

EduGame AI — Product Requirements Specification (PRS)

1. Product Overview

Product Name: EduGame AI

One-line Description: An AI-powered learning and teaching assistant that helps students and teachers learn, teach, assess, and collaborate effectively with personalised, interactive, and gamified tools.

Target Users

- **Primary Users:** Students & Teachers
- **Secondary Users:** Educational Institutions, Coaching Centers
- **Buyers:** School Admins / Institution Owners / EdTech Platforms

Value Proposition

EduGame AI bridges the communication gap between students and teachers and enhances the learning ecosystem by offering: - Instant and accurate academic answers - AI-powered summaries, quizzes, and feedback - Automated lesson planning for teachers - Gamified learning to boost engagement - Assignment evaluation and deep-learning feedback

2. Problem Statement

Current learning systems suffer from: - Poor communication between students and teachers - Lack of personalised learning paths - Non-interactive content delivery - Teachers spending excessive time planning lessons, quizzes, and checking assignments - Students lacking clarity on where they make mistakes

Existing solutions like LMS platforms provide structure but lack intelligence, personalisation, and gamification.

EduGame AI fills these gaps using advanced AI capabilities.

3. Project 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.
 4. Reduce teacher workload by automating lesson planning, quiz generation, and basic evaluation.
 5. Help students understand mistakes and improve through practice.
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4. User Roles

There are **two** system roles: - **Student** - **Teacher**

The AI must detect user role automatically based on message intent.

5. Student Capabilities

5.1 AI Doubt Solver

- Chat-like interface
- Accurate, step-by-step solutions
- Subject-filtered learning

5.2 Summarisation Engine

Upload notes/PDFs/text → AI generates: - Key points - Summary notes - Flashcards - Quick quiz questions

5.3 AI Quiz Generator

- Topic-based quizzes
- Instant explanations
- Custom difficulty

5.4 Assignment Helper

- Concept explanations to aid homework
- Avoids solving full homework unless requested explicitly

5.5 ★ Unique Feature: “Explain My Mistake”

Students upload a wrong answer → AI identifies: 1. The mistake 2. Why it is wrong 3. Correct method + correct answer 4. 1–3 similar practice questions

This strengthens learning and reduces fear of errors.

6. Teacher Capabilities

6.1 Class & Student Management

- Create/manage sections
- Invite students via class code
- Monitor student list

6.2 AI Quiz Generator

Teachers select: - Subject - Topic - Difficulty level

AI generates full quizzes with: - Correct answers - Explanations - Marks

6.3 Assignment Creator & AI Evaluator

- Teachers create assignments
- Students submit online
- AI performs first-level evaluation and assigns marks
- Feedback auto-generated

6.4 Analytics & Insights

- Topic-wise performance
- Quiz accuracy
- Identify weak & strong areas

6.5 ★ Unique Feature: “AI Class Assistant – Auto Lesson Planner”

Teachers choose: - Topic - Duration (days/weeks) - Class level

AI generates: - Learning objectives - Teaching activities - Common mistakes - Quick quizzes - Suggested class flow - Predicted student doubts

This reduces planning time drastically and outperforms LMS platforms like Google Classroom.

7. Student Dashboard (URL: /student)

1. AI Doubt Solver

- Step-by-step academic help
- Subject-wise filters

2. Lecture Summariser

- Upload notes/PDFs
- Auto summary generation

3. Quiz Arena

- AI-generated quizzes
- Teacher-assigned quizzes
- XP, levels, streaks
- Leaderboards

4. Assignments

- Submit assignments
- Track deadlines
- See marks + feedback

5. Classes

- Join classes via class/section codes

★ Explain My Mistake Checker

Strengthens conceptual understanding and skill mastery.

8. Teacher Dashboard (URL: /teacher)

1. Class & Student Management

- Create/manage sections
- Monitor students

2. AI Quiz Generator

- Fully automated quizzes
- Assign to specific classes

3. Assignment Manager

- Create assignments
- AI scoring & evaluation
- Feedback generation

4. Analytics Dashboard

- Performance insights
- Topic difficulty analysis

★ AI Lesson Planner

A complete AI-powered teaching assistant.

9. System Architecture (High-Level)

- **Frontend:** Student/Teacher dashboards
 - **Backend:** AI orchestration, API services
 - **Database:** Users, classes, quizzes, analytics, submissions
 - **AI Modules:**
 - Doubt Solver
 - Summarizer
 - Quiz Generator
 - Lesson Planner
 - Assignment Evaluator
 - Mistake Analysis Engine
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10. Competitive Advantage

EduGame AI is superior to traditional LMS because of: - AI-powered mistake analysis - Auto lesson planning - Gamified learning - Real-time performance analytics - Deep academic support (summaries, quizzes, evaluations)

No LMS currently combines these features in one platform.

11. Conclusion

EduGame AI revolutionizes both teaching and learning by providing a unified, intelligent, and interactive platform. It reduces teacher workload, enhances student understanding, and promotes a gamified and personalised learning experience.

EduGame AI is not just a tool — it is **a complete academic intelligence system.**