

EduTutor AI – Personalized Learning with Generative AI and LMS Integration

1. Project Title

**EduTutor AI – Personalized
Learning Powered by Generative
AI and LMS Integration**

Key Features

1. Generative AI Content Engine

Custom lesson generation

AI-created quizzes, summaries, and flashcards

Conversational tutoring agent (ChatGPT-style)

2. LMS Integration

Syncs assignments, grades, and progress

Supports SCORM, LTI, or xAPI standards

Compatible with Moodle, Canvas, Blackboard, etc.

3. Personalized Learning Pathways

Adaptive learning algorithms based on student performance

AI-driven recommendations for content and pacing

Intelligent remediation and enrichment pathways

4. AI Tutor Bot

24/7 support for Q&A and explanations

Multimodal support: text, voice, diagrams

Simulates Socratic questioning and step-by-step coaching

5. Analytics Dashboard

Real-time progress tracking

Predictive analytics for at-risk learners

Teacher feedback tools powered by AI insights



Technologies Used

AI Engine: OpenAI GPT-4o or custom LLM

Frontend: React, Next.js or Vue

Backend: Node.js, Django, or Flask

LMS APIs: Moodle REST API, Canvas API, LTI integrations

Database: PostgreSQL / MongoDB

Cloud Deployment: AWS / Azure / GCP



Use Case Scenarios

K-12 or Higher Ed students receiving custom learning help

Teachers creating AI-generated lesson plans

Administrators tracking student engagement

Corporate training with adaptive AI modules



Ethical and Privacy Considerations

Compliance with FERPA, GDPR, and COPPA

Transparency in AI decision-making

Opt-in AI personalization

Explainability and bias mitigation features

Phase Deliverables

- 1. Research & Planning Requirements, LMS selection, AI model choice**
- 2. MVP Development Core AI tutor, LMS integration, dashboard**
- 3. Testing & Feedback Pilot with students and educators**
- 4. Full Launch Scalable deployment, support, marketing**



Bonus Ideas

Gamification features using AI to create dynamic challenges

Voice assistants for accessibility (text-to-speech and speech-to-text)

Parent/guardian AI insights dashboards