Final Report - EduTutor AI

1. INTRODUCTION

1.1 Project Overview

EduTutor AI is a modern, web-based learning assistant that delivers personalized tutoring using simulated AI across subjects like Mathematics, Science, and History. It combines an intuitive UI with mock AI interaction, visual progress tracking, and interactive quizzes.

1.2 Purpose

To enhance digital education by providing an engaging, accessible tutoring platform that mimics AI-driven explanations for students of various academic levels.

2. IDEATION PHASE

2.1 Problem Statement

Students often lack access to personalized guidance outside of the classroom. Many platforms lack adaptability or cost-effectiveness, leaving gaps in student comprehension.

2.2 Empathy Map Canvas

- Think & Feel: Students want easy explanations and visual aids.

- Hear: Friends using online apps, suggestions from parents/teachers.

- See: Static content, uninspiring designs on existing platforms.

- Say & Do: Ask repetitive doubts, seek progress validation.

- Pain: Limited feedback, lack of interactivity.

- Gain: Engaging visual learning with personalized responses.

2.3 Brainstorming

Initial ideas explored:

- Chat-based tutor

- Quiz modules with scoring

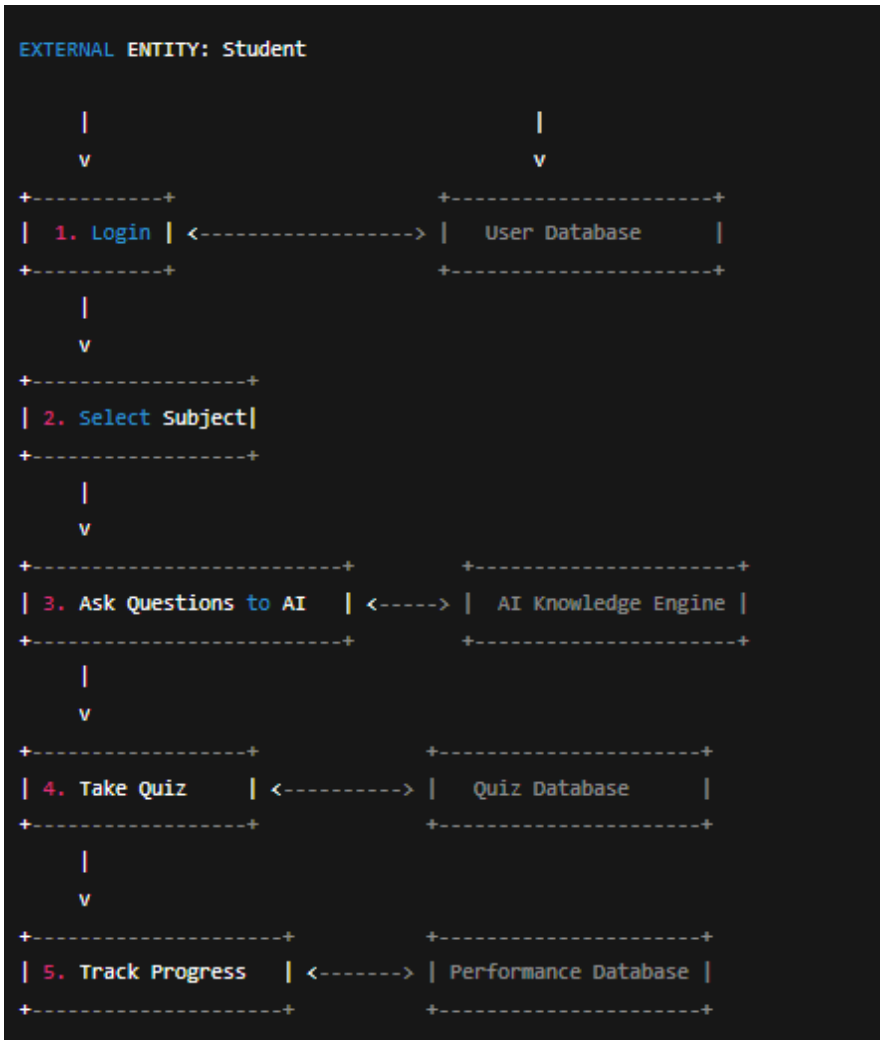
- Performance dashboard

- Responsive multi-platform access

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

1. Login → 2. Subject selection → 3. AI Q&A → 4. Take quiz → 5. See progress



3.2 Solution Requirement

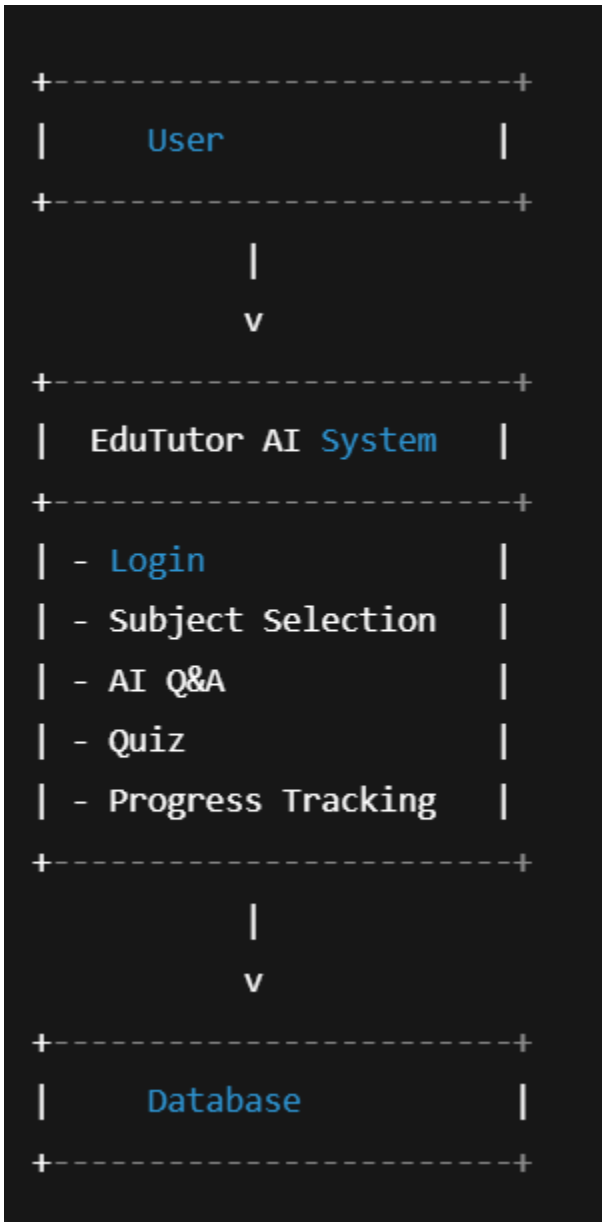
- Simulated AI interface

- Subject-wise content segregation

- Track progress and feedback

- Interactive, responsive design

3.3 Data Flow Diagram



3.4 Technology Stack

- Frontend: React, TypeScript

- Styling: Tailwind CSS

- Bundler: Vite

- Mock AI: Keyword-based response engine

