

PROJECT REPORT: LEARNHUB

1. INTRODUCTION

1.1 Project Overview

LearnHub is a modern, full-stack educational platform designed to connect students, teachers, and administrators. It provides a seamless environment for managing courses, enrollments, and educational content, empowering users to enhance their skills and knowledge efficiently.

1.2 Purpose

The purpose of LearnHub is to simplify and modernize the process of online learning and course management. It offers a centralized platform where users can create, manage, and participate in courses, ensuring a smooth and interactive learning experience for all stakeholders.

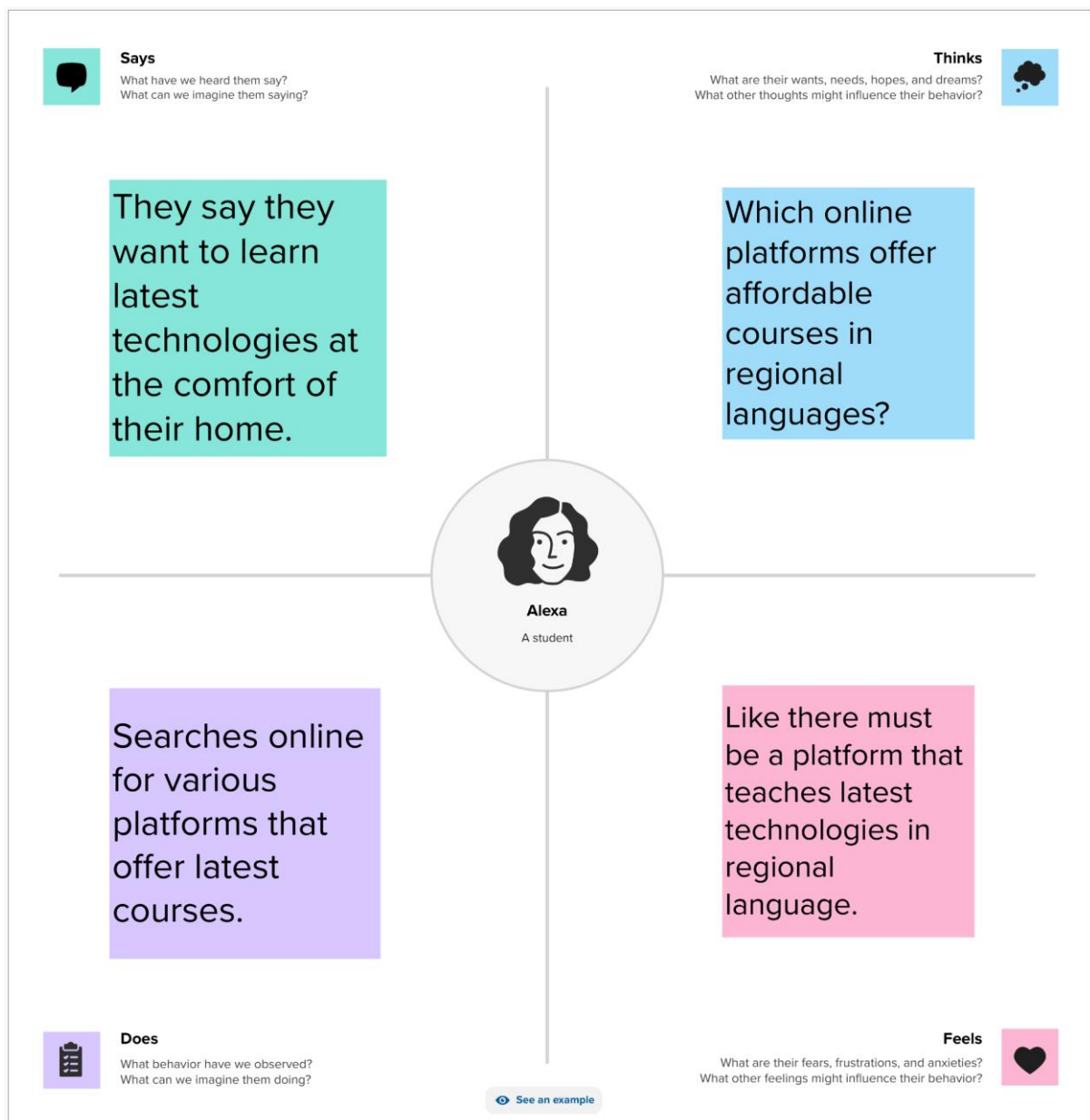
2. IDEATION PHASE

2.1 Problem Statement

Traditional learning management systems often lack user-friendly interfaces and seamless integration across user roles. There is a growing need for a modern platform that simplifies course management, enrollment, and content delivery.

