MERN Stack Capstone

LearnEase Pro

Objective

To create an eLearning management system using the concepts of MERN stack.

This system aims to provide a secure and user-friendly environment for students, instructors, and administrators. Key goals include implementing robust user authentication and authorization mechanisms, enabling users to manage profiles and customize settings, facilitating course creation and organization, supporting diverse content types, and integrating features for student enrollment and progress tracking.

Motivation

Real-World Scenario:

An EdTech company is looking to expand the boundaries of its business to the online sphere. They want their learners to be able to access all the learning materials and live class recordings online. It will also increase its customer base (from metropolitan cities to new international markets).

Create a learning management system for this scenario.

Deliverables

Features of the project:

- Admin should be able to add and update the courses.
- Admin should be able to view the details of the faculties and learners.
- Faculties and learners should be able to see all the course details.
- Learners should be able to request for the course access.
- Faculties should be able to update the course.
- Learners can provide feedback and ratings for courses.
- Group chat options for collaborative discussions.

Industry Relevance

Skills used in the project and their usage in the industry are as given below:

- **NodeJS:** Node.js is a cross-platform, open-source server environment that runs on operating systems like Windows, Linux, Unix, and macOS. It runs single-threaded, non-blocking, and asynchronous programming, which is memory efficient.

- **ExpressJS:** Express.js is a backend web application framework of NodeJS used for building RESTful APIs.

- **MongoDB:** MongoDB is an open-source NoSQL database which stores data in a type of JSON format called BSON format.

- **Mongoose:** Mongoose is a JavaScript based object-oriented third-party library for MongoDB. It is used to create connection between MongoDB and NodeJS runtime environment.

Industry Relevance

Skills used in the project and their usage in the industry are as given below:

- **React:** React is the library for web and native user interfaces. Build user interfaces out of individual pieces called components written in JavaScript.
- **React Router**: React Router is a powerful library for handling routing in React applications.
- **Git:** Git is a distributed version control system used for tracking changes in source code during software development.
- **Git Clone**: Git clone is a command which Creates a copy of a remote repository on the local machine.

Tasks

Creation of the application will involve:

1. Set up a new React project to serve as the front-end of the application.

2. Initialize a Node.js and Express.js project for the backend.

3. Create a new MongoDB database to store course materials, user information, and other relevant data.

4. Initialize a Git repository to manage version control.

5. Create a registration and login system for learners and instructors.

6. Develop a system for uploading and managing learning materials, including documents, videos, and presentations using React for the front-end UI.

