E-Learning Platform for Computer Science Students

Project Overview

The CodiFi E-Learning Platform is a web-based system designed to offer interactive and personalized learning experiences for computer science students. It enables learners to enroll in individual courses by paying one-time course fees, giving them lifetime access to course materials, tasks, and assessments. The platform focuses on improving student engagement through features like daily tasks and assignments, learning progress tracking, live classes, AI chatbot assistance, student feedback, and an automatic offer system for repeat learners. Built using React (frontend) and Django REST Framework (backend) with MySQL as the database, CodiFi ensures security, scalability, and seamless interaction among students, instructors, and administrators.

Core Functionalities

- **Course Enrollment & Payments:**

  Students can browse, preview, and enroll in courses by paying a one-time fee. Payment gateways such as Razorpay or Stripe handle secure transactions. Purchased courses are automatically added to the student's dashboard.

- **Daily Task Management:**

  Instructors can assign daily coding tasks or theory exercises for students. Students submit their completed tasks for review. Instructors can approve or reject tasks with feedback, and rejected tasks can be resubmitted.

- **Automatic Offer System:**

  When a student enrolls in one course, the system automatically provides discounts or offers for subsequent courses. Offers are dynamically applied during checkout and configurable by admins.

- **Learning Progress Tracking:**

  Monitor course completion, quiz results, and task performance. Visual analytics and certificates on completion.

- **Course Management (Instructor):**

  Create, edit, and publish structured courses with modules, lessons, and quizzes. Upload videos, notes, and coding exercises.

- **Live Classes & Webinars:**

  Host live classes and coding workshops through APIs (Zoom/Jitsi). Enable Q&A; and reminders for sessions.

- **Chatbot Assistance:**

  AI chatbot guides students through navigation, FAQs, and course suggestions.

- **Student Feedback & Rating System:**

  Students can rate courses and provide feedback.
  Instructors can view feedback; admins moderate it.

- **User Authentication & Profiles:**

  Role-based access (Student, Instructor, Admin). Secure JWT login and profile customization.

- **Admin Management:**

  Approve instructors, monitor users, manage payments, configure offers, and view analytics dashboards.

System Modules

Frontend (React + Tailwind / CSS / JS)

Modern interface for browsing courses, dashboards, progress tracking, chatbot, and live session modules.

Backend (Django REST Framework)

APIs for users, courses, payments, and analytics. Secure JWT authentication, AI chatbot, and MySQL for data management.

Functional Modules

1. Student Module

- Register, log in, and manage profile.
- Browse and purchase courses with one-time payments.
- Submit daily tasks for instructor review and resubmission if rejected.
- Participate in quizzes, live classes, and discussions.
- Track course progress and interact with chatbot for guidance.
- Rate completed courses and download certificates.
- Receive automatic offers for new enrollments.

2. Instructor Module

- Register as instructor and create courses.
- Add videos, notes, and coding tutorials.
- Assign and evaluate daily tasks with feedback.
- Approve or reject submissions and allow resubmissions.
- Conduct live webinars and view course feedback.

3. Admin Module

- Manage users, instructors, and courses.
- Approve instructors and course submissions.
- Oversee payments, feedback, and analytics.
- Configure automatic offers and monitor chatbot performance. **AI Integration**

Chatbot Assistant: Provides real-time guidance and answers queries. Recommendation Engine: Suggests courses based on performance and interests. Analytics Module: Tracks activity, task completion, and engagement levels. Smart Offer System: Generates discounts automatically for repeat learners.

Summary

The CodiFi E-Learning Platform transforms education into a smart and interactive system for computer science students. Its daily task management, automatic offer system, AI-driven chatbot, and progress tracking promote active learning and engagement. Through real-time analytics, feedback, and live instruction, CodiFi delivers an intelligent, scalable, and user-friendly e-learning experience for both instructors and students.