2.2 Empathy Map Canvas

- Users: Students, Teachers, Administrators
- Says: "I want easy access to courses and materials."
- Thinks: "Is my progress being tracked? Is my data secure?"
- Does: Enrolls in courses, uploads content, manages users
- Feels: Motivated to learn, needs support, values efficiency



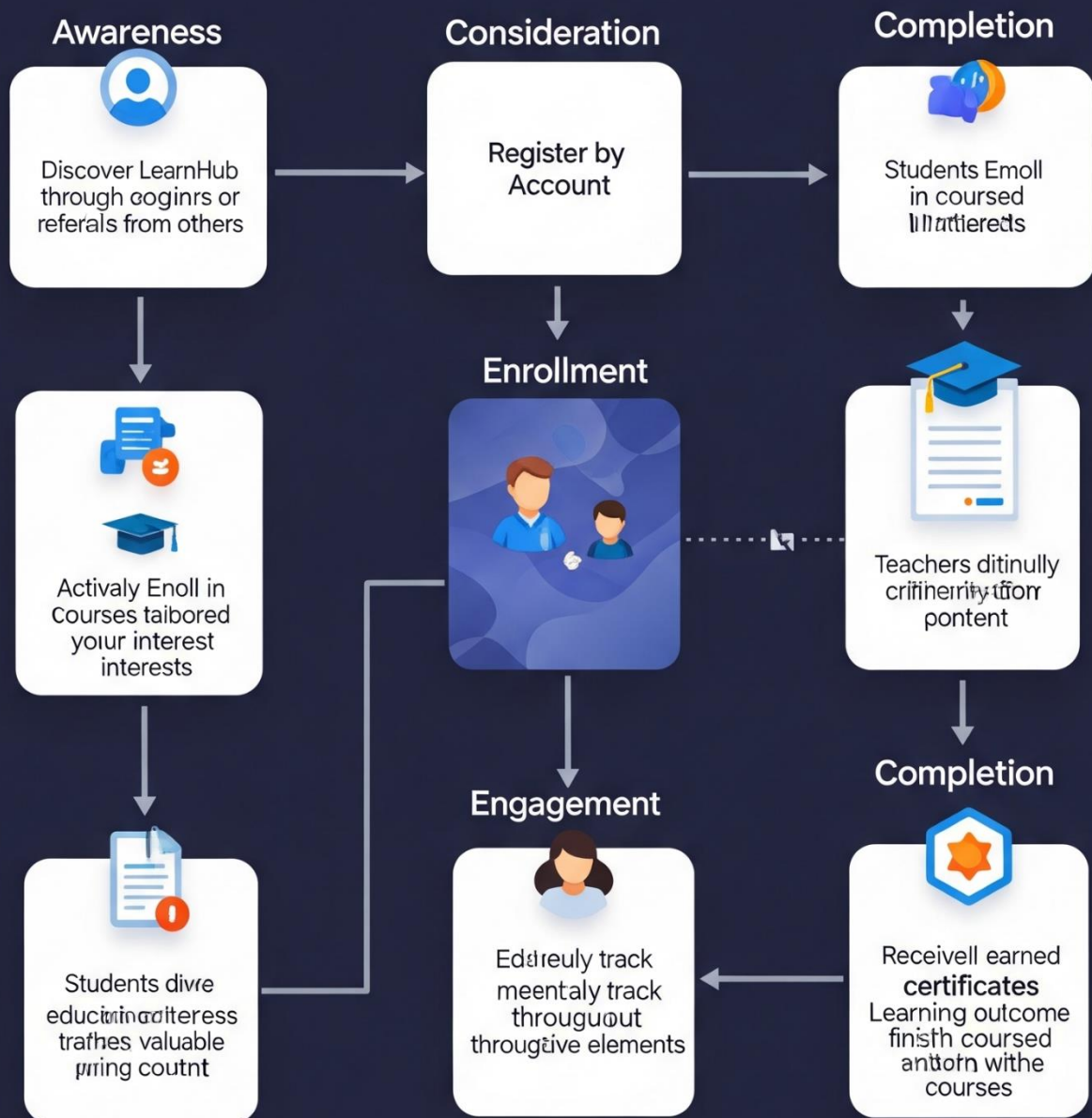
2.3 Brainstorming

- Centralized dashboard for all users
- Secure authentication and role-based access
- Easy course creation and management
- Media uploads and streaming
- Progress tracking and analytics

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

- Awareness: Users discover LearnHub through search or referrals
- Consideration: Users explore features and register
- Enrollment: Students enroll; teachers create content
- Engagement: Users access content, track progress, and interact
- Completion: Students finish courses and receive certificates



