

E-Commerce Sales Data Analysis Using Excel

Introduction:

This project focuses on analyzing e-commerce sales data to identify business trends, sales performance, and customer behavior. The analysis helps businesses make better decisions by understanding monthly sales patterns, top-performing products, and regional performance.

Project Objective:

To analyze

- Top selling categories based on revenue.
- Month-wise sales performance.
- Region-wise sales performance.

Dataset Description:

Dataset has sales information from 2023 to 2025

Sales_Fact – has the complete sales details

Customer_Dim – Customer Details

Product_Dim – Product Details

Store_Dim – Store Details

Column Description

Customer_Dim

Column Name	Description
Customer_ID	Unique ID for customers
Name	Name of the customer
Age	Age of the customer
Gender	Gender of the customer
City	Customer's city
State	Customer's State
Country	Customer's Country

Product_Dim

Column Name	Description
Product_ID	Unique product identification
Product_Name	Name of the Product
Category	Category in which the product falls
Sub_Category	Sub category of the product
Brand	Brand of the product
Cost	Cost per product
Stock	Available stock

Store_Dim

Column Name	Description
Store_ID	Unique ID for store
Store_Name	Name of the Store
Region	Store's region
City	Store's city
Store_Type	Type of store

Sales_Fact

Column Name	Description
Sales_ID	Unique ID for each sale
Order_Date	Date of purchase
Quantity	Number of Units purchased
Unit_Price	price per unit
Discount	Percentage of discount on product
Payment_Type	Type of payment
Total_Amount	Total sales amount per product

Data cleaning & transformation:

Handled missing and inconsistent values in the fact and dimension table. Formatted data types

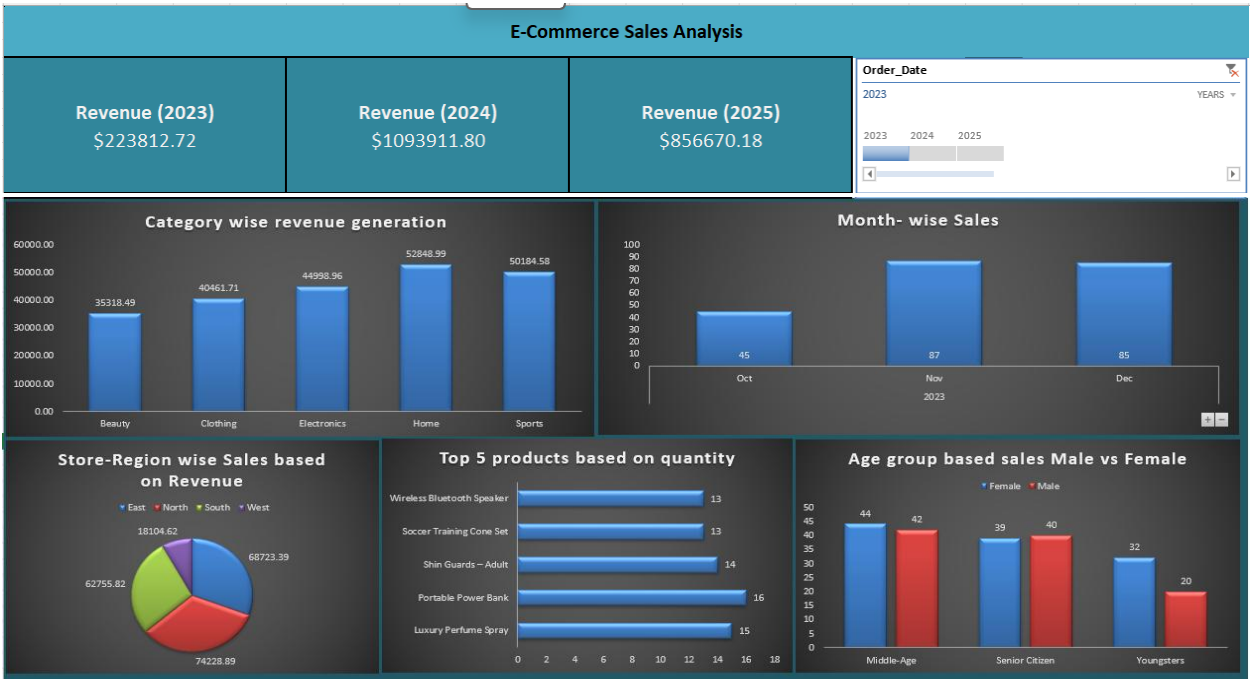
- Used “Find & Replace”(Customer_ID, Country) and added Age_Group using IF() in Customer_Dim table
- Calculated Quantity, Discount, Unit_Price and Total_Amount in Sales_Fact table using IF(), ISBLANK() functions and AND operator
- Calculated Cost and Stock in Product_Dim table using IF(), ISBLANK() and AVERAGEIF() functions
- Age group =IF([@Age]<=30,"Youngsters",IF([@Age]<=50,"Middle-Age","Senior Citizen"))

