

UM HACKATHON 2025
Preliminary Round
AmbatuWIN
Domain 3 - Grab Problem Statement
Task 2 - Mex Assistant (Insights)

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1.0 INTRODUCTION

In today's competitive and fast-moving digital marketplace, Southeast Asian merchants, especially those operating on food delivery platforms like GrabFood, face ongoing challenges in making quick, informed decisions. From identifying sales trends and managing fluctuating inventory to optimizing operational performance, many small-to-medium businesses lack the time, tools, or expertise to turn raw business data into meaningful strategy.

At the heart of our solution is **Vouch**, an **AI-agent-powered assistant** designed specifically for Grab's merchant partners (MEX). Unlike conventional business dashboards or static reports, Vouch operates as an intelligent, conversational AI agent that actively engages with merchants, translating complex data into clear, actionable insights. By leveraging real-time analytics, natural language processing (NLP), and personalization algorithms, Vouch simplifies decision-making for business owners at all levels of digital literacy.

More than just an informational tool, Vouch functions as a proactive business partner, continuously monitoring sales trends, inventory fluctuations, and operational performance. It provides personalized recommendations, timely alerts, and strategic insights—all tailored to each merchant's unique business profile. Whether assisting a small food stall or a mid-sized cloud kitchen, Vouch ensures that merchants can make smarter, data-driven decisions effortlessly.

This documentation outlines the overall design and logic of Vouch, detailing its AI-driven solution architecture, data processing methods, and personalization strategies. By bridging the gap between raw data and business intelligence, Vouch directly supports Grab's mission of economic empowerment through AI, enabling merchants to optimize their operations and drive growth with confidence.

2.0 PROBLEM CONTEXT & MISSION

2.1 Problem Statement

Grab's merchant-partners (MEX), especially those on the GrabFood platform, operate in a highly dynamic and competitive environment where timely and informed decision-making is critical. However, many small-to-medium merchants struggle with limited access to business intelligence tools, making it difficult for them to monitor sales trends, optimize their inventory, and identify operational inefficiencies.

These challenges are compounded by varying levels of digital literacy, language barriers, and the lack of personalized guidance tailored to each merchant's unique business context. Without actionable insights, merchants often miss out on opportunities to improve performance, reduce costs, and grow sustainably. To address these issues, there is a pressing need for a solution that transforms complex data into clear, real-time, and customized insights, delivered in a way that is accessible, multilingual, and easy to act on, regardless of a merchant's technical expertise. This calls for a conversational, AI-driven assistant that not only simplifies analytics but also empowers merchants to make strategic decisions with confidence.

2.2 Mission Statement



"Your AI Business Analytics Companion"

"Vouch" refers to genuineness or truthfulness. Our team believes that Vouch has been our best technology innovation and solution for supporting business organizational operations globally, with the advanced capability to support business operations, maximizing strategic planning for grab merchants through artificial intelligence. The mission of Vouch is to empower

Grab's merchant partners with smart, personalized business insights through a conversational AI interface, simplifying business analytics by translating complex sales and operational data into actionable recommendations that merchants can understand and implement with ease. The platform focuses on delivering real-time insights, performance comparisons, and inventory alerts in a user-friendly, chat-based environment. Our target audience includes GrabFood small-to-medium business owners, especially those with limited access to analytical tools or formal business training. By bridging the digital and analytical divide, Vouch aims to support sustainable business growth, improved decision-making, and economic empowerment across Southeast Asia.

3.0 OBJECTIVES OF VOUCH

- To address Grab's merchant partners' need for actionable business analytics, by developing an AI-powered assistant that delivers real-time insights and personalized guidance.
- To construct a user-centric system for analytics that integrates with an AI-chat-based assistant powered by the AI Agent system, supporting merchants' business decisions, especially those who are not tech-savvy
- To implement a specialized AI Agent that analyzes merchant data to identify sales trends, provide proactive recommendations, and generate actionable business insights that empower merchants to make informed decisions and grow their businesses.

4.0 SOLUTION ARCHITECTURE

Vouch is an AI-powered, chat-based assistant designed to help Grab's merchant partners turn complex business data into clear, actionable insights. Built with real-time analytics, natural language processing, and personalized logic, Vouch delivers a conversational experience that enables merchants to monitor performance, identify growth opportunities, and manage operations effortlessly. Its core features include a daily business insights dashboard showing sales trends and top-performing items, a smart AI chatbot offering personalized

recommendations based on performance data, and an automated inventory alert system that tracks stock levels and notifies merchants before reaching critical thresholds. What sets Vouch apart is its focus on accessibility; it supports multilingual, simple communication, making it usable for merchants with different levels of digital literacy. By simplifying data interpretation and guiding merchants through tailored business strategies, Vouch empowers GrabFood sellers of all backgrounds to make smarter, faster, and more confident decisions.