3.2 Solution Requirements

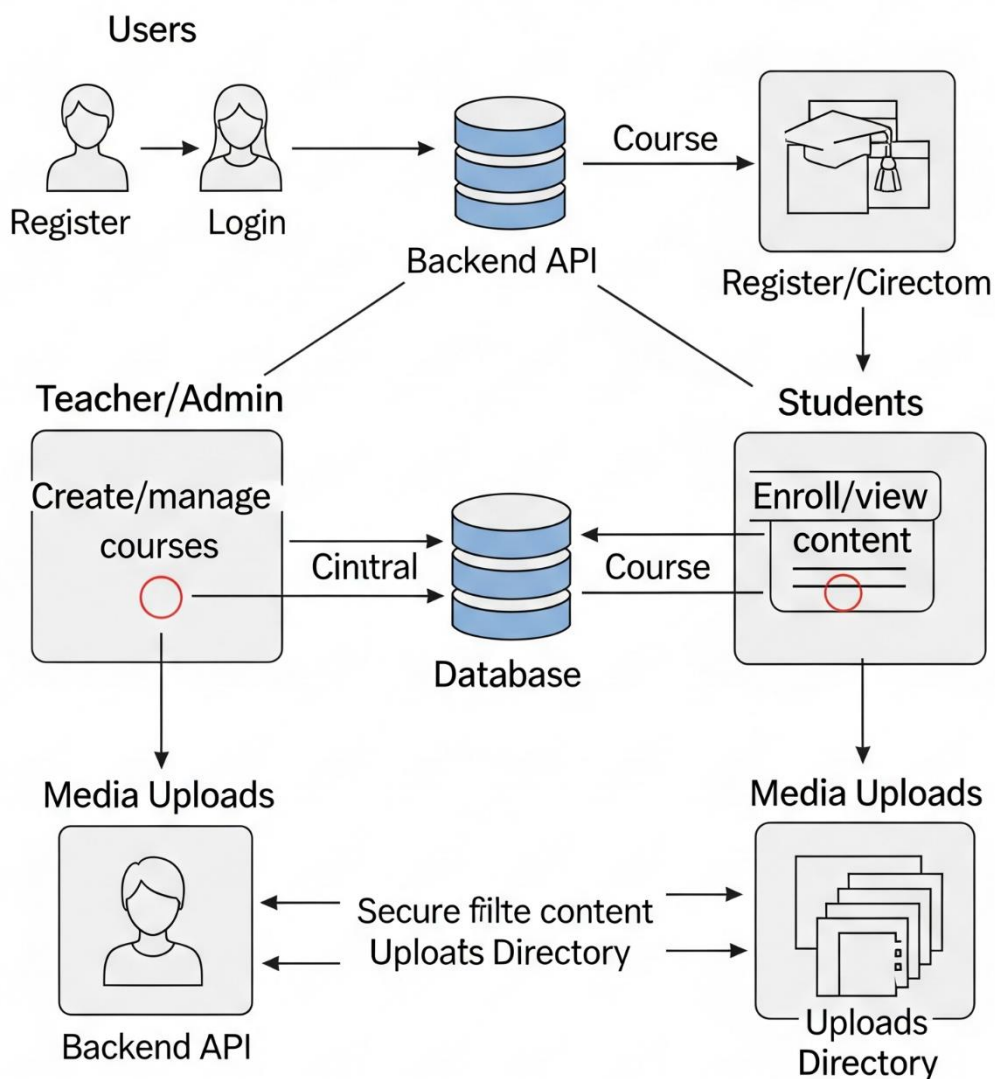
- Secure authentication for all user roles
- Role-based dashboards (Admin, Teacher, Student)
- Course creation, enrollment, and management
- Media upload and streaming support

- Progress tracking and analytics
- Responsive, user-friendly interface

3.3 Data Flow Diagram

- User → (register/login) → Backend API → Database
- Teacher/Admin → (create/manage courses) → Backend API → Database
- Student → (enroll/view content) → Backend API → Database
- Media Uploads → Backend → Uploads Directory

Detaild System Architecture



3.4 Technology Stack

- Frontend: React.js, Bootstrap, Material UI, Axios, Ant Design, MDB React UI Kit

- Backend: Node.js, Express.js, MongoDB, Mongoose, Multer, JWT, bcryptjs, dotenv, cors, nodemon

4. PROJECT DESIGN

4.1 Problem-Solution Fit

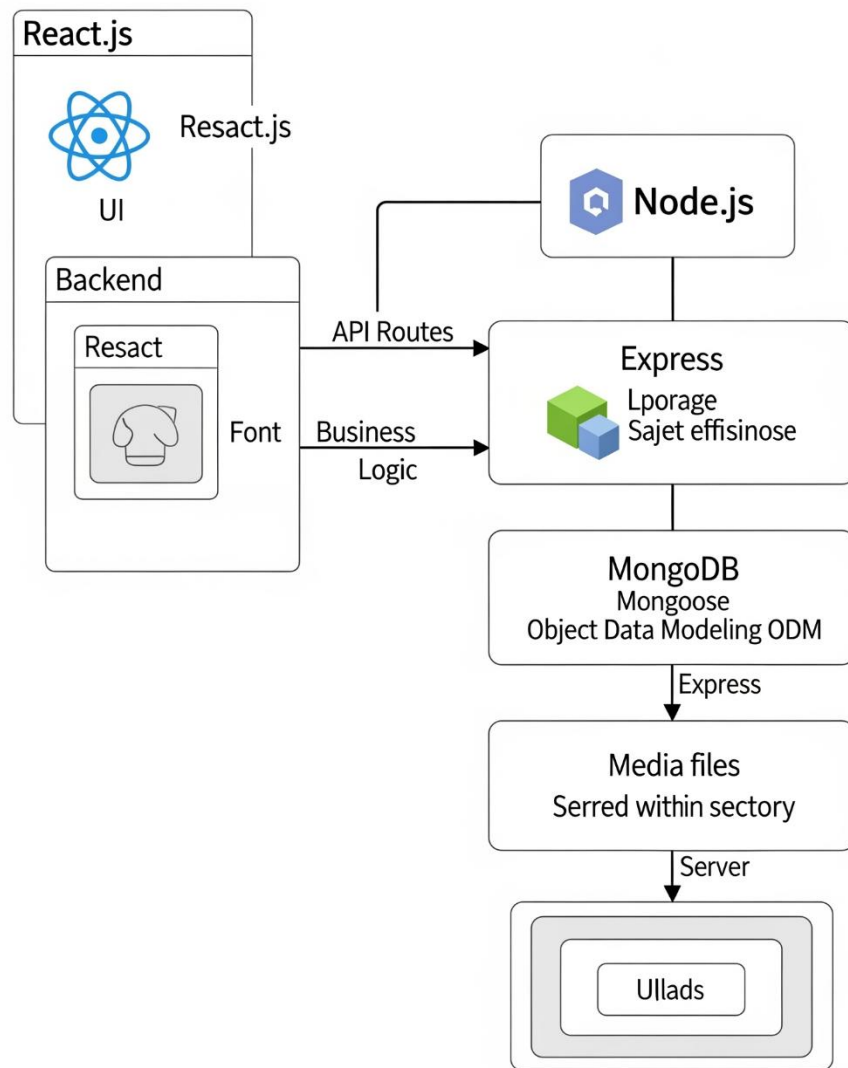
LearnHub addresses the lack of integration and usability in traditional systems by offering a unified, role-based platform with media handling and analytics support.

