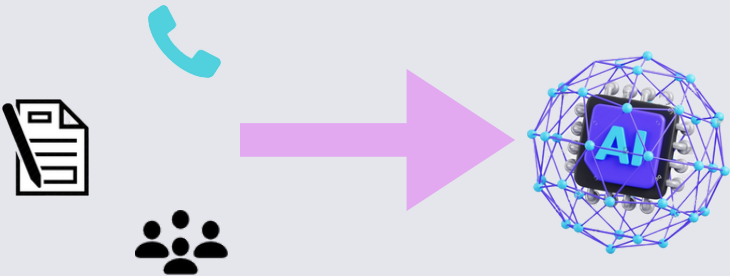
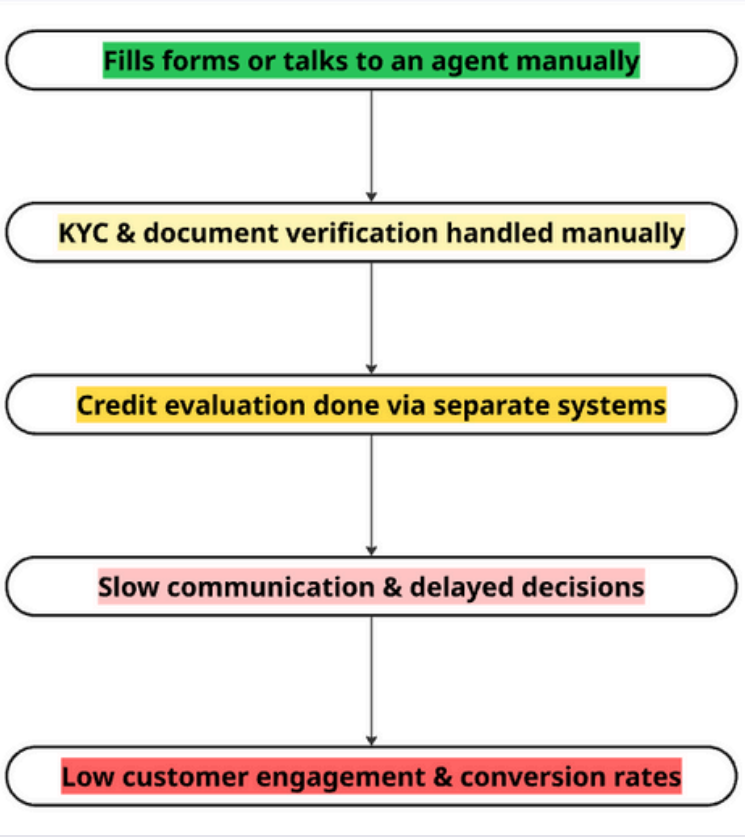


Aim

To develop an AI-powered conversational system that automates the personal loan sales process, improving speed, personalization, and customer conversion.

