

Project Report- Amazon Sales Analysis

Introduction

Problem Statement: Analyze and Provide Insights on Amazon Sales Report.

Objective: To analyze the sales data from Amazon to extract actionable insights that can aid in optimizing business operations, enhancing customer experience, and driving revenue growth.

Scope: This report covers the sales performance, product analysis, fulfillment methods, customer segmentation, geographical distribution of sales, and provides business insights and recommendations.

Tools and Technologies Used

- Python: For data processing, analysis, and visualization.
 - **Libraries:**
 - Pandas: Data manipulation and analysis.
 - NumPy: Numerical operations.
 - Matplotlib & Seaborn: Data visualization.
- Jupyter Notebook: Interactive environment for running Python code and documenting the analysis.

Data Overview

Dataset Description: The dataset includes information on sales transactions such as order ID, date, status, fulfillment method, sales channel, product category, size, quantity, amount, shipping details etc.

Data Summary:

- Total records: 128,976
- Key columns: Order ID, Date, Status, Fulfillment, Sales Channel, Category, Size, Qty, Amount, Ship-City, Ship-State, Ship-Country, B2B.

Data Preprocessing

Handling Missing Values:

- Columns with missing values: currency, Amount, ship-city, ship-state, ship-postal-code, fulfilled-by
- Strategies:
 - Filled missing values in currency with 'INR'.
 - Dropped rows or filled with appropriate values for other columns.

Data Cleaning:

- Removed unnecessary columns: New, PendingS
- Converted date columns to appropriate formats.
- Corrected the name of states.
- Removed duplicate rows.

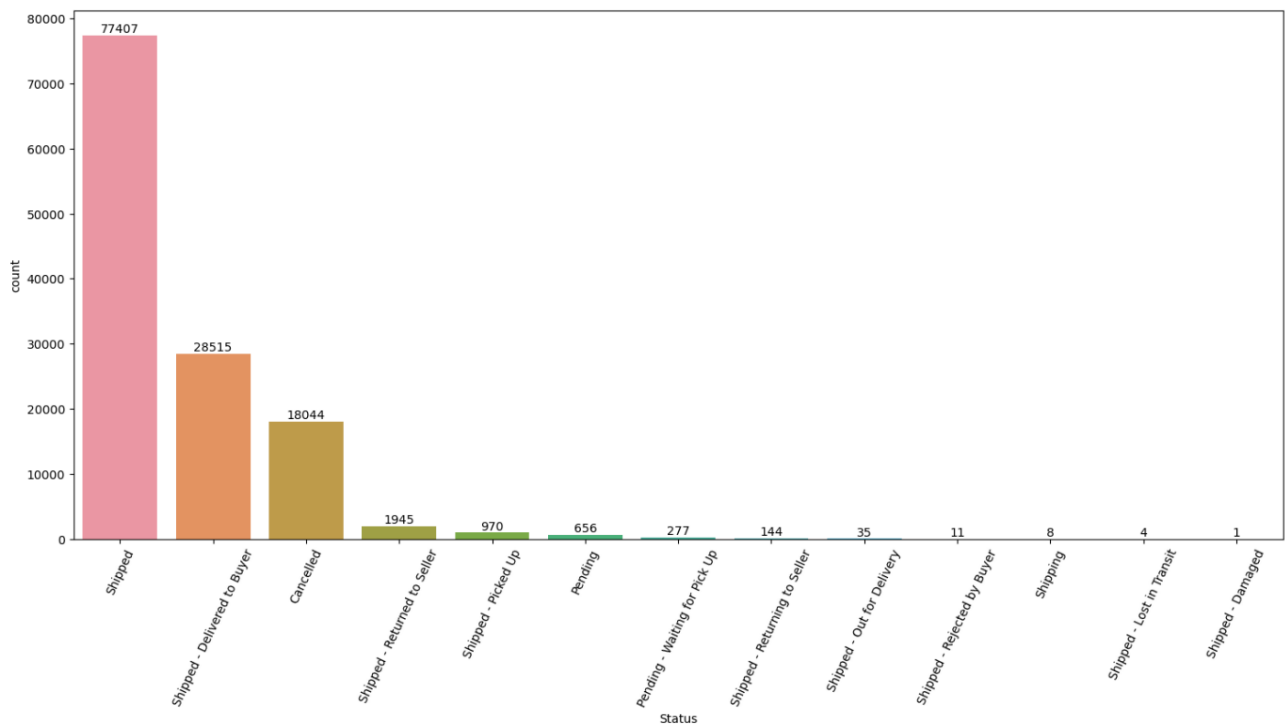
Sales Overview

Key-findings:

- Total sales amount- 78179803.88 INR
- Total sales quantity- 115953
- Average Order amount -606 INR
- Max Order amount- 5584 INR
- Average Quantity - 1
- Max Quantity -15
- There are 120229 unique orders
- Order Id "171-5057375-2831560" has maximum no. of orders.
- We have data from 31 Mar 2022 to 29 Jun 2022 i.e. 91 days data.

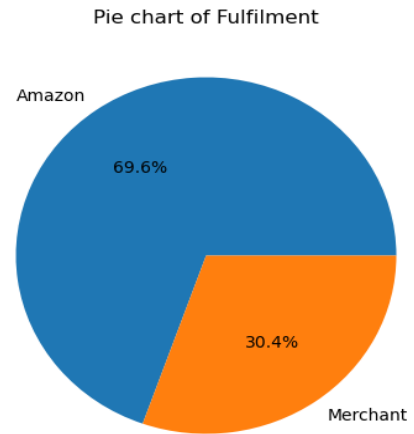
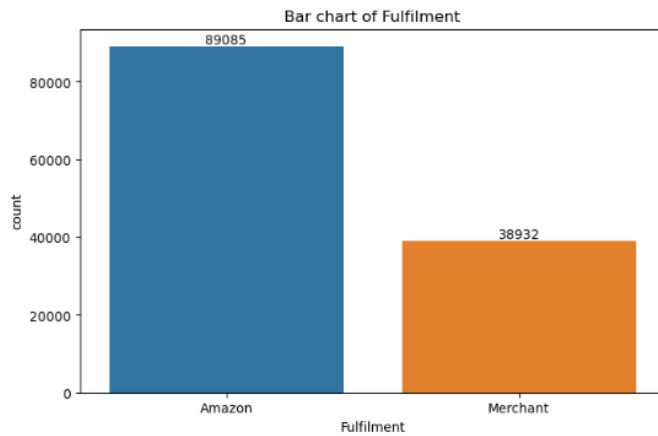
Order-Status Analysis-