4.2 Proposed Solution

- Secure login and JWT-based authentication
- Dashboards for admins, teachers, and students
- Course creation, Enrollment, and management features
- Media upload and streaming functionality
- Real-time progress tracking and analytics

4.3 Solution Architecture

- Frontend: Built using React.js for responsive UI
- Backend: Node.js with Express for API routes and business logic
- Database: MongoDB with Mongoose for data modeling
- Media Storage: Files stored on the server in a designated uploads directory

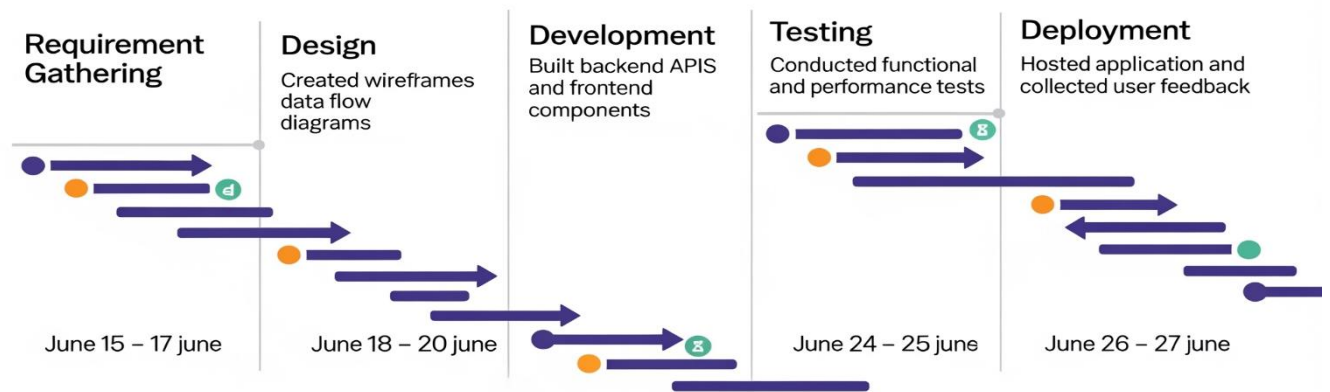


5. PROJECT PLANNING & SCHEDULING

5.1 Development Phases

- **Requirement Gathering:** Collected user needs
- **Design:** Created wireframes and data flow diagrams
- **Development:** Built backend APIs and frontend components
- **Testing:** Conducted functional and performance tests
- **Deployment:** Hosted application and collected user feedback

Project Phases



6. FUNCTIONAL AND PERFORMANCE TESTING

All major features were tested to ensure smooth operation:

- User registration and login
- Course creation and enrollment
- Role-based dashboard access
- Media upload and playback

6.1 Performance Testing

- API endpoints tested for speed and reliability
- Media handling tested for smooth upload and playback
- UI checked for responsiveness and cross-device compatibility

7. RESULTS

LearnHub provides a robust, unified educational platform.

Features like authentication, dashboards, course handling, and media uploads work as intended.

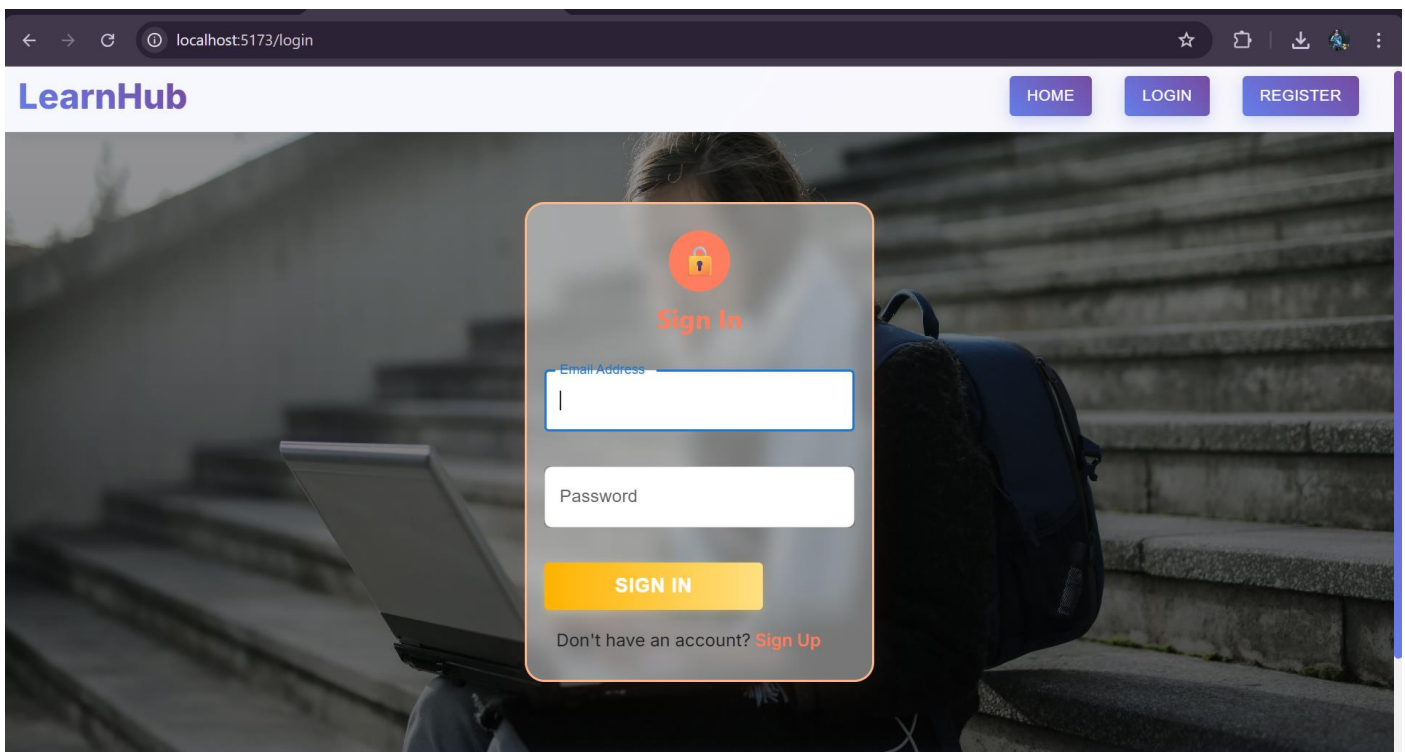
Application is responsive across various devices and browsers.

