

Multi-Modal Financial Advisor Chatbot

A Hyper-Personalized AI Financial Advisory System

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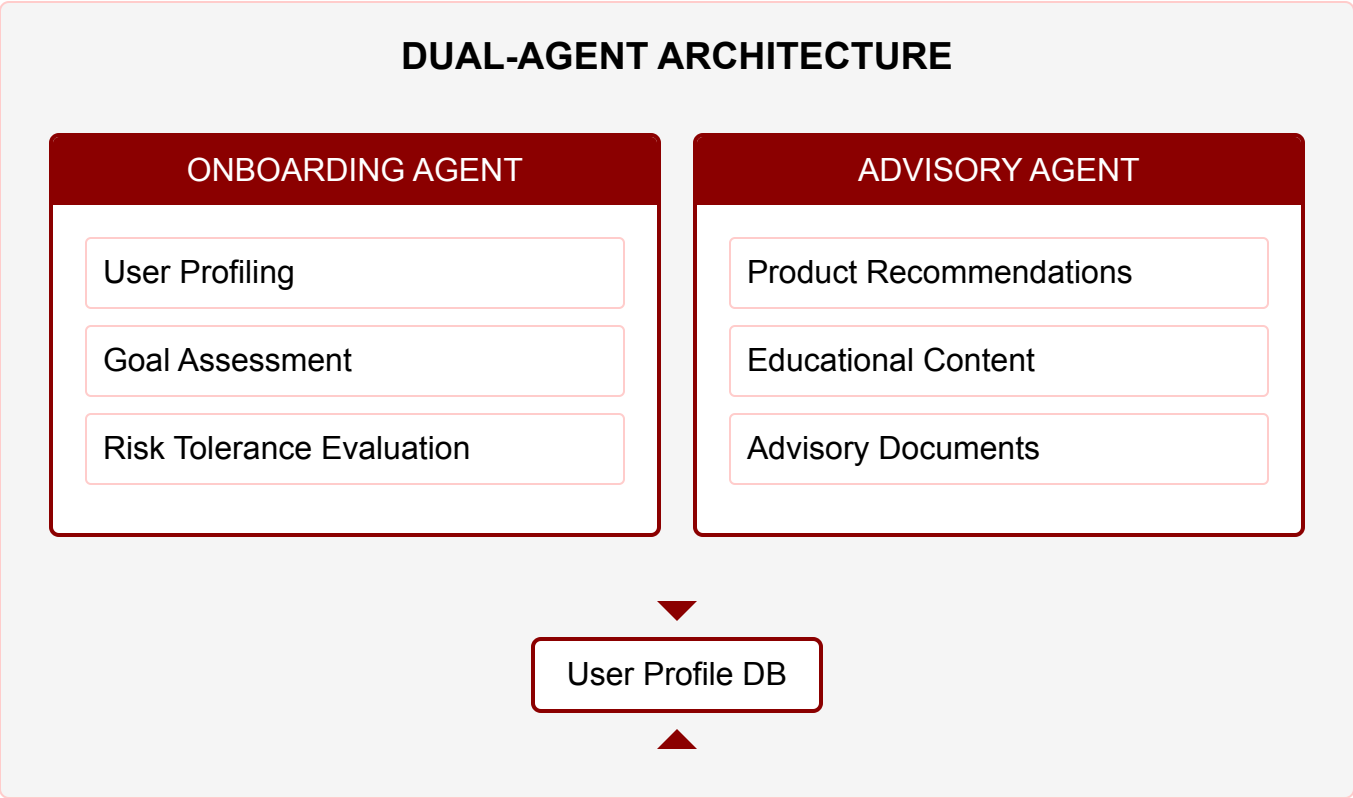
Agenda

- Project Overview
- Key Features
- System Architecture
- Technology Stack
- Challenges Overcome
- Testing & Quality Assurance
- Future Enhancements

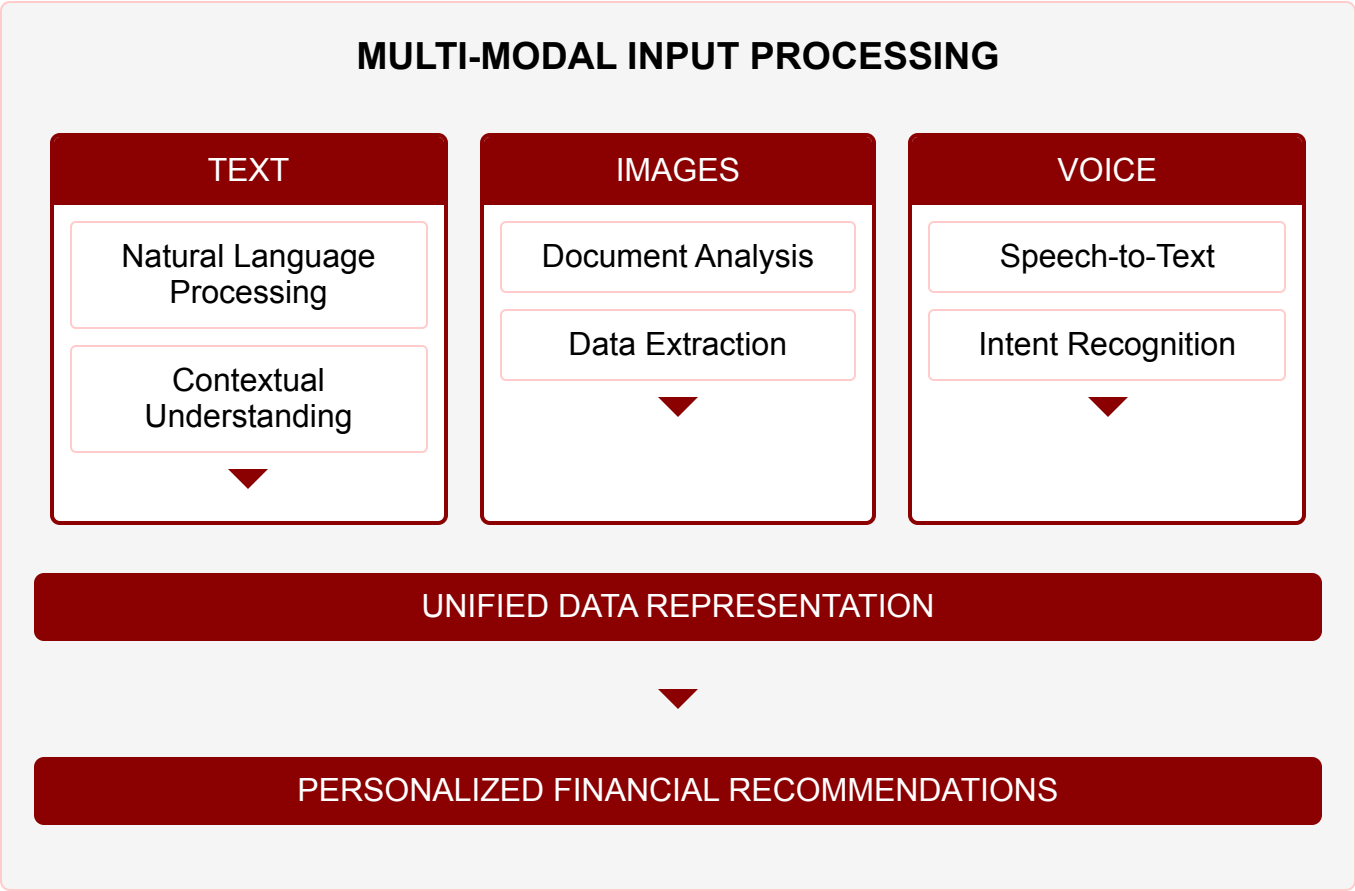
Project Overview

- AI-driven digital financial advisor with hyper-personalized recommendations
- Leverages multi-modal data processing (text, images, voice)
- Adapts dynamically to users' evolving financial needs
- Enhances user engagement, financial literacy, and decision-making