There are 13 categories in status- 'Cancelled', 'Shipped - Delivered to Buyer', 'Shipped', 'Shipped - Returned to Seller', 'Shipped - Rejected by Buyer', 'Shipped - Lost in Transit', 'Shipped - Out for Delivery', 'Shipped - Returning to Seller', 'Shipped - Picked Up', 'Pending', 'Pending - Waiting for Pick Up', 'Shipped - Damaged' 'Shipping'



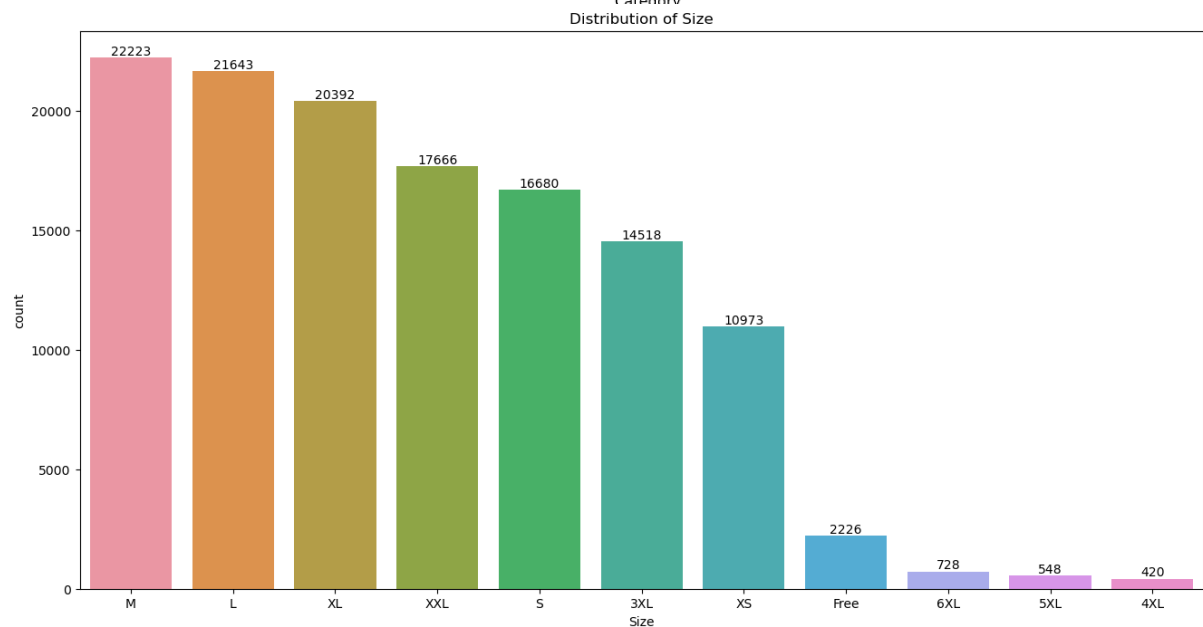
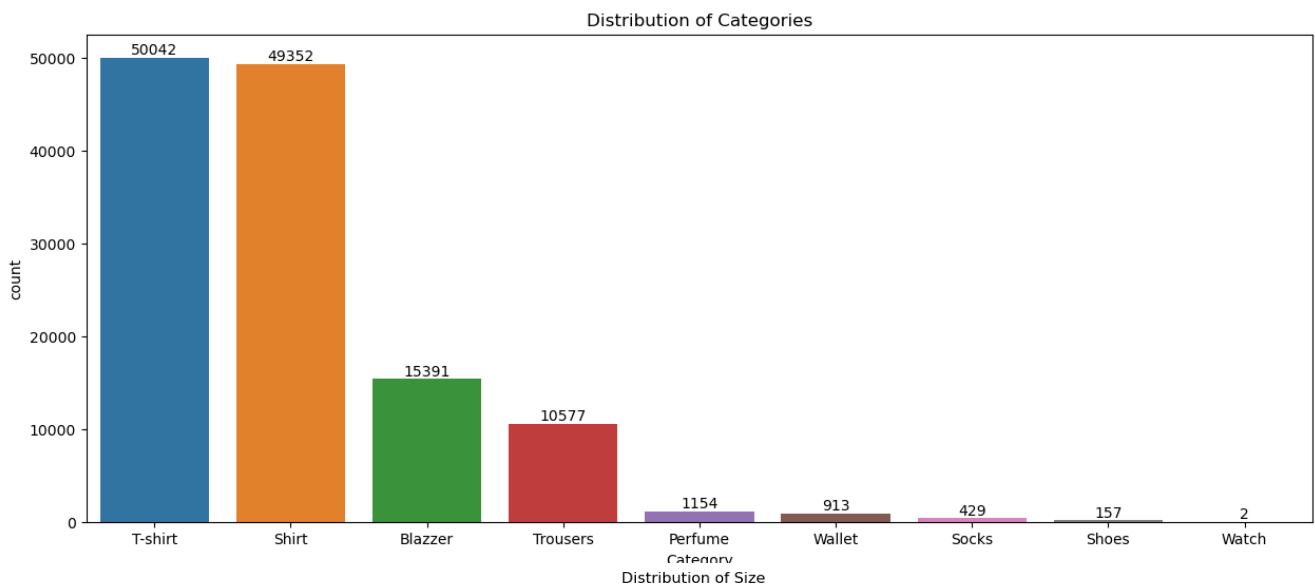
Insights: Only 14.095% orders are cancelled and 1.64% orders are returned to seller rest are shipped and delivered.