7.1 Output Screenshots

 Home Page



Login Page




Registration Page

localhost:5173/register

LearnHub

HOME LOGIN REGISTER



Register

Full Name

Email Address

Password

Select User ▾

 SIGN UP








Admin Dashboard

localhost:5173/dashboard

LearnHub Dashboard Manage Courses

Rajatkumar Admin

Admin Dashboard

 4 All Users	 2 Teachers	 2 Students	 0 Courses	 0 Enrollments
ALL USERS	TEACHERS	STUDENTS	COURSES	ENROLLMENTS
User	Email	Type	Action	
 Rajatkumar 685e7175712510dc6931efa4	teacher@gmail.com	Teacher	 DELETE	

localhost:5173/dashboard

LearnHub

DashboardManage Courses

RajatkumarAdmin

ALL USERSTEACHERSSTUDENTS

COURSESENROLLMENTS

User	Email	Type	Action
<div><div></div><div>Rajatkumar</div><div>685e7175712510dc6931efa4</div></div>	teacher@gmail.com	Teacher	<div>DELETE</div>
<div><div></div><div>Dhumbu</div><div>685e71a5712510dc6931efa8</div></div>	dhumbuteacher@gmail.com	Teacher	<div>DELETE</div>
<div><div></div><div>Rajatkumar</div><div>685e71be712510dc6931efab</div></div>	student@gmail.com	Student	<div>DELETE</div>
<div><div></div><div>Dhumbu</div><div>685e71db712510dc6931efae</div></div>	dhumbustudent@gmail.com	Student	<div>DELETE</div>

Teacher Dashboard

localhost:5173/dashboard

LearnHub

DashboardAdd Course

RajatkumarTeacher

Body Building

Description:

Daily food to eat inorder to strength o [Read More](#)

Category:

Personal Development

Sections:

1

Enrolled students:

0

Add Sec...

Edit Cou...

Delete

How to gain money

Description:

how to save the money and increase the p [Read More](#)

Category:

Finance & Accounting

Sections:

1

Enrolled students:

1

Add Section

Edit Course

CSE

Description:

hello welcome to cse section

Category:

IT & Software

Sections:

