

Yolanda AI Assistant - Project Documentation

Project Overview

The Yolanda Hybrid III project is an AI assistant system built using FastAPI, implementing advanced NLP capabilities and A/B testing functionality. The system is designed to provide intelligent responses while continuously improving through user feedback and testing.

Project Goal

Expand domain-specific knowledge in financial and housing counselling, improving action plan process by guiding the clients through integrated AI generated video summaries, and using fine-tuned financial and housing models.

Project Scope

To enhance Yolanda's AI functionality by integrating AI-generated video summaries and expanding the domain-specific knowledge base, specifically tailored to financial and housing counselling.

Key Components

- FastAPI Backend
- NLP Pipeline using Hugging Face Models
- A/B Testing Framework
- SQLite Database Integration
- C#/Tkinter Frontend Implementation

Technical Documentation

Architecture Overview

1. Backend System

- FastAPI framework for asynchronous request handling
- Modular structure with separated functionalities:
 - main.py: API endpoints
 - ab_testing.py: Analysis logic
 - gpt_integration.py: Response refinement

- logging_config.py: Custom logging
- nlp.py: Natural language processing

Data Models

```
class Query(BaseModel):  
    question: str  
    client_id: int  
  
class ActionPlan(BaseModel):  
    client_id: int  
    plan: str  
  
class Feedback(BaseModel):  
    client_id: int  
    is_satisfactory: bool
```

Business Documentation

Key Features

- 1. Intelligent Response System**
 - Context-aware interactions
 - Adaptive learning from user feedback
 - Personalized response generation
- 2. Analytics & Reporting**
 - User satisfaction metrics
 - Usage pattern analysis
 - A/B testing results

Technical Implementation

Text to Video Generation

Pictory Integration Requirements:

- API endpoints integration
- Video duration: 30 seconds for each action plan step
- Cost-effective implementation

- High output quality
- Setup fee considerations
- Support & Maintenance planning
- Video processing time optimization
- Seamless integration capabilities

Maintenance & Support

Regular Maintenance Tasks

Frequency	Tasks
Daily	<ul style="list-style-type: none">• Log monitoring• Performance checks• Database backup
Weekly	<ul style="list-style-type: none">• A/B test analysis• User feedback review• System optimization
Monthly	<ul style="list-style-type: none">• Full system backup• Performance analysis• Model retraining (if needed)

Security

Security Measures

- **Data Protection**
 - Encrypted data storage
 - Secure API endpoints
 - Access control implementation
- **Authentication**
 - Client ID validation

- Request validation
- Role-based access control

API Integration

Docker Implementation:

- FastAPI Application Dockerization
 - Containerized application with dependencies
 - Local testing and validation
- Cloud Deployment
 - Container registry implementation (AWS, PCR, Google)
 - Cloud platform deployment with security measures
- On-Premise Integration
 - VPN/hybrid cloud solution implementation
 - Secure communication protocols
 - Comprehensive integration testing

CORS Implementation

Cross-Origin Resource Sharing:

- Purpose: Enable Yolanda Chatbot cross-domain interaction
- Configuration: Domain-specific access control
- Benefits: Enhanced security and real-time communication
- Premium user service support

Sign-off

Project Status: Ready for Handover

Version: Yolanda Hybrid III

Date: 08th December, 2024

Approvals Required:

- Technical Lead: Rakshit Bhardwaj
- Project Manager: Gandham, Sai Anirudh
- Product Manager: Ramakrishnan, Sahana
- Stakeholders:
 - Rost Ginevich A n d Ray Washington