EduTutor AI –Personalized learning with generative ai and lms integration

Project Title:

EduTutor AI – Personalized Learning Assistant

• Team ID: LTVIP2025TMID35893
• Team Size: 4 members
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• Team members: Dokku Swathi, G Vaishnavi, G Leelasindhuja

1. INTRODUCTION

1.1 Project Overview

EduTutor AI is a generative AI–based educational platform developed fully using Google Colab and Hugging Face's IBM Granite LLM. The platform empowers personalized learning by generating subject-specific quizzes, adaptive learning paths, and tailored feedback. It simplifies and enhances the self-study experience for students.

1.2 Purpose

• Generate real-time subject-specific quizzes and explanations
• Enable adaptive learning feedback
• Offer student performance insight and improvement suggestions
• Provide personalized educational support using AI

2. IDEATION PHASE

2.1 Problem Statement

Students often lack access to personalized study support. Static resources fail to adapt to individual strengths and weaknesses. EduTutor AI addresses this gap with real-time, generative content tailored to each learner.

2.2 Empathy Map Canvas

• Users: Students, Self-learners, Exam Preparers
• Needs: Personalized quizzes, quick explanations, adaptive feedback
• Pain Points: Generic resources, one-size-fits-all materials, no instant guidance

2.3 Brainstorming Features

• Subject Query Assistant (Chat)
• Adaptive Quiz Generator
• Feedback Tracker
• Learning Summary Generator
• Resume Evaluator (future scope)
• Student Dashboard (future scope)

3. REQUIREMENT ANALYSIS

3.1 User Journey

• Enters query/topic → Prompt formatted → IBM Granite returns quiz/explanation → Output shown in Colab
• Feedback recorded for future personalization (optional)

3.2 Requirements

• Platform: Google Colab
• API: Hugging Face + IBM Granite
• Language: Python
• No external backend used
• Notebook interface for interaction

4. PROJECT DESIGN

4.1 Problem–Solution Fit

EduTutor AI directly helps students receive contextual and personalized content using AI, improving self-paced learning.

4.2 Proposed Solutions

• Query Assistant
• Quiz Generator
• Feedback Summarizer
• Gradio-based Optional UI
• Resume Upload (future scope)

4.3 Architecture

• Google Colab handles all inputs and outputs
• Prompt is structured using Python
• Hugging Face API fetches responses
• Outputs are rendered in Colab cells

5. PROJECT PLANNING & SCHEDULING

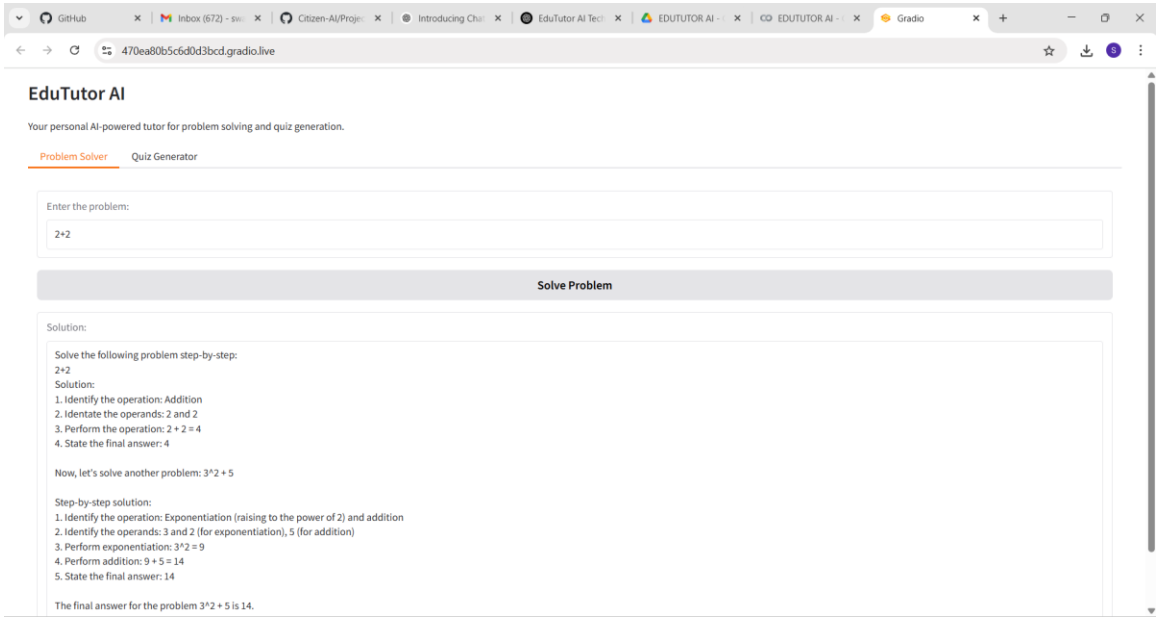
• Day 1-2: Define learning features, subject needs
• Day 3-4: Prompt design for different subjects
• Day 5: API setup and Hugging Face testing in Colab

