

Date	26 June 2025
Team ID	LTVIP2025TMID59533
Project Name	EduTutor AI: personalized learning with generative AI and LMS integration
Maximum Marks	

EducatorAI Project Report

1. INTRODUCTION

1.1 Project Overview

EducatorAI is a generative AI-powered educational platform designed to personalize and enhance the learning experience. It provides explanations, summaries, and dynamic quiz generation for educational content using IBM Granite models, delivered through a user-friendly Streamlit interface.

1.2 Purpose

The purpose of EducatorAI is to support both students and educators by enabling a better understanding of academic content through AI-generated summaries, explanations, and assessments.

2. IDEATION PHASE

2.1 Problem Statement

Traditional learning methods often fail to adapt to the pace and needs of individual learners. There's a lack of tools that combine explanation, summarization, and evaluation in a single, easy-to-use platform.

2.2 Empathy Map Canvas

- User: Students, Educators
- Says: "I want a quick summary and quiz to test myself", "I don't get this concept"
- Thinks: "Is this AI explanation accurate and useful?"
- Does: Reads summaries, checks AI explanations, takes quizzes
- Feels: More confident with clear breakdowns and self-assessment tools

2.3 Brainstorming

- Generate summaries for any topic
- Provide detailed explanations for better understanding
- Create quizzes to test knowledge retention
- Store and retrieve previous quiz attempts

- Minimal interface—no login, open access

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

1. User opens the Streamlit app
2. Inputs a topic or concept
3. AI returns explanation, summary, and quiz
4. User reviews results and takes the quiz
5. Results are optionally stored or displayed

3.2 Solution Requirement

- Streamlit frontend for user interaction
- FastAPI backend serving IBM Granite model
- Modular output including explanation, summary, and quiz
- No authentication/login flow

3.3 Data Flow Diagram

User → Streamlit UI → FastAPI Backend → IBM Granite Model

↓

Returns Explanation, Summary, Quiz

3.4 Technology Stack

- Frontend: Streamlit
- Backend: FastAPI
- Model: IBM Granite 3.3-2B via Hugging Face
- Deployment: Local development, cloud-ready

4. PROJECT DESIGN

4.1 Problem Solution Fit

EducatorAI addresses the lack of multi-functional educational tools by offering an integrated platform for understanding (via explanations), revision (via summaries), and assessment (via quizzes).

4.2 Proposed Solution

The solution enables users to input a topic and instantly receive:

- A simplified summary
- A detailed explanation
- A short quiz for self-evaluation

4.3 Solution Architecture

User → Streamlit App ↔ FastAPI Backend ↔ IBM Granite Model

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week 1: Problem identification, wireframing UI

Model selection + testing IBM Granite

Week 2: FastAPI backend setup

Week 3: Streamlit UI integration

Week 4: Prompt tuning + modular output (summary, explanation, quiz)

Testing + polish + optional export features

5.2 Sprint Planning

Sprint	Task	Story points	Assigned to	Priority
Sprint-1	Set up FastAPI and IBM Granite model	5	Gunda Lakshmi Naga Venkata Sravya	High
	Test static prompts for summary,quiz etc...	4	Gunda Lakshmi Naga Venkata Sravya	High
Sprint-2	Streamlit UI basic layout(Input/Output)	3	Chintarala Sunil Kumar	Medium
	Design FastAPI endPoints, Connect Streamlit to FastAPI endPoints	4	Kondapalli KamalPrakash	High
Sprint-3	Add modular output formatting	3	Gunda Lakshmi Naga Venkata Sravya	Medium
	Create project Documentation and Final testing and bug Fixes	5	Garikapati Likhitha	High

