FEATURE LIST

1. Voice Assistant (LiveKit Agent)

✔ Real-time **voice interaction** with users via LiveKit.
✔ Integrated **Google Gemini LLM** for conversational responses.
✔ **Text-to-Speech (TTS)** powered by Gemini with configurable voice.
✔ Transcription filtering to ignore short or filler words (e.g., *uh*, *um*, *okay*).
✔ Friendly, conversational, human-like response style (designed for store staff feel).
✔ Integrated **Retrieval-Augmented Generation (RAG)** for store knowledge lookup.
✔ Avoids repeating the same knowledge chunks in one conversation.
✔ Latency logging for both search queries and overall response time.
✔ Greets the user automatically at the start of the conversation.
✔ Function tool (`info_search`) exposed to the LLM for knowledge searches.
✔ Seamless backend logic for handling room connections, session lifecycle, and input options.

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2. RAG Knowledge Base Indexing System

✔ Loads all PDFs from a specified `data/` folder for knowledge ingestion.
✔ Splits large documents into manageable chunks for better search and recall.
✔ Configurable chunk size and overlap to preserve context across splits.
✔ Automatically generates **unique IDs** for each knowledge chunk using UUIDs.
✔ Stores all document chunks as embeddings in a Qdrant vector database.
✔ Uses **OpenAI's text-embedding-3-small** model for generating high-quality embeddings.
✔ Optional `--reset` flag to wipe and recreate the Qdrant collection.
✔ Qdrant collection created with 1536-dimension vectors and cosine distance metric for similarity search.
✔ Modular, clean design makes it easy to swap embedding models (Ollama, Bedrock, OpenAI).
✔ Logs the number of chunks being added to Qdrant for visibility.

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3. Embedding Model Flexibility

✔ Central `get_embedding_function` for managing embedding provider selection.
✔ Supports OpenAI embeddings out of the box.

✔ Provides easy-to-activate alternatives for Ollama (local) and AWS Bedrock embeddings.
✔ Environment variable-based API key handling for secure setup.

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4. Additional System Features

✔ Environment variable management with `.env` for secure configuration.
✔ Clear, consistent logging throughout indexing and agent processes.
✔ Clean separation of concerns: indexing, embedding logic, and agent behavior are modular.
✔ Prepared for expansion with other LiveKit plugins (silero, cartesia, etc., based on your previous setup).