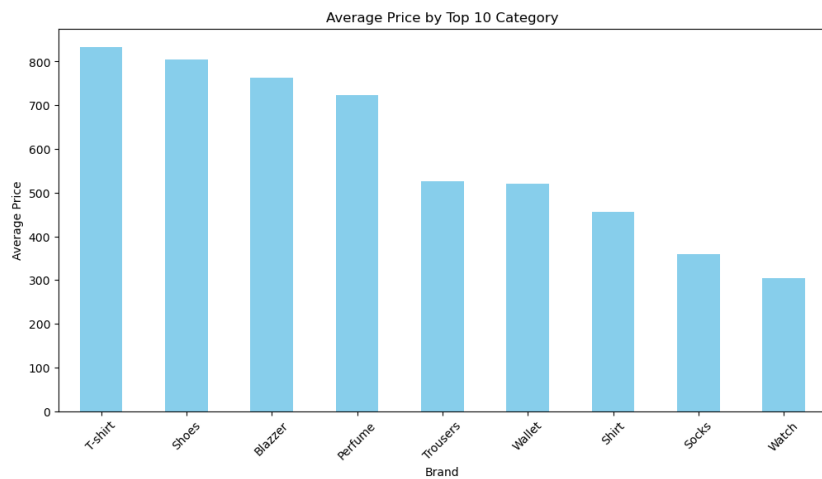
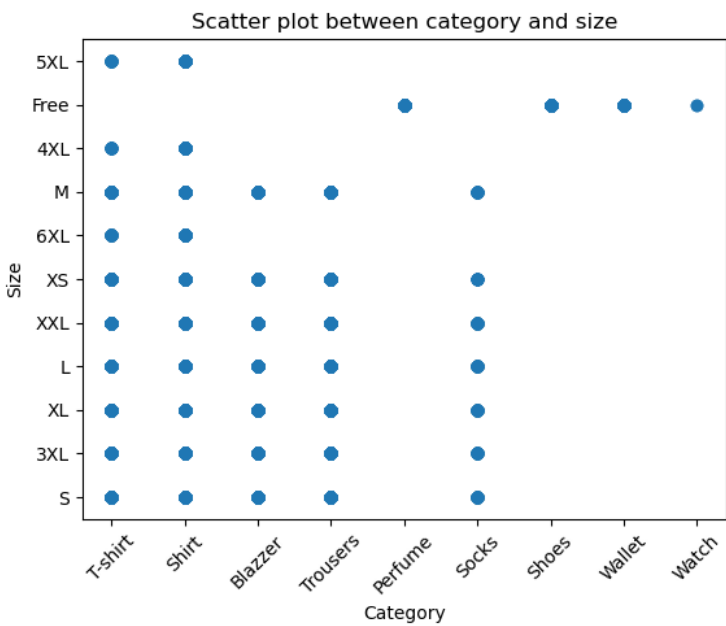
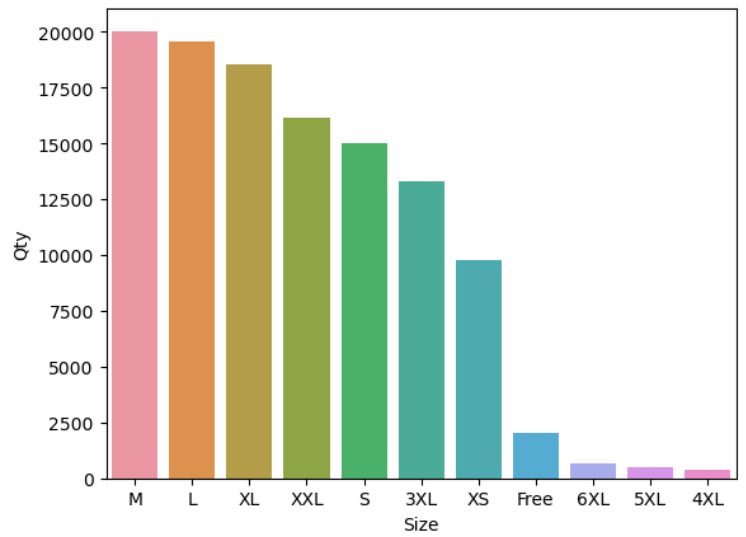
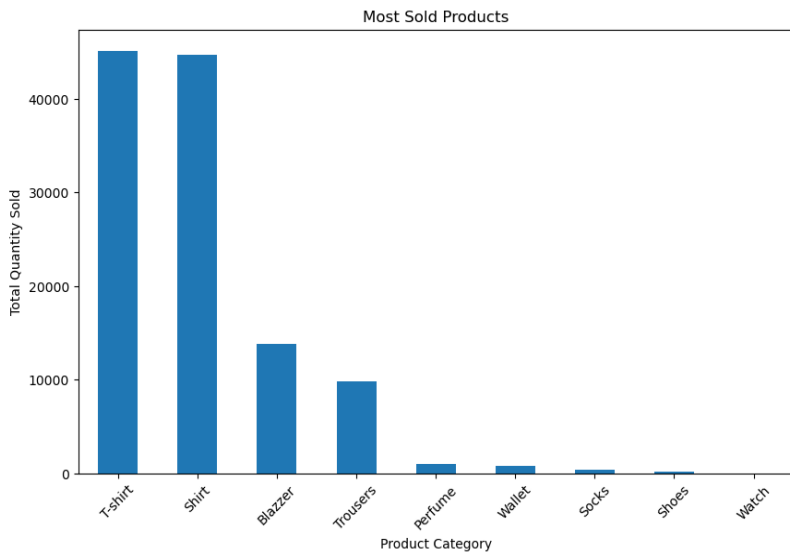
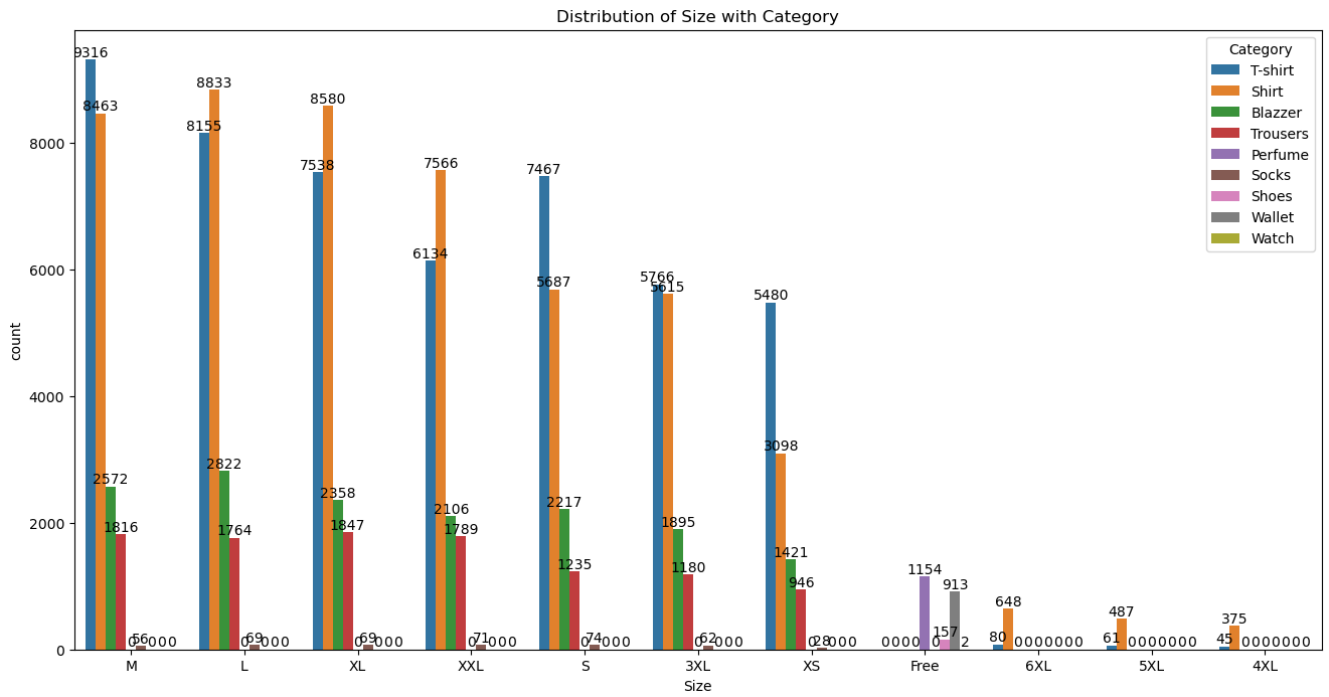
Fulfilment -Analysis



