GrowMart

DONE BY: TEAM SANKALP

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Team Members:
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Problem Statement

- Small-scale shopkeepers struggle to expand beyond local markets.
- Lack of digital presence, inventory insights, and nationwide reach.
- Existing solutions are fragmented with no unified growth platform.
- Stakeholders: Shopkeepers, Customers, Logistics Partners.
- Impact: Empower 60M+ small businesses in India with digital growth.

Objectives & Success Metrics

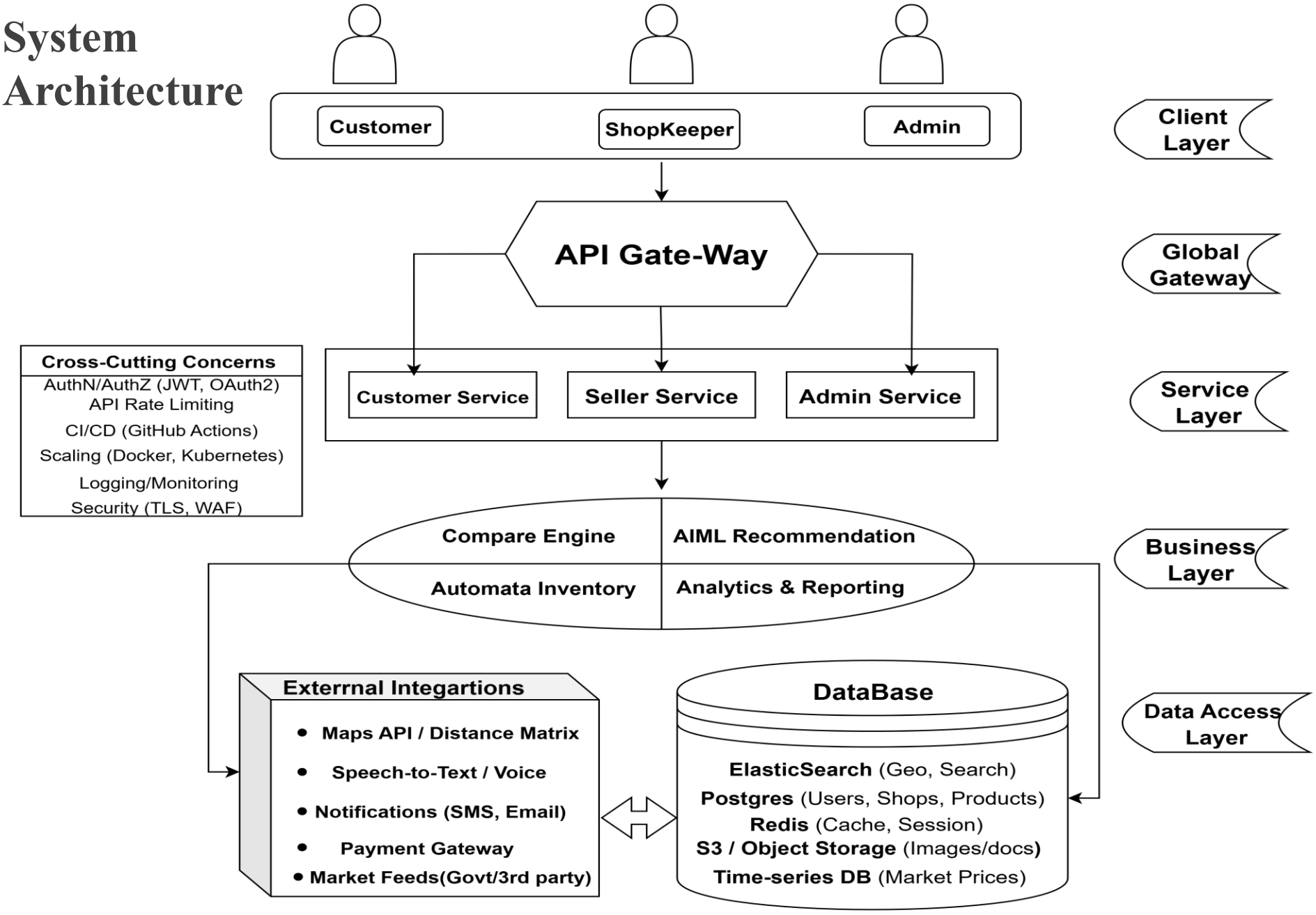
Objectives:

- Provide shopkeepers with a nationwide selling platform.
- AI-driven insights: market prices, trending items, profit/loss analysis.
- Real-time inventory + logistics guidance.

Success Metrics:

- ≥75% accurate demand forecasting.
- ≥90% uptime for inventory updates.
- ≤2 sec response time for AI recommendations.

System Architecture



Comparison of Technologies

Java (Spring Boot Backend):

Pros: Secure and strong ecosystem for APIs.

Cons: Bit complex development cycle compared to lightweight frameworks → ✔ Chosen

React.js(Frontend):

Pros: Modern UI, reusable components and strong community support.

Cons: Requires extra libraires for state management(Redux, Context API) → ✔ Chosen

Python(TensorFlow/Scikit-learn):

Pros: Excellent AI/ML ecosystem, wide range of prebuilt models.

Cons: Needs integration bridge(Rest API/ Java –python connector) → ✔ Chosen

Model Comparison Plan

Models Tested by us are:

- Demand Forecasting → ARIMA and LSTM
- Recommendation System → Collaborative Filtering and Neural Network

Decision taken: LSTM + Neural Net (better accuracy for trends) .

Risks & Assumptions

- Poor dataset quality → Mitigation: Use government & open-market datasets.
- Shopkeepers' low tech adoption → Mitigation: Mobile-first UI with OTP login.
- Logistics challenges → Mitigation: Partner APIs for transport cost comparison.

Work Breakdown & Roles

- (Jyanesh/Yuvaraj)->AI/ML: Demand forecasting, recommendations.
- (Manish)->Backend: APIs for inventory, payments, logistics.
- Frontend->(Koushik): Web designing and UI management.

Timeline

- Week 1–2: Foundation Setup and Core Features - Shops & Products
- Week 3–4: Inventory & Notifications and AI Integration & Advanced Features
- Week 5: Testing & Deployment

References

- Datasets: Government Open Market Data, Kaggle
- Libraries: TensorFlow, Scikit-learn, PyTorch
- Docs: Official APIs, Research Papers