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◆ Overview

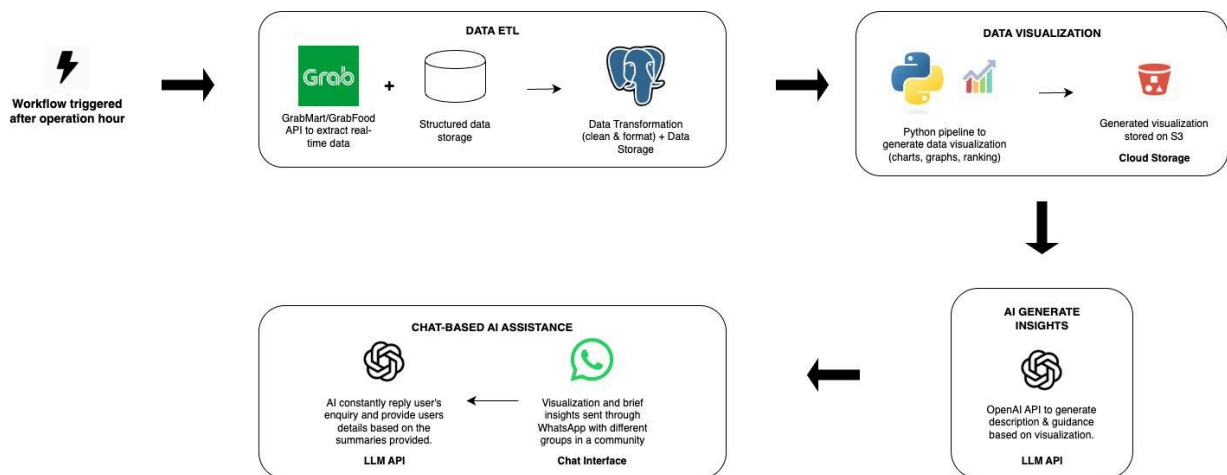
Introducing Grenie, an intelligent, **chat-based AI assistant** for merchants to get valuable insights, personalized guidance, and operational alerts based on real-time data and historical data for each merchant. Grenie supports two main functionalities:

1. **Daily Insight Generation:** Summarizing sales, inventory, product, trends and campaigns performance daily. The data is then transformed into visualizations and description for readability
2. **Peak Hour Alert Automation:** Sending tailored notifications to merchants during peak hours, with personalized data being analyzed at the back end.

The system is designed to deliver AI-generated insights and dynamic responses through a chat interface (e.g. WhatsApp) that merchants prefer, powered by structured data pipelines and automation workflows.

🧩 Solution Architecture

Insights Generator



Trigger: This workflow will be triggered daily after operation hour.

Data Extraction + Transformation + Load

Data Sources: GrabMerchant API or GrabFood API (fetch real-time data) + Data Storage (historical data)

PostgreSQL: Join all columns, clean and transform data into useful form. The data will be stored back in PostgreSQL.

Data Visualization Generation

Use Python pipeline to generate visual outputs from the cleaned data. Generated images will be stored in cloud storage.

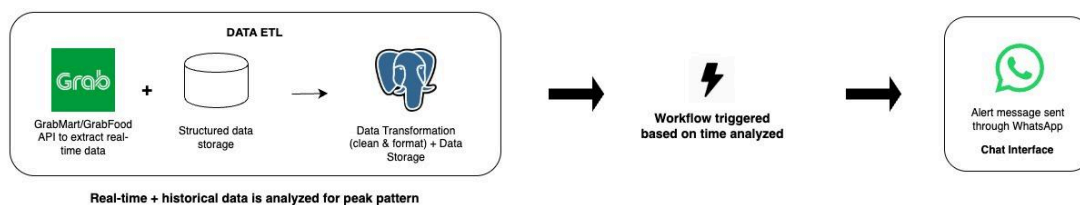
AI Generate Insights

The generated images will be fed into AI to generate brief descriptions.

Chat-based AI Assistance

The visualization and description generated will be sent through the chat interface preferred by merchants every single day. If merchants have any queries or want to know more details about insights sent, AI will constantly reply accordingly. For example, if a merchant wants to know more about best seller items in their city, AI can fetch information from data storage and provide accurate insights.

