EduTutor AI: Personalized Learning with Generative AI and LMS Integration

Project Report

1. INTRODUCTION

1.1 Project Overview

EduTutor AI is a personalized education platform that leverages Generative AI and Learning Management System (LMS) integration to deliver adaptive learning experiences. It aims to bridge the learning gaps by tailoring educational content according to the learner's pace, style, and performance.

1.2 Purpose

The purpose of EduTutor AI is to enhance student engagement and learning outcomes by offering AI-generated content, instant feedback, and smart tracking through LMS platforms.

2. IDEATION PHASE

2.1 Problem Statement

Students have diverse learning needs, but traditional educational systems often provide a one-size-fits-all solution.

2.2 Empathy Map Canvas

Includes user pain points such as lack of personalized feedback, delayed responses, and static curriculum.

2.3 Brainstorming

Discussions focused on using generative AI to adapt content delivery and integrating LMS for structured learning paths.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

From user onboarding, content consumption, to receiving personalized feedback.

3.2 Solution Requirement

AI model integration, LMS compatibility, performance tracking, user-friendly UI.

3.3 Data Flow Diagram

Data flows from student input to AI engine for processing and content adaptation, then back to LMS interface.

3.4 Technology Stack

Python, Hugging Face Transformers, Flask, React, Firebase, Moodle/Canvas LMS.

4. PROJECT DESIGN

4.1 Problem Solution Fit

Aligns student's learning behavior with dynamically generated content.

4.2 Proposed Solution

A smart tutor system powered by generative AI and LMS integration to deliver personalized learning paths.

4.3 Solution Architecture

Includes AI backend (content generation), middleware (API services), and frontend (LMS interface).

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

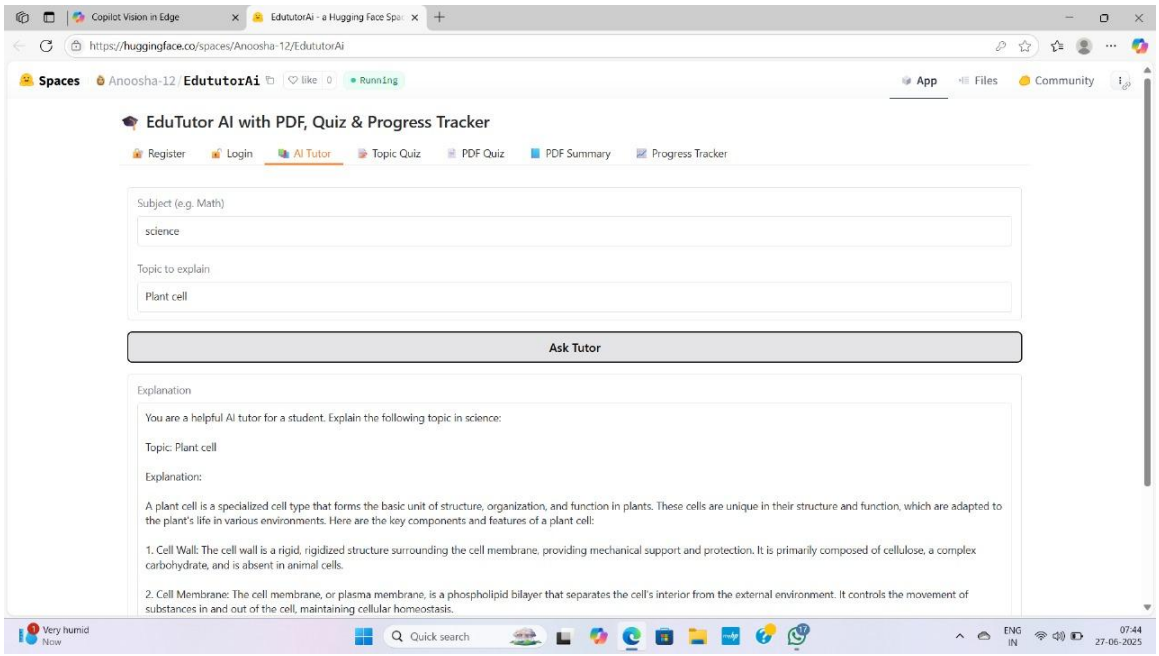
Agile methodology with sprints covering ideation, development, testing, and deployment phases.

