

## 1. Project Title

### **skilswap – Peer Learning LMS Platform**

## 2. Project Overview

PeerLearn is a collaborative learning management system designed to empower learners through peer-to-peer interaction, course sharing, and community-driven knowledge building. The platform enables users to enroll in courses, participate in discussions, track progress, and contribute as both learners and peer instructors, fostering a dynamic and engaging learning environment.

## 3. Problem Statement

Traditional LMS platforms often lack features that promote active peer engagement, resulting in passive learning and limited knowledge exchange. PeerLearn addresses this gap by integrating peer learning tools, enabling users to support each other, share insights, and collaborate, thereby enhancing motivation, retention, and learning outcomes.

## 4. Objectives

- Secure user registration and authentication
- Course catalog with search and filtering
- Course enrollment (free and paid)
- Chapter-based course structure with progress tracking
- Peer discussion forums and Q&A per course/chapter
- Peer review and collaborative assignments

- User dashboard for enrolled courses and progress
- Instructor tools for course creation and management
- Analytics for learners and instructors (progress, engagement)
- Responsive, intuitive UI
- Admin controls for content moderation and user management

## 5. Technologies Used

- **Frontend:** Next.js 13, React.js, Tailwind CSS
- **Backend:** Node.js, GraphQL (Hygraph CMS), REST APIs
- **Authentication:** Clerk
- **Database/CMS:** Hygraph (GraphQL Headless CMS)
- **Deployment:** Vercel
- **Other:** Stripe (for payments), Socket.io (for real-time discussions, optional)

## 6. Architecture & Design

- **Frontend:** Delivers dynamic, responsive UI; handles routing, state, and API interactions
- **Backend:** Manages authentication, course data, user progress, and peer interactions
- **CMS:** Stores course content, user profiles, discussion threads, and analytics

- **Authentication:** Clerk handles user sessions, social logins, and access control
- **Deployment:** Hosted on Vercel for scalability and performance

## 7. User Stories/Features

- **User Authentication:** Register/login securely (email/social)
- **Course Discovery:** Browse/search/filter courses by category, skill level
- **Enrollment:** Enroll in courses; access free or paid content
- **Learning Dashboard:** View enrolled courses, track chapter completion, resume learning
- **Peer Discussions:** Participate in forums and Q&A for each course/chapter
- **Peer Review:** Submit and review assignments, provide feedback
- **Course Creation:** Instructors can create, edit, and manage courses and chapters
- **Analytics:** Visualize progress, engagement, and peer activity
- **Responsive Design:** Seamless experience on desktop and mobile

## 8. Database Schema

- **Users:**
  - id, name, email, password (hashed), role (learner/instructor/admin), profile info
- **Courses:**
  - id, title, description, category, instructorId, price, chapters[], enrolledUsers[]
- **Chapters:**
  - id, courseId, title, content, videoUrl, resources[]
- **Enrollments:**
  - id, userId, courseId, enrollmentDate, progress (chapters completed)
- **Discussions:**
  - id, courseId/chapterId, userId, content, timestamp, replies[]
- **Assignments:**
  - id, chapterId, userId, submission, peerReviews[]
- **Analytics:**
  - userId, courseId, streaks, completionRate, engagementScore55

## 9. System Requirements

### Hardware:

- Device with modern browser (desktop/laptop/tablet/mobile)
- Internet connection

### Software:

- Node.js (v18+)
- Vercel account
- Hygraph CMS account
- Clerk account
- Git
- Code editor (VSCode)

## 10. Development Process

- **Methodology:** Agile, iterative sprints focusing on core modules first (auth, course structure, peer features)
- **Challenges Faced:**
  - Integrating real-time peer interactions
  - Ensuring secure authentication and data privacy
  - Designing scalable CMS schemas for dynamic content
  - Balancing usability with feature richness

## 11. Advantages of the Project

- Promotes active, collaborative learning
- Empowers users as both learners and contributors
- Modern, responsive interface
- Modular and scalable for future growth
- Rich analytics for learners and instructors

## 12. Disadvantages of the Project

- Real-time features may add complexity
- Initial content creation relies on instructor engagement
- Peer moderation required to ensure quality discussions
- Payment integration and content moderation may require further development

## 13. Future Enhancements

- Mobile app (React Native)
- AI-driven course recommendations
- Gamification (badges, leaderboards)
- Integration with external tools (Google Drive, Zoom)
- Enhanced analytics and reporting
- Push/email notifications
- Advanced peer matching for study groups
- Multilingual support

## 14. Conclusion

PeerLearn is a next-generation peer learning LMS designed to foster engagement, collaboration, and knowledge sharing. By combining robust course management with interactive peer features, it aims to transform online learning into a dynamic, community-driven experience. The platform's scalable architecture and modern tech stack provide a strong foundation for continuous improvement and expansion.

## 15. References

- [Skilljar: The Ultimate LMS Project Planning Template][1](#)
- [iSpring: Successful LMS Implementation Plan][2](#)
- [Moodle Project Report][3](#)
- [E-Learning Management System Project Report][4](#)
- [ClickUp: LMS Implementation Project Plan Template][5](#)
- [Thinkific: LMS Implementation Project Plan][9](#)

### **Team Members:**

1. [Your Name]
2. [Collaborator 1]
3. [Collaborator 2]
4. [Collaborator 3]