

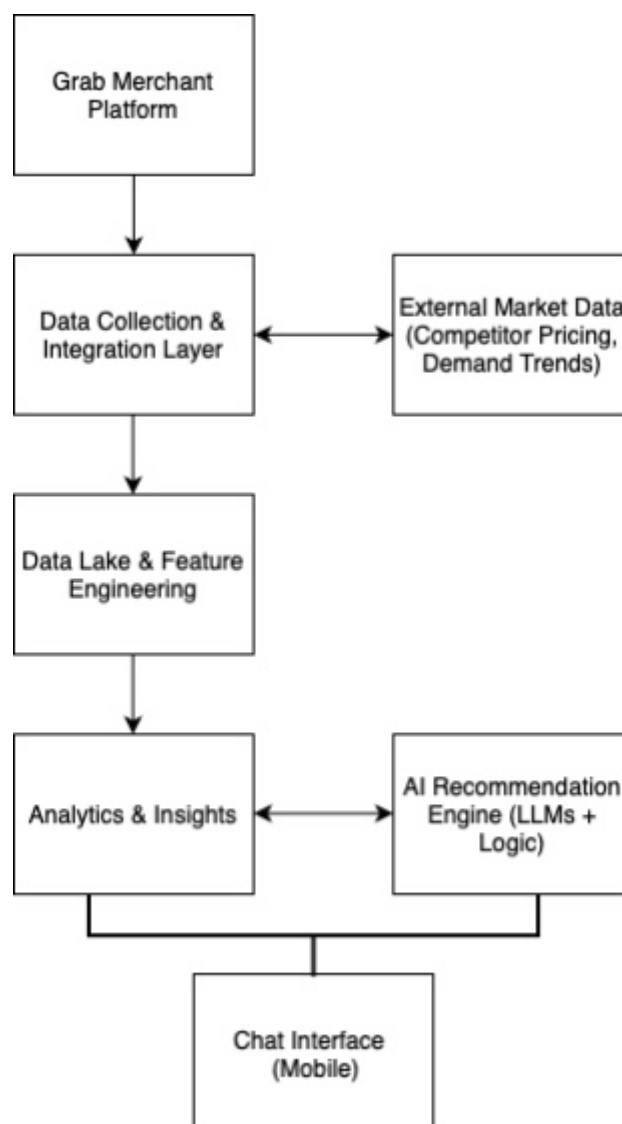
MEX Assistant – Insights

Documentation: Solution Architecture, Data Utilization, and Personalization Strategies

1. Introduction

1.1 System Overview

The MEX Assistant is a Generative AI-powered, multilingual conversational interface built to deliver real-time insights, proactive alerts, and personalized recommendations to Grab's merchant-partners. The assistant integrates seamlessly with Grab's existing merchant ecosystem.



2. Data Utilization

2.1 Data Sources

Source	Description
Transaction Data	Orders, cancellations, average basket size, peak times
Inventory Data	Stock levels, sell-through rates, out-of-stock alerts
Merchant Profile	Type (F&B, retail, etc.), size, region, tenure, language
Customer Behavior	Repeat visits, ratings, location-specific trends
External Data	Market pricing, local events, weather (impacting footfall, etc.)

2.2 Data Processing

- **ETL Pipelines:** Automated workflows extract and transform raw merchant and market data into structured formats for analysis.
- **Feature Engineering:**
 - Lagging indicators: e.g., last week's average sales.
 - Leading indicators: e.g., product that's trending across region.
 - Anomaly detection: Sudden drops in sales, low inventory warning.

3. Personalization Strategies

3.1 Merchant Segmentation

Each merchant is dynamically categorized using a combination of:

- **Type:** F&B, grocery etc.
- **Size:** Small (1-2 outlets), Medium (3-10), Large (franchise/multi-region)
- **Region & Language:** Malay, Thai, Bahasa, Vietnamese, etc.
- **Business Maturity:** Onboarded <6 months, 6–18 months, >18 months

These tags guide the LLM prompt structure, insight priority, and communication style.

3.2 Context-Aware Recommendations

The assistant uses **contextual embeddings** to understand ongoing trends and historical performance. Example:

- A small F&B merchant in Jakarta will receive:
 - **Sales drop alerts** during off-peak seasons
 - **Localized promos** performing well in similar areas
 - Suggestions to restock trending items before weekends

3.3 Adaptive Communication Layer

Built on top of the LLM, this module handles:

- **Multilingual NLP:** Local language intent recognition and response generation
- **Colloquialism and Literacy Handling:** Simplifies jargon for users with basic tech familiarity (e.g., "Your best-selling dish sold 30% more today!")
- **Conversational Templates:** Predefined flows for:
 - Weekly summary reports
 - Inventory alerts
 - Growth tips and offers

4. Key Features Powered by AI

Feature	Description
Daily Insights	Auto-generated reports (e.g., "Today you sold 20% more chicken rice than usual!")
Smart Alerts	"Your inventory for Milk Tea is below 10. Restock before the weekend rush."
Market Comparison	"Other similar shops in KL offer combo deals. Want to try one?"
Auto-Translate & Tone Shift	Switch between formal/informal and multiple languages per user preference
Actionable Suggestions	"You could increase visibility by adding a photo for your best-seller."

5. Data Security & Privacy

- **Anonymized Aggregation:** Market comparisons are derived from anonymized merchant clusters.
- **Opt-in Intelligence:** Merchants control whether their data is used for benchmarking or trend analysis.
- **Compliance:** Aligns with PDPA, GDPR, and local data privacy laws across SEA.

6. Future Enhancements

- **Voice Assistant Integration** for low-tech users.
- **Offline Summary Mode** for daily SMS/WhatsApp recaps.
- **AI Coach Mode:** A guided assistant to help new merchants scale.