7. Ensure that all code is managed through Git. Git for version control GitHub, GitLab for remote repositories.

PHASE-END PROJECT

Project Reference

Task 1: Build a strong MERN Foundation: Lesson 1 and 2

Task 2: Develop a Reliable Backend with Node and Express: Lesson 4

Task 3: Develop a Reliable Backend with Node and Express: Lesson 1

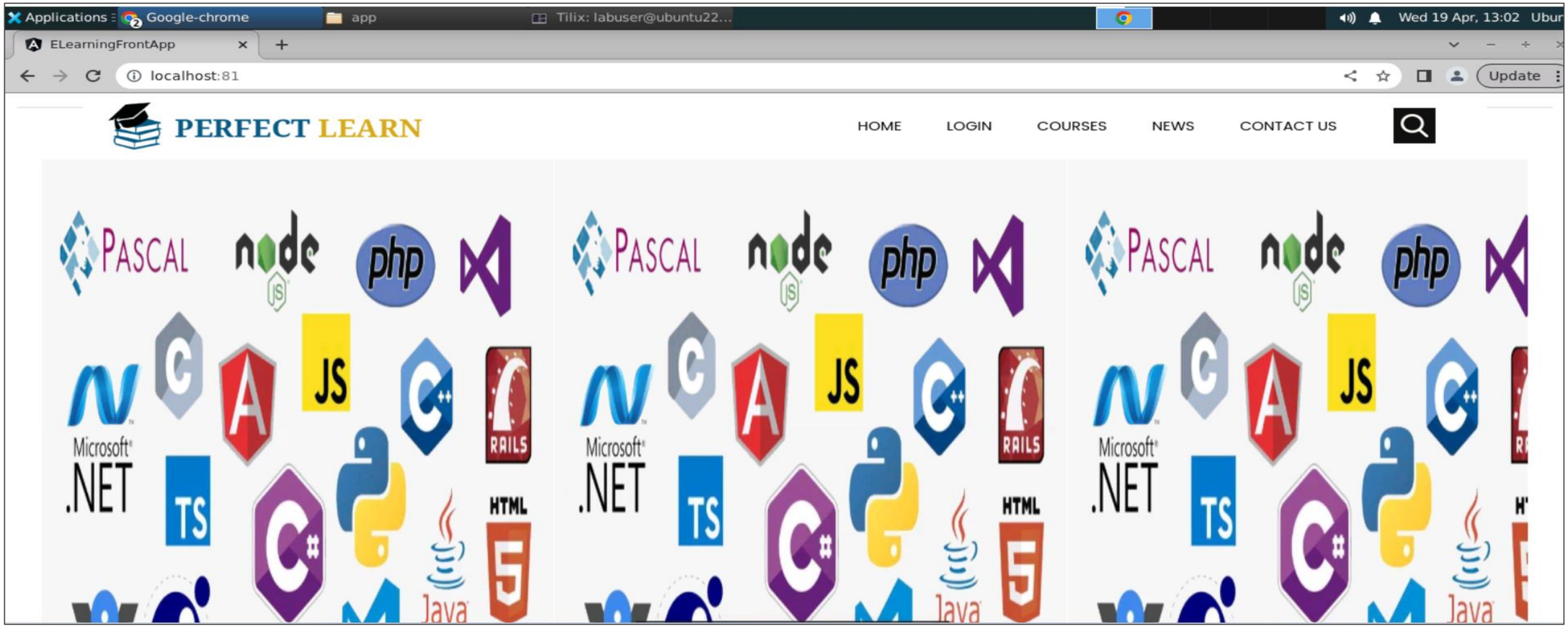
Task 4: Build a strong MERN Foundation: Lesson 1 and 2

Task 5, 6: Design a Dynamic Frontend with React: Lesson 2, 3, 4, and 5

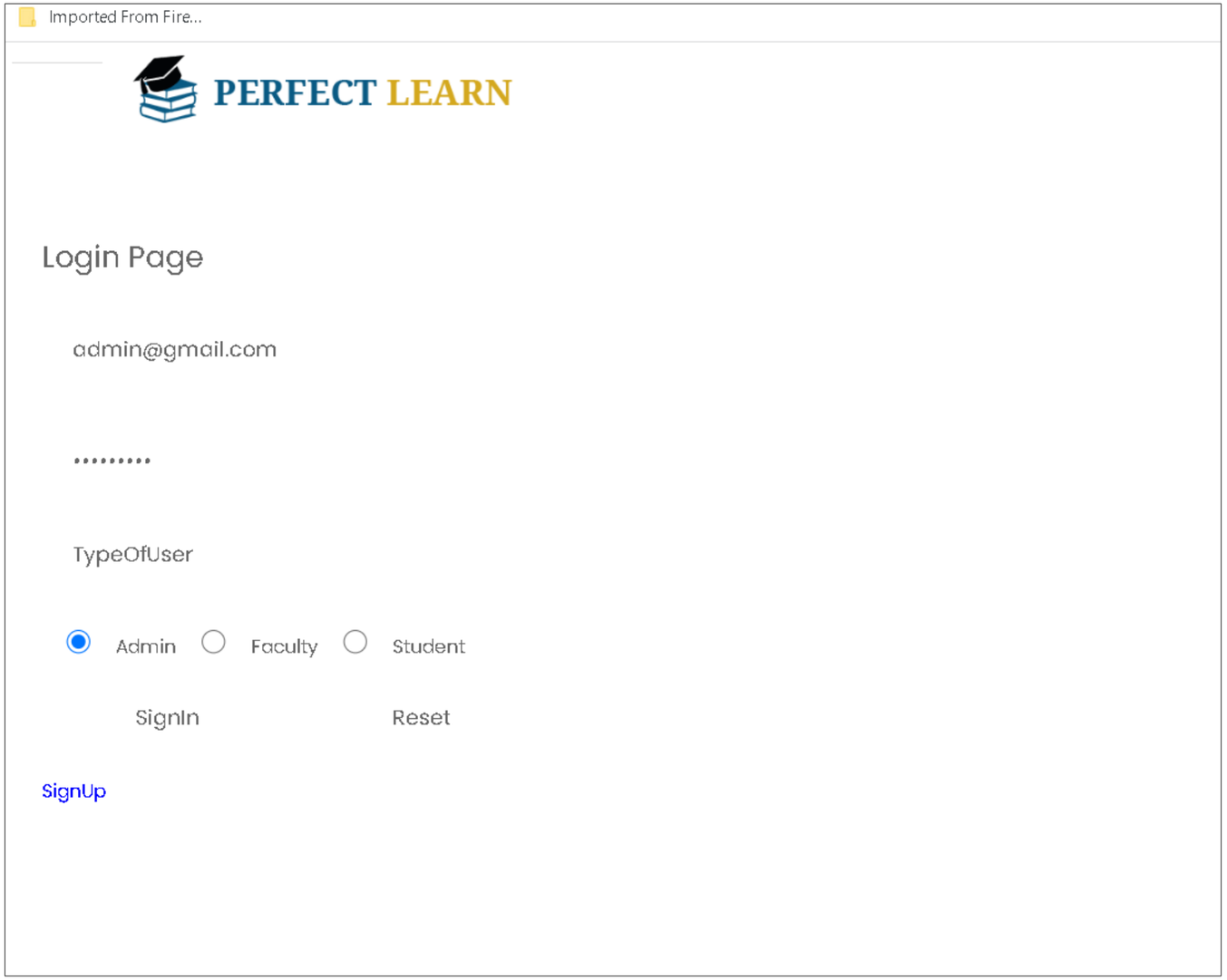
Task 7: Build a strong MERN Foundation: Lesson 2