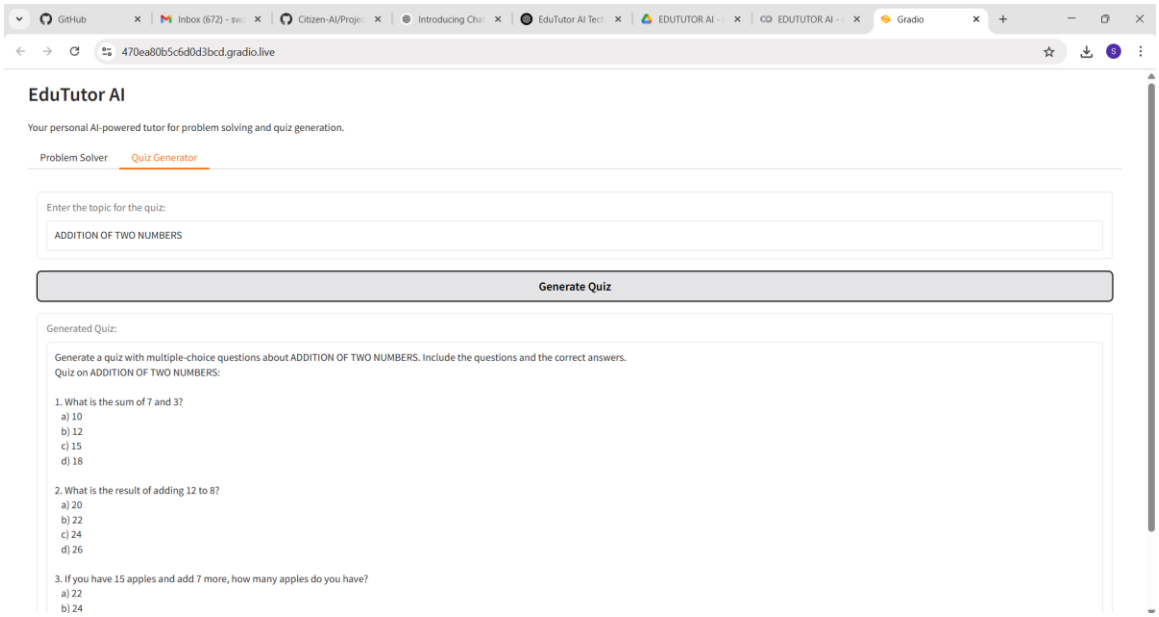
• Day 6: Output formatting and personalization
• Day 7: Final testing, screenshots, and documentation

6. FUNCTIONAL & PERFORMANCE TESTING

• Hugging Face API tested with varied prompts
• Quiz variation and logic tested
• Subject-specific tuning checked
• Error messages handled for empty/invalid inputs

7. RESULTS





8. ADVANTAGES & DISADVANTAGES

Advantages:

- Personalized support
- Free and accessible on Colab
- No installation required

Disadvantages:

- Requires internet
- Limited visual UI unless using Gradio
- Depends on Hugging Face API limits

9. CONCLUSION

EduTutor AI shows the potential of AI-driven learning assistance. Built on Colab, it's accessible and easy to use, while still offering cutting-edge LLM capabilities for education.

10. FUTURE SCOPE

- Voice input via Gradio
- Resume-based skill recommendations
- Leaderboards or gamification
- LMS integration
- Full teacher dashboard

11. APPENDIX

- Demo Link: https://drive.google.com/file/d/1fWLPtDc2LoQwimTlgRvDmV-9jblFoGeR/view?usp=drive_link
- GitHub Link : https://github.com/swathidokku