Visualization and Insights Arrived with screenshot of visualization

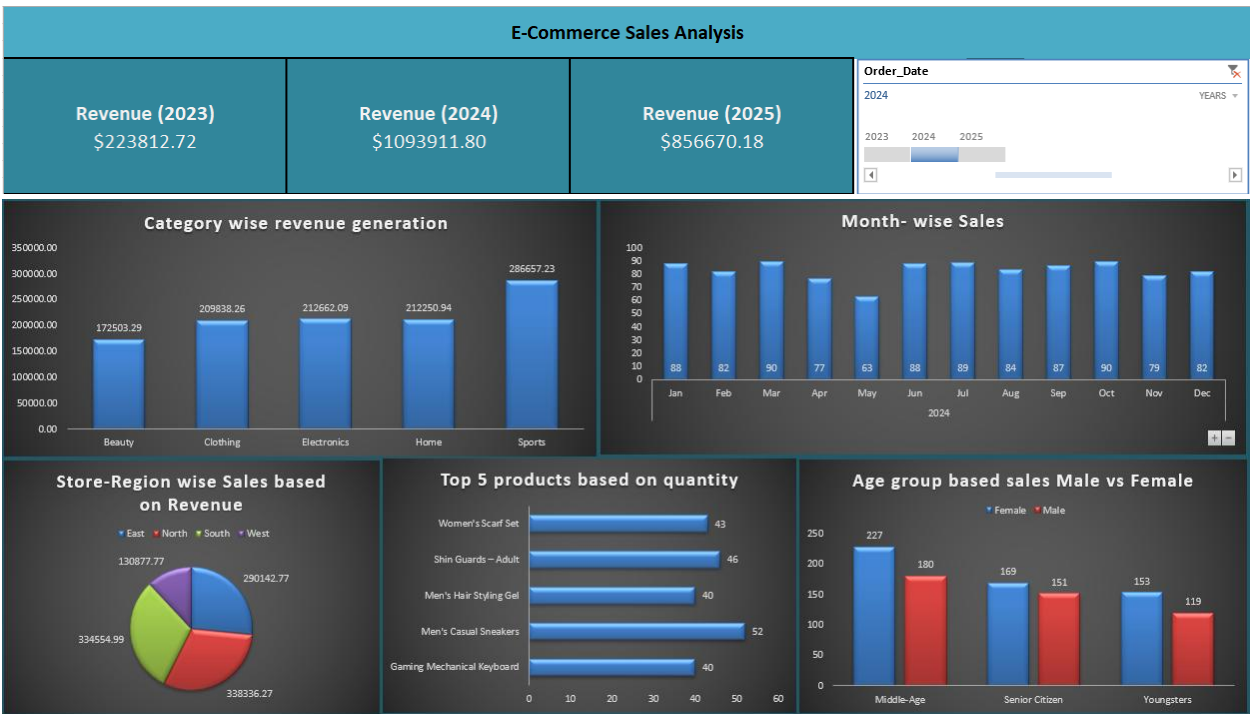
Total Revenue generated in the year 2024 is comparatively higher which shows stable performance throughout the year and data shows that sale happened in all months.

Year	Total_Revenue
2023	\$223,812.72
2024	\$1,093,911.80
2025	\$856,670.18

2023



2024



2025



Insights:

- The Home category in 2023, Sports in 2024, and Electronics in 2025 emerged as the top-performing categories in terms of revenue.
- The Beauty and Clothing categories showed lower revenue performance compared to other categories.
- In 2023 and 2024, the North region recorded the highest sales, while the East region performed better in 2025.
- The highest sales were observed in March, May, and July 2025, with sales exceeding 95 units during these months.
- Sales demonstrated steady growth from early 2024 to mid-2025, followed by a sharp decline in October 2025, which may be attributed to factors such as operational challenges, increased competition, or reduced marketing efforts.
- Female customers across all age groups contributed more to total sales compared to male customers throughout the years.
- Sales are expected to increase during upcoming festive seasons based on historical trends.
- High-performing categories are likely to maintain strong performance, and monthly trends indicate continued steady growth.
- Offering discounts on slow-moving products can help improve sales performance.
- Marketing efforts should be strengthened during low-performing months such as October and May.
- Inventory planning should prioritize top-selling products to prevent stock shortages and ensure consistent availability.

Conclusion

This project helped in understanding sales trends, top-performing categories, and customer behavior. The analysis showed steady sales growth with seasonal fluctuations and identified areas for improvement such as low-performing months and categories. By applying better inventory planning, targeted marketing, and discount strategies, overall business performance can be improved.