Status Quo

In today's dynamic business environment, managers often encounter challenges when they require critical information from their company's systems while they are away from the office. Whether attending meetings, traveling, or working remotely, the need for timely access to recent enterprise data is essential for decision-making. However, traditional methods of retrieving this information, such as manual data analysis or navigating complex interfaces, can prove time-consuming, especially when on the go. In response to this need, the concept of a chatbot can help to address the challenges faced by managers in accessing vital information remotely.

Challenge

Develop a chatbot capable of responding to natural language questions relevant to a company's recent commercial activity.

Objective

Given a daily export of CSV files from a company's ERP, the task is to develop a stack that begins with preprocessing these files and ends up in a web interface where users interact with the chatbot. While the ability of voice interaction is beneficial, it is not essential for this challenge.

An indicative but not limited pipeline is:
- Data Vectorization using word embeddings API of a Large Language Model (LLM)
- Vector index/storage.
- Retrieval-Augmented Generation (RAG)
    - Retrieval: Query conversion to vector and retrieval from vector store
    - Augmented Generation: Use an LLM to provide specific answers.
- Web Interface

These are some samples of user queries:
- What was our total revenue for the last week?
- What is the cash flow balance?
- Can you list please the top five products?

- Are there any understocked items, without expected orders?
- How do yesterday's sales compare to last Monday's sales?
- What is the average order value of e-shop orders?
- Who were our top five customers by sales volume last week?

Short course about RAG applications: https://www.deeplearning.ai/short-courses/javascript-rag-web-apps-with-llamaindex/

Data

The following csv include data exported from an ERP and can be used as the data source of the chat bot:

Cash flow report

- Debit
- Credit
- Balance
- Inflows Forecast
- Outflows Forecast
- Projected Ballance

Last week's sales by day

- Date
- Product category
- Revenue

Last week's top customers

- Customer Name
- Revenue

Last week's top products

- Product Description
- Sold Quantity
- Revenue

Last week's order statistics

- Channel
- Orders Count
- Order Lines
- Quantity in pieces
- Quantity in boxes
- Amount
- % of fulfillment

Understocked products

- Product description
- Minimum stock
- Current stock
- Expected Qty
- Required Qty (ordered by customers)

You can find and download the data here: UniAI MakeAthon