

LearnHub: Your Center for Skill Enhancement

Final Project Report

1. INTRODUCTION

1.1 Project Overview

LearnHub is an Online Learning Platform (OLP) developed to provide flexible and accessible digital learning experiences. The platform supports self-paced courses, interactive communication, certification, and a robust backend for instructors and administrators. It caters to learners of all ages and skill levels, focusing on ease of use, interactivity, and scalability.

1.2 Purpose

The purpose of this project is to create a scalable and user-friendly online platform for skill enhancement. It enables users to browse, enroll, and complete courses in various domains while allowing instructors to manage course content and track student progress.

2. IDEATION PHASE

2.1 Problem Statement

Learners often face challenges like lack of access to quality content, inflexible schedules, and ineffective instructor-student interaction in traditional education systems. There is a need for a flexible, engaging, and scalable learning solution that accommodates different learning styles and time constraints.

2.2 Empathy Map Canvas

Think & Feel **Wants practical skills and flexible learning**

See **Sees online learning as an opportunity**

Say & Do **Searches for reliable, affordable courses**

Hear **Listens to peers and online reviews**

Pain **Limited interaction, high cost, rigid schedules**

Gain **Affordable, flexible learning, certification**

2.3 Brainstorming

Ideas generated included:

Live webinars and interactive elements

Course filtering and recommendation systems

Certification system

Scalable architecture using MERN stack

Instructor dashboards and analytics

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Awareness: Learner hears about LearnHub

Consideration: Learner explores the platform

Conversion: Registers and enrolls in a course

Engagement: Participates in course activities

Advocacy: Shares experience and certificates

3.2 Solution Requirement

User registration and authentication

Course browsing, enrollment, and tracking

Admin and instructor dashboards

Secure payment system

Responsive design for all devices

3.3 Data Flow Diagram

Level 1 DFD Overview:

User logs in → Requests course info → Server processes via API → MongoDB fetches/stores data → Response returned

3.4 Technology Stack

Frontend: React.js, Bootstrap, Material UI, Axios

Backend: Node.js, Express.js

Database: MongoDB

Authentication: JW

Deployment: Render / Vercel / Netlify

4. PROJECT DESIGN

4.1 Problem Solution Fit

LearnHub addresses the core challenges of traditional learning (lack of flexibility, limited interactivity) through a self-paced, interactive, and scalable platform.

4.2 Proposed Solution

A responsive web-based learning platform enabling course creation, enrollment, interaction, and certification with real-time updates and scalability.

4.3 Solution Architecture

Client: React with Axios

Server: Express.js REST APIs

Database: MongoDB with Mongoose

Flow: Frontend requests → REST APIs → Database operations → Response sent back

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week Activity

- 1 Requirement gathering, wireframes
- 2 Frontend UI design (React + Bootstrap)
- 3 Backend API development
- 4 Database integration and auth system
- 5 Course management features
- 6 Testing and debugging
- 7 Deployment and user testing

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Load Testing: Platform tested with 100+ concurrent users

Response Time: Average API response < 300ms

Stress Testing: Simulated high traffic, system remained stable

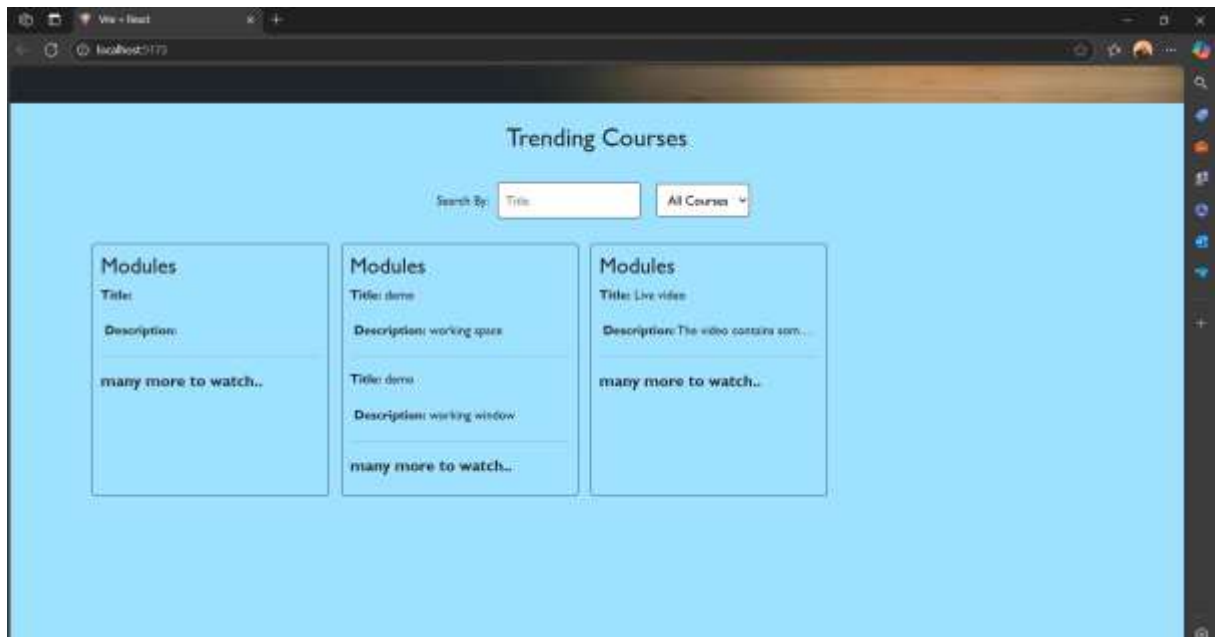
Result: System passed scalability and stability benchmarks

