Education AI Assistant – Project Documentation

1. Introduction

• Project Title: Education AI Assistant
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2. Project Overview

Purpose:
The purpose of the Education AI Assistant is to empower students, teachers, and institutions to thrive in a more inclusive, adaptive, and personalized learning environment. By leveraging AI and real-time data, the assistant helps optimize study patterns, track academic performance, and provide personalized learning recommendations. For educators, it serves as a teaching partner—offering automated grading support, policy summarization, and actionable insights for strategic academic planning.

Features:

Features List

- Conversational Interface – Natural language Q&A; for students and teachers.
- Policy Summarization – Converts academic policies and curriculum into concise summaries.
- Performance Forecasting – Predicts academic performance trends.
- Personalized Study Tips – AI-generated adaptive study recommendations.
- Student Feedback Loop – Collects student input to enhance teaching.
- KPI Forecasting – Monitors key metrics (attendance, pass rates, dropout trends).
- Anomaly Detection – Flags irregularities in performance or attendance.
- Multimodal Input Support – Accepts PDFs, assignments, and grade files.
- Streamlit/Gradio UI – User-friendly dashboards for all stakeholders.

3. Architecture

• Frontend (Streamlit/Gradio): Dashboards for students, teachers, and admins.
• Backend (FastAPI): API endpoints for document processing, chat, tips, and reports.
• LLM Integration (IBM Watsonx/OpenAI GPT): Summaries, study tips, and reports.
• Vector Search (Pinecone/FAISS): Semantic search for notes, textbooks, research papers.
• ML Modules: Forecasting and anomaly detection on academic data.

4. Setup Instructions

• Python 3.9 or later
• Install dependencies via requirements.txt
• Configure API keys in .env

• Run FastAPI backend server
• Launch Streamlit/Gradio frontend
• Upload data and interact with AI modules

5. Example Use Cases

- Students: Ask subject questions, get personalized study schedules, exam prep tips.
- Teachers: Upload assignments, receive grading suggestions, summarize curriculum.
- Administrators: Forecast dropout trends, track performance KPIs, collect feedback.