AI Learning Assistant – Internship Assignment

Overview

Build an AI-powered Learning Assistant where users can input a YouTube URL or upload a PDF. The system should process the content and generate flashcards, quizzes, and allow contextual chat using RAG.

Core Tech Stack

- Frontend: Next.js (App Router, v14+)
- Backend: Python (FastAPI preferred)
- Database: Postgres / Supabase
- Vector Store: Supabase pgvector / Pinecone
- AI Model: OpenAI (gpt-4.1 / gpt-5) or Gemini
- Embeddings: text-embedding-3-small or Gemini embeddings
- UI: TailwindCSS

Core Requirements

- Process YouTube transcripts and PDF text extraction.
- Chunk content and store embeddings in vector database.
- Generate 10–15 flashcards in structured JSON format.
- Generate 5–10 multiple-choice quiz questions with auto-evaluation.
- Implement RAG-based chat system with streaming responses.
- Maintain chat history and responsive UI design.

Required API Endpoints

- POST /process-video
- POST /process-pdf
- POST /generate-flashcards
- POST /generate-quiz
- POST /chat

Evaluation Criteria

Criteria	Weight
Architecture & Code Structure	20
AI Integration Quality	20
RAG Implementation	20
Flashcard & Quiz Logic	15
UI/UX & Responsiveness	10
Error Handling	10
Documentation	5

Deliverables

- GitHub repository with complete code.
- Deployed demo (Frontend on Vercel preferred).
- README including setup instructions and architecture explanation.
- 3–5 minute demo video walkthrough.