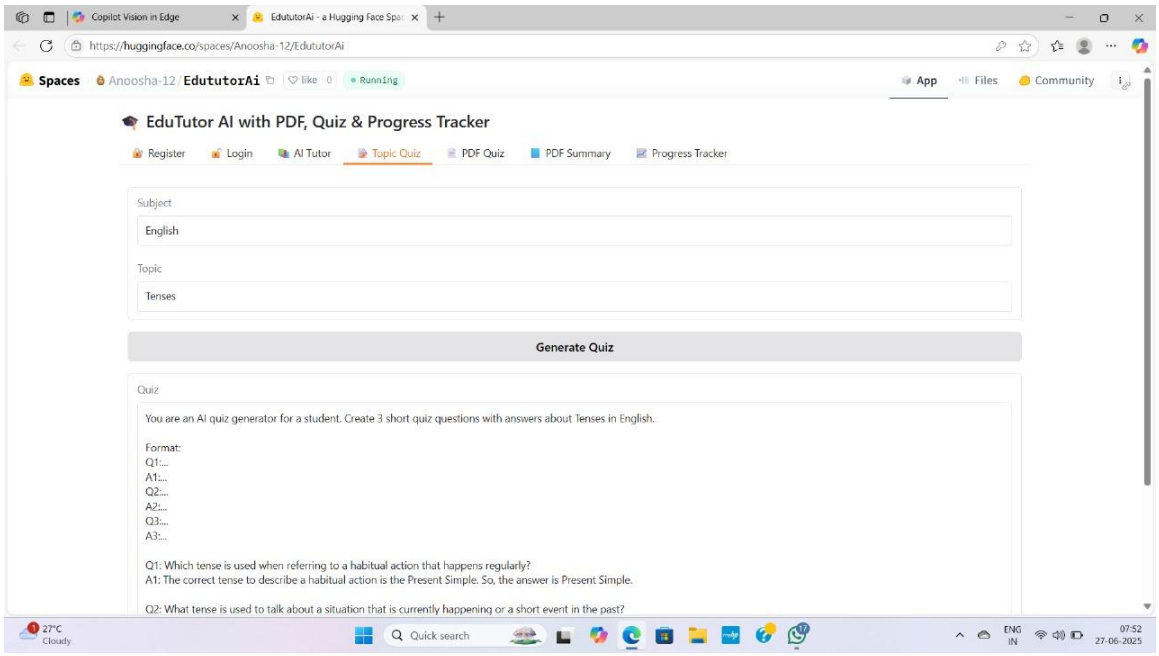
6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Load testing on LMS API, latency measurement on AI-generated content delivery.

