





DATASENSE BOT

Goal:

Build a chatbot that answers questions from structured business data using a downloaded local LLM model only (no online API).

DataSense Bot:

It is an offline AI chatbot that answers questions from business data using:

-  **Local LLM (Ollama – Llama3)**
-  **Python + Pandas**
-  **MySQL Database**
-  **Natural Language → Pandas Code Execution**

It converts user questions into executable Python code, runs the code, shows results, and logs them in a database.

Features

- ✓ Works fully offline
- ✓ Converts natural language to Pandas code
- ✓ Executes code safely
- ✓ Handles missing data
- ✓ Logs every query + result in MySQL
- ✓ Supports business analytics questions

Tech Stack

| Component | Tool |
|-----------|-------------------------|
| Language | Python |
| LLM | Ollama (Llama3) |
| Database | MySQL |
| Data | CSV (Sales Data) |
| Libraries | pandas, mysql-connector |

Example Questions to Ask

- What is the total sales?
- Show number of orders by region.
- How many orders had sales above 50,000?
- Which region has the highest sales?.
- What is the total quantity sold?
- Show the top 5 customers by purchase amount.
- How many unique products were sold?
- What is the average sales per customer?
- What is the minimum and maximum sales recorded?
- What percentage of total sales came from the East region?

Output Example:

```
Code Generated:
result = dataframe['Sales'].sum()
summary = f"Total sales = {result}"
Result: 481000
Insight: Total sales = 481000
Logged to database
```

Expected Output

- AI writes Pandas code
- Code runs & answers your question
- Summary line printed
- All logs stored in MySQL