Finding- Most of the (69.6%) Fulfilment are amazon.

Product Analysis





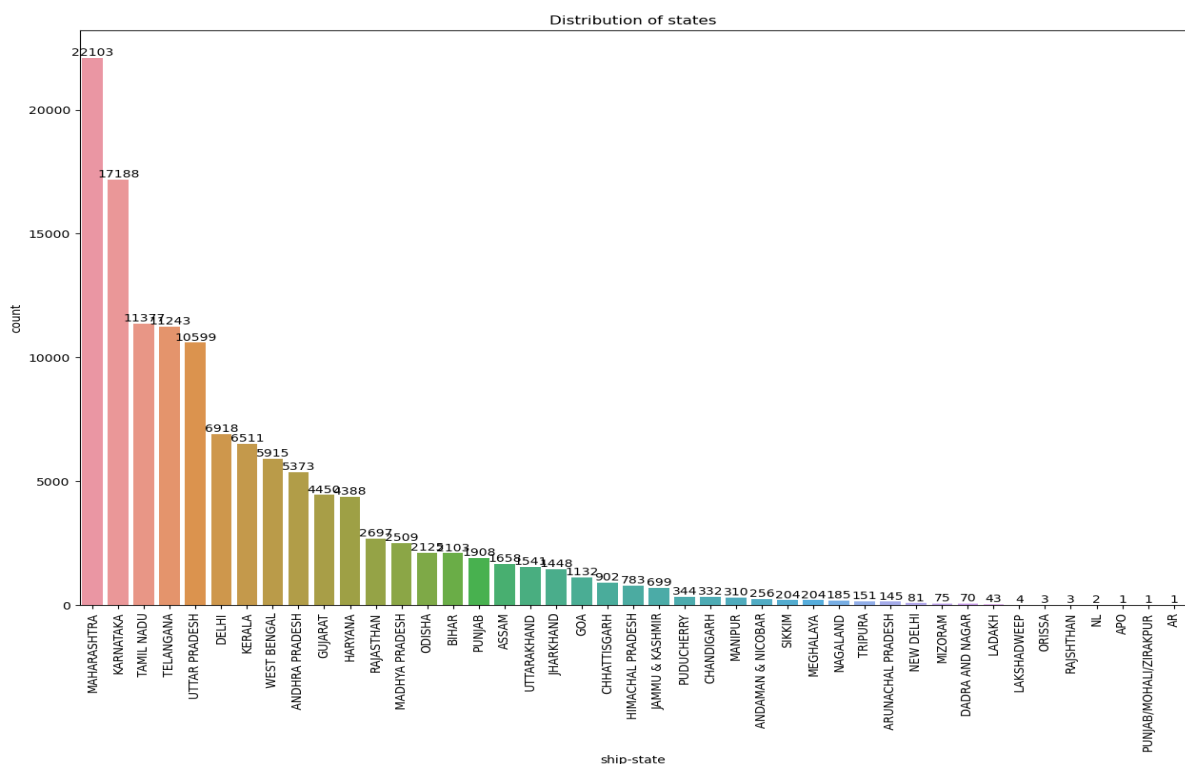
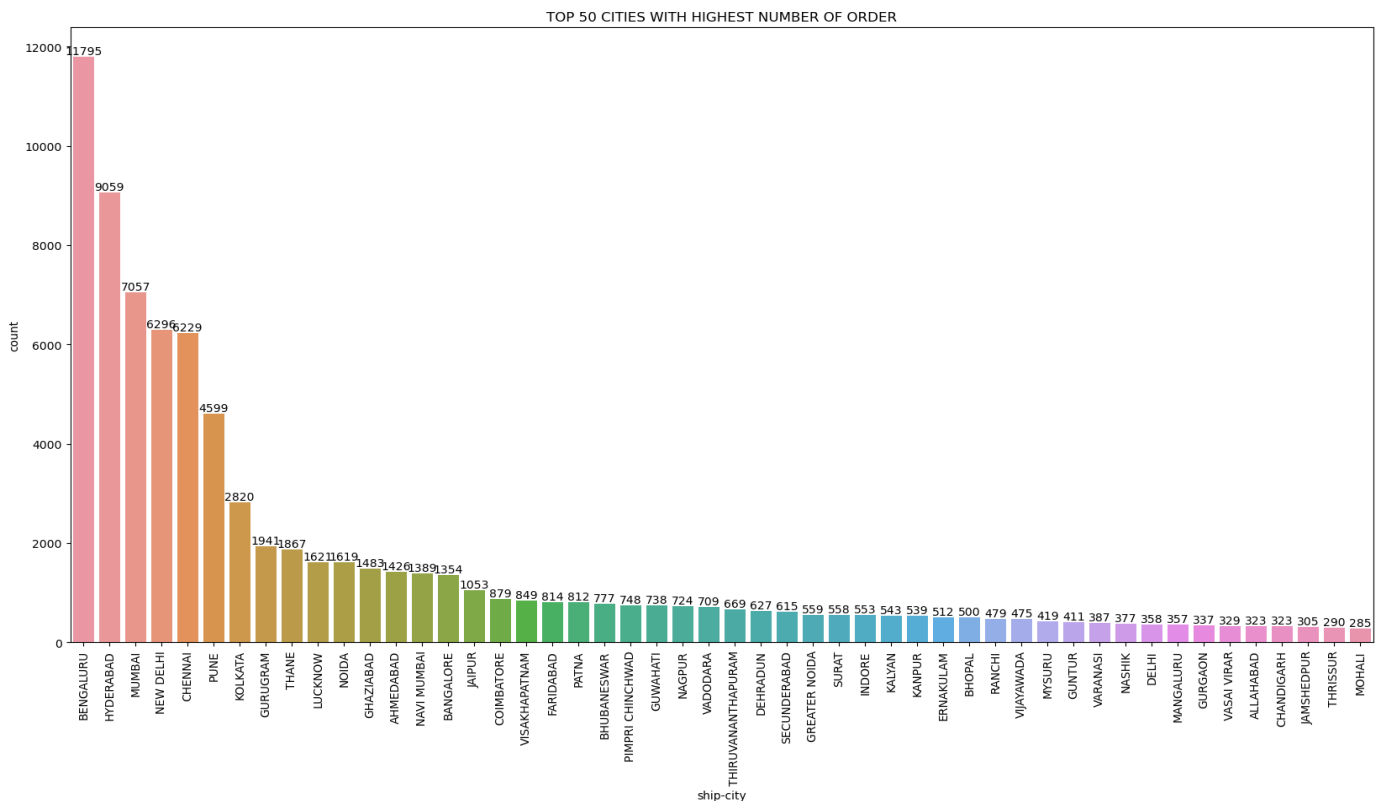
Key-findings-