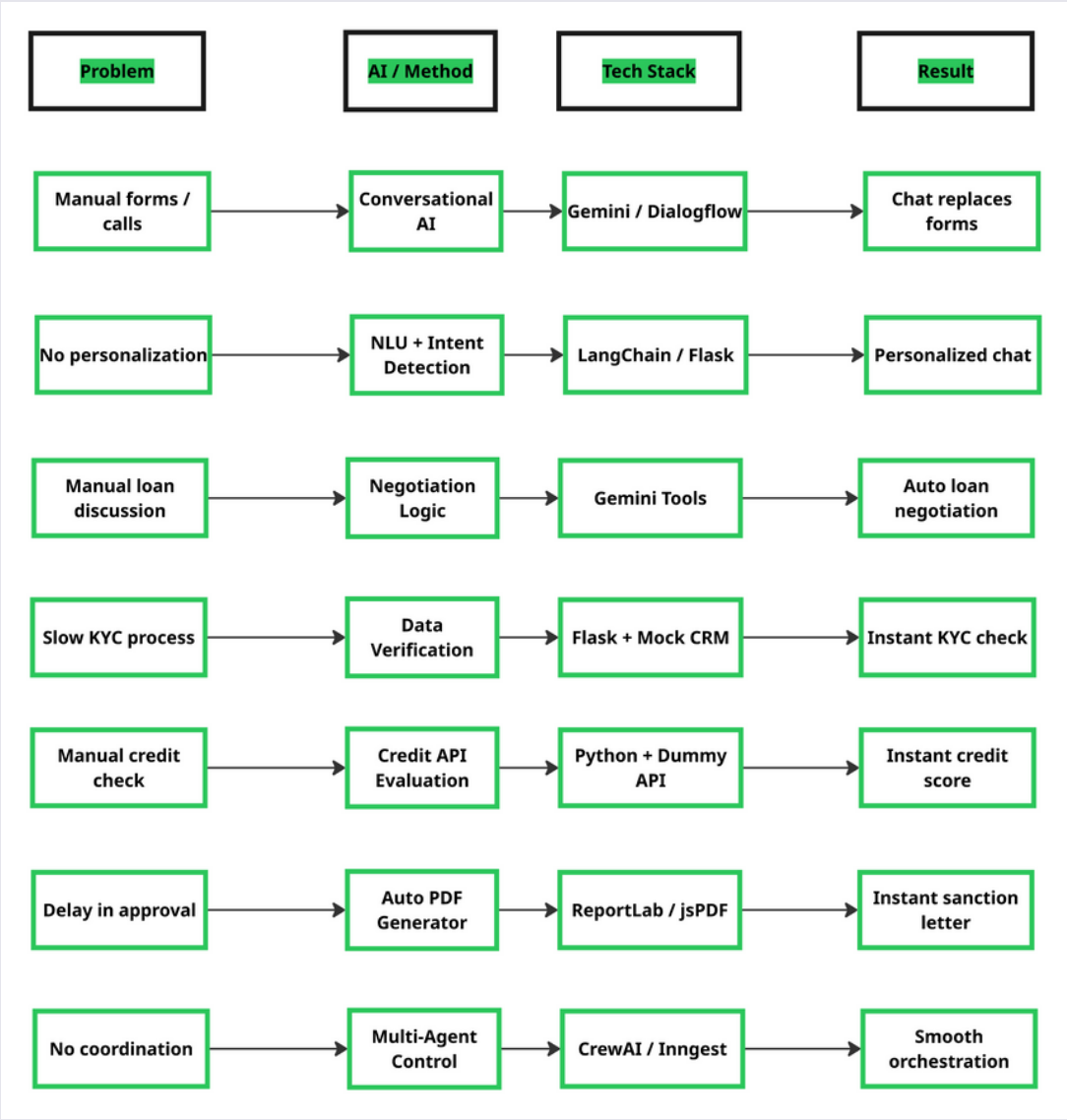


Problem Statement



The current personal loan process at Tata Capital is **manual** and **disconnected**, causing delays, limited personalization, and low customer engagement. An integrated **AI-driven system** is needed to **automate decisions** and **deliver a seamless, conversational loan experience**.

Solution Flow



Tools & Framework

- AI & Agent Orchestration**

 - Google Gemini 1.5 Flash / Pro – Conversational intelligence & decision-making
 - Vertex AI Agent Builder – Multi-agent orchestration and flow management
 - LangChain / LangGraph – Agent workflows and function calling
 - CrewAI / Inngest Agent Kit – Master-Worker coordination logic
- Backend & APIs**

 - FastAPI (Python) – REST API creation and agent endpoints
 - Node.js (Express.js) – Alternate backend for chat integration
 - Mock APIs (CRM) – Synthetic data & credit score simulation
 - Firebase Functions – Serverless logic execution (for document generation & upload)
- Frontend (Chat Interface)**

 - React.js – Interactive chatbot UI
 - Tailwind CSS – Styling and responsive design
 - Framer Motion – Animations and smooth UI transitions
- Data & Storage**






 - JSON Server – Dummy CRM & offer data storage
 - Google Cloud Storage – For salary slips & sanction letters
 - MongoDB – Store customer interaction logs
- Document & File Handling**

 - ReportLab (Python) – Sanction letter PDF generation
 - jsPDF (JavaScript) – Frontend-based PDF generation
 - Cloudinary – File upload simulation for salary slips

Problem Statement

Banking, Financial Services, and Insurance (BFSI) Tata Capital

- The current personal loan process at Tata Capital is **manual** and **disconnected**, causing **delays**, **limited personalization**, and low customer engagement.
- An integrated **AI-driven system** is needed to **automate decisions** and **deliver a seamless, conversational loan** experience.

