Project Management Assistant – Technical Specification

1. Project Overview

The Project Management Assistant is an AI-powered tool designed to help software teams manage, search, and understand project information. It centralizes documentation, architecture, and codebase knowledge using a Retrieval-Augmented Generation (RAG) based AI system.

2. Project Goals

- Centralize all project knowledge.
- Retrieve information from documents and code.
- Provide natural language answers using RAG.
- Improve developer and manager productivity.
- Maintain privacy by keeping data local.

3. Functional Requirements

3.1 Document Upload

- Users can upload PDF, TXT, or Markdown files.
- The system extracts text and splits it into chunks.
- Embeddings are generated and stored in ChromaDB.

3.2 Chat Interface

- Users ask questions in natural language.
- Relevant document chunks are retrieved.
- AI generates contextual answers using RAG.

3.3 Search Capability

- Keyword-based search over documents.
- Returns file name, section, and similarity score.

4. Architecture Overview

4.1 Backend (Spring Boot)

- Provides REST APIs for upload, search, and RAG queries.
- Uses LangChain4j for LLM integration.
- ChromaDB is used for vector storage.

4.2 Frontend (Angular)

- User interface for document upload.

- Chat interface for AI-based queries.
- Document list and search view.

5. Non-Functional Requirements

- Security: All data is stored locally.
- Performance: Retrieval time under 1 second.
- Scalability: Supports up to 5,000 chunks.
- Maintainability: Modular and extendable design.

6. Example Questions

- What technologies are used in the backend?
- Summarize the architecture flow.
- How does the RAG pipeline work?
- What are the project goals?

7. Future Enhancements

- GitHub repository ingestion.
- OCR extraction from images.
- Voice-based queries.
- Auto-generated summaries.