Assignment Title: Sales Performance Analysis and Visualization

Objective

To analyze the sales data of XYZ Corporation for the fiscal year 2023-24 to identify trends, perform root cause analysis on any issues identified, and provide actionable business insights. You will be required to write SQL queries to extract data, analyze the data to find root causes for sales performance, visualize your findings, and create a dashboard that presents these insights in an intuitive manner.

SQL Queries

1. Write a SQL query to calculate the total sales amount by product category for the year

select ProductCategory, SUM(SaleAmount)

from sales.product as p join sales.sales as s on s.ProductID= p.ï»¿ProductID

WHERE YEAR(SaleDate) = 2023

Group by ProductCategory

OUTPUT

ProductCategory	SUM(SaleAmount)
Home & Kitchen	175053.12
Clothing	142819.87
Electronics	115878.35
Beauty & Health	213728.59

2. Write a SQL query to find the top 3 performing stores in terms of sales amount.

SELECT SUM(saleAmount) AS Totalsales, StoreID

from sales

group by StoreID

limit 3

OUTPUT

Totalsales	StoreID
70260.2	7
70744.82	10
67481.04	6

3. Identify the employee with the highest sales in each store.

select ï»¿EmployeeID, FirstName, s.StoreID, Position, MAX(SaleAmount) AS MaxSaleAmount

from sales.employers as e join sales.sales as s on s.StoreID= e.StoreID

group by ï»¿EmployeeID, s.StoreID, Position, FirstName

limit 20

Output

EmployeeID	FirstName	StoreID	Position	MaxSaleAmount
88	FirstName_88	7	Manager	496.56
86	FirstName_86	7	Cashier	496.56
77	FirstName_77	7	Manager	496.56
65	FirstName_65	7	Cashier	496.56
48	FirstName_48	7	Manager	496.56
40	FirstName_40	7	Sales Associate	496.56
38	FirstName_38	7	Cashier	496.56
28	FirstName_28	7	Sales Associate	496.56
26	FirstName_26	7	Manager	496.56
25	FirstName_25	7	Sales Associate	496.56
20	FirstName_20	7	Cashier	496.56
15	FirstName_15	7	Cashier	496.56
14	FirstName_14	7	Manager	496.56
84	FirstName_84	10	Sales Associate	498.65
63	FirstName_63	10	Manager	498.65
55	FirstName_55	10	Sales Associate	498.65
37	FirstName_37	10	Cashier	498.65
32	FirstName_32	10	Manager	498.65
18	FirstName_18	10	Sales Associate	498.65
17	FirstName_17	10	Manager	498.65

Data Analysis & RCA

1. Analyze the monthly sales data to identify any declining trends in any product category or store.

Line that shows the general direction of the sales data over time.
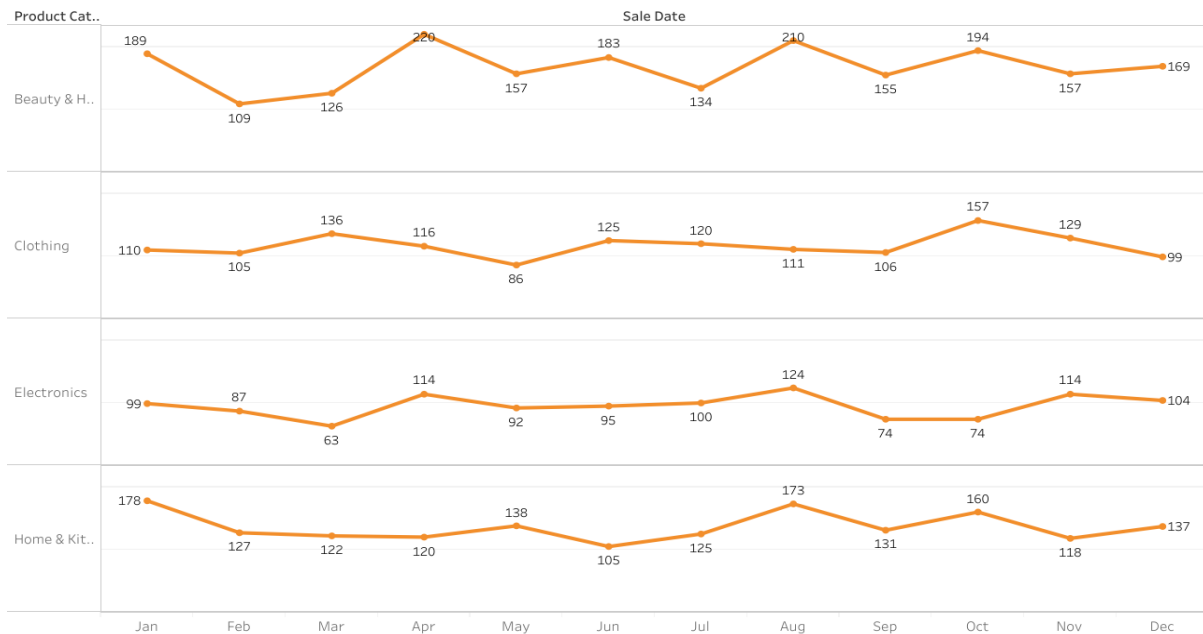
- **Beauty & Health**: Sales show a gradual increase from January to April, followed by a decline until August. There's a slight recovery in September and October, but overall, it remains relatively stable.

