EduGame AI — Full Feature & Functional Specification Document

1. Overview

EduGame AI is an intelligent learning and teaching assistant designed to enhance communication, provide personalised learning, automate teaching workflows, and gamify the educational experience. It serves both Students and Teachers with role-aware responses and adaptive capabilities.

Primary Goals

1. Bridge the communication gap between students and teachers.
2. Make learning interactive, personalised, and gamified.
3. Provide accurate academic answers, summaries, quizzes, and feedback to support learning and teaching.

---

2. User Roles

EduGame AI supports two primary user roles: - **Student** - **Teacher**

The system *automatically identifies the user's role* based on input messages and tailors the response accordingly.

---

3. Student Capabilities

3.1 AI Doubt Solver

- Provides accurate, step-by-step solutions to academic questions.
- Chat-based, interactive learning interface.
- Subject-wise categorisation for easy navigation.

3.2 Lecture Summariser

Students can upload notes, PDFs, or lecture text. AI generates: - Summary - Key points - Flashcards - Short quiz questions

3.3 Quiz Generator

- Generate quizzes on any topic.
- Difficulty levels included.
- Provides explanations for correct and incorrect answers.

3.4 Assignment Helper

- Assists by explaining concepts and guiding students through assignments.

• Access to solutions only if explicitly requested.

3.5 ⭐Unique Feature: "Explain My Mistake"

Students upload or type an incorrect answer → AI automatically identifies: 1. **What mistake was made** 2. **Why it is wrong** 3. **Correct solution** 4. **1–3 similar practice questions** to reinforce understanding

This builds confidence, improves concept mastery, and reduces fear of making mistakes.

---

4. Teacher Capabilities

4.1 Class & Student Management

• Create classes/sections.
• Generate and share class codes for student enrollment.
• View and manage enrolled students.

4.2 AI Quiz Generator

Teachers select: - Subject - Topic - Difficulty level

AI generates: - Full quiz set - Explanations - Marks distribution

4.3 Assignment Creator & AI Evaluator

• Create assignments and set due dates.
• Students submit assignments online.
• AI performs first-level evaluation and grades with feedback.

4.4 Analytics & Insights

• Topic-wise performance analytics.
• Quiz result breakdown.
• Identify weak & strong areas.

4.5 ⭐Unique Feature: "AI Class Assistant – Auto Lesson Planner"

Teachers provide: - Topic - Number of days/weeks - Class grade level

AI automatically generates: - Structured lesson plan - Learning objectives - Classroom activities - Expected student mistakes - Small quizzes for each session - Predicted doubts students may ask

This saves significant teacher preparation time and surpasses existing LMS tools by providing intelligence-driven planning.

---

5. Student Dashboard (URL: /student)

5.1 AI Doubt Solver

- The core learning tool.
- Chat interface with step-by-step explanations.

5.2 Lecture Summariser

Upload → Receive: - Summary - Key points - Flashcards - Mini quizzes

5.3 Quiz Arena (Gamified System)

- AI-generated quizzes
- Teacher-assigned quizzes
- Earn XP, levels
- Streak system
- Weekly leaderboard

5.4 Assignments

- Submit homework
- See deadlines
- Receive teacher & AI-powered feedback

5.5 Classes

- Join classes via code

⭐Explain My Mistake — Student Signature Feature

A major differentiator and core value addition.

---

6. Teacher Dashboard (URL: /teacher)

6.1 Class & Student Management

Structured interface for managing teaching workflows.

6.2 AI Quiz Generator

Auto-create quizzes tailored to difficulty and topic.

6.3 Assignment Creator & Evaluator

AI-enhanced evaluation saves teacher effort.

6.4 Analytics & Insights

Comprehensive reports on: - Class-level performance - Student-level analytics - Topic mastery

⭐AI Class Assistant — Lesson Planner

A U.S.P. feature providing automated teaching content.

---

7. Additional Key Feature: Doubt Prediction Engine

AI predicts likely student doubts based on: - Past quizzes - Assignment mistakes - Difficulty of topic - Class performance trends

This helps teachers prepare proactively.

---

8. Competitive Advantage

EduGame AI stands out due to: - Mistake Identification Engine - AI Lesson Planner - Gamification System - Deep academic reasoning and summarisation - Performance analytics

No existing LMS provides this combination of intelligence + personalisation.

---

9. Conclusion

EduGame AI modernises learning and teaching with advanced AI assistance, interactive features, and automated academic workflows. It reduces effort for teachers while empowering students to learn deeply and confidently.

EduGame AI is more than a tool — it is a **smart academic partner** for schools, teachers, and students.