Problem Area	Description	Impact
Manual Processing	Each step (KYC, scoring, approval) done by humans	 Slow turnaround time
Fragmented Systems	No integration between KYC, credit bureau, and CRM	 Redundant work & errors
Static Forms	Same form for all users	 Poor personalization
Customer Drop-off	Slow updates and friction	 Low engagement & conversions
High Operational Cost	Many staff needed for repetitive work	 Increased cost

Why this problem?

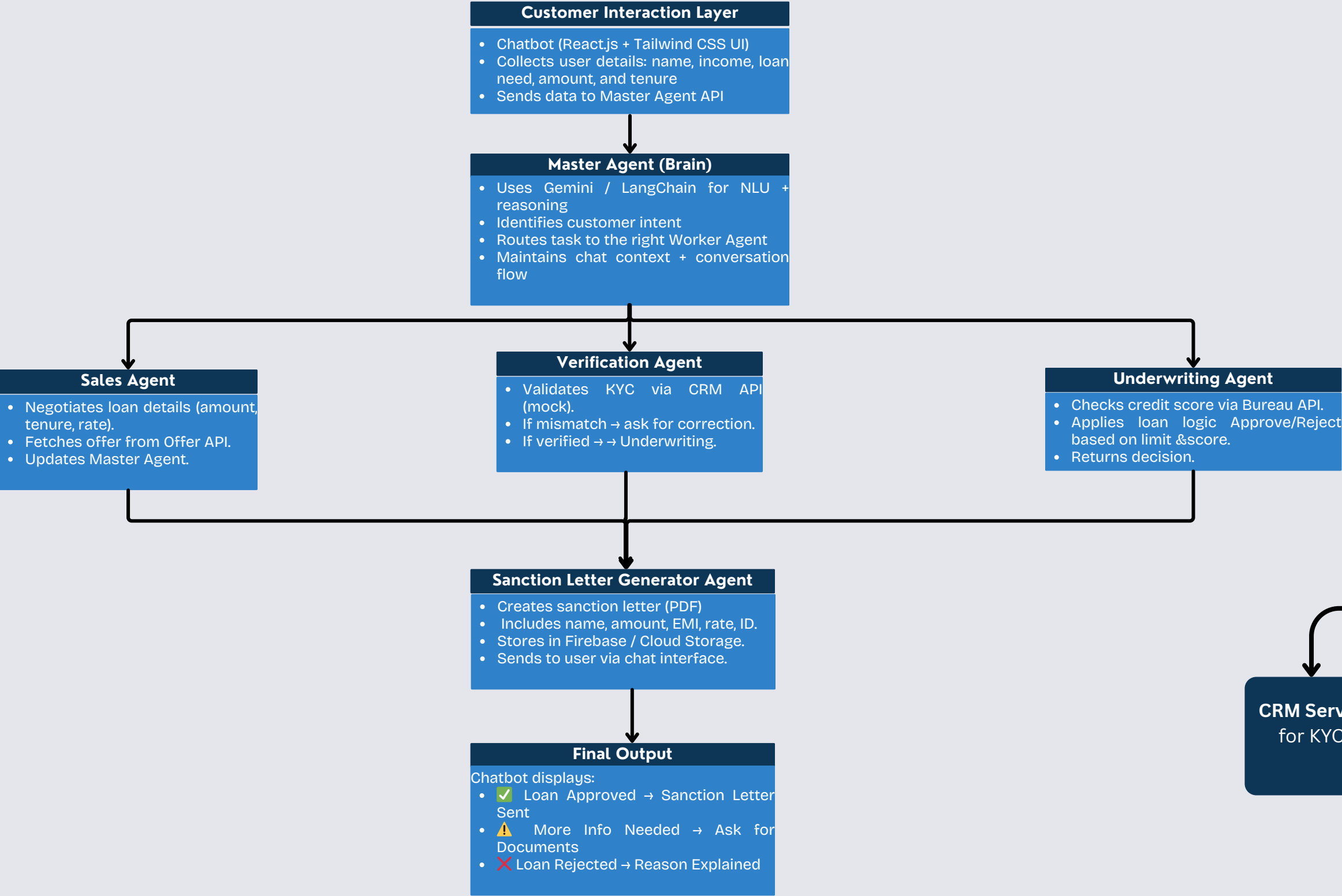
The problem is crucial as it combines **business growth**, **customer satisfaction**, and **technological innovation**. By **automating** the personal loan process through **Agentic AI**, Tata Capital can significantly **increase conversions**, **reduce costs**, and position itself as a **digital-first financial leader**.