- **Clothing**: Sales exhibit a similar pattern to Beauty & Health, with a peak in April and a decline until August. However, Clothing sales recover more significantly in September and October.

- **Electronics**: Sales are relatively consistent throughout the year, with minor fluctuations. No clear declining trend is evident.

- **Home & Kitchen**: Sales follow a similar trend as Electronics, maintaining stability without any significant decline.

Insights and Recommendation

All categories experience seasonal variations, with higher sales during certain months (e.g., spring and fall) and lower sales during others (e.g., summer).

The decline in sales during summer (June to August) is consistent across all categories.

2. Perform a root cause analysis to determine possible reasons for the decline.

Major factors that's affects the business,

Employee turnover

High turnover can disrupt operations, impact customer service, and reduce productivity.

Product availability

Insufficient stock or delays in replenishing inventory may lead to lost sales

Regional economic factors

Economic downturns, local market conditions, or changes in consumer spending patterns can affect business performance.

Identify the Root Cause:

Dig deeper to find the primary cause. For example:

If sales decline correlates with high employee turnover, investigate employee satisfaction and retention.

If product availability affects sales, analyze inventory levels and supply chain efficiency

If regional economic factors play a role, assess their impact on consumer behaviour.

Actionable Insights and Recommend

Employee Retention Strategies

Improve employee satisfaction, provide growth opportunities and reduce turnover.

Optimize Inventory Management

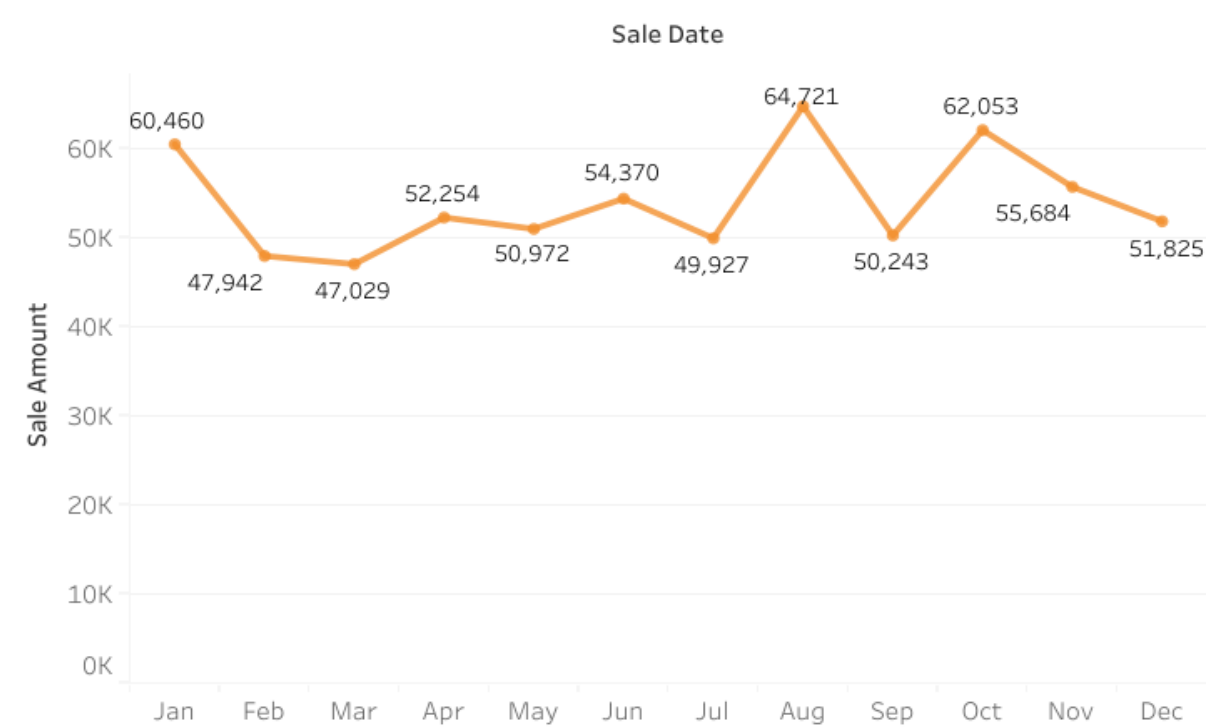Ensure timely restocking and monitor demand patterns

