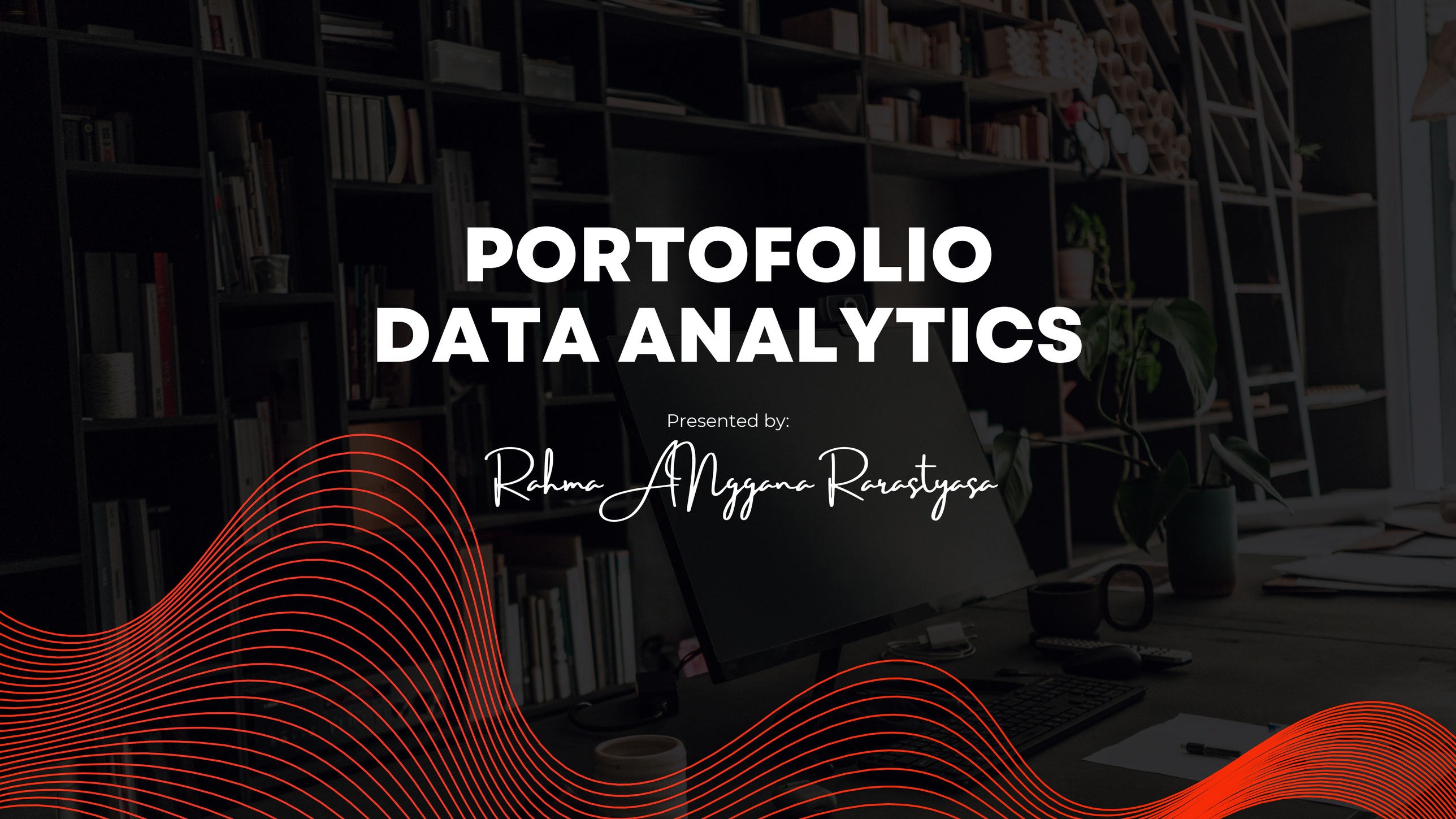

PORTOFOLIO DATA ANALYTICS

Presented by:

Rahma Anggana Rarastyasa

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Project Overview

Previous Project

Main Project

Sales Data Analysis for Marketing Insight

INTRODUCTION

ABOUT RARA

A highly motivated Industrial Engineering graduate from Sebelas Maret University with 1 year of professional experience in port services and healthcare services. **Strongly interested in Data Science and Data Analytics,** with foundational skills in data processing, statistical analysis, and data visualization to support effective decision-making. Proficient in **Python**, **SQL**, and **Excel**, with experience using tools such as Pandas, Numpy, Matplotlib, and Looker Studio. Known for being **analytical**, **detail-oriented**, and a **fast learner**, with the ability to work both independently and in teams. Eager to contribute to data-driven projects and continuous improvement initiatives.

CONTACT ME!

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http://wa.me/6285257896356

WORKING EXPERIENCE

- PT Revolusi Kesehatan Indonesia

  Operation Team

  Nov, 2024 - Present

- PT Krakatau Bandar Samudera

  Port Area and Warehouse Intern

  Jan, 2023 - Feb, 2023

EDUCATION BACKGