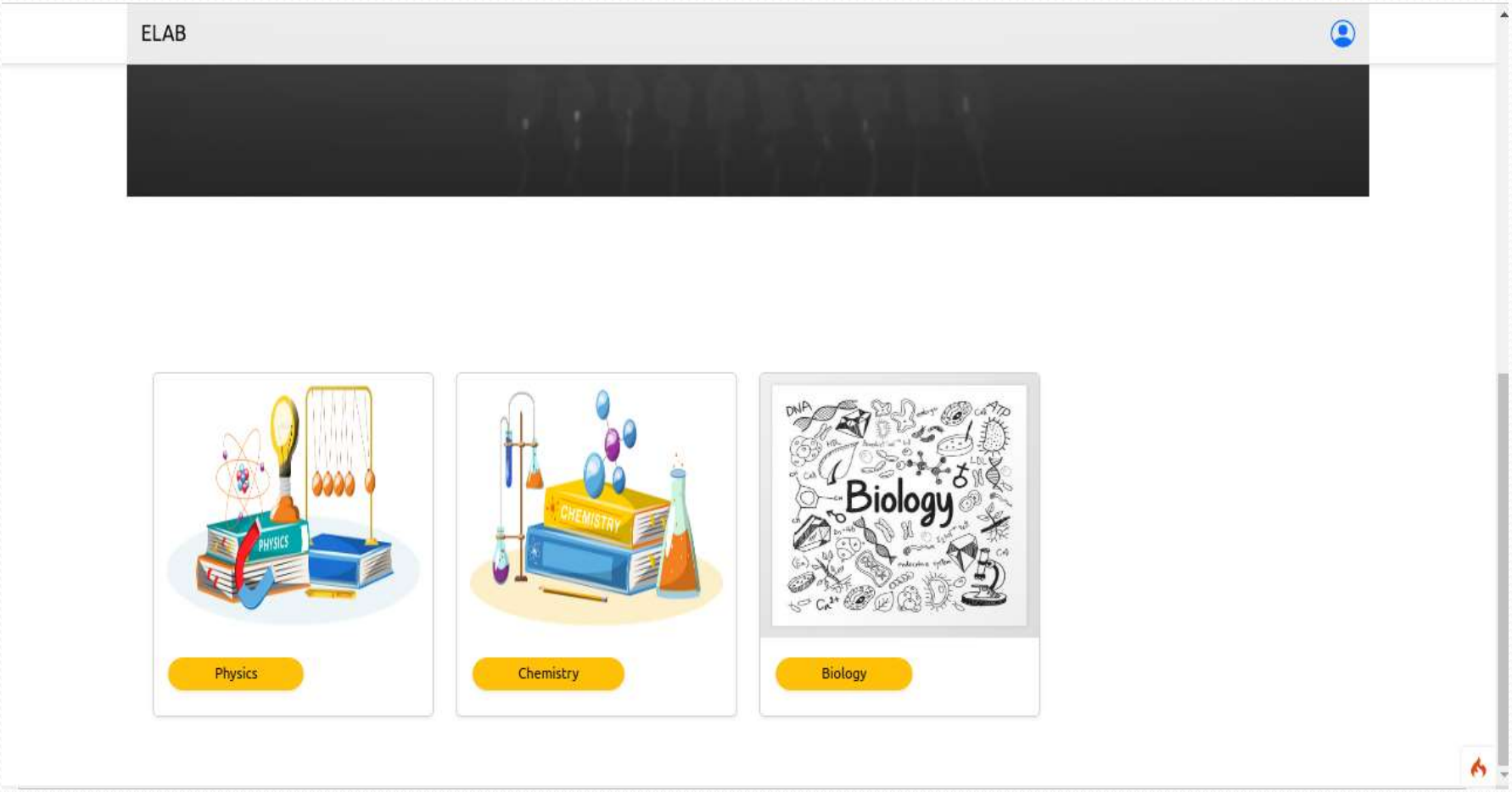
Details to be filled after student's login :



Student Dashboard :

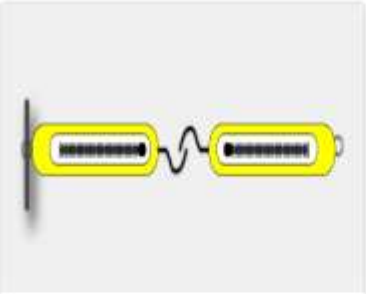


Select subject



Select Experiment:

ELAB



Newton's Third Law Of Mothion

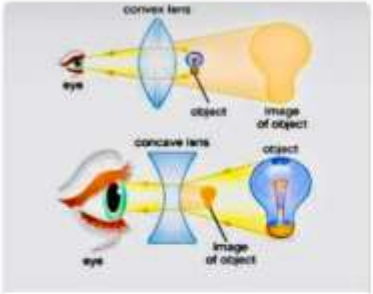
Newton's Third Law

Experiment Details

Burning Of Magnesium Ribbon

Burning Of Magnesium Ribbon

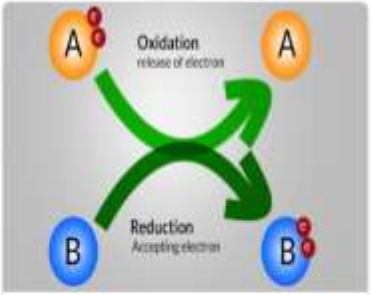
Experiment Details



Concave Convex Lens Experiment

Concave Convex lens

Experiment Details



Oxidation and Reduction

Oxidation and Reduction

Experiment Details

Perform Experiment :

ELAB Title Aim Objective Description Requirements Conclusion Diagram Simulation Back

Title

Concave Convex lens

Aim

Diverges the incident rays away from the principal axis.

