Sales Data Analysis & Forecasting Dashboard (Walmart Sales)

🛠 Skills & Technologies Used

- **Programming Language:** Python
- **Data Analysis:** Pandas, NumPy
- **Data Visualization:** Plotly
- **Web Framework:** Streamlit
- **Machine Learning Concepts:** Time-Series Analysis (Basic Forecasting)
- **Tools & Platforms:** Git, GitHub, Streamlit Cloud

Project Description

This project analyzes historical **Walmart sales data** to understand how sales behave over time.
It focuses on identifying long-term trends, comparing store-wise performance, and analyzing the impact of holidays on weekly sales through an **interactive dashboard**.

Project Explanation

I built an **interactive Sales Data Analysis Dashboard** using **Python, Pandas, Streamlit, and Plotly** to provide business-friendly insights from historical retail sales data.

The project began with loading sales data from CSV files and performing **data preprocessing**, including date parsing, data type correction, and handling inconsistencies to ensure clean and reliable data.

I then conducted **exploratory data analysis (EDA)** to analyze:

- Overall sales trends over time
- Store-wise sales performance
- The effect of holidays on weekly sales

To help stakeholders quickly understand business performance, I designed **Key Performance Indicators (KPIs)** such as:

- Total Sales
- Average Weekly Sales
- Top Performing Store

The dashboard includes **interactive filters** like date range selection, store selection, and holiday indicators, allowing users to dynamically explore the data.
I used **Plotly** to create interactive visualizations such as time-series graphs and comparative bar charts for better data interpretation.

Finally, the application was **deployed on Streamlit Cloud**, and **Git & GitHub** were used for version control and continuous updates.

Key Learning Outcomes

- Data cleaning and exploratory data analysis (EDA)
- Building interactive dashboards for business insights
- Data visualization using Plotly
- Deploying applications using Streamlit Cloud
- Version control with Git and GitHub