Why this Matters?

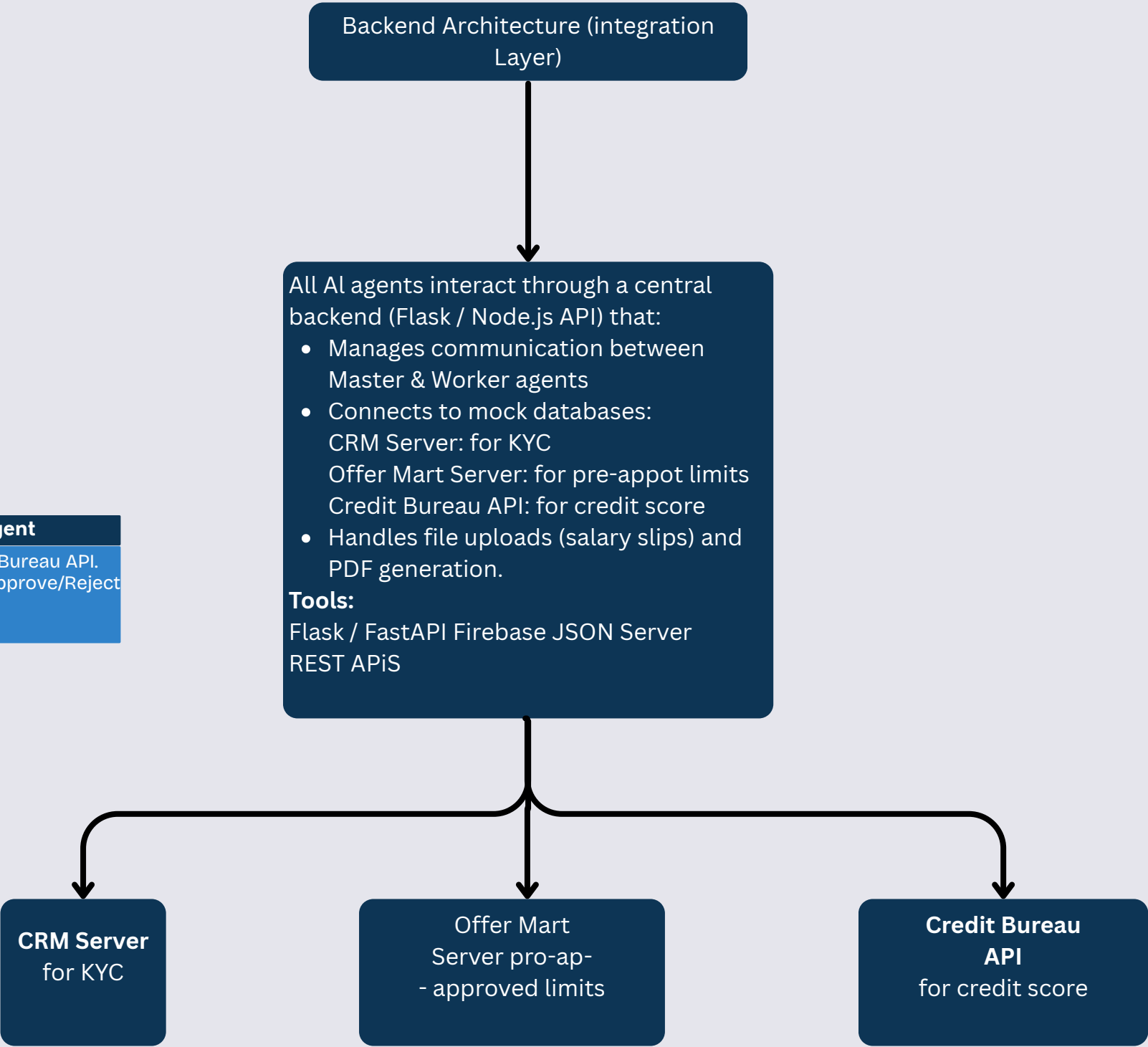
- Customers today expect instant digital experiences like those in UPI or fintech apps.
- Financial institutions need automation and intelligence to stay competitive.
- This problem gives an opportunity to modernize loan workflows using Agentic AI.

