

# 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