1

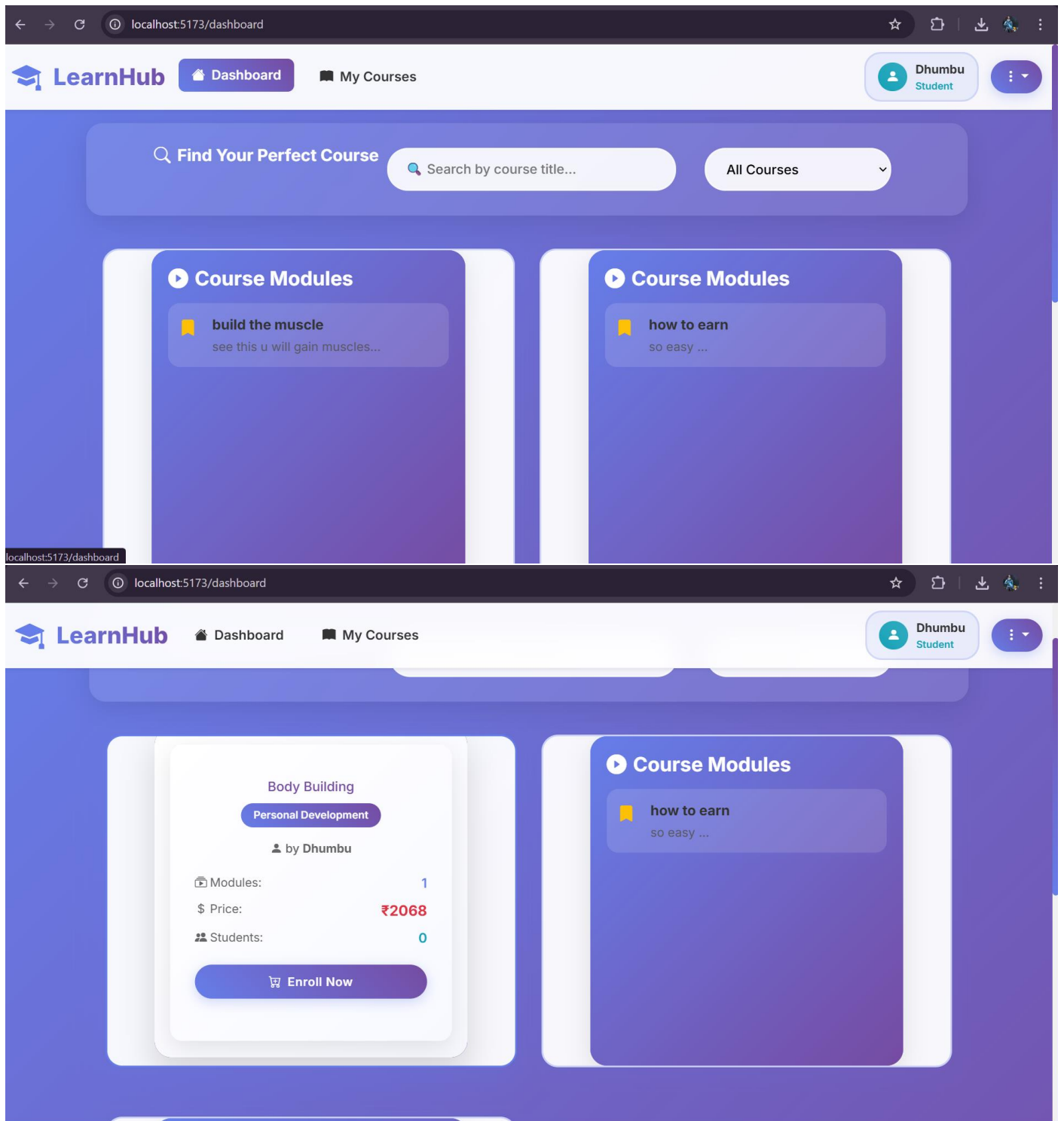
Enrolled students:

1

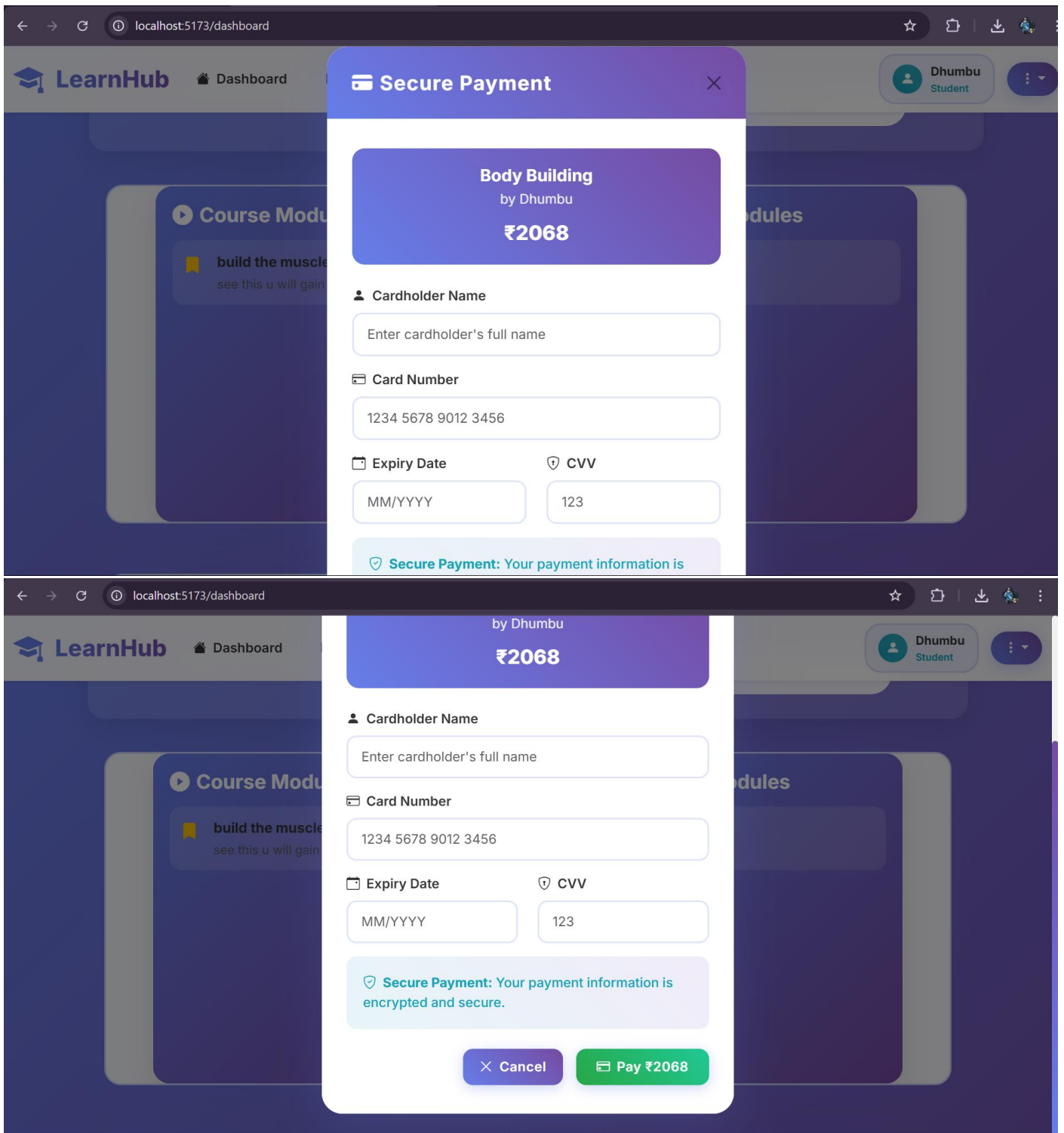
Add Section

Edit Course

Student Dashboard



Payment Page



Course Creation

Course Type

Select categories

Course Title

Enter Course Title

Course Educator

Enter Course Educator

Course Price(Rs.)