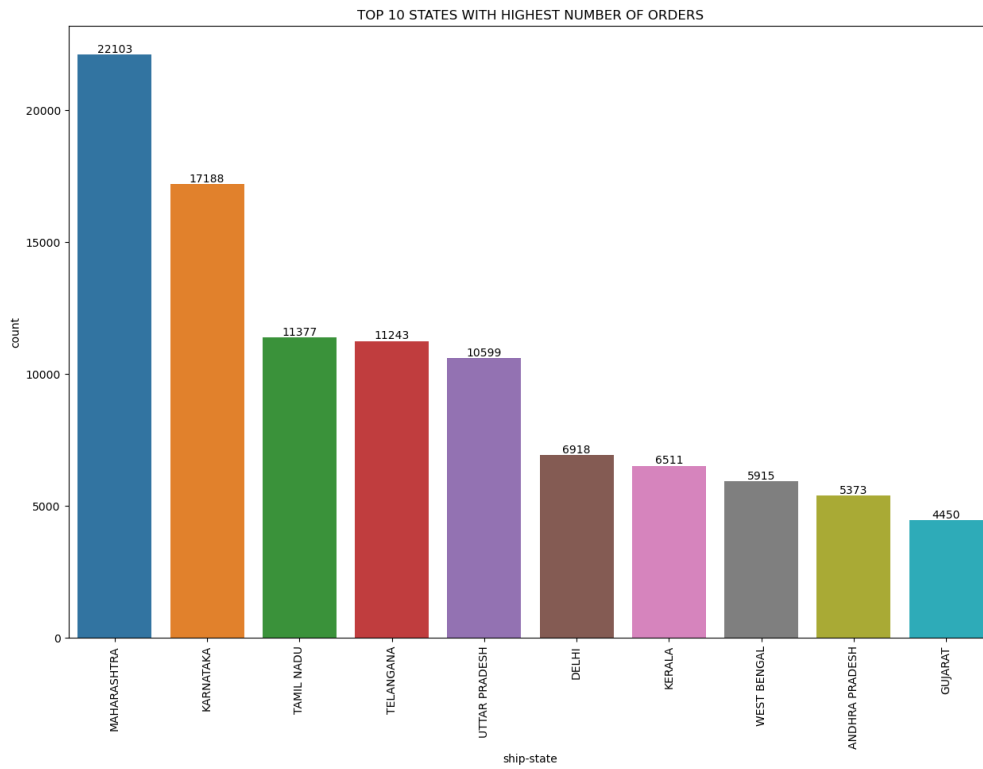
- Most popular product categories are T-Shirt and Shirt.
- Popular sizes across different categories are M, L, XL.

Recommendations:

- Ensure that high-demand products(T-shirt and shirt) and popular sizes(M,L,XL) are well-stocked to avoid stockouts and lost sales.
- We can introduce new variations or related products in the most popular categories.

