

Detailed Architecture & Workflow – Agentic Banking Chatbot

This document outlines the complete technical architecture and operational workflow of the Agentic Banking Chatbot system. The solution is divided into three primary layers: Intent Layer, Agent Layer, and Tool Layer.

1. Intent Recognition Layer This layer is responsible for understanding customer messages. It leverages LLM-based semantic routing and scoring models to accurately detect customer intent. • Supports multi-turn dialogs • Detects complex or ambiguous customer goals • Automatically redirects unrecognized intents to fallback handlers

2. Agent Layer This layer consists of orchestrated primary and child agents: • Primary agents manage top-level flows like payments, account queries, and dispute management. • Child agents handle granular tasks such as retrieving dispute status or updating an existing record.

LLM-based orchestration ensures: • Hierarchical decision making • Reduction of hallucinations using grounding strategies • Smooth decomposition of complex tasks into subtasks

3. Tool Layer (API Integration Layer) This layer hosts tool agents that call backend systems securely. APIs integrated include: • Create Dispute – POST • Check Dispute Status – GET • Update Dispute – PUT • Account Balance Check – GET

Tooling Responsibilities: • Validate inputs received from the agent layer • Format payloads according to backend schemas • Manage error handling and retry logic • Provide structured responses for LLM reasoning

Security Considerations: • All API calls are logged and monitored • Sensitive fields are masked or encrypted • Strict RBAC and IAM policies for access control

Workflow Summary: A customer message is processed by intent routing → routed to the correct agent → agent decomposes tasks → tool layer executes API operations → agent composes final answer → user receives response.