# E-commerce Analytics – Report & Summary

Project 5: E-commerce Analytics

Objective

Analyze e-commerce data to understand customer behavior, purchase patterns,
and derive recommendation insights for business decision-making.

Datasets

- customers.csv: Customer demographics
- products.csv: Product categories and prices
- orders.csv: Purchase history

Methodology

1. Data ingestion and cleaning using Pandas
2. Merging customer, product, and order datasets
3. Customer segmentation using K-Means clustering
4. Category-wise and time-based purchase analysis
5. Identification of top-selling products for recommendations

Tools & Technologies

Python, Pandas, Matplotlib, Scikit-learn, Jupyter Notebook

Key Findings

- Customers form distinct segments based on age and purchase quantity
- Certain categories contribute disproportionately to sales
- A small subset of products drives most purchases

Conclusion

The insights enable targeted marketing, optimized inventory planning,
and personalized product recommendations.

## Summary

Project Summary

This project examines customer demographics, product data,
and purchase history to extract actionable business insights.

Highlights:

- Customer segmentation via clustering
- Purchase pattern analysis by category and time
- Recommendation insights from top-selling products

Tools Used:

Python, Pandas, Matplotlib, Scikit-learn