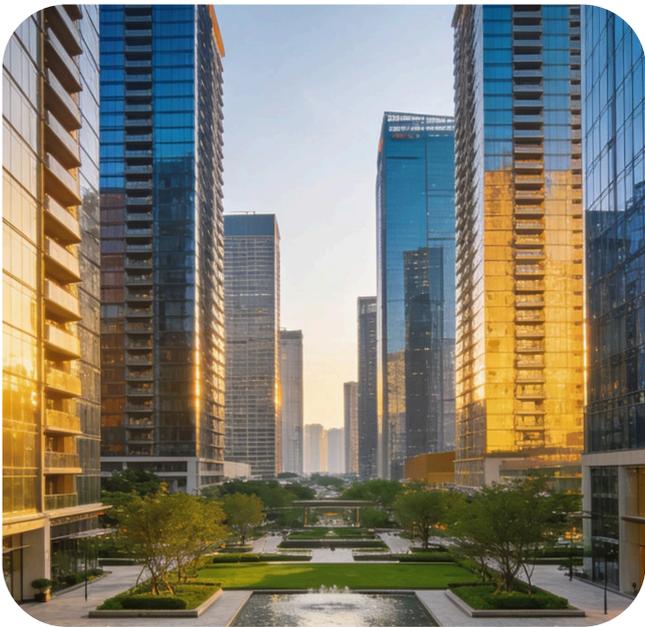


OpenAI-Based Agent for Realty Complaint Resolution

Transforming property management efficiency by deploying an intelligent AI agent for automated ticket creation and real-time complaint resolution.

Overview

- Deployed an AI-powered agent leveraging NLP and LLMs for automated complaint categorization and resolution.
- Enabled seamless integration with existing property management systems for ticket automation.
- Applied structured questioning and retrieval-augmented generation (RAG) for accurate root-cause identification.
- Achieved **40% faster complaint processing** and **25% higher resident satisfaction** across managed properties.



Client Profile

The client is a premier U.S.-based real estate developer managing luxury residential and commercial properties across major metropolitan and suburban markets. The organization prioritizes premium living experiences supported by efficient, tech-enabled resident services.

Challenges: Operational Bottlenecks in Complaint Resolution

- **Manual Work Order Creation:** Despite using a property management system, there was no automated mechanism to generate work orders, leading to delays in issue resolution.
- **Unstructured Complaint Handling:** There was no intelligent system in place to receive, understand, and assess complaints, limiting the ability to prioritize urgent issues effectively.

- **No Resident Communication Loop:** Residents received no status updates on their maintenance tickets, impacting transparency and eroding trust in the service process.

QBurst Solution: Intelligent Complaint Resolution Agent

We developed a comprehensive AI-powered agent leveraging NLP to process resident complaints, identify root causes, and automate resolution.

- **LLMs for Information Extraction:** Used NLP models to extract relevant information from resident inputs; open source and cloud-based LLMs to identify key entities, workflows, and attributes from SOPs.
- **Agentic RAG for Document-Based Responses:** Deployed agentic RAG (Retrieval-Augmented Generation) to generate responses using categorized documents and images.
- **Structured Questioning System:** Designed a rule-based system to ask targeted questions, identify root cause, and assess complaint severity.
- **Auto-Generation of Bot Logic:** Automatically generated bot logic from root cause flow diagrams using internal organizational knowledge ensuring a precise approach to issue resolution.
- **Utilization of Troubleshooting Document Corpus:** Fine-tuned LLAMA3 models on a structured corpus of troubleshooting guides for smarter issue resolution.
- **Integration with Ticketing System:** Automated ticket creation and routing through seamless integration with the client's support platform.
- **Continuous Learning and Improvement:** Applied reinforcement learning and feedback loops to enhance agent accuracy and adaptability over time.

Technical Highlights

- Used LLAMA3 to understand user intent and extract information

- Implemented RAG workflow to answer questions directly from categorized SOPs and visual references
- Implemented RASA for rule-based conversation logic to augment LLMs
- Built a document extraction module using OpenAI to autogenerate predefined conversation flow
- Used a multi-agent architecture to aggregate several agent logic into a single point of entry
- Built on AWS and orchestrated with LangChain for scalable performance and seamless workflow integration
- Integrated with Yardi for complaint management

Measurable Improvements

- **Efficient Complaint Handling:** Automating complaint reception and ticket generation reduced **processing time by 40%**, enhancing operational efficiency.
- **Cost Savings:** Reduced manual intervention translated into leaner operations and lower support costs.
- **Improved Satisfaction:** Timely and accurate issue resolution led to a **25% increase in positive feedback** and a noticeable boost in resident trust and retention.
- **Data-Driven Insights:** Generated valuable data for informed decision-making and process improvements.
- **Scalable & Standardized Operations:** The modular solution ensured consistent and fair complaint resolution across high-volume property portfolios.