

UMHackathon 2025 : Grab Problem Statement

Theme: Economic empowerment through AI (from Grab's vision + AI)

Problem Statement

Grab aims to empower Southeast Asians to better their lives through economic enablement. We have a history of providing them technology which helps them earn a living and build their business. With the advent of GenAI, we see possibilities to accelerate this and improve the lives of people across Southeast Asia.

Our problem statement revolves around building AI-powered assistants for our DAX (drivers) and MEX (merchants) that can either give them insights and guidance or automate work.

Choose **one** of the below tasks

Task 1: DAX Assistant – Handsfree

Introduction

Grab's driver-partners (DAX) currently interact with an AI assistant through text-based interfaces, which can be impractical and unsafe when they are actively driving. To address these limitations, Grab aims to develop a voice-centric interface, allowing driver-partners to receive assistance without the need to physically hold and type on their phones. This transition is crucial for enhancing safety and convenience, empowering drivers to focus on the road while still benefiting from AI-powered guidance and support.

Driver-partners can interact with an AI assistant through text-based interfaces. However, this mode becomes impractical and unsafe when they are actively driving. We want to develop a voice-centric interface to actively help driver-partners without the need to physically hold and type on their phone.

Key Challenges

The development of a voice-centric interface must overcome several real-world audio challenges:

1. Audio Conditions on the Road

- Traffic and road noise
- Vehicle engine sounds
- Weather conditions such as rain and wind
- Urban ambient noise
- Audio system feedback

2. Speech Pattern Complexities



- Regional accents and dialects
- Variations in speech speed
- Use of colloquial expressions

Problem Statement

The objective is to build a robust voice interaction system that enables reliable driver–assistant communication in challenging audio environments. You need to use some of your creative spirit to design a scenario in which audio assistance is specifically useful. The solution should:

- 1. Maintain high accuracy in noisy conditions**
 - Implement noise cancellation and filtering techniques to enhance voice recognition accuracy despite background interference.
- 2. Adapt to diverse speech patterns**
 - Utilize NLP models capable of understanding and processing regional accents, dialects, and colloquial expressions.
- 3. Provide clear, reliable functionality with partial audio clarity**
 - Design systems that can interpret incomplete or unclear voice inputs and still deliver accurate responses.
- 4. Demonstrate resilience across various environmental challenges**
 - Ensure the solution is adaptable to different environmental conditions and can maintain reliable communication.

Evaluation Criteria

- 1. Noise cancellation effectiveness**
 - Percentage reduction in background noise during voice recognition tasks
- 2. Dialect and accent recognition**
 - Accuracy rate of voice recognition across different dialects and accents
- 3. Environmental adaptability**
 - Success rate of the system in maintaining functionality across different environmental conditions (the more environments you can demonstrate success over, the better)
 - Examples:
 - Heavy traffic noise (80–90 dB)
 - Rain and wind conditions
 - Engine noise at various RPMs
 - Urban environment sounds
 - Multiple overlapping noise sources

Task 2: MEX Assistant – Insights

Introduction

Grab's merchant-partners (MEX) use our platform daily to build and expand their businesses across Southeast Asia. To further empower these entrepreneurs, Grab envisions leveraging Generative AI to create smart, intuitive chat-based assistants. These AI-driven interfaces allow for actionable insights and proactive guidance directly to merchants, enabling better business decisions and streamlined operations.

Key Challenges

Creating an effective chat-based assistant for merchants involves addressing critical interaction and insight delivery challenges:

- **Real-time Business Insights**
 - Instant identification of sales trends and opportunities
 - Timely alerts on inventory status and operational bottlenecks
 - Importantly these insights must be **accurate**
- **Personalized Merchant Guidance**
 - Tailoring advice based on merchant type, scale, location, and business maturity
 - Providing relevant market comparisons and competitive insights
- **Intuitive and Effective Communication**
 - Handling multilingual interactions common across diverse Southeast Asian communities
 - Accommodating varying levels of digital literacy and familiarity with technology
 - Clear, concise communication that drives immediate merchant action

Problem Statement

The goal is to develop an intelligent, chat-based AI assistant that proactively provides merchant-partners with valuable insights, personalized guidance, and operational alerts. The solution should:

- **Provide real-time analytics and business insights**
 - Automate timely delivery of sales and inventory reports
 - Highlight critical issues and opportunities for merchant attention
- **Deliver personalized, actionable recommendations**
 - Cater specifically to merchant characteristics (type, region, size)
 - Suggest improvements and identify growth opportunities
- **Support diverse communication needs**
 - Manage multilingual, colloquial, and straightforward interactions
 - Ensure easy-to-understand and practical dialogues that drive merchant engagement



Evaluation Criteria

1. Insight Quality and Relevance

- **Actionability:** How directly implementable are the insights without requiring further analysis?
- **Prioritization:** How well does the system highlight the most important insights that deserve immediate attention?

2. Communication Effectiveness

- **Clarity Score:** How well does the solution explain complex data insights in simple, understandable terms?
- **Visual Support:** How effectively does the solution use visual elements to enhance understanding of the data?

3. User Experience and Engagement

- **Conversation Flow:** Is the interaction natural and coherent, or does it feel mechanical?
- **Response Time:** How quickly does the system generate insights and responses?

Evaluation

We will be judging solutions based on the criteria above, but we are looking for creative and practical solutions that we may be able to really develop into something that solves a practical problem rather than performance on a benchmark.

Submission Requirements (For Both Tasks)

- Functional chat/audio-based prototype demonstrating core capabilities
- Documentation outlining solution architecture, data utilization, and personalization strategies
- Short video/demo showcasing key functionalities and user interaction scenarios