Project Statement

Domain: Web Development

Project 6: AI-Powered Personalized E-Learning Platform
Project Title: Smart Adaptive Learning System with AI Tutors & Real-Time Assessments

Project Objective:
To build a next-gen web-based learning platform that delivers personalized courses, AI tutors, interactive quizzes, real-time progress tracking, and virtual classrooms. The system adapts to each student's learning pace using AI/ML, supports video lectures, discussion forums, gamification, and ensures secure scalable deployment with cloud infrastructure.

Technologies to Use:

- Frontend: React.js, Next.js, TailwindCSS
- Backend: Node.js, Express.js, GraphQL/REST
- Database: MongoDB, PostgreSQL
- AI/ML: TensorFlow/Keras, Hugging Face Transformers, OpenAI API (chatbot)
- Video Streaming: WebRTC, AWS IVS, or Agora API
- Authentication: JWT, OAuth 2.0, MFA
- Deployment: Docker, Kubernetes, AWS/GCP (EC2, S3, Lambda, RDS)
- Gamification: Redis (for leaderboards & points system)

Tasks Breakdown:

1. Implement user authentication & roles (student, teacher, admin).
2. Build course management system with videos, PDFs, and quizzes.
3. Add AI tutor chatbot for Q&A and explanations.
4. Develop adaptive learning algorithm to recommend personalized content.
5. Integrate auto-grading system for quizzes & coding tasks.
6. Implement gamification (badges, points, leaderboards).
7. Build dashboards for students and teachers.
8. Add discussion forums & group project support.
9. Deploy platform with Docker & Kubernetes on AWS/GCP.

Submission:

- Project Report (with architecture diagrams, features, screenshots).
- Source Code (frontend + backend + AI tutor module).

Submit the project folder in ZIP file.
The ZIP will includes all files that used to create the project and Project Report PDF file

Note:
Make sure your project in running condition.