Objective

Concave lenses are commonly used in eyeglasses for people with nearsightedness and in projectors to

Description

A concave lens is thinner in the middle and thicker at the edges. A convex lens is thicker in the middle and thinner at the edges. Used in the camera, overhead projector, projector microscope, simple telescope, magnifying glasses, etc. It is also used for the correction of the problem in long sight.

Requirements

concave, convex lens, tourch

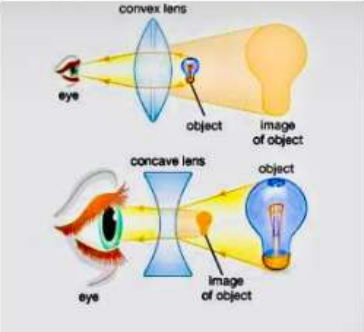
Requirements

concave, convex lens, tourch

Conclusion

In the convex lens, the curve is outward facing, whereas, in the concave lens, the curve faces inwar

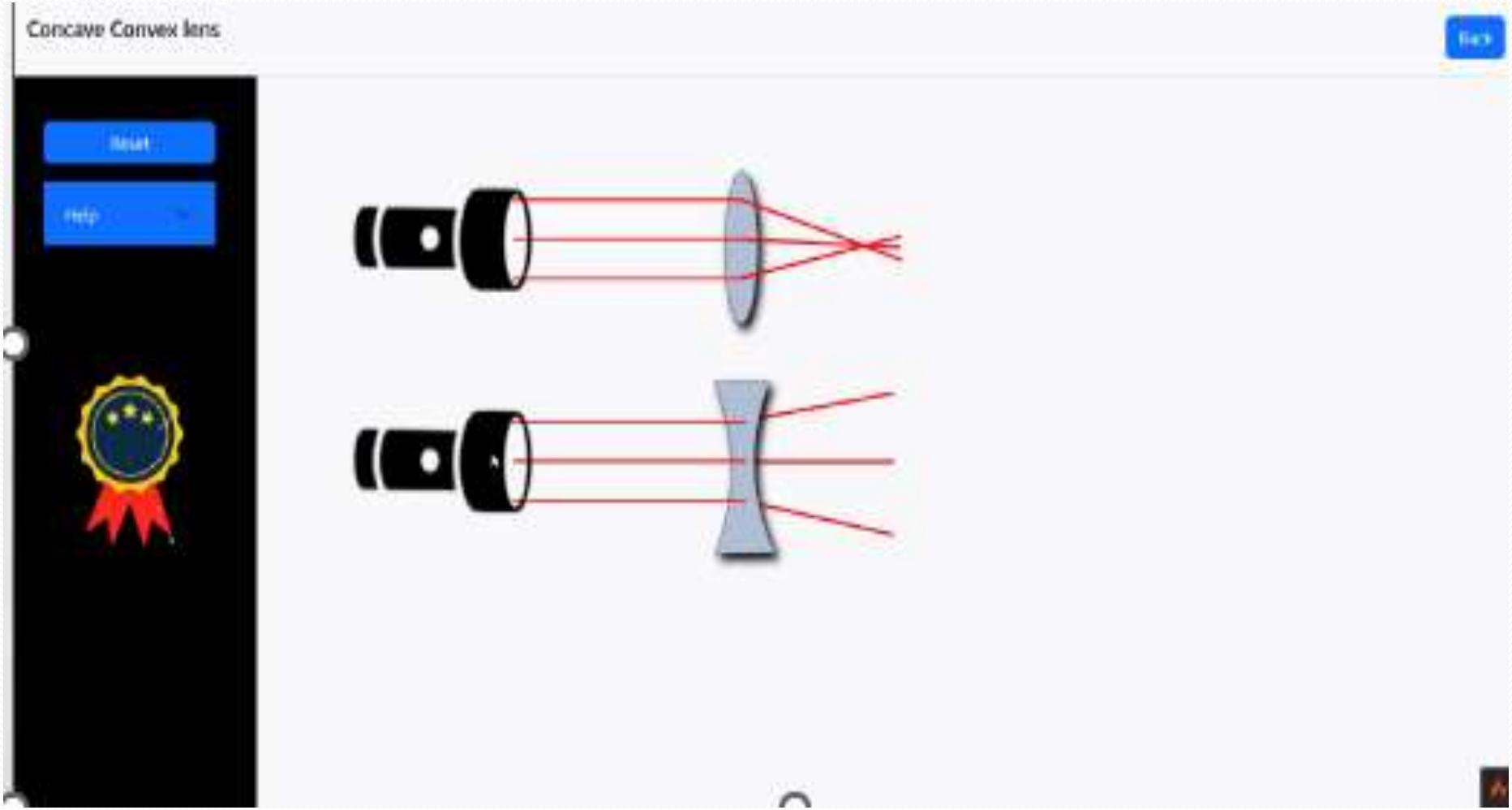
Diagram



Simulation

Start Simulation

Simulation :



Limitations & future Enhancements

- Incorporating 3D elements: While a 2D system can be useful, incorporating 3D elements can provide a more immersive and realistic experience for students. This could include 3D models of equipment and environments, allowing students to explore and interact with virtual objects in a more tangible way.

- Increased interactivity: To make the laboratory experience more engaging and interactive, the system could include more opportunities for students to actively participate in experiments. This could include interactive simulations, real-time data collection and analysis, and more opportunities for students to control variables and make decisions.

- Gamification: Adding game-like elements to the laboratory system, such as points, badges, and leaderboards, can motivate students and encourage them to engage with the material in a more meaningful way.

THANK YOU!