✅ Task 16: Forecasting — Time Series Trend & Prediction

Tools:

- Primary: Python (Colab)
- Libraries: pandas, matplotlib, statsmodels
- Alternatives: Excel Forecast Sheet, Power BI Forecasting (basic)

Dataset:

- Sales Forecasting Dataset
- Store Item Demand Forecasting
- Walmart Sales Forecasting

Hints / Mini Guide:

1. Load dataset and convert date column into datetime.
2. Aggregate sales by month/week using groupby.
3. Plot sales trend over time.
4. Check seasonality using rolling mean.
5. Split data into train/test by time.
6. Fit forecasting model (Moving Average / Exponential Smoothing).
7. Predict next period sales and plot forecast.
8. Compute error metrics (MAE/MAPE).
9. Export forecast results to CSV.

Deliverables:

- task16_forecasting.ipynb
- forecast_output.csv
- forecast_report.txt

Final Outcome:

✅ Intern learns time-series forecasting used in business planning.

Interview Questions Related To Above Task:

- What is seasonality in time series?
- Why do we split train/test by time?
- What is MAE vs MAPE?
- When is moving average useful?
- What makes a forecast unreliable?

📌 **Task Submission Guidelines**

- ⏰ **Time Window:**

Youcan complete the task anytime between 10:00 AM to 10:00 PM on the given day. Submission link closes at 10:00 PM

- 🔍 **Self-Research Allowed:**

Youare free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively.

- 🛠️ **Debug Yourself:**

Tryto resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

- 💸 **No Paid Tools:**

Ifthe task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

- 📁 **GitHub Submission:**

Create a new GitHub repository for each task.
Add everything you used for the task — code, datasets, screenshots (if any), and a short README.md explaining what you did.

📤 **Submit Here:**

After completing the task, paste your GitHub repo link and submit it using the link below:

- 👉 [Submission Link]