Adapt to Economic Trends

Adjust pricing or marketing strategies based on regional economic conditions.

Data Visualization

1. Create a time series plot showing the monthly sales amount for the fiscal year.

Monthly sales amount for the fiscal year

Sale Date

Seasonal Sales Trends:

The sales appear to follow a seasonal pattern, with peaks around June and December. These peaks might be influenced by events or holidays during those months.

After the June peak, there's a noticeable dip in sales during July, suggesting a potential overstock issue or a decrease in demand after the high-sales period.
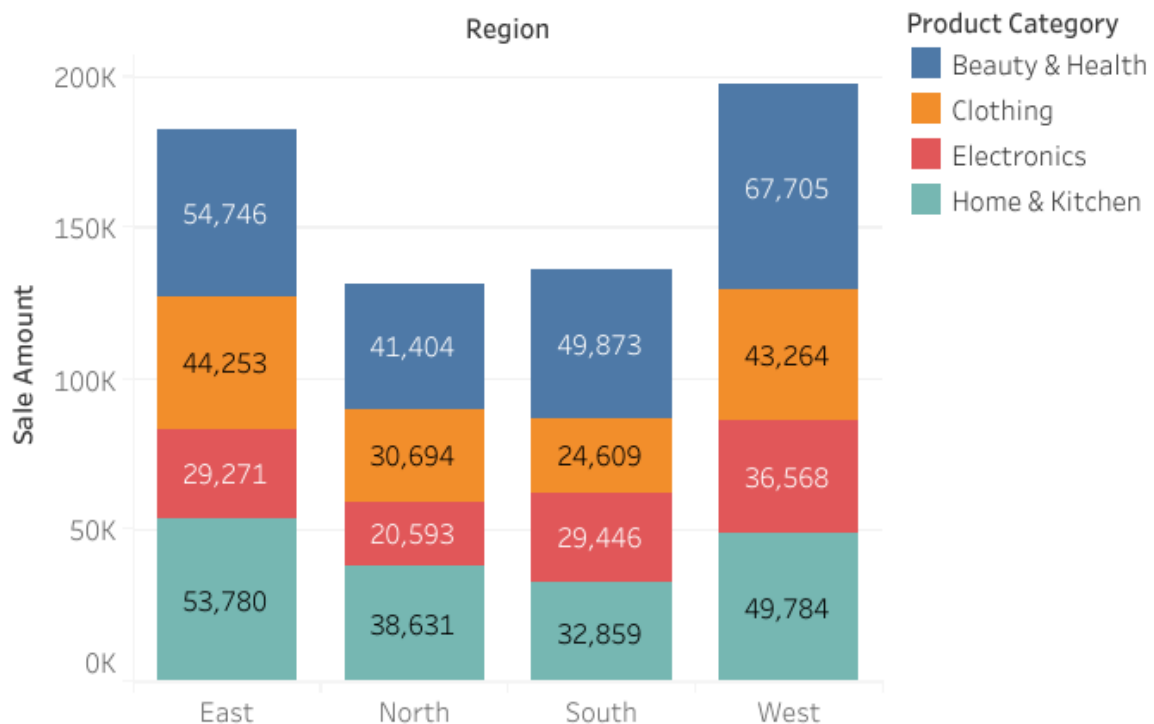
Year-End Growth Trend:

From August onwards, there's a steady increase in sales, including up to the peak in December. This suggests a growth trend towards the end of the year.

