YouTube Summarizer Project

A powerful web application designed to extract and summarize YouTube video content.

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Project Overview

Web Application

Interactive interface allowing users to paste YouTube URLs and receive instant video summaries.

FastAPI & MongoDB

Built on a modern Python framework with NoSQL database for flexible data storage.

AI-Powered

Leverages OpenAI's GPT-3.5-turbo model to generate concise, accurate video summaries.

Key Features

Transcript Extraction

Automatically pulls video transcripts via YouTube API for processing.

GPT Summarization

Utilizes advanced AI to create concise, contextual summaries of content.

MongoDB Integration

Robust storage solution with mock testing capabilities for development.

System Architecture

FastAPI Application

Serves as the core framework handling HTTP requests and responses.

Database Layer

MongoDB integration via Motor for asynchronous data operations.

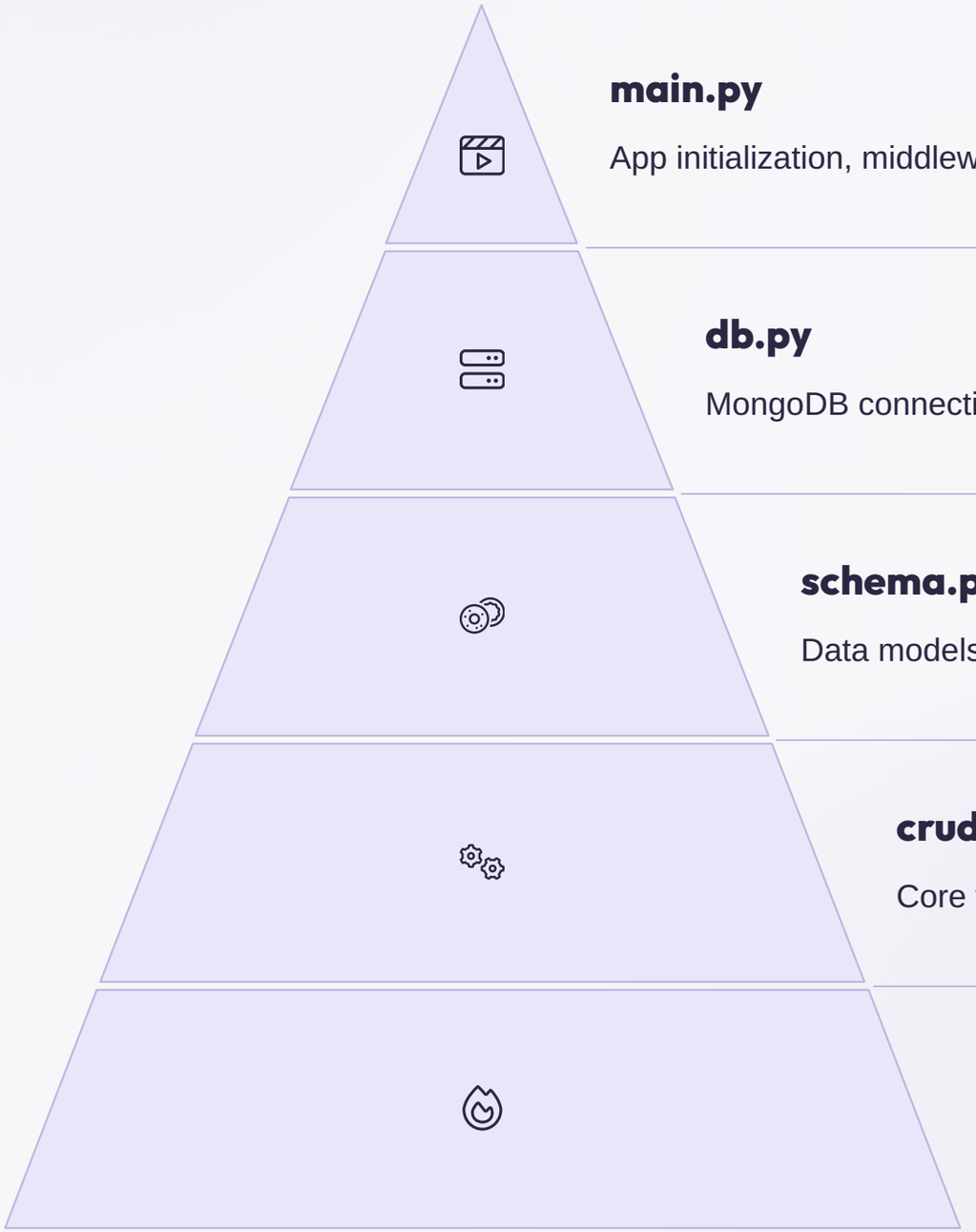
Schema Models

Structured data representations ensuring consistency across the application.