4.1 USER FLOW DIAGRAM

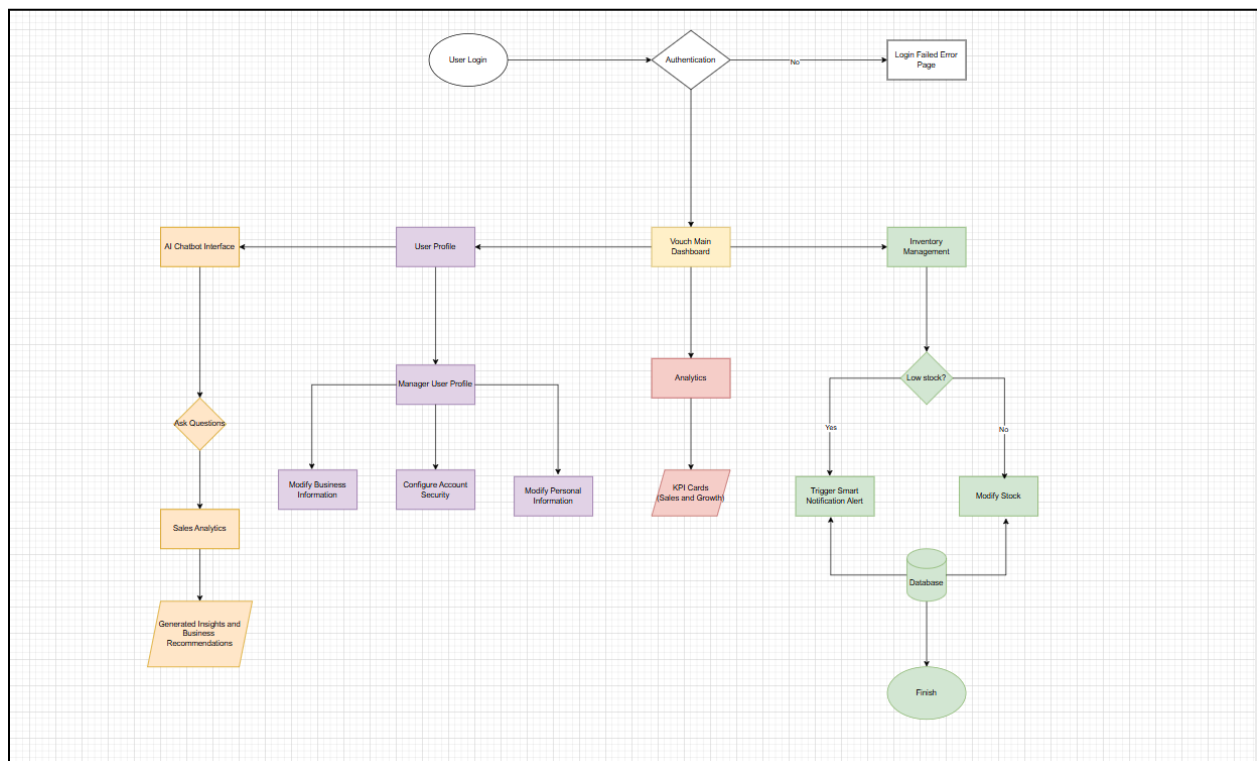


Figure 4.1.1 User Flow Diagram - Vouch

The Vouch AI assistant platform begins with a merchant login process, followed by an authentication check that either directs users to an error page upon failure or grants access to the Vouch Main Dashboard upon success. Directing the user to the Vouch main dashboard, merchants can navigate to four primary sections: the AI Agent Chat Interface, User Profile,

Analytics, and Inventory Management. In the chat flow, merchants can ask questions that generate sales analytics, insights, and business details, ultimately producing actionable recommendations. The analytics dashboard path provides KPI cards showing sales and growth metrics. The Inventory management section includes smart notification alerts and stock modifications. When low stock is detected, the system either triggers a smart notification alert or enables merchants to modify stock levels directly, with all these actions connecting to the underlying database. The process concludes with a finish state, completing the merchant's interaction cycle with the platform.

