# StudyBuddy AI

## Backend Architecture & AI Integration Report

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## Backend Overview:

StudyBuddy AI's backend is designed to handle user management, file processing, AI interaction, and exam data management. The backend is developed using Node.js along with Next.js API routes for server-side logic, ensuring fast and secure data handling.

## Tech Stack:

* Node.js: Backend logic & API Routes
* Next.js: Server-side rendering & Routing
* MongoDB: Database for user data, storing extracted notes from PDFs, and storing & fetching questions and answers based on user requests.
* Gemini API: AI-powered content analysis & response generation
* Google Authentication (OAuth 2.0): Secure user login & session management

## AI Integration using Google Gemini:

Gemini, Google's advanced AI model, is integrated into StudyBuddy AI for multiple features:

### AI Features Powered by Gemini:

* Content Summarization: Summarizes uploaded notes/materials into concise study points.
* AI-powered Explanations: Context-aware Q&A for difficult topics.
* Adaptive Quiz Generation: Generates customized quizzes from user-uploaded material.
* Exam Simulation Feedback: Provides AI-generated feedback after mock exams.

## Authentication using Google Auth (OAuth 2.0):

StudyBuddy AI uses Google Authentication to allow users to securely sign up and log in using their Google accounts. OAuth 2.0 provides secure session management and user data handling.