Peak Hour Alert Notification



Data Extraction + Transformation + Load

Data Sources: GrabMerchant API or GrabFood API (fetch real-time data) + Data Storage (historical data)

PostgreSQL: Join all columns, clean and transform data into useful form. The data will be stored back in PostgreSQL.

Both real-time and historical data will be analyzed; current traffic/sales volume will be compared with historical peak patterns. If certain thresholds are met, the workflow will be triggered.

An alert message will be sent to merchants through chat interface preferred by merchants, helping them respond quickly to demand surges.

Data Utilization

Structured Data Includes:

- Product-level and store-level sales
- Inventory levels and turnover rates
- Campaign metadata (discounts, durations, participation)
- Advertisement spend and engagement
- Customer behavioral patterns (repeat rate, cart size)

Data Handling Strategy:

- Modular ETL pipelines
- Cleaned data is stored in a structured, accessible format
- Python pipelines generate analytics outputs and export them as image assets and summary text

Personalization Strategies

1. User-specific Reports:

The reports are tailored containing each merchant's own data. Messages will be categorized and sent to different communities to ensure a good user experience.

2. Chat-Based Personalization:

Merchants can interact with Grenie to inquire about specific products, time frames, or campaign performance. Responses from Grenie will be generated dynamically based on the merchant's dataset.

3. Multiple Platforms Availability:

Grenie can be deployed on chat interfaces preferred by merchants, like WhatsApp, Messenger etc.

4. AI Context Awareness

Embedding-based retrieval (RAG) will be considered for future versions. Allows semantic search across historical data and richer question answering, getting Grenie become smarter over time.

? How to Use Prototype of Grenie

Link to Prototype:

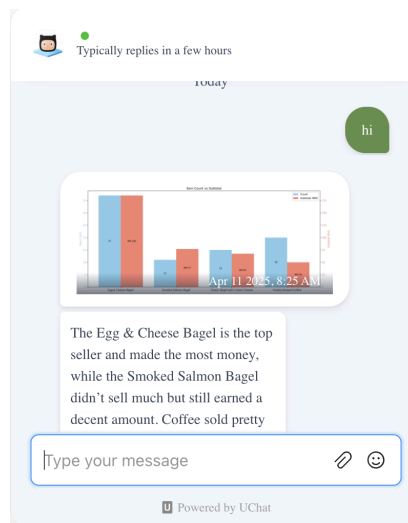
<https://www.uchat.com.au/p/web/guzfelojxipblb8f?ref=-uflow::f162217s1651371::draft::168309>

Note: AI reply will take some time to ensure more accurate results.

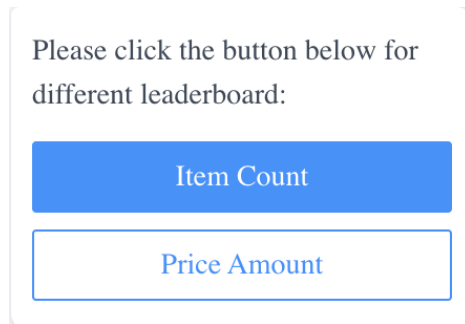
1. Click on the Green chat button at the right bottom of the webpage.



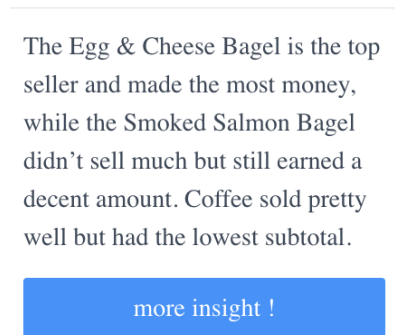
2. Type “Hi” to trigger Grenie (the chat will be automated after deployment, triggered by closing time)



3. You can click on these two buttons to check out detailed visualizations and descriptions.



4. Click on “more insight!” for a detailed explanation of the main summary of the day.



5. After clicking ‘more insight!’, you can ask some sample questions like:
- a. How to improve my sales?
 - b. How to handle customers floating in on peak hours?
6. You can also try asking Grenie in multiple languages.