Data Flow Overview

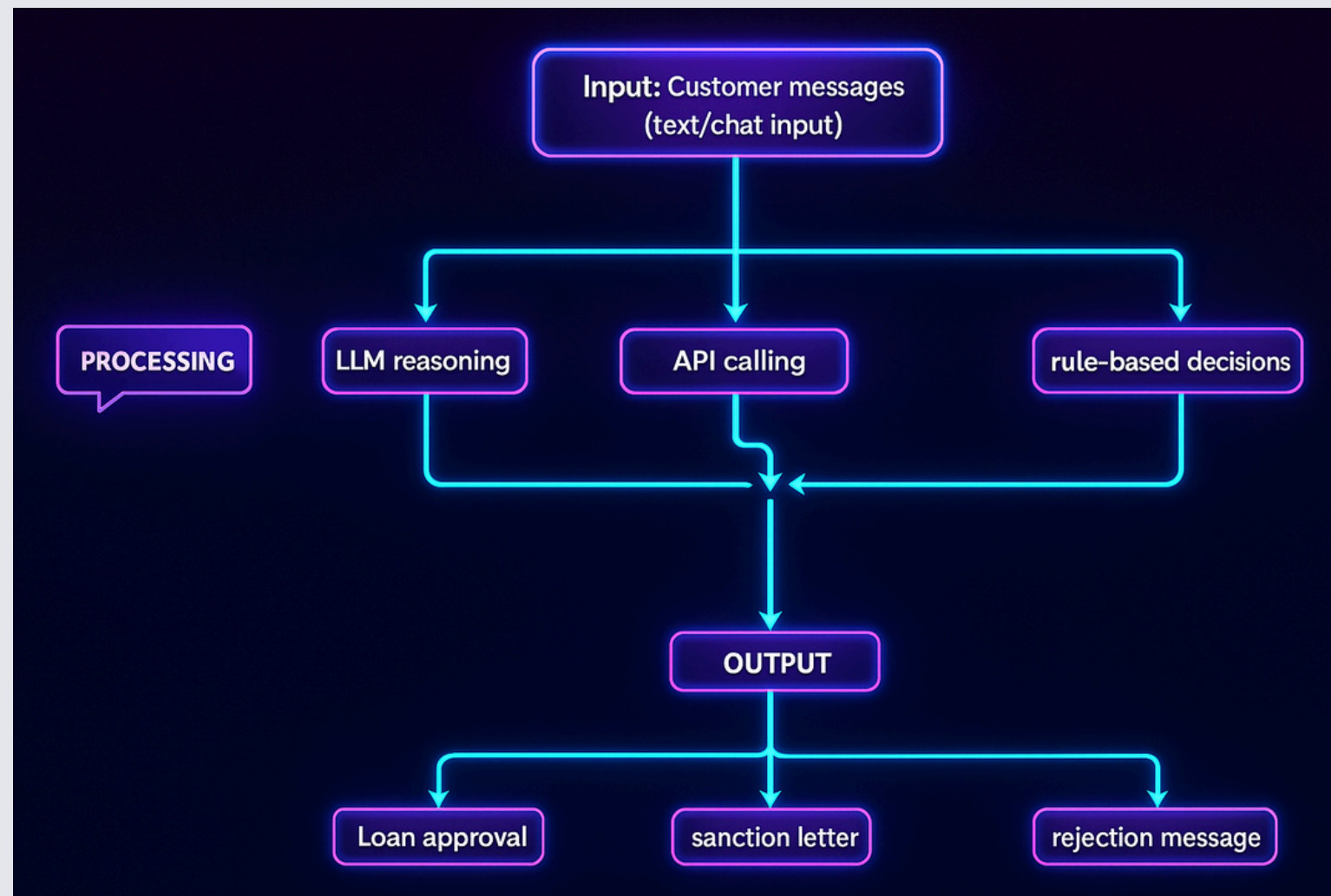
- The AI loan assistant interacts with customers to understand their needs, verifies their details and credit score, and decides loan eligibility. It uses smart reasoning, connects with bank systems, and applies predefined rules to ensure fair decisions, finally sharing results—approved, rejected, or sanctioned—in a clear, friendly way.



