Data Analysis Report On
Sales and Customer Behaviour

Introduction:

A B2C model which sales Products in Different Regions and has Wide range of categories.

Problem Statement:

The company wants to analyze its sales data to understand customer purchasing behavior, identify top-selling products, and optimize inventory management.

Objectives:

Identify top-selling products.

Analyze customer purchasing patterns.

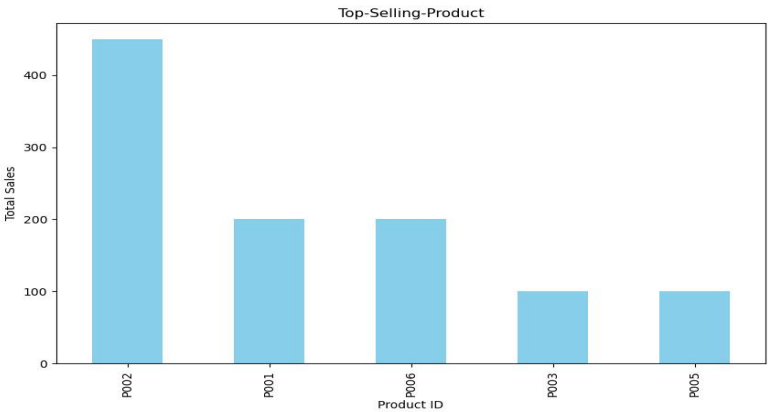Optimize inventory levels to reduce stock-outs and overstock.

Sales Data [Click here for dataset]:

OrderID	CustomerID	ProductID	Quality	Price	OrderDate	Category	Region
0001	C001	P001	2	50.00	2024-07-01	Electronics	North
••••••	••••••	••••••	••••••	••••••	••••••	••••••	••••••

1. Identify top-selling products.

ProductID | TotalSlaes

P002 | 450.0

P001 | 200.0

P006 | 200.0

P003 | 100.0

P005 | 100.0

Regional Sales

Region	ProductID	TotalSales
East	P002	450.0
	P003	40.0
North	P001	150.0
	P004	60.0
	P006	200.0
South	P001	50.0
West	P003	60.0
	P005	100.0
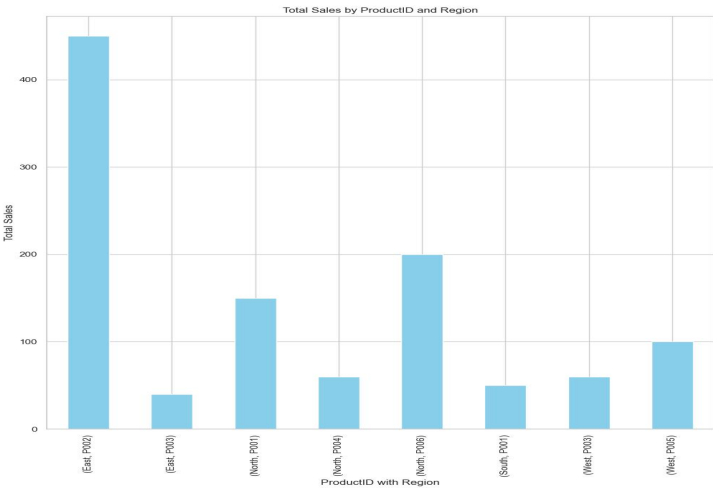
Its Evident that Product P002 has Highest sales.and also P002 has Wide range of sales in the East Region.

Descriptive Statistics

Mean Sales: 111.00

Median Sales: 80.00

Standard Deviation of Sales: 83.73

Customer Behavior (Frequency, Recency, Monetary)

Purchase Frequency

	CustomerID	PurchaseFrequency
0	C001	3
1	C002	2
2	C003	1
3	C004	1
4	C005	1
5	C006	1
6	C007	1

Recency

CustomerID	OrderDate	Recency (days ago)
C001	2024-07-09	0
C002	2024-07-05	4
C003	2024-07-02	7
C004	2024-07-03	6
C005	2024-07-06	3
C006	2024-07-07	2
C007	2024-07-08	1

how recently a customer has made a purchase. RFM (Recency, Frequency, Monetary) analysis, which helps businesses understand and segment their customer base.

Frequency and Recency

Customer C001 has frequently bought products compared to other customers and is the latest bought person and C003 has bought 1 item 7 days ago.
This shows how often the customer are buying products.

Monetary

	CustomerID	Monetary-value
0	C001	210.0
1	C002	450.0
2	C003	60.0
3	C004	50.0
4	C005	100.0
5	C006	200.0
6	C007	40.0

This Shows how Much money that customers are spending to buy products.

C002 has made Huge purchase and bought 450.0 worth products.

Customer Segmentation

	CustomerID	TotalSales	Segment
0	C001	210.0	2
1	C002	450.0	1
2	C003	60.0	0
3	C004	50.0	0
4	C005	100.0	0
5	C006	200.0	2
6	C007	40.0	0

Segment 0: Customers with lower total sales.

Segment 1: Customers with the highest total sales.

