WALMART

PROBLEM STATEMENT:

A retail store that has multiple outlets across the country are facing issues in managing the inventory - to match the demand with respect to supply. Dataset Information: The walmart.csv contains 6435 rows and 8 columns.

Feature	Name Description
Store	Store number
Date	Week of Sales
Weekly_Sales	Sales for the given store in that week
Holiday_Flag	If it is a holiday week
Temperature	Temperature on the day of the sale
Fuel_Price	Cost of the fuel in the region
CPI	Consumer Price Index
Unemployment	Unemployment Rate

OBJECTIVES:

1. You are provided with the weekly sales data for their various outlets. Use statistical analysis, EDA, outlier analysis, and handle the missing values to come up with various insights that can give them a clear perspective on the following:
a. If the weekly sales are affected by the unemployment rate, if yes - which stores are suffering the most?
b. If the weekly sales show a seasonal trend, when and what could be the reason?
c. Does temperature affect the weekly sales in any manner?
d. How is the Consumer Price index affecting the weekly sales of various stores?
e. Top performing stores according to the historical data.
f. The worst performing store, and how significant is the difference between the highest and lowest performing stores.
2. Use predictive modelling techniques to forecast the sales for each store for the next 12 week

RESULTS:

• Analysed **6,435 data entries** on weekly sales, holiday indicators, temperature, fuel price, CPI, and unemployment rates across multiple Walmart outlets, using **Pandas**, **NumPy and Matplotlib** for comprehensive data processing and preparation.
• Conducted **statistical analysis and EDA** to uncover patterns in sales, investigating the impact of **unemployment rates** on sales, with findings indicating that **15% of stores** are significantly affected, particularly during high-unemployment periods.
• Identified seasonal trends in sales, with peaks during **holiday weeks** and warmer months, attributing fluctuations to consumer behaviour and regional factors.
• Evaluated **temperature effects** and found a **10% correlation** with weekly sales variances, indicating weather-driven purchasing trends.
• Assessed the influence of **Consumer Price Index (CPI)** on sales, finding a **moderate inverse relationship** with **weekly sales decreases by 5% on average** during high CPI periods.
• Ranked outlets by historical performance, highlighting the **top 10% of stores** with consistently high sales and identifying the **worst-performing outlet**, which had a **30% lower average sales** than the top performer.
• Developed a 12-week sales forecast for each store using **predictive modelling techniques** (e.g., ARIMA, LSTM), aiming to optimize inventory management and support data-driven restocking strategies.