7. RESULTS

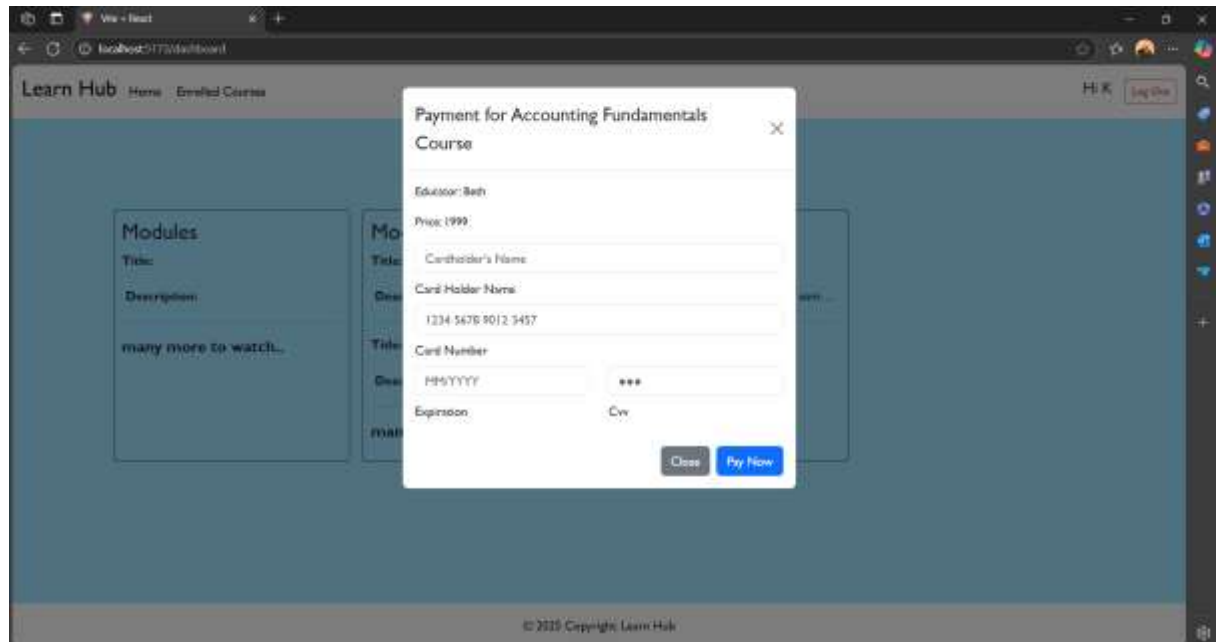
7.1 Output Screenshots

Include screenshots of:

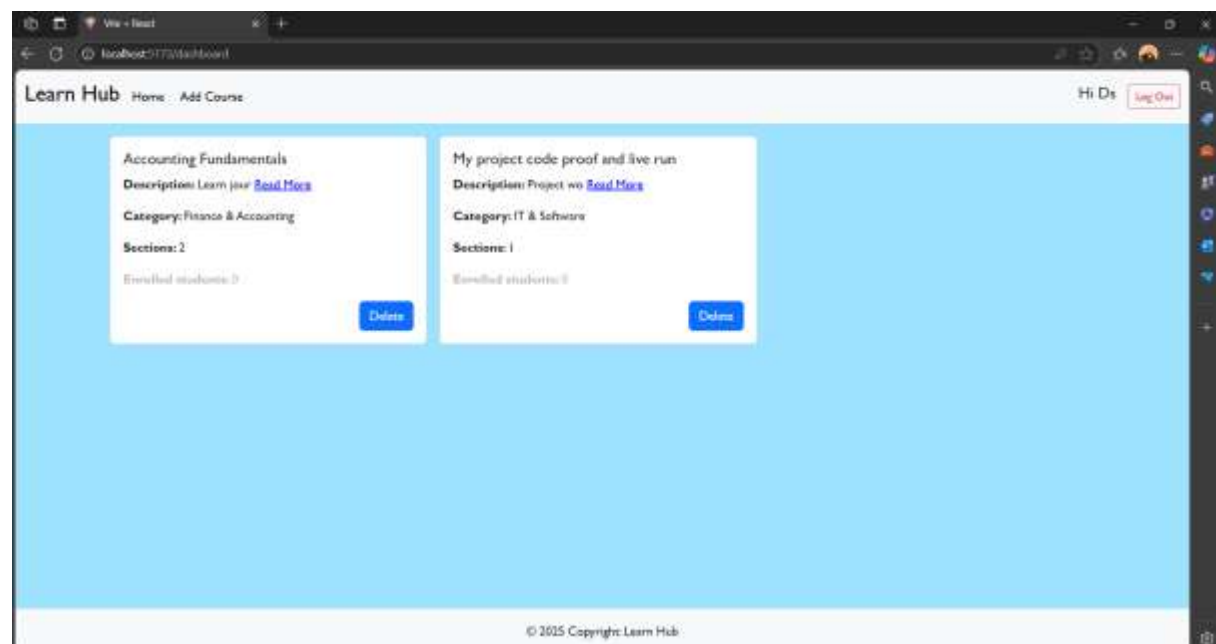
>Homepage with course listings:



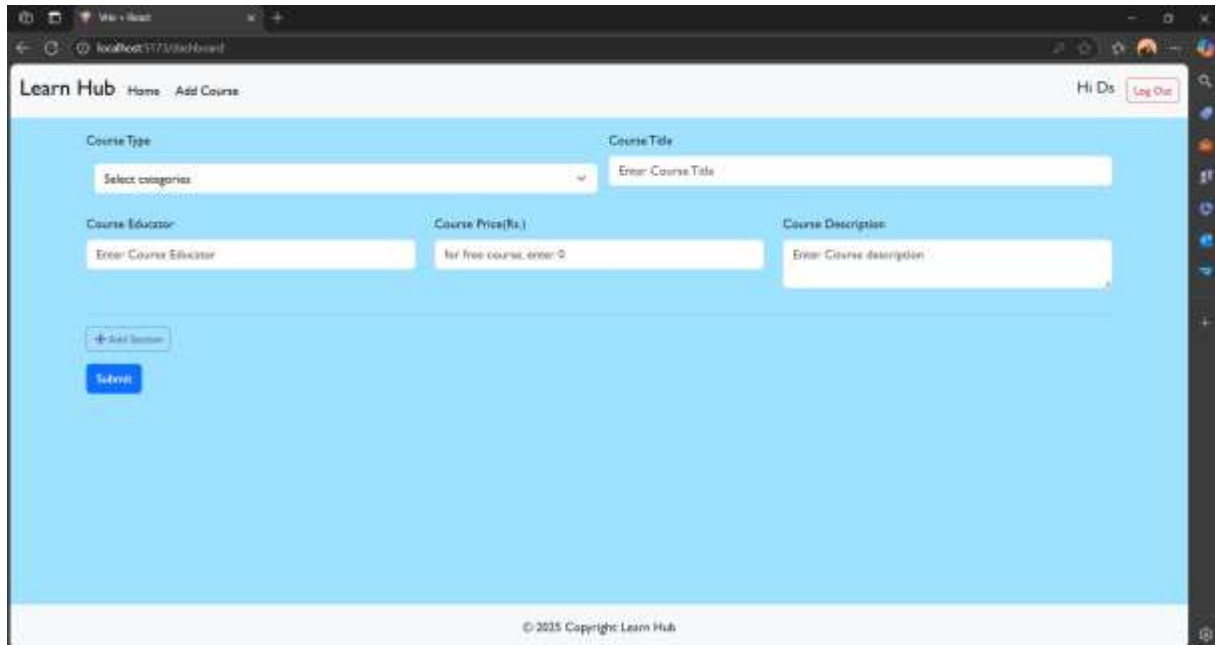
>Course enrollment page:



>Admin dashboard:



>Instructor upload interface



The screenshot shows a web browser window displaying the 'Learn Hub' 'Add Course' page. The page has a light blue background and a white header with the 'Learn Hub' logo and navigation links for 'Home' and 'Add Course'. A user is logged in as 'Hi Ds' with a 'Log Out' button. The main form area contains several input fields: 'Course Type' with a dropdown menu showing 'Select categories', 'Course Title' with a text input field containing 'Enter Course Title', 'Course Educator' with a text input field containing 'Enter Course Educator', 'Course Price(Rs.)' with a text input field containing 'for free course, enter 0', and 'Course Description' with a text input field containing 'Enter Course description'. Below these fields are two buttons: a blue 'Add Section' button and a blue 'Submit' button. The footer of the page contains the copyright notice '© 2025 Copyright Learn Hub'.

8. ADVANTAGES& DISADVANTAGES

Advantages

Scalable and secure architecture

Cross-device accessibility

Easy course creation and tracking

Real-time interaction features

Certification system for learners

Disadvantages

Requires stable internet connection

Initial development time is significant

Advanced features (e.g., AI recommendations) not implemented yet

9. CONCLUSION

LearnHub successfully provides a flexible, interactive, and scalable learning environment. It benefits learners, instructors, and administrators through a user-centric design, real-time communication, and seamless content delivery.

10. FUTURE SCOPE

AI-powered course recommendations

Mobile app version for iOS/Android

Gamification features

Integration with LinkedIn for certificate sharing

Multi-language support