Segment 2: Customers with moderate total sales.
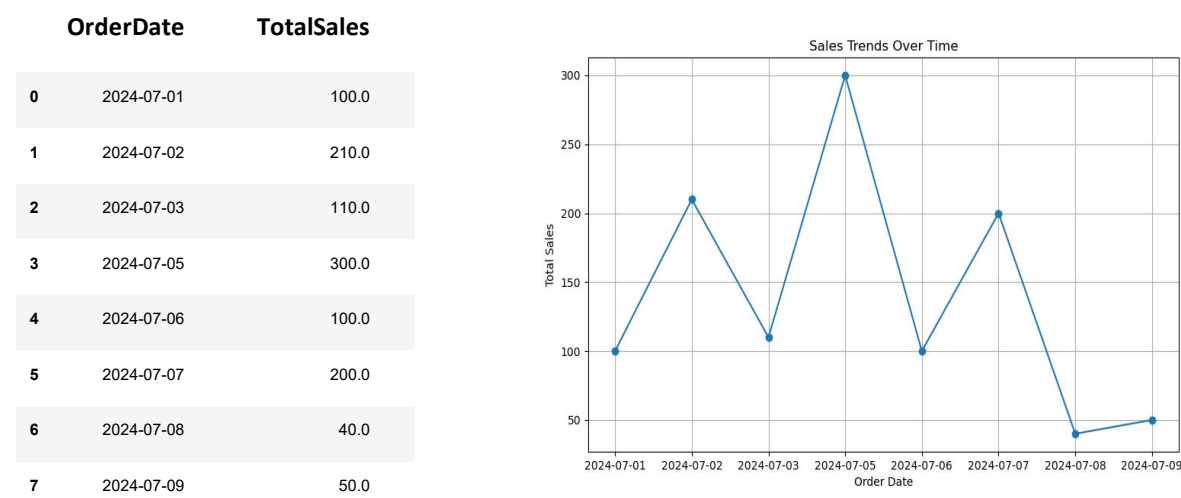
Product Analysis

Product Sales Contribution %

	ProductID	TotalSales	Contribution %
0	P001	200.0	18.018018
1	P002	450.0	40.540541
2	P003	100.0	9.009009
3	P004	60.0	5.405405
4	P005	100.0	9.009009

Product P002 has 40.5 % contribution to hike of the sales,
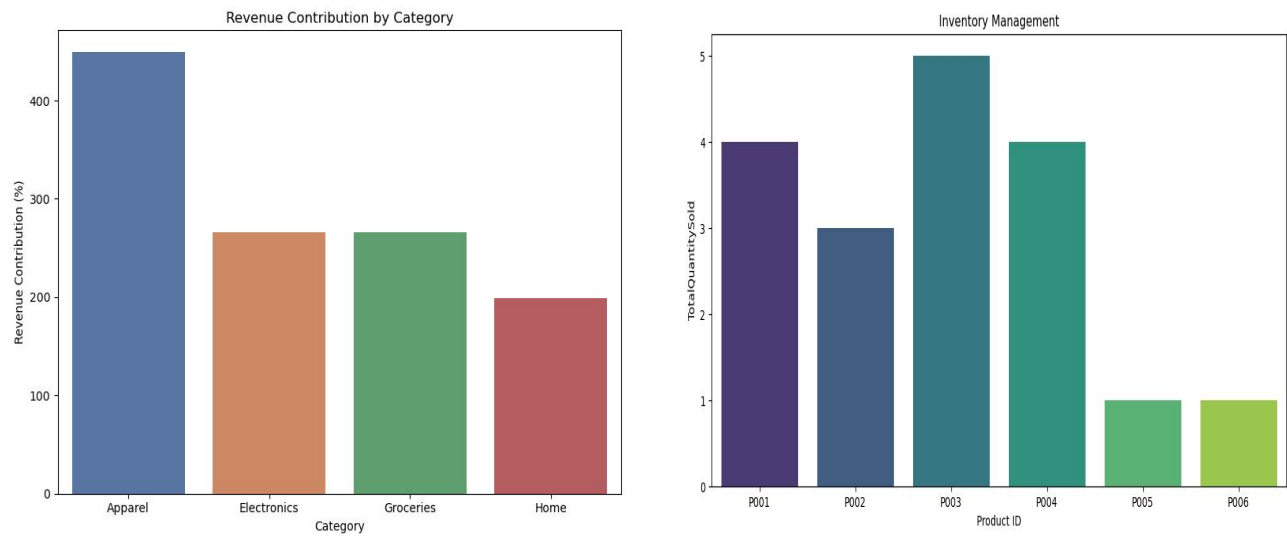where as P004 seems to be downfall of 5.4% in sales.

5	P006	200.0	18.018018

Sales trend

	OrderDate	TotalSales
0	2024-07-01	100.0
1	2024-07-02	210.0
2	2024-07-03	110.0
3	2024-07-05	300.0
4	2024-07-06	100.0
5	2024-07-07	200.0
6	2024-07-08	40.0
7	2024-07-09	50.0

This Shows the Sales Over Time most sale was happened on 2024-07-05.

Revenue and Inventory Management

Revenue: Most of the revenue is from Apparel which generating 449% revenue by category, Inventory: Product P003 is most sold (5 items) item and inventory has to restock this item as it's the one which is selling more.

Insights From the Analysis

Customer Segmentation

Segment 0: Most customers fall into this lower purchase volume segment.

Segment 1: Only a few customers (e.g., C002) contribute to the highest sales segment.

Product Performance

- **Top-Selling Product**: Product P002, accounting for over 40% of total sales.
- **Regional Sales**: P002 is primarily sold in the East Region, leading in sales.

Sales Trends

- **Sales Peaks**: Significant sales spikes on specific dates (e.g., 2024-07-05), likely due to promotions or events. These trends are useful for future sales strategy planning.

Revenue

- **Top Category**: Apparel generates the most revenue, with Product ID P002 being the highest revenue-generating product, especially in the East Region.

Inventory Management

- **Restocking Needed**: Product P003 needs restocking due to high sales volume (Total Quantity Sold = 5).

Recommendations

Need a attentions to the marketing strategies for least sold product P003(Under Performing in East and west) regions.

Focus on expanding the Electronics product