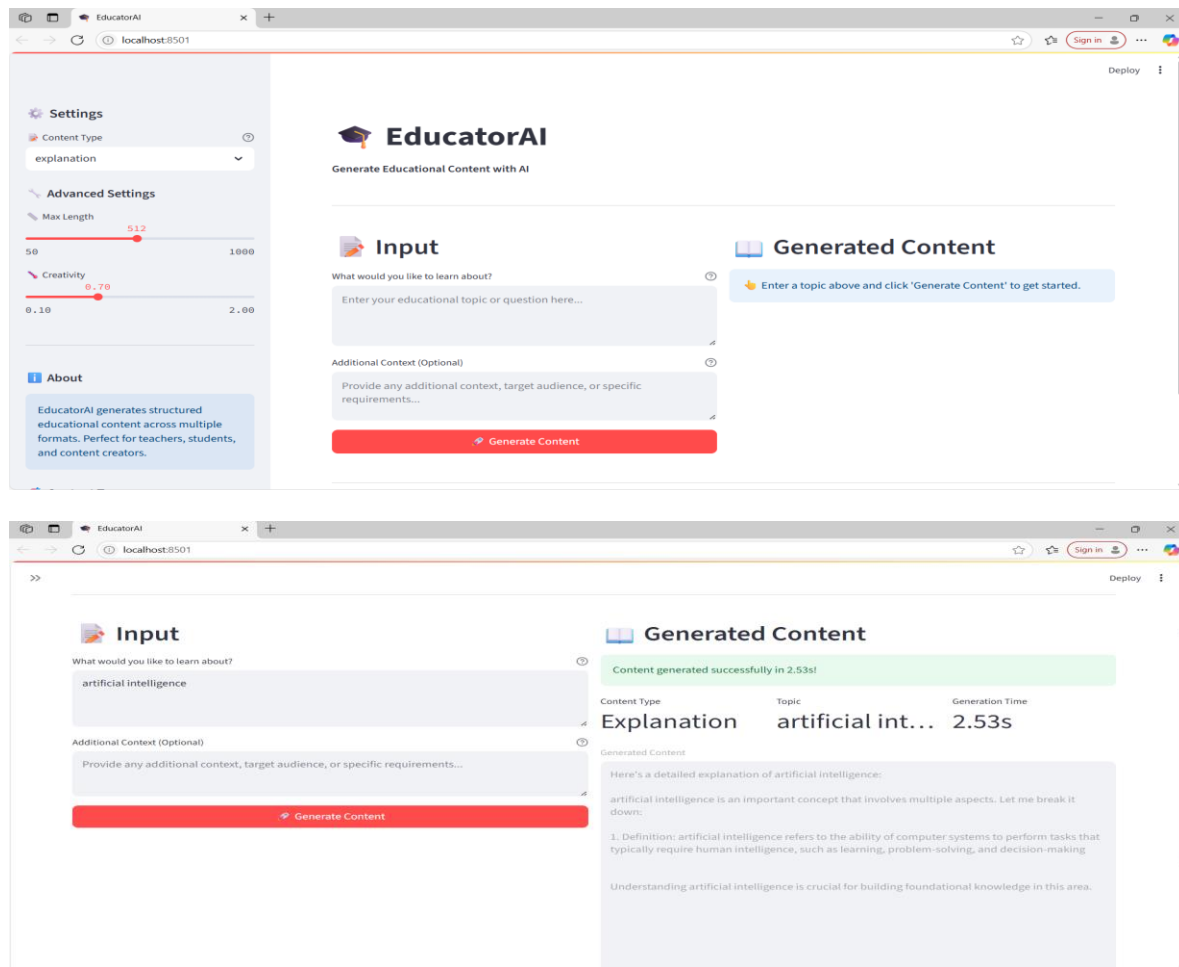
6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- Response Time: < 4s for full output (summary + explanation + quiz)
- Model Load: Works efficiently for 10+ concurrent requests (tested locally)
- Prompt Evaluation: Ensures the model returns all required fields

7. RESULTS

7.1 Output Screenshots



Output can be downloadable as text and can be saved in word format.

Here's a detailed explanation of artificial intelligence:

artificial intelligence is an important concept that involves multiple aspects. Let me break it down:

1. Definition: artificial intelligence refers to the ability of computer systems to perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making

Understanding artificial intelligence is crucial for building foundational knowledge in this area.

This is explanation interface. Similarly we have Summary, Quiz, Definition, Lesson, Example interfaces where we can generate the content.

8. ADVANTAGES & DISADVANTAGES

Advantages:

- No login required – lightweight and accessible
- Combines explanation, summary, and quiz in one step
- Powered by robust IBM Granite LLM
- Simple UI, fast API response

Disadvantages:

- No user-specific tracking or progress history
- Model responses depend on prompt clarity
- Offline use not supported

9. CONCLUSION

EducatorAI is a concise, functional educational tool that combines AI-generated summaries, explanations, and quizzes for enhanced learning. It reduces cognitive load by breaking down complex topics and helping learners self-assess instantly.

10. FUTURE SCOPE

- Export quiz and summary to PDF
- Add voice-based input/output
- Integrate into LMS platforms (e.g., Moodle, Google Classroom)
- Add AI tutor chatbot mode
- Multi-language support

11. APPENDIX

- Source Code: Included in GitHub link below

- GitHub: <https://github.com/Sravya62/EducatorAI>
- Project Demo Link: [EducatorAI Video Documentation Link](#)

Team Members

1. Kondapalli Kamal Prakash
2. Chintharala Sunil Kumar
3. Gunda Lakshmi Naga Venkata Sravya
4. Garikapati Likhitha