7. RESULTS

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EduTutor AI with PDF, Quiz & Progress Tracker
Register
Login
AI Tutor
Topic Quiz
PDF Quiz
PDF Summary
Progress Tracker
Subject
English
Topic
Tenses
Generate Quiz
Quiz
You are an AI quiz generator for a student. Create 3 short quiz questions with answers about Tenses in English.
Format:
Q1:...
A1:...
Q2:...
A2:...
Q3:...
A3:...
Q1: Which tense is used when referring to a habitual action that happens regularly?
A1: The correct tense to describe a habitual action is the Present Simple. So, the answer is Present Simple.
Q2: What tense is used to talk about a situation that is currently happening or a short event in the past?
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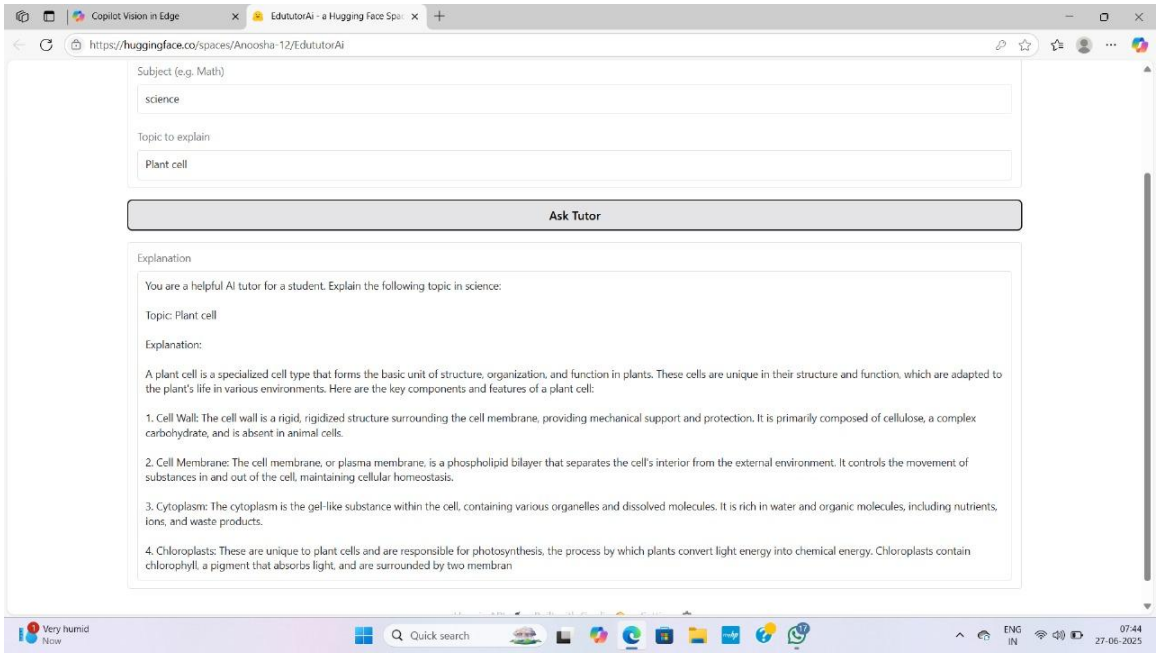
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Subject (e.g. Math)
science
Topic to explain
Plant cell
Ask Tutor
Explanation
You are a helpful AI tutor for a student. Explain the following topic in science:
Topic: Plant cell
Explanation:
A plant cell is a specialized cell type that forms the basic unit of structure, organization, and function in plants. These cells are unique in their structure and function, which are adapted to the plant's life in various environments. Here are the key components and features of a plant cell:
1. Cell Wall: The cell wall is a rigid, rigidized structure surrounding the cell membrane, providing mechanical support and protection. It is primarily composed of cellulose, a complex carbohydrate, and is absent in animal cells.
2. Cell Membrane: The cell membrane, or plasma membrane, is a phospholipid bilayer that separates the cell's interior from the external environment. It controls the movement of substances in and out of the cell, maintaining cellular homeostasis.
