Challenge: AI Agent for BMW-X1 Manual

Background

Modern vehicles are increasingly sophisticated, equipped with complex systems and components that make it harder for everyday drivers to troubleshoot issues on their own. While manufacturer manuals contain detailed solutions, navigating dozens or hundreds of pages to find the right fix is tedious and often overwhelming.

Challenges

Design and develop an AI Agent that responds to user questions about car issues based strictly on the content of manufacturer manuals. We take into consideration that the user will seek information for a defined car model (BMW X1). The AI Agent should only generate answers **sourced from the relevant manual**—no hallucinated responses allowed.

Objective

Build a pipeline that imports the data that has been provided, create an AI model that extracts answers from the data and also make sure that the question is related to the data only.

Example

* User: Τι είναι πανοραμική προβολή;
* AI Agent: Η πανοραμική προβολή καθιστά δυνατή σε περίπτωση εξόδων και διασταυρώσεων μειωμένης ορατότητας, την έγκαιρη ματιά στην κάθετη κυκλοφορία. Μπορείτε να ανατρέξετε στη σελίδα 301 του manual.
* User: Πώς το ενεργοποιώ;
* AI Agent: Για να ενεργοποιήσετε την πανοραμική ένδειξη, πατήστε το πλήκτρο υποβοήθησης στάθμευσης στην κεντρική κονσόλα.

A black and white logo

AI-generated content may be incorrect.

Η ένδειξη των συστημάτων υποβοήθησης στάθμευσης εμφανίζεται στην οθόνη ελέγχου. Δείτε την παρακάτω εικόνα. Για περισσότερες πληροφορίες, δείτε τη σελίδα 301 του manual.

Suggested Architecture

* Data Preparation
  + Data Vectorization using Embedding model
* Model Development, Retrieval-Augmented Generation(RAG)
  + Deploy a model using local model Frameworks or APIs
* Evaluation
  + Return valid Questions and the answers with the tokens generated

Suggested Tools

* Python ( Flask, Streamlit, Rasa )
* API ( ChatGPT, Vertex AI Studio)
* Ollama, HuggingFace
* Anaconda Studio, Jupiter Notebooks, Spyder
* Docker, AnythingLLM

Datasets Include:

* BMW X1 Manual ( pdf )

Submission Requirements

Teams should submit:

* A summary of their solution and methods
* Conversational AI interface based on the Objective

BONUS

* + Allow the user to make follow up questions based on their previous inquiry.
  + Ensure that the provisioned response entails a picture from the manual (if necessary).