Key Features: Dual-Agent Architecture



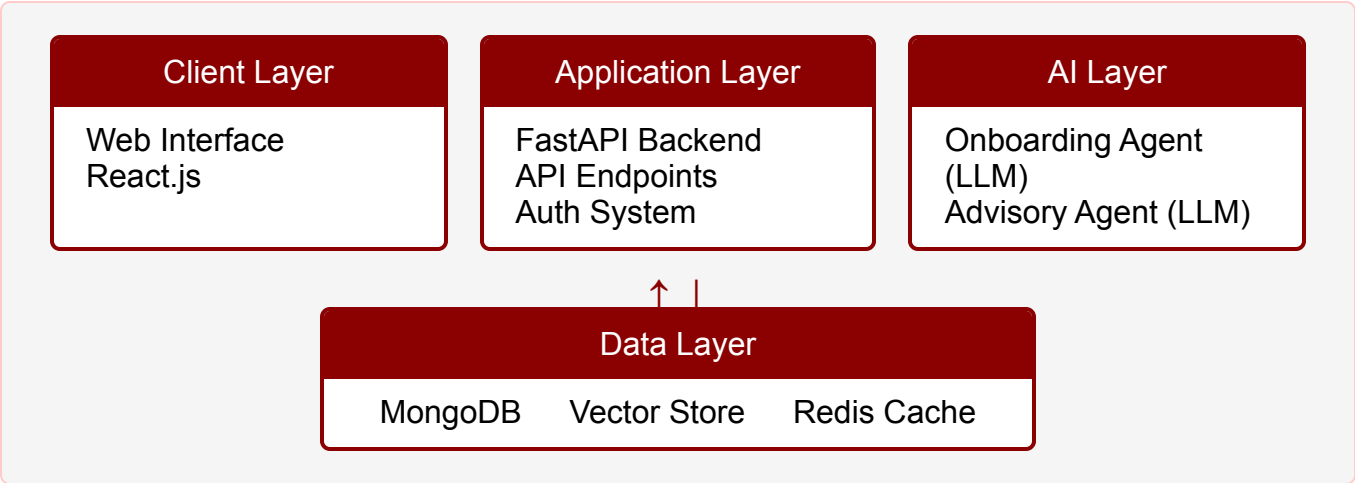
Key Features: Multi-Modal Input Processing



Key Features: Personalization & Transparency

- **Personalized Advisory Documents:** Curated educational content
- **Product-Specific Chatbots:** Detailed product information
- **Explainable Recommendations:** Clear rationales for suggestions
- **Dynamic Adaptation:** Real-time learning from user interactions

System Architecture



Technology Stack: Frontend & Backend

Frontend:

- React.js for interactive user interface
- Material-UI for consistent, professional elements
- React Markdown for formatted advisory documents

Backend:

- FastAPI (Python) for API management
- JWT-based authentication system
- Multi-modal input processors

Technology Stack: AI & Data

AI Services:

- Multiple LLM integrations (OpenAI, Mistral, Hugging Face)
- Retrieval-Augmented Generation (RAG) system
- Meta-prompt generation for personalization

Data Storage:

- MongoDB for user profiles and transactions
- Vector store for embeddings
- Redis for performance caching

Challenges Overcome

- **Integrating Multi-Modal Inputs:** Processing diverse data types
- **Ensuring Data Privacy:** Secure handling of financial information
- **Real-Time Performance:** Efficient data processing and low latency
- **Transparent AI:** Explainable recommendations
- **Orchestrating Dual Agents:** Seamless transitions with context
- **Addressing AI Bias:** Regular auditing and diverse training data

Testing & Quality Assurance

API TESTING

- Authentication
- Onboarding
- Recommendations
- Chat Endpoints
- Document APIs

MODEL TESTING

- User Models
- Conversation Models
- Document Models
- Financial Models
- Image Analysis Models

SERVICE TESTING

- LLM Services
- Document Processing
- Recommendation Engine
- Authentication Service
- Multi-Modal Processing

QUALITY METRICS: > 80% CODE COVERAGE

82%

CI/CD PIPELINE

Build

→

Test

→

Code Analysis

→

Deploy

→

Monitor

Future Enhancements

1. **Voice Interface Integration**

- Hands-free interactions and improved accessibility

2. **Mobile Applications**

- Native iOS and Android experiences

3. **Graph Neural Networks (GNNs)**

- Analysis of social and financial network influence
- Pattern recognition in financial behaviors
- Network-aware recommendations

Future Enhancements (continued)

4. **Advanced Document Understanding**

- Enhanced processing of complex financial documents
- Contract and investment statement analysis

5. **Behavioral Finance Integration**

- Identification of cognitive biases
- Guidance to overcome financial decision-making biases

Thank You!

Questions?

Contact Information

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Project Repository: [GitHub Repo](#)