PHASE-END PROJECT

Output Screenshot



Output Screenshot



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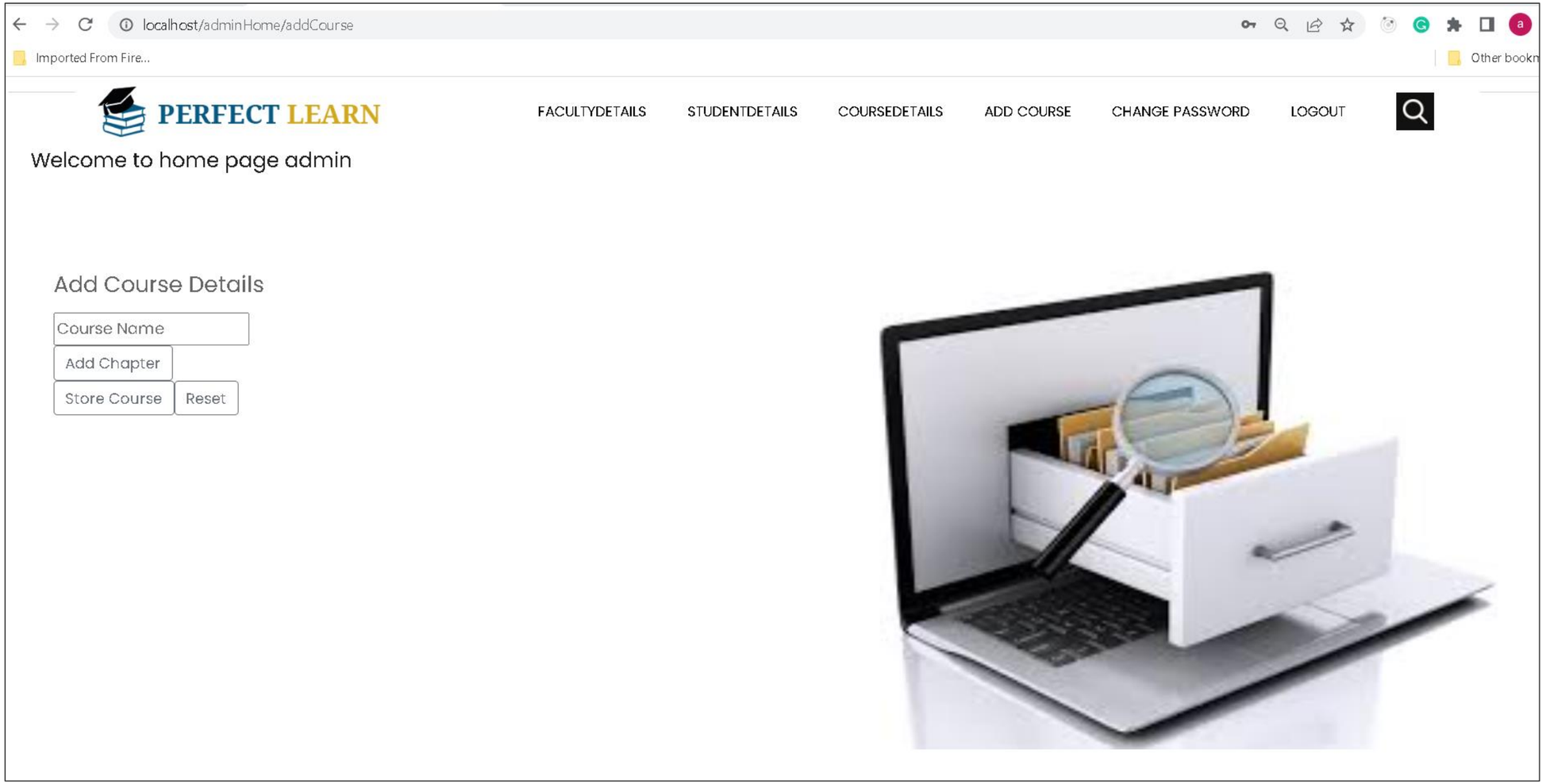