for free course, enter (

Course Description

Enter Course
description

+ Add Section

Submit

Course Edit Page

localhost:5173/teacher/edit-course/685e73c5712510dc6931efc1

Edit Course

Body Building

Description: Daily food to eat inorder to strength or build the body**Category:** Personal Development**Sections:** 1**Enrolled students:** 0

Course Type

Personal Development

Course Title

Body Building

Course Educator

Dhumbu

Course Price

Rs. 2068

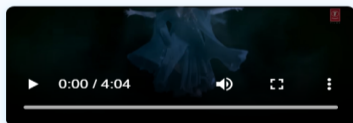
Course Description

Daily food to eat inorder to
strength or build the body

Sections

build the muscle

see this u will gain muscles



Section Title

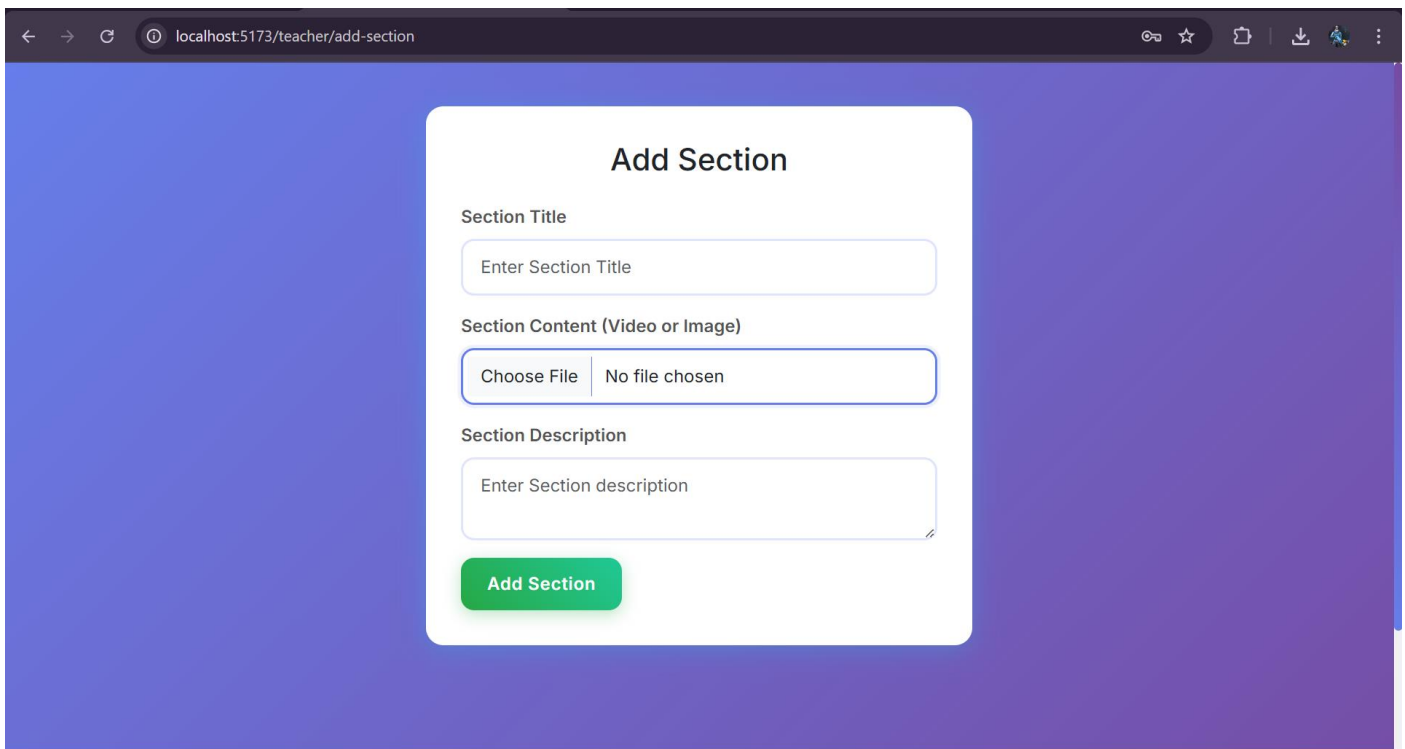
build the muscle

Section Description

see this u will gain muscles

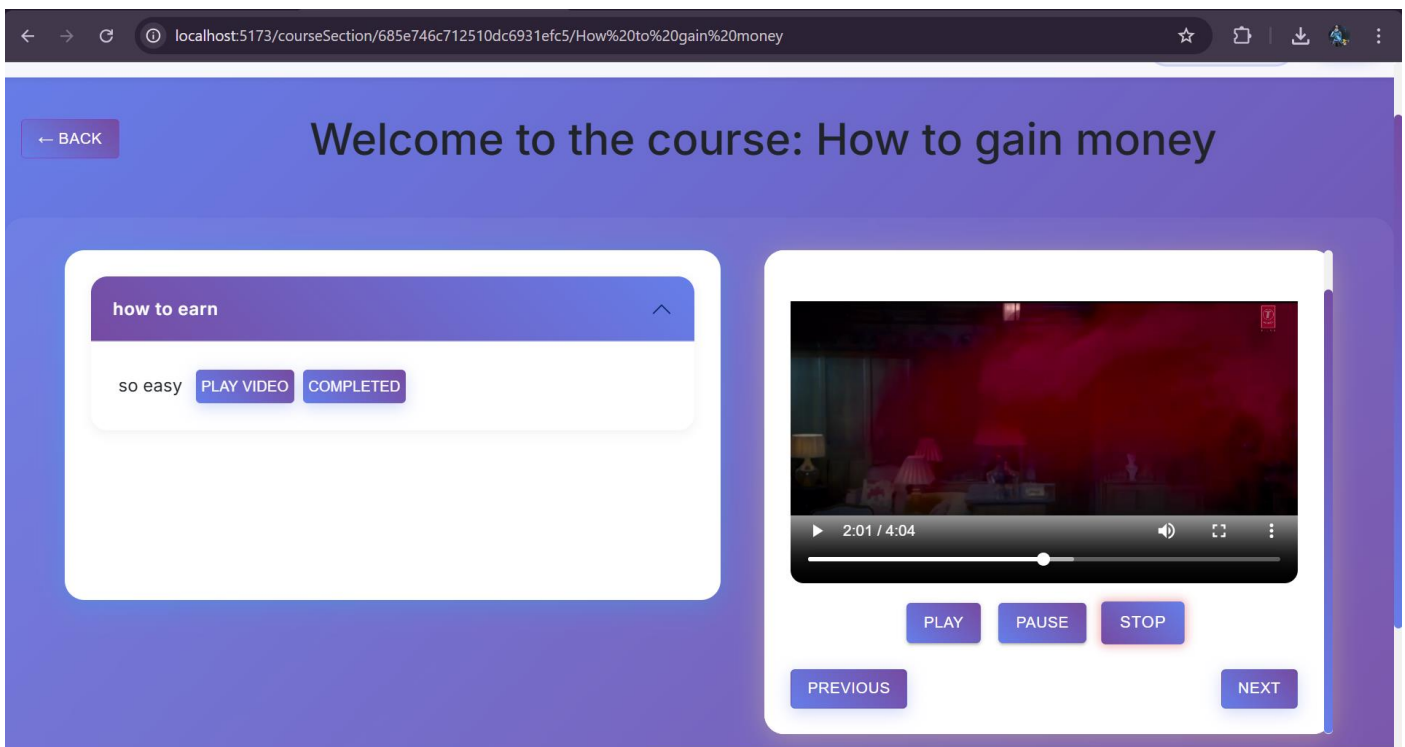
Save Changes

Media Upload



The screenshot shows a web browser window with the address bar displaying 'localhost:5173/teacher/add-section'. The main content area has a purple gradient background. In the center, there is a white card titled 'Add Section'. Inside the card, there are three input fields: 'Section Title' with a placeholder 'Enter Section Title', 'Section Content (Video or Image)' with a file selection button 'Choose File' and the text 'No file chosen', and 'Section Description' with a placeholder 'Enter Section description'. At the bottom of the card is a green button labeled 'Add Section'.

Media Playback



The screenshot shows a web browser window with the address bar displaying 'localhost:5173/courseSection/685e746c712510dc6931efc5/How%20to%20gain%20money'. The main content area has a purple gradient background. At the top left, there is a '← BACK' button. In the center, there is a large heading 'Welcome to the course: How to gain money'. Below this, there are two main