Geographical Analysis:





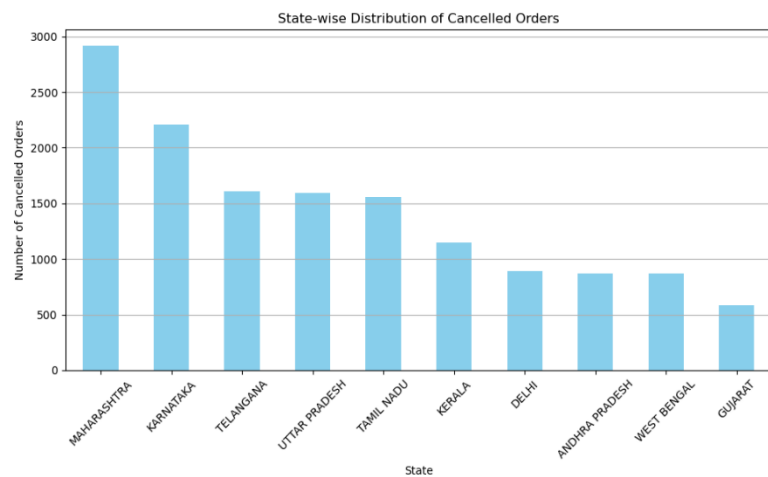
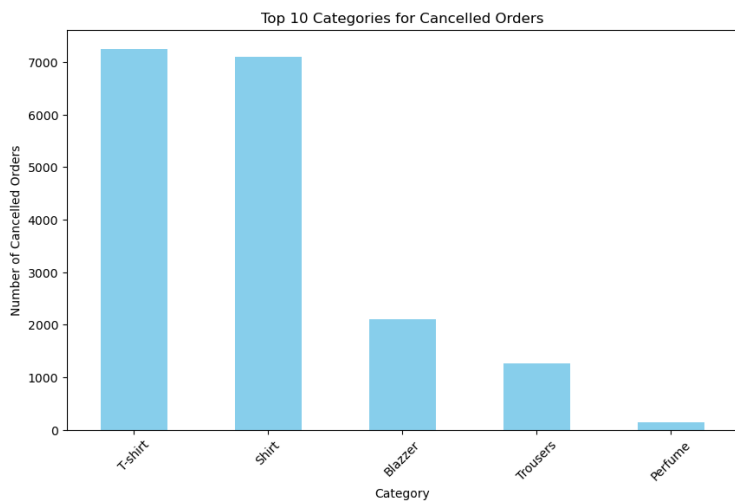
Findings:

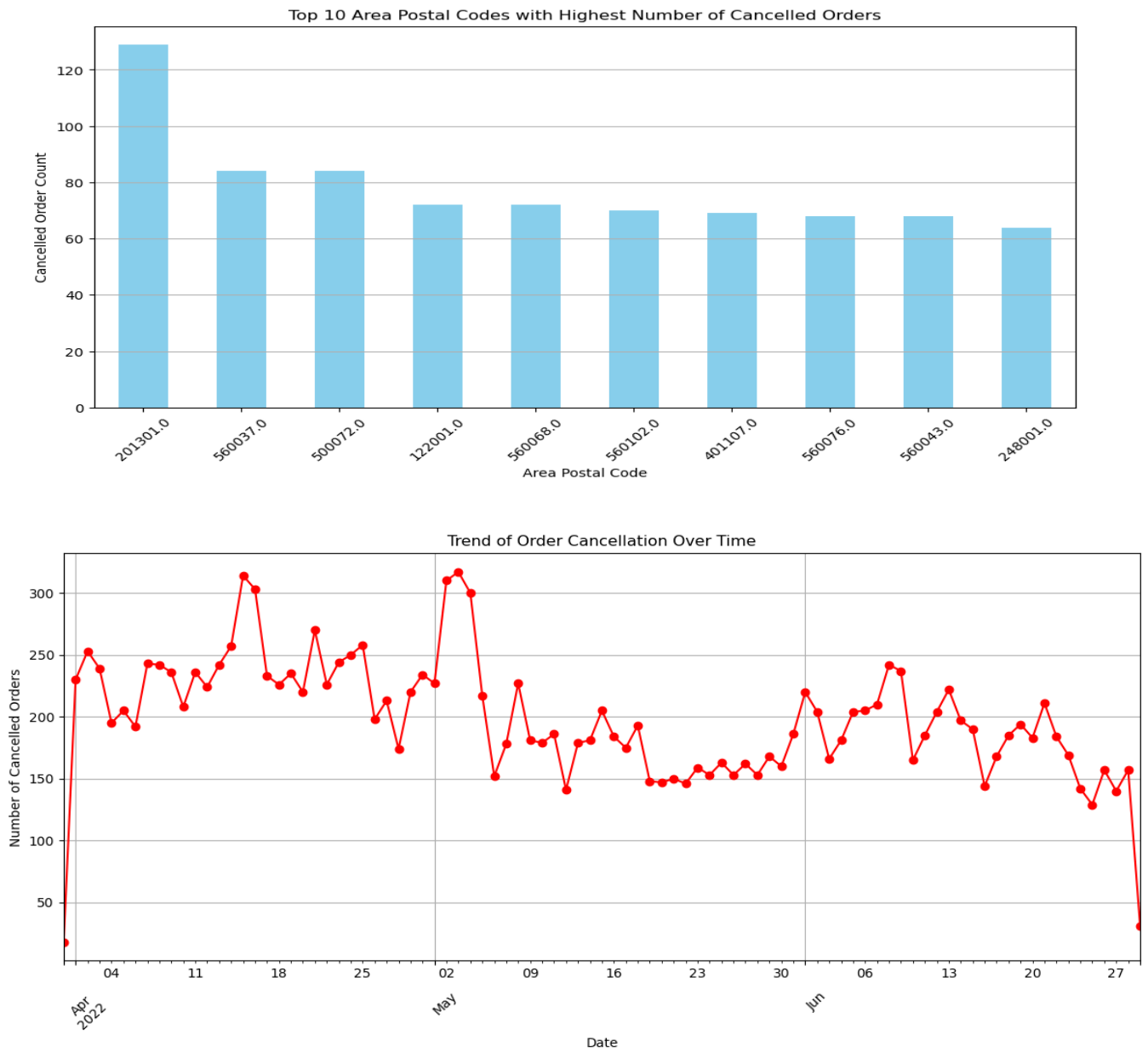
- Most of the buyers are from City-Bengaluru.
- Most of the buyers are from State -Maharashtra.

Recommendations:

- Allocate more resources (e.g., marketing, inventory) to regions with higher sales to maximize revenue.

