PRESENTATION

SESSION: 2025-26

PRESENTED BY:-(MEMBERS)
JATIN SINGH – 202410101150001
SANDESH KUMAR – 202410101150012
B.TECH CS(DS+AI)
31,32

PRESENTED TO:-
MRS. DEEPIKA TIWARI
FACULTY OF IBM
DATA ANALYTICS AND REPORTING

INTRODUCTION

E-commerce is one of the fastest-growing sectors in India. Millions of daily transactions create large amounts of data, and analyzing this data helps companies understand customer needs and market performance.

In this project, we used **Python libraries like Pandas and Matplotlib** to explore and visualize sales data. The analysis aims to uncover trends, high-performing categories, and insights that can help improve online sales.

OBJECTIVE

The main objectives of this project are:

- To study overall sales and performance of different product categories.
- To analyze payment methods and regional demand.
- To identify best-selling products and months with high sales.
- To visualize patterns using Python data visualization tools.
- To understand how analytics supports real-world e-commerce decisions.

DATASET AND TOOLS USED

Dataset Details:

Total Records: 1000

Attributes: Order ID, Product Name, Category, Region, Quantity, Unit Price, Payment Mode, Total Amount, and Order Date.

Source: Self-created dataset simulating Indian e-commerce transactions.

Tools & Libraries:

Python: For data cleaning and analysis.

Pandas: For data manipulation and operations.

Matplotlib: For visualizing trends and charts.

GOOGLE COLAB: As the coding platform.

DATA CLEANING AND PREPARATION

Before analyzing, the dataset was cleaned to ensure accuracy:

- Removed duplicate and missing records.
- Converted data types (e.g., Date to datetime format).
- Added a new column for Total Sales = Quantity × Unit Price.

After cleaning, data analysis was performed to find:

- Category-wise and region-wise sales distribution.
- Average order value and frequently used payment modes.
- Monthly sales performance and customer preferences.

RESULTS AND INSIGHTS

After analysis, we found the following results:

- **Top Categories:** Electronics and Fashion products recorded the highest sales.
- **Payment Trends:** Most customers preferred online payments like UPI and credit cards.
- **Regional Trends:** North India generated the highest sales, followed by the South.
- **Time-Based Insights:** Festive months like October–December had the highest orders due to discounts.

These findings show how sales data can help businesses plan marketing strategies and manage inventory better.

DATA VISULATION

Visualizations make patterns clear and easy to understand.
We used various graphs to represent the data:

- **Bar Chart:** Category-wise total sales comparison.
- **Pie Chart:** Payment mode percentage share.
- **Line Graph:** Monthly sales trends over time.
- **Scatter Plot:** Relation between product price and quantity sold.

  These graphs clearly show the dominance of certain products, categories, and customer trends.

CONCLUSIONS AND RECOMMENDATIONS

Data Analytics helps in transforming raw data into useful insights for better business decisions.
This project provided a deep understanding of how data can reveal patterns, customer preferences, and growth opportunities.

Future Scope:

- Integrating **Machine Learning** models to predict future sales.
- Using **Dashboards (Power BI or Tableau)** for real-time tracking.
- Expanding the dataset with customer feedback and ratings for deeper insights.