Use Case: LLM based Data Analyst Bot

Problem Statement:

A lot of time is spent by Data Analysts to track specific KPIs combine results and present a report. If a Senior Executive wants to get some report he has to ask a data analyst to present the report to him which will consume a lot of time as well.

Solution:

A streamlit based application solution utilizing Azure OpenAI and Langchain connected directly to the database (SQLite). The user can directly query for a detailed analysis report in simple keywords on a particular KPI or General Domain.

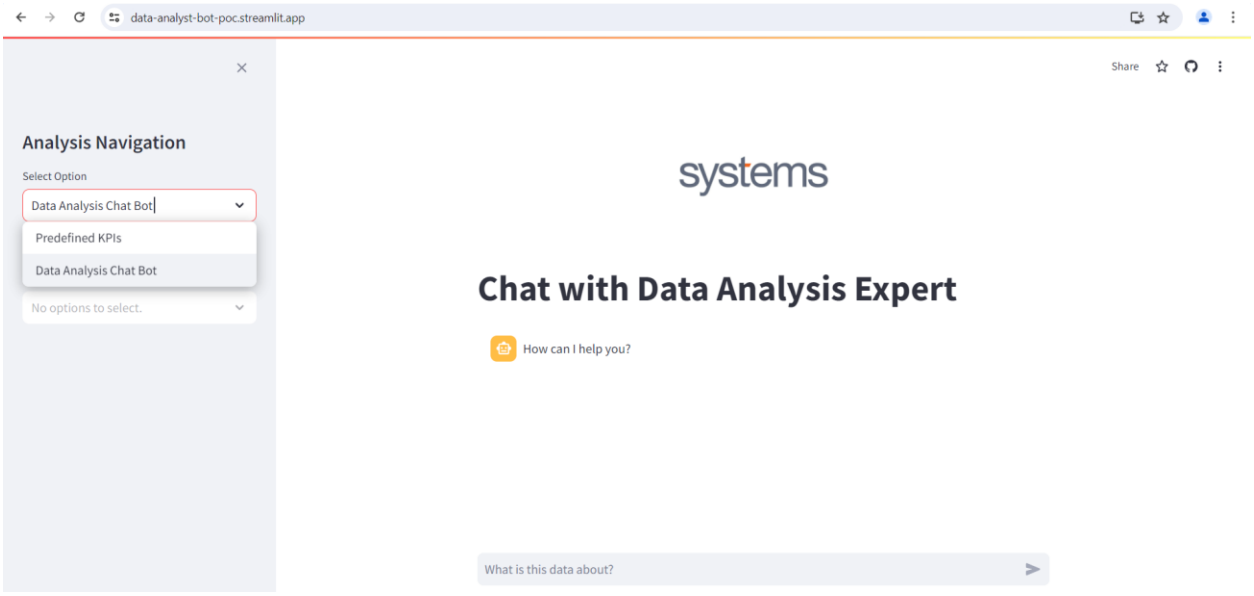
What has been Implemented:

A streamlit application that contains two options, first option to chat with the Data Analyst Chat bot where they query on a particular KPI or domain and get detailed analysis report. Second option is that a KPI list is stored in excel. From which user can select predefined KPI Domain they want to get report for from that list.

Link: https://data-analyst-bot-poc.streamlit.app/

The workflow steps that are highlighted in yellow are internal steps and steps which are not highlighted are those which users have to perform.

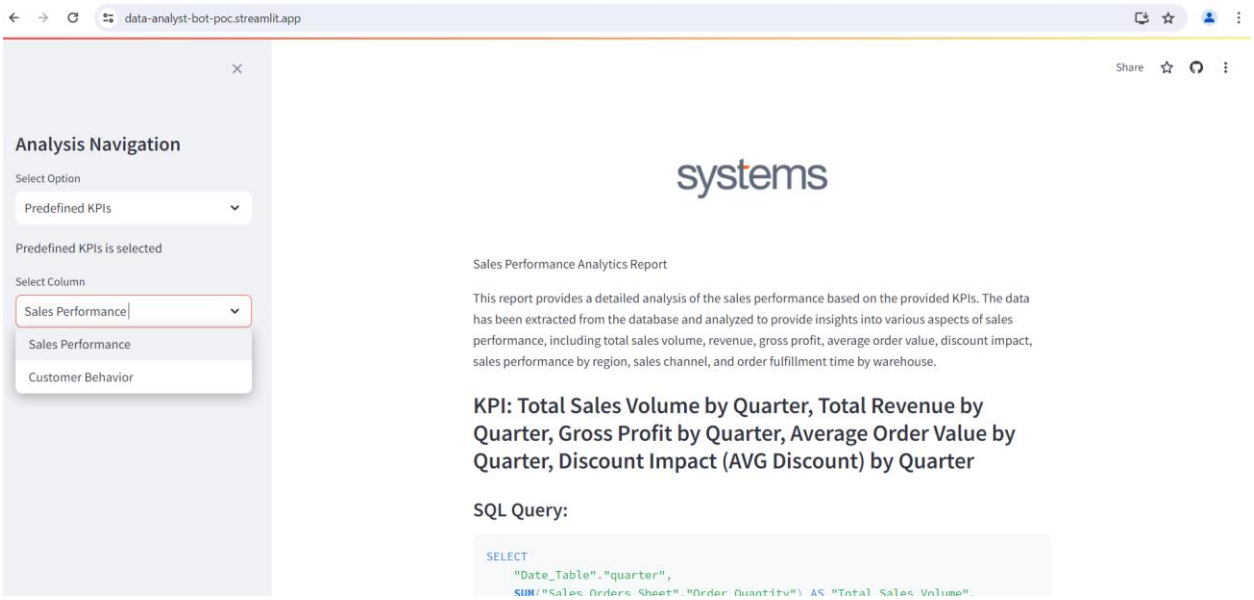
Scenario 1 – Data Analysis Chat Bot:



Workflow Steps:

1. User selects Data Analysis Chat Bot option from first drop down menu
2. User Enters analysis query in chat
3. KPIs are generated with respect to user query and Data Definition Language of database
4. SQL queries for each KPIs are created and data is retrieved from database using those queries
5. User Query, KPIs, SQL Queries and Extracted Data is passed onto function that generates a detailed analysis report
6. After report is generated it is presented to user

Scenario 2 – Predefined KPIs:



	A	B	C
1	Sales Performance	Customer Behavior	
2	"KPI: Total Sales Volume by Quarter,Total Revenue by Quarter, Gross Profit by Quarter, Average Order Value by Quarter, Discount Impact (AVG Discount) by Quarter"	"KPI: Average Order Frequency - Average number of orders placed by each customer, Average Customer Spend - Average amount spent by each customer."	
3	"KPI: Sales Volume and Revenue by Region and by quarter"	KPI: Customer Lifetime Value (CLV) - Predicted total value a customer brings over their entire relationship.	
4	KPI: Total Sales Volume and Revenue by Channel by Quarter	KPI: Top Products by Customer - Most purchased products by customers.	
5	Order Fulfillment (Average time taken from order to delivery) Time by Warehouse		
6			
7			

Each row represents a new KPI for that particular domain of analysis and each column heading represents a Domain for analysis

Workflow Steps:

1. User selects Predefined KPIs option from first drop down menu
2. User selects domain from second drop down menu
3. KPIs are fetched from excel file with respect to the selected domain
4. SQL queries for each KPIs are created and data is retrieved from database using those queries
5. Selected domain, Fetched KPIs, SQL Queries and Extracted Data is passed onto function that generates a detailed analysis report
6. After report is generated it is presented to user