Project Roadmap: OpsMind AI

Enterprise SOP Neural Brain (RAG System)

Strategic Task Division & Architecture Overview

Project Overview

Goal: Build a Context-Aware Knowledge Assistant that eliminates wasted time by answering employee queries using internal documents (PDFs/SOPs).

- **Core Tech:** MERN Stack + Python (Ingestion)
- **AI Engine:** Gemini 1.5 Flash (via Google AI Studio)
- **Vector Store:** MongoDB Atlas Vector Search
- **Key Feature:** "Hallucination Guardrails" (Citations & Source Tracking)

Team Role Allocation

Member A: Lead Architect & AI Core (The Brain)

Primary Responsibility: Infrastructure, Embeddings, & RAG Logic

- **Infrastructure Setup:** Configure **MongoDB Atlas** Cluster and Vector Search Indexes. Set up the GitHub repository structure.
- **Ingestion Pipeline:** Write the script (Python/Node.js) to:
  - Parse PDF Documents.
  - Chunk text into 1000-character segments (with overlap).
  - Generate Embeddings and store them in MongoDB.
- **RAG Logic:** Implement the core function that takes a User Query → Vector Search → System Prompt Construction → LLM Response.

Member B: Backend API & Security (The Spine)

Primary Responsibility: API Endpoints, File Handling, & Auth

- **Express.js Server:** Set up the Node.js server and REST API architecture.
- **File Handling:** Implement **Multer** to allow Admin users to upload new PDF/SOP files to the server.
- **Queue Management:** (Optional) Setup **BullMQ/Redis** if file processing needs to be asynchronous.
- **Security:** Implement **JWT Authentication** and Role-Based Access Control (Admin vs. Standard User).

Member C: Frontend Engineer (The Face)

Primary Responsibility: Chat Interface & Real-Time Interaction

- **Chat UI:** Build a modern, responsive React interface (ChatGPT-style).
- **Streaming Responses:** Implement **Server-Sent Events (SSE)** to display the AI response character-by-character.
- **Citation Rendering:** Create UI components to display "Source Cards" (e.g., *"Reference: HR Policy, Page 5"*) below the answer.
- **State Management:** Manage chat history and loading states on the client side.

Member D: Data & Visualization (The Insights)

Primary Responsibility: Dashboards, Prompt Engineering, & Testing

- **Admin Dashboard:** Build visual charts tracking "Most Asked Questions" and "Document Coverage."
- **Prompt Engineering:** Test and refine the **System Prompt** to ensure the AI refuses to answer questions outside the context (Hallucination Check).
- **Data Prep:** Collect, clean, and organize the dataset (SOPs, HR Manuals) for the demo.
- **Quality Assurance:** Conduct End-to-End testing of the retrieval accuracy.

Immediate Next Steps

1. **Member A:** Initialize Repo & create MongoDB Atlas Cluster.
2. **Member B:** Initialize Express Server boilerplate.
3. **Member C:** Initialize React (Vite) project.
4. **Member D:** Gather 5-10 sample PDF documents for testing.