Backend Architecture (Integration Layer)



Processing



This diagram shows how the AI loan assistant processes customer messages.

It understands chat input, reasons using AI (LLM), calls different APIs for verification, applies rules, and finally outputs a result – Loan Approved → Sanction letter shared, More Info Needed → Requests additional documents, Loan Rejected → Explains the reason clearly.

Potential Benefit



Faster Loan Processing

- Automates the entire loan journey – from inquiry to sanction – reducing turnaround time (TAT) from 2–3 days to a few minutes.



Higher Customer Engagement

- The AI chatbot provides a human-like, conversational experience, replacing long forms and manual calls.



Increased Conversion Rate

- Intelligent recommendations and instant approvals boost loan sales success rates by up to 25–30%.



Operational Efficiency

- Reduces manual dependency in KYC, verification, and underwriting.
- Employees can focus on high-value tasks like exception handling and cross-selling.



Smarter Decision-Making

- Unified data access across CRM, Offer Mart, and Credit Bureau systems.
- The AI agents apply predefined rules (e.g., eligibility logic, EMI calculation), ensuring transparent and policy-aligned approvals.



Enhanced Customer Trust

- Automated, transparent communication with downloadable sanction letters and summaries improves credibility.

Vikrant Yadav (NIT Trichy)

Full-stack developer and AI/ML enthusiast passionate about building intelligent, human-like digital systems that bridge user experience and automation. Experienced in developing scalable web applications, AI agents, and data-driven decision systems that combine conversational AI, backend logic, and predictive modeling.

Skills

AI & Machine Learning



Experienced in building intelligent AI agents and ML models using Python, TensorFlow, LangChain, and FastAPI. Worked on Project Synapse, an Agentic AI system that coordinated multiple sub-agents to handle logistics decisions

Full Stack Development



Proficient in React.js, Node.js, Express, and MongoDB for building scalable full-stack web applications. Experienced in integrating RESTful and external APIs (CRM, Credit Bureau, Offer Mart) to enable seamless data exchange and automation across the loan workflow.

Cloud & DevOps



Hands-on with Docker, GitHub Actions, and Microsoft Azure for containerization and CI/CD deployment – enabling scalable, production-ready systems.

Data Handling & Underwriting Logic



Experienced in building intelligent AI agents and ML models using Python, TensorFlow, LangChain, and FastAPI. Worked on Project Synapse, an Agentic AI system that coordinated multiple sub-agents to handle logistics decisions

UI/UX & Presentation



Experienced in designing intuitive, human-like chatbot interfaces using React.js and Figma. Skilled at creating clear, engaging visuals that simplify and highlight Master-Worker AI orchestration for better user understanding.