E-COMMERCE SALES DATA ANALYSIS PROJECT REPORT

1. Project Overview

This project demonstrates end-to-end data analysis using Excel, MySQL, and Power BI. The goal was to convert raw e-commerce sales data into meaningful business insights through structured data cleaning, SQL-based analysis, and interactive dashboard reporting.

2. Data Cleaning & Preparation (Excel)

• Removed duplicates and handled missing/null values.

• Used TRIM function to remove extra spaces By Power Query.

• Standardized text using Power Query.

• Corrected data types (Date, Numeric, Etc).

• Created additional calculated columns where required.

• Performed Pivot Table analysis (Region, Category, Product).

3. SQL Business Analysis (MySQL)

• Total Sales, Profit, and Orders calculation.

TOTAL_ORDER	TOTAL_SALES	TOTAL_PROFIT
15000	33200489.83	7161303.79

• Region-wise Sales & Profit analysis.

REGION	TOTAL_ORDER	TOTAL_SALES	TOTAL_PROFIT
North	3803	8404625.63	1822643.96
West	3688	8389716.58	1821011.44
East	3778	8229929.20	1765469.08
South	3731	8176218.42	1752179.31

• Category & Sub-category profitability analysis.

CATEGORY	TOTAL_ORDER	TOTAL_SALES	TOTAL_PROFIT
Fashion	5015	11274374.33	2440850.19
Electronics	5006	11114104.67	2395133.63
Home	4979	10812010.83	2325319.97

SUB_CATEGORY	TOTAL_ORDER	TOTAL_SALES	TOTAL_PROFIT
Laptops	2587	5746160.87	1251794.68
Men	2507	5669191.70	1219728.77
Women	2508	5605182.63	1221121.42
Furniture	2510	5420452.02	1172356.03
Kitchen	2469	5391558.81	1152963.94
Mobiles	2419	5367943.80	1143338.95

- Top 5 Products by Sales.

	PRODUCT_NAME	TOTAL_SALES
▶	Butterfly Kitchen Item	2798504.08
	Nilkamal Furniture Item	2723255.95
	Ikea Furniture Item	2697196.07
	Prestige Kitchen Item	2593054.73
	Adidas Men Item	1962657.12

- Bottom 5 Loss-making Products.

	PRODUCT_NAME	TOTAL_SALES
▶	Samsung Mobiles Item	1289740.70
	Apple Mobiles Item	1315276.46
	Dell Laptops Item	1343779.61
	Realme Mobiles Item	1357323.46
	Redmi Mobiles Item	1405603.18

- Discount impact on Profit analysis.

	DISCOUNT_LEVEL	TOTAL_PROFIT
▶	0.0	1809054.24
	5.0	1643357.78
	10.0	1298461.88
	15.0	1025022.98
	20.0	753186.54
	25.0	441096.97
	30.0	191123.40

- Average Sales per Product calculation.

	AVG(PRODUCT_SALES)
▶	1844471.657222

- Products Above Average Sales.

	PRODUCT_NAME	TOTAL_SALES
▶	Biba Women Item	1891242.68
	Butterfly Kitchen Item	2798504.08
	Ikea Furniture Item	2697196.07
	Puma Men Item	1866874.75
	Adidas Men Item	1962657.12
	H&M Women Item	1924843.95
	Prestige Kitchen Item	2593054.73
	Nilkamal Furniture Item	2723255.95

- Loss-making Products Below Average Profit.

	PRODUCT_NAME	TOTAL_PROFIT
▶	Redmi Mobiles Item	298351.43
	Asus Laptops Item	309147.44
	Dell Laptops Item	295375.84
	Realme Mobiles Item	283955.48
	Zara Women Item	389995.94
	Apple Mobiles Item	281924.23
	HP Laptops Item	337425.93
	Nike Men Item	394685.83
	Lenovo Laptops Item	309845.47
	Samsung Mobiles Item	279107.81

• Top 5 Brands by Sales.

	BRAND	TOTAL_SALES
▶	Butterfly	2798504.08
	Nilkamal	2723255.95
	Ikea	2697196.07
	Prestige	2593054.73
	Adidas	1962657.12

• Top 3 Cities by Sales.

	CITY	TOTAL_SALES
▶	Mysuru	1910899.79
	Madurai	1892484.45
	Durgapur	1868684.55

4. Power BI Dashboard Development

The cleaned data was imported from MySQL into Power BI. DAX measures were created for Total Sales, Total Profit, Average Delivery Days, and Order Count. The dashboard includes KPI cards, bar charts, product performance visuals, regional comparison charts, and slicers for dynamic filtering.
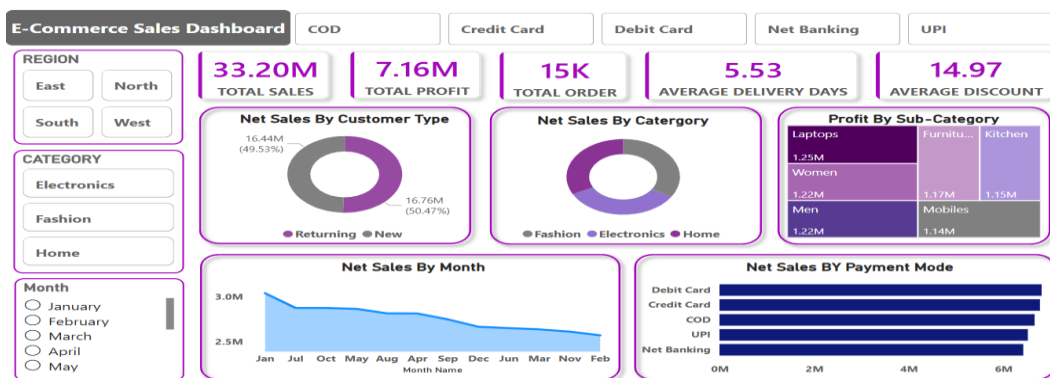
5. Key Business Insights

• A few products generate majority of total revenue.

• High discount percentages reduce profit margins.

• Certain regions significantly outperform others.

• Some sub-categories consistently generate losses.

• Top brands contribute heavily to overall revenue.

6. Recommendations & Final Opinion

Based on the analysis, the company should optimize discount strategies, focus on high-margin products, review underperforming sub-categories, and invest more in high-performing regions and brands. Future enhancements can include predictive analytics and customer segmentation