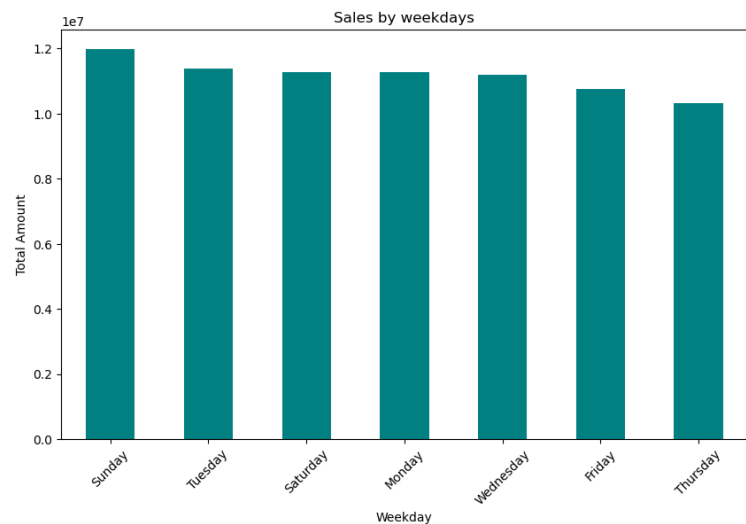
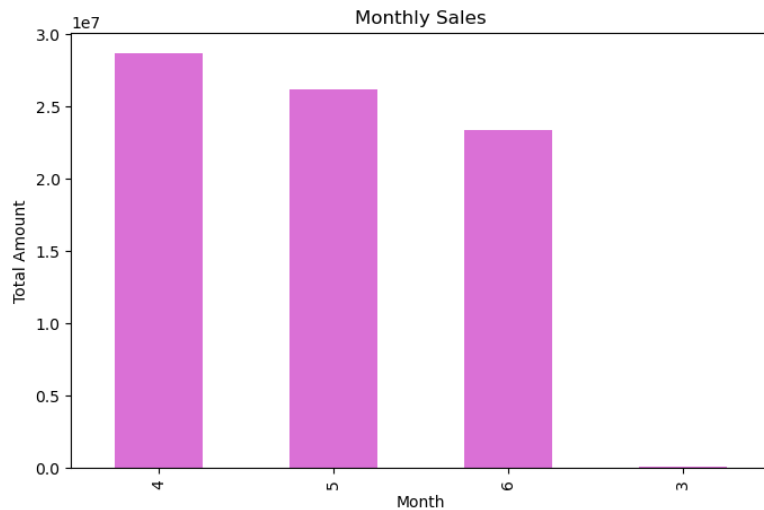
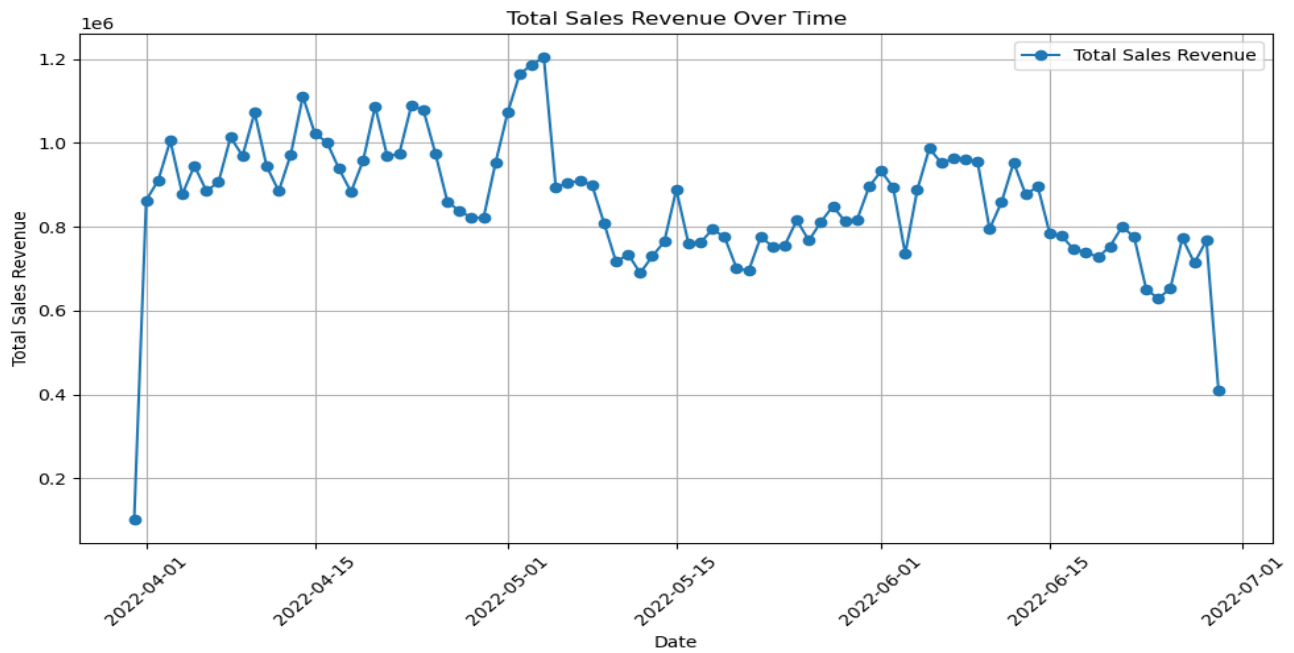
Analysis of cancelled orders





Recommendations: Implement strategies to mitigate cancellation risks , such as improving product descriptions, enhancing customer support for premium purchases, or offering flexible return policies to instill confidence in customers' purchasing decisions.