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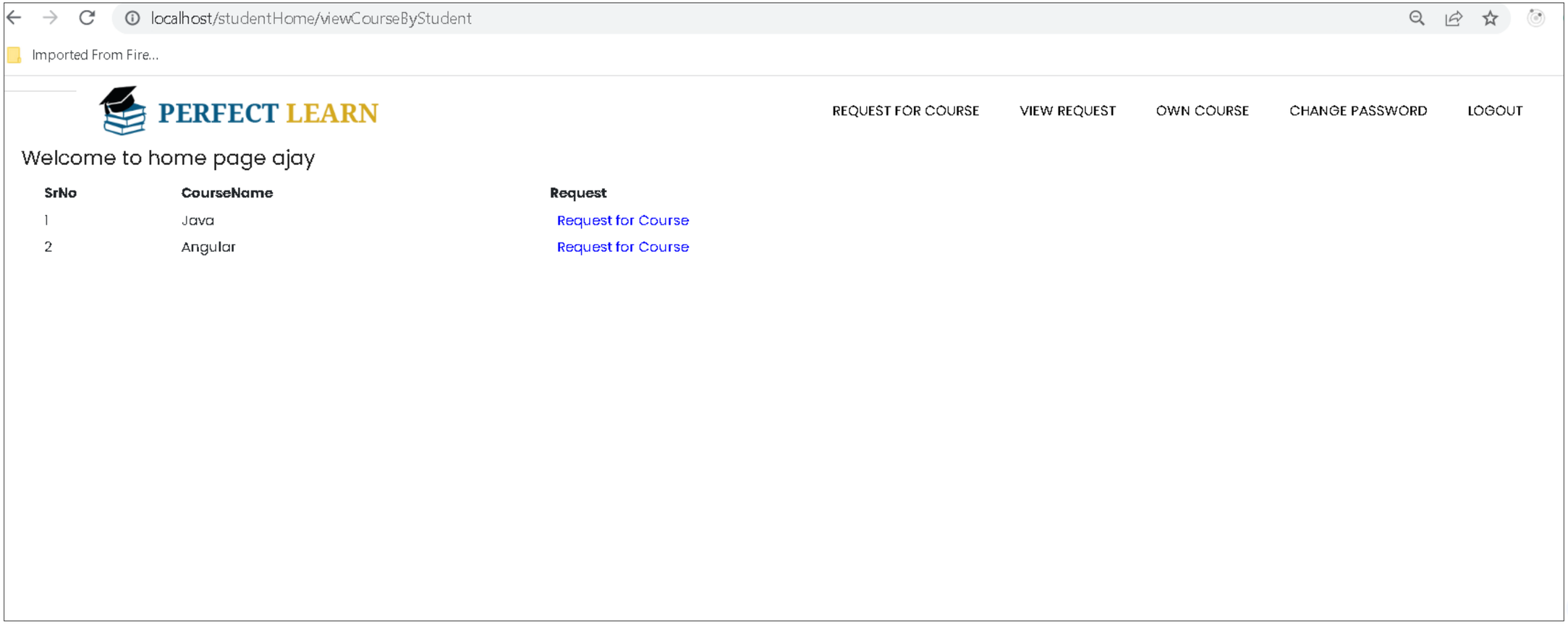

Thank You