API Routes

RESTful endpoints enabling frontend-backend communication.

Backend Components



main.py

App initialization, middleware configuration, and route registration

db.py

MongoDB connection setup using odmantic and motor

schema.py

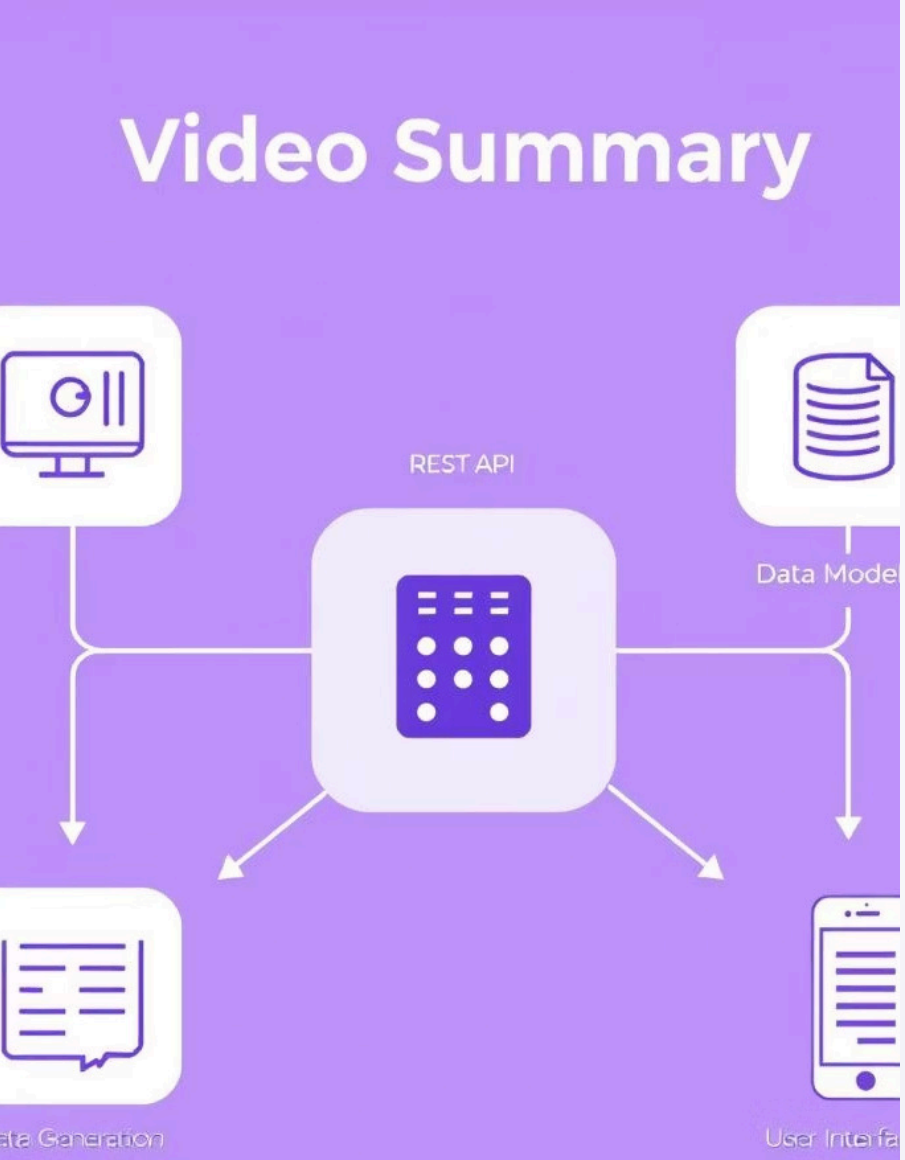
Data models defining structure for Notes, Summaries, and Bookmarks

crud.py

Core functions handling summarization and storage operations

router.py

Defines and organizes API endpoints, links routes to CRUD operations.



API & Data Models

RESTful Endpoints

- GET /summaries/{video_id}
- POST /summaries/
- GET /bookmarks/
- POST /notes/

Data Models

Note	text content, timestamp
YouTubeSummary	url, summary text, created_at

Technical Stack

Core Technologies

Python 3.8+, FastAPI framework

Database

MongoDB with ODMantic ORM

Support Tools

Pydantic, httpx, python-dotenv, motor

External APIs

OpenAI API, YouTube Transcript API

Conclusion

Scalable Solution

Architecture designed to grow with increasing user demand and content volume.

Wide Audience

Benefits students, content creators, researchers, and casual viewers alike.

Future-Ready

Framework in place for continuous improvements and feature additions.