



LearnBridge- An Online learning platform

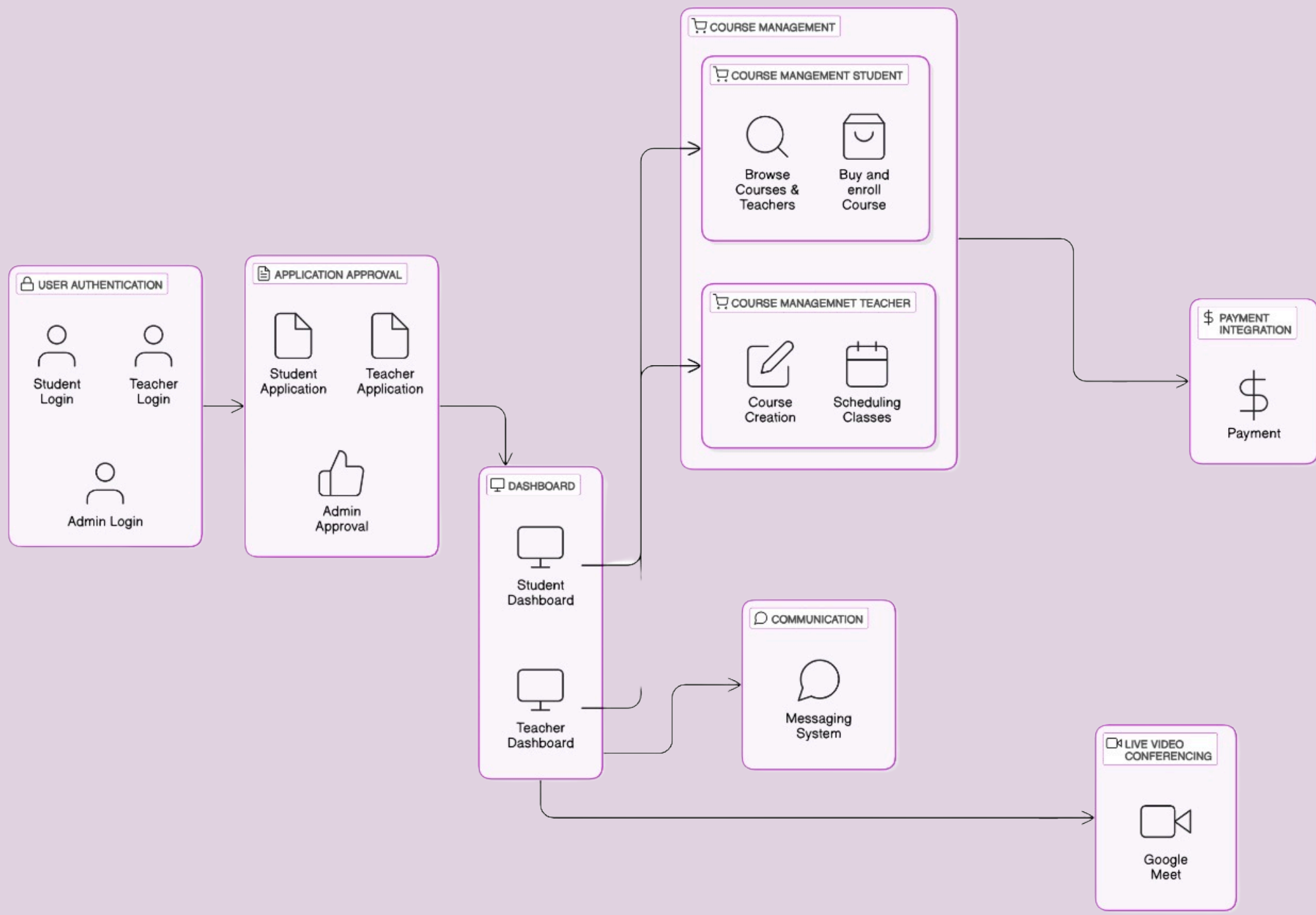
Introduction

LearnBridge is a modern and scalable online learning platform designed to bridge the gap between students, teachers, and administrators. Built using the MERN Stack (MongoDB, Express.js, React, Node.js), this platform simplifies online education through secure user authentication, interactive dashboards, real-time video conferencing, and seamless payment integration.

LearnBridge offers personalized learning experiences, allowing students to explore, purchase, and attend live courses, while teachers can manage content and monitor student progress. With role-based access and a structured approval system, the platform ensures that every learning interaction remains organized, transparent, and efficient.

Whether for academic institutions or freelance educators, LearnBridge is a step toward making digital education more accessible and adaptive for the future.

Diagram



Methodology

The development of LearnBridge — Online Learning Platform followed an Agile Software Development approach using the Scrum framework to ensure flexibility, transparency, and continuous improvement.

The project was structured into multiple two-week sprints, each focusing on specific functional milestones — from wireframing and backend design to frontend development and system integration.

🔑 Key Steps in Our Methodology:

- 1 Requirement Gathering:**
Stakeholder interviews and feedback sessions were conducted to gather user needs for students, teachers, and admins.
- 2 Sprint Planning:**
Tasks were broken down into manageable user stories and assigned story points for clear effort estimation and planning.
- 3 Incremental Development:**
Using the MERN stack, the team developed:
 - Secure user authentication with JWT
 - Role-based dashboards for students, teachers, and admins
 - Real-time live video classes using Google Meet integration
 - Payment gateway setup with Razorpay
- 4 Daily Stand-Ups:**
Quick team check-ins were held to identify progress, blockers, and next steps.
- 5 Sprint Review & Retrospective:**
At the end of each sprint, completed features were demonstrated, feedback was gathered, and improvements were planned for the next iteration.
- 6 Testing & Deployment:**
Each module was tested for functionality, performance, and security before integration and cloud deployment.

Features

- ✅ **User Authentication & Role Management**
Secure login system using JWT, with role-based access for Students, Teachers, and Admins.
- ✅ **Interactive Dashboards**
Personalized dashboards for each user type — allowing students to track progress, teachers to manage courses, and admins to approve applications.
- ✅ **Course Enrollment & Purchase**
Students can browse, select, and securely purchase courses through integrated payment gateways like Razorpay.
- ✅ **Live Video Conferencing**
Seamless integration of Google Meet for real-time interaction between teachers and students during classes.
- ✅ **Application Approval Workflow**
Admin-controlled system for validating and approving student and teacher applications, ensuring platform security and quality.
- ✅ **Feedback Mechanism**
Students can submit feedback directly to admins to report issues or suggest improvements, enhancing continuous development.
- ✅ **Scalable MERN Stack Architecture**
Robust and scalable application design using MongoDB, Express.js, React, and Node.js — ensuring fast performance and future growth potential.

Tools and Technology



Benifits

- ✓ Simplifies online learning for students and teachers.
- ✓ Ensures secure access with role-based control.
- ✓ Enables real-time interaction through video classes.
- ✓ Streamlines course management and approvals.
- ✓ Offers flexible and scalable system architecture.
- ✓ Easy course enrollment and secure payments.
- ✓ Centralized feedback for continuous improvement.
- ✓ Personalized dashboards enhance user experience.
- ✓ Supports collaborative learning and engagement.
- ✓ Scalable design for future feature expansion.

conclusion

LearnBridge provides a complete and reliable solution for modern online education. Its role-based access, real-time interaction, and secure payment system make learning simple, organized, and accessible for students and teachers. Developed using Agile practices and the MERN stack, LearnBridge ensures flexibility, scalability, and a user-friendly experience — making it a strong foundation for future growth in the digital learning space.