

Source Code Documentation: AI Planet PDF Q&A

Overview

This document provides an overview of the code architecture, key components, and their interactions for the AI Planet PDF Q&A application.

Directory Structure

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ai-planet-task/

└─ backend/

| └─ main.py

| └─ models.py

| └─ database.py

| └─ requirements.txt

| └─ ...

└─ frontend/

| └─ src/

| | └─ App.js

| | └─ App.css

| | └─ ...

| └─ public/

| | └─ ai-planet-header.png

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| | | └─ agent-chat.png
| | | └─ ...
| | └─ package.json
| └─ ...
└─ ...
...
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```

Backend Components

- `main.py` : FastAPI entrypoint. Defines endpoints for PDF upload and Q&A. Loads environment variables and initializes the database.
- `models.py` : SQLAlchemy models for PDF metadata.
- `database.py` : Database engine and session management.
- `requirements.txt` : Python dependencies.
- `.env` : Stores the OpenAI API key.

Backend Flow

- User uploads PDF → `/upload_pdf` endpoint saves file, extracts text, stores metadata.
- User asks question → `/ask_question` endpoint fetches text, builds prompt, queries LLM, returns answer.

Frontend Components

- `src/App.js` : Main React component. Handles UI, PDF upload, chat, and API calls.
- `src/App.css` : Styles for the UI, chat, and layout.
- `public/ai-planet-header.png` : Logo for the header.
- `public/agent-chat.png` : Avatar for agent messages.
- `package.json` : Frontend dependencies.

Frontend Flow

- User uploads PDF → API call to backend, shows status.
- User asks question → API call to backend, shows chat messages and answers.

Key Interactions

- Frontend ↔ Backend : Communicate via REST API (`/upload_pdf``, `/ask_question``).
- Backend ↔ DB/File : Store and retrieve PDF files and metadata.
- Backend ↔ LLM : Use LangChain/OpenAI to answer questions from PDF content.

Notes

- All environment variables (like the OpenAI API key) are managed via `.env`` in the backend.
- The UI is designed to match the provided Figma/screenshots exactly.
- For further details, see the inline comments in the code and the backend/frontend README files.