Tech Stack :

Software Tools / Programming Tools	Description
HTML (Hypertext Markup Language)	Content Structure for Vouch Website
CSS (Cascading Style Sheet)	Styling for Vouch Website
JavaScript	Animation for Vouch Website
n8n	External tools built to develop an AI Agent for the Vouch Website
Supabase	Data Repository for the AI

5.0 DATA UTILIZATION

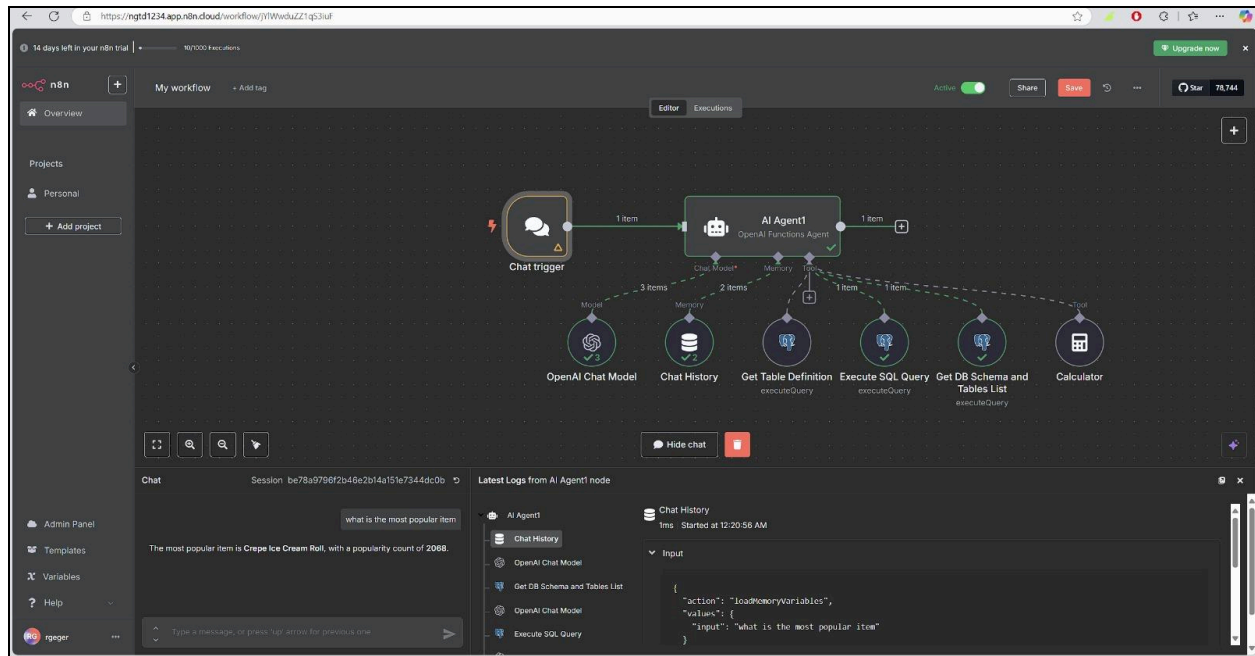


Figure 5.1 Overview of Main Page - n8n Software tool

Given the picture above, n8n is a workflow automation platform that uniquely combines AI capabilities with business process automation, giving technical teams the flexibility of code with the speed of no-code. Our team leverages this software to create and simulate the Vouch AI-Agent with a procedure. It begins with a chat trigger from the user, the request is passed to the AI-Agent, which acts as the hub to produce the output. The AI-Agent is integrated with the OpenAI Chat model that creates the SQL query to be in the database to be read correctly. Thus, a proper output is displayed and will be sent to the user's interface

6.0 SCOPE

- To access the full capabilities of Vouch, users must complete the registration and own a Vouch account.
- Based on the resources we have, the chatbot does not contain any previous history with the user, as the database is limited
- The response time of the chatbot is improved, but cannot be fixed as it depends on the volume of the data and the traffic of the server
- Multilingual languages will be implemented; however, during development time, only English and Chinese will be provided within this prototype.
- AI information will not always be accurate, as Vouch is designed as a machine learning tool. Users suggested clarifying other important information.
- Regular maintenance and updates are needed to ensure the effectiveness of Vouch in meeting changing business needs.

7.0 PERSONALIZATION STRATEGIES

Vouch will segment merchants based on critical business attributes to deliver relevant insights:

Profile Attribute	Personalization Impact
Business Category (Food, Retail, Services)	Tailors recommendations to industry-specific challenges and opportunities
Business Size (Transaction volume/revenue)	Scales suggestions appropriate to operational capacity
Geographic Location	Considers regional market trends and local customer behaviors
Business Maturity (Time on platform)	Adjusts guidance complexity based on experience level

8.0 CONCLUSION

Artificial Intelligence has been emerging in all business operations globally, contributing significant value in maximising profits, sales, and sustainability. Vouch features an advanced AI agent to seamlessly deliver real-time analytics, personalized recommendations, and transform complex data into actionable insights for Grab's merchant partners. This approach enables merchants to easily monitor their operations effectively and make proactive business decisions, tackling challenges in a dynamic market environment.

By leveraging the capability of Vouch, our team believes that Vouch not only expands business operations but also evolves them, helping those businesses with minimal tech expertise. Thus, Vouch stands as a critical tool in empowering merchants to drive sustainable growth and stay competitive in an ever-changing landscape.