- State Management: React Hooks

4. PROJECT DESIGN

4.1 Problem-Solution Fit

The platform allows students to learn and clarify doubts interactively, resolving the accessibility and engagement issues in typical e-learning tools.

4.2 Proposed Solution

Build a responsive React application that simulates AI tutoring with interactive quizzes and a visual dashboard to track learning.

4.3 Solution Architecture

Will include a visual diagram in the final report.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week | Tasks

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1 | Ideation and UI Planning

2 | Component Design and Routing Setup

3 | Subject Modules and Chat Integration

4 | Quiz Logic & Dashboard Implementation

5 | Testing and UI Improvements

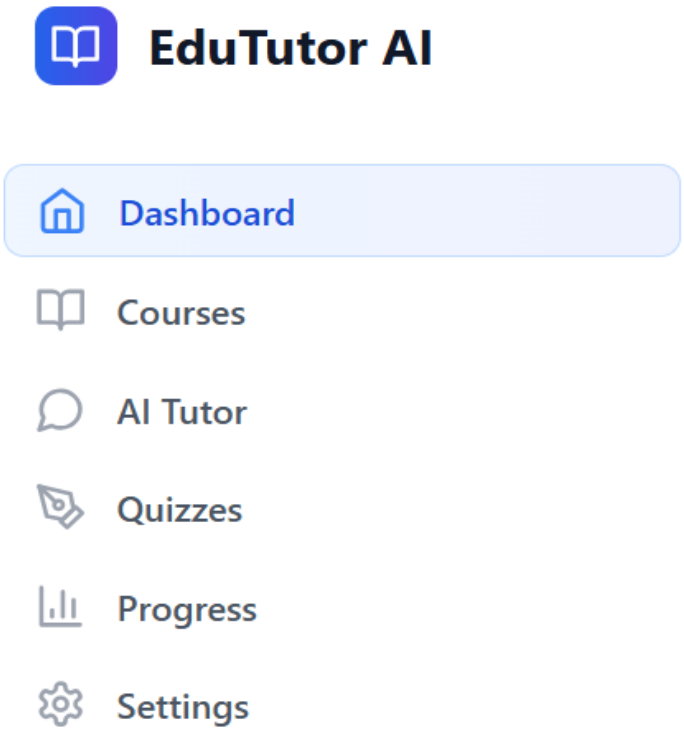
6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Tested on Chrome and Firefox. Maintains responsive UI under load. Mock AI gives sub-second responses. Light footprint due to Vite and Tailwind.

7. RESULTS

7.1 Output Screenshots



8. ADVANTAGES & DISADVANTAGES

Advantages

- Personalized learning via chat

- Easy to deploy and use

- Mobile-friendly design

- Open source and customizable

Disadvantages

- AI is simulated, not truly intelligent

- Lacks backend/user authentication persistence

- Limited content scope (currently 3 subjects)

9. CONCLUSION

EduTutor AI successfully addresses the need for a personalized, engaging tutoring solution using modern web technologies. It offers an excellent foundation for educational innovation.

10. FUTURE SCOPE

- Integrate real AI models (like GPT)

- Add backend with real authentication

- Expand to more subjects

- Include voice and gamified elements

11. APPENDIX

- Source Code: Already included in the ZIP

- GitHub/Demo Link: https://github.com/Manupedapenki/EduTutor-AI