3. Cytoplasm: The cytoplasm is the gel-like substance within the cell, containing various organelles and dissolved molecules. It is rich in water and organic molecules, including nutrients, ions, and waste products.
4. Chloroplasts: These are unique to plant cells and are responsible for photosynthesis, the process by which plants convert light energy into chemical energy. Chloroplasts contain chlorophyll, a pigment that absorbs light, and are surrounded by two membran
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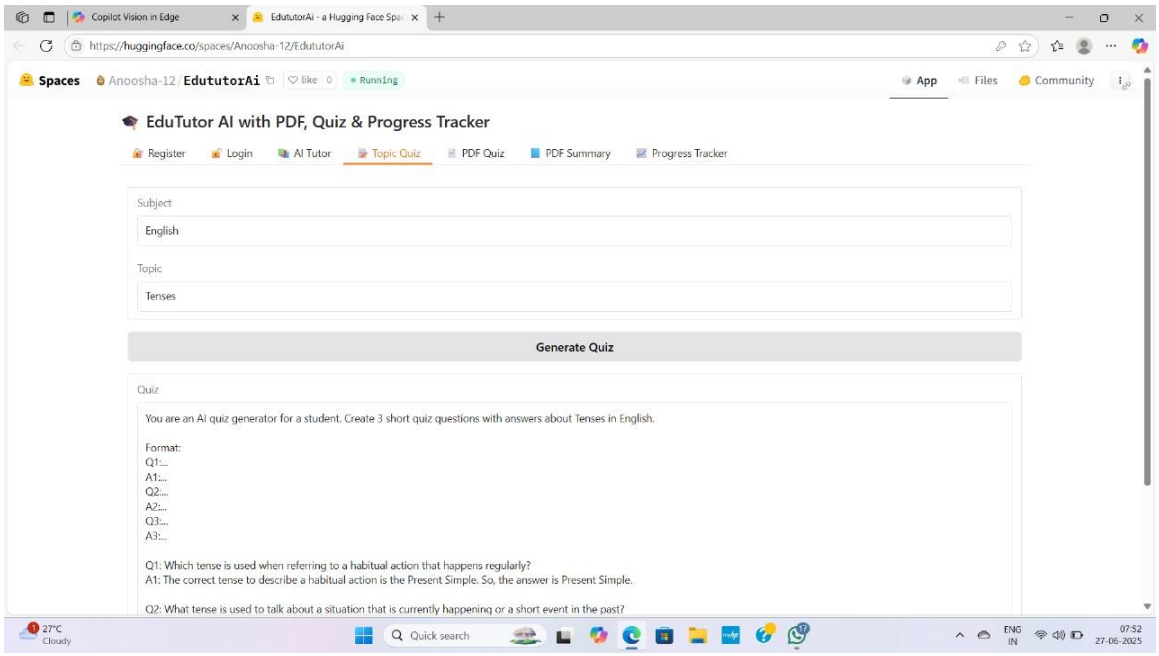
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Register
Login
AI Tutor
Topic Quiz
PDF Quiz
PDF Summary
Progress Tracker
Subject
English
Topic
Tenses
Generate Quiz
Quiz
You are an AI quiz generator for a student. Create 3 short quiz questions with answers about Tenses in English.
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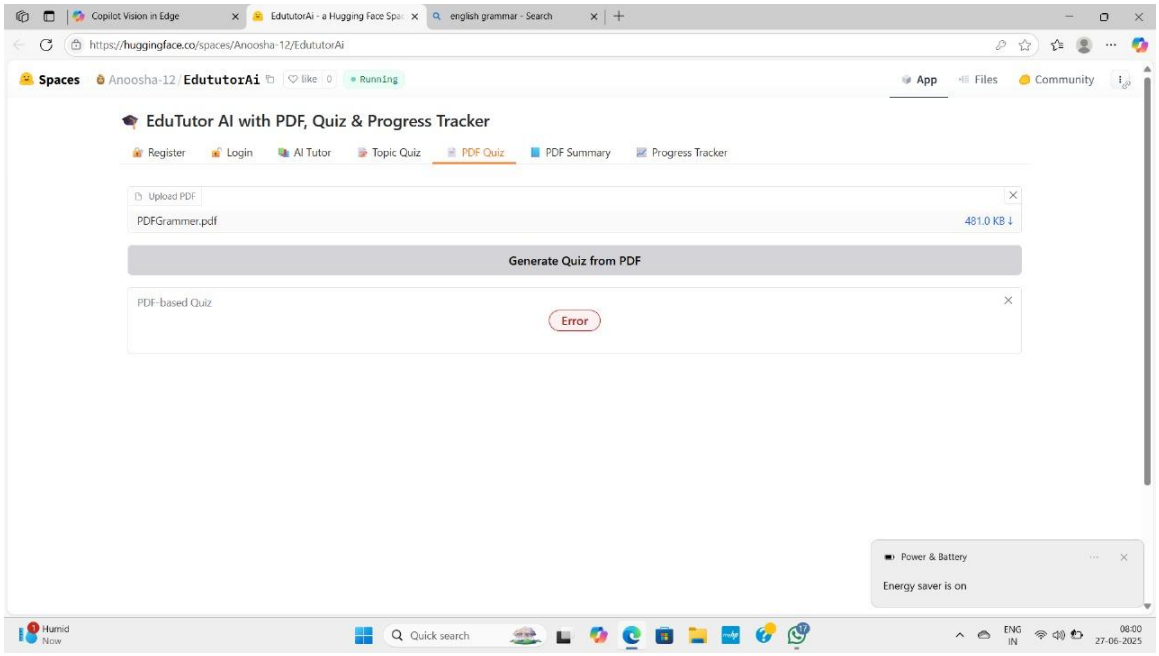
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8. ADVANTAGES & DISADVANTAGES

Advantages: Personalized learning, real-time feedback, scalable platform.
Disadvantages: Requires high computational resources, data privacy concerns.

9. CONCLUSION

EduTutor AI proves to be a transformative tool in personalized education, driving better outcomes through AI and LMS synergy.

10. FUTURE SCOPE

Integrating voice assistance, multilingual support, and predictive analytics to further personalize learning.

11. APPENDIX

GitHub: https://github.com/Anooshaanu-12/Edututot-Ai

Project Link: https://huggingface.co/spaces/Anoosha-12/EdututorAi