Analysis of trends and pattern of sales over the time



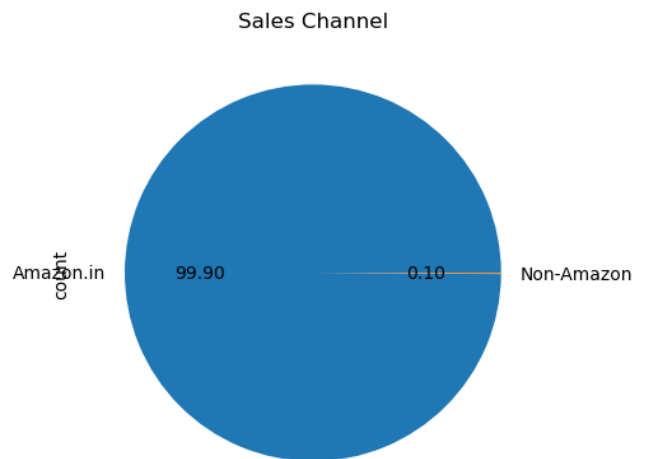
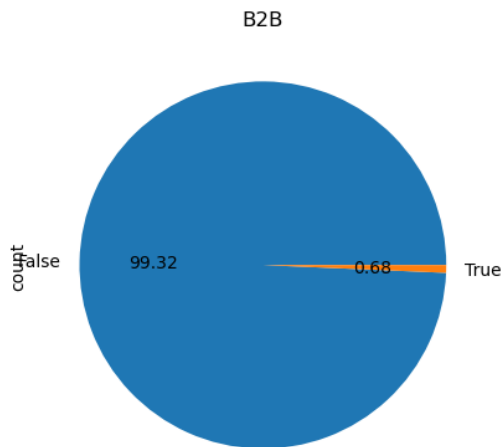
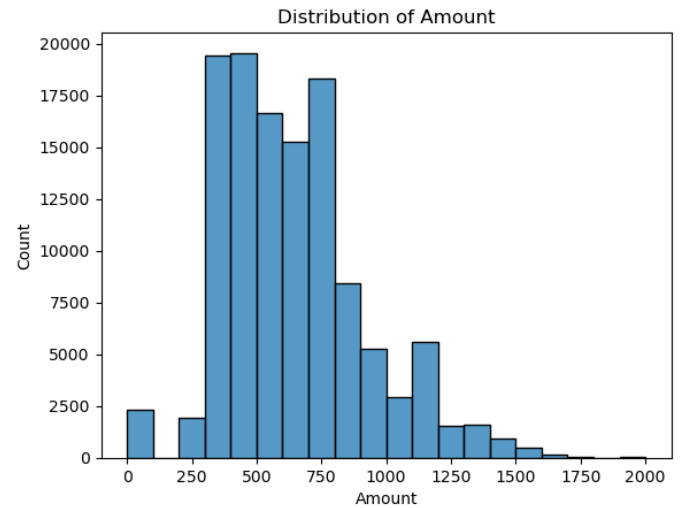
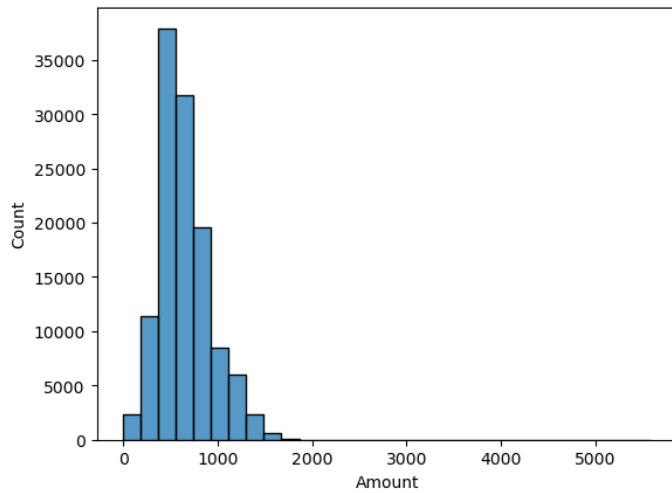
Insight:

- Consistent Sales Trend with Peaks in May.
- The highest sales were observed in the month of May, indicating a peak in consumer purchasing activity.
- Sales gradually decreased after May, suggesting a potential decline in demand or market saturation.
- Sales are slightly high in Sunday.

Recommendations:

- Implement promotional discounts during slower sales periods to stimulate demand.
- Plan inventory and marketing strategies based on seasonal sales trends, with a focus on optimizing resources during peak sales months like May.
- Anticipate fluctuations in demand and adjust inventory levels accordingly to maintain sales momentum throughout the year.

Business Insights:



Findings:

- Only 54 orders have price more than 2000 INR.
- Most of the orders price belongs between 300 to 1000 INR.
- Highest order amount is 5584 INR.
- Maximum i.e. 99.32% of buyers are retailers and 0.68% are B2B buyers

Recommendations:

- Create loyalty programs or special offers for repeat customers or those with high purchase amounts.
- Introduce new product between the range 300 to 1000 INR.

Summary-

Insights:

- Consistent Sales Trend with Peaks in May:
- Overall, the sales trend remained relatively consistent throughout the analyzed period.
- The highest sales were observed in the month of May, indicating a peak in consumer purchasing activity.
- However, sales gradually decreased after May, suggesting a potential decline in demand or market saturation.
- Most of the orders price belongs between 300 to 1000 INR.
- The top-selling product categories during the analyzed period were T-shirt and shirt and M-Size as the preferred choice among buyers.
- These categories experienced the highest sales volume, indicating strong consumer interest and demand for these products.
- Despite being top-selling categories, T-shirt and shirt categories exhibited the highest cancellation rates.
- Addressing the issues could help reduce cancellation rates and improve overall customer experience.
- City – Bangluru and State- Maharashtra have significant customer base.

Recommendations:

- Allocate sufficient inventory for top-selling categories, to meet consumer demand during peak sales periods. Implement targeted promotional campaigns or discounts to capitalize on the popularity of these categories and drive sales further.
- Conduct thorough quality checks and ensure product consistency to minimize cancellations and returns. Gather customer feedback and address any issues or concerns related to product quality, sizing accuracy, or overall satisfaction to enhance the shopping experience.
- Plan inventory and marketing strategies based on seasonal sales trends, with a focus on optimizing resources during peak sales months like May. Anticipate fluctuations in demand and adjust inventory levels accordingly to maintain sales momentum throughout the year.
- Identify underperforming regions with potential and develop strategies to penetrate these markets more effectively.
- Develop new products or variations that align with customer preferences and market trends.

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