components. On the left, there is a white card with a purple header 'how to earn' and a small upward arrow. Inside the card, there is the text 'so easy' followed by two buttons: 'PLAY VIDEO' and 'COMPLETED'. On the right, there is a video player. The video player shows a scene with a red overlay. Below the video player, there are three buttons: 'PLAY', 'PAUSE', and 'STOP'. At the bottom of the video player area, there are two buttons: 'PREVIOUS' and 'NEXT'.

8. ADVANTAGES & DISADVANTAGES

Advantages

- Centralized platform for all user roles
- Clean and intuitive user interface
- Secure login and data encryption
- Easy course creation and media handling
- Scalable and maintainable system

Disadvantages

- Requires stable internet for streaming
- Initial setup needs technical expertise
- Growing media storage may raise hosting costs

9. CONCLUSION

LearnHub successfully meets the requirements of a modern learning platform. It provides a user-friendly, scalable, and secure solution for students, teachers, and administrators. The system effectively bridges the gap in traditional education platforms through its comprehensive features.

10. FUTURE SCOPE

- Real-time chat and discussion forums
- Mobile app for Android and iOS
- Advanced analytics and dashboards
- Interactive quizzes and live sessions
- API integration with external learning tools

11. APPENDIX

Source Code:

The complete source code is organized in the backend and frontend folders of the project directory.

Dataset Link:

No external datasets were used; all data is managed within the application's MongoDB database.

GitHub & Project Demo Link:

- GitHub Repository: <https://github.com/Rajatkumar2004/learnhub-your-center-for-skill-enhancement>
- Project Demo: <https://learnhub-your-center-for-skill-enha.vercel.app/>