To capitalize on this trend, consider ensuring adequate stock and targeted marketing efforts during the latter part of the year.

2. Develop a bar chart comparing sales performance across different regions.

Comparing sales performance across different regions

Region

Product Category
- ■ Beauty & Health
- ■ Clothing
- ■ Electronics
- ■ Home & Kitchen

| Region	Home & Kitchen	Electronics	Clothing	Beauty & Health
East	53,780	29,271	44,253	54,746
North	38,631	20,593	30,694	41,404
South	32,859	29,446	24,609	49,873
West	49,784	36,568	43,264	67,705

Observation

- The highest sales amount is in the "Electronics" category for all regions.

- The "Beauty & Health" category has the lowest sales across all regions.

- The "Clothing" and "Home & Kitchen" categories show moderate sales.

- The "west" region has the highest overall sales, followed by "North", "South" and "East".

Insights and Recommendation

- Businesses can focus on promoting electronics to boost sales further.

- Consider strategies to improve sales in the "Beauty & health" Category.

- The "west" region seems to be most lucrative market.

3. Visualize the sales performance of the top 3 products in a pie chart.

Top 3 Products in Pie Chart
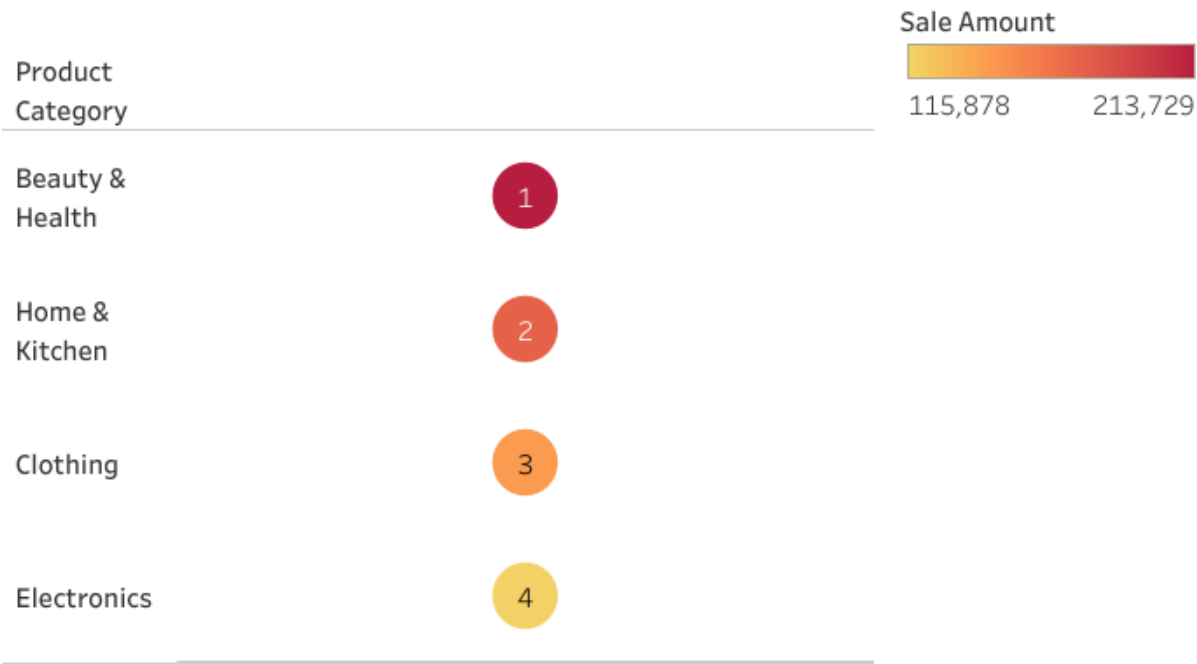
The Top three categories are:

- Beauty & Health

- Home & Kitchen

- Clothing

The Total sales amount for all categories combines falls within the range of **115,878** to **213,729**

Recommendation

Diversifying Marketing Efforts

- Allocate resources to promote all categories, especially "Electronics".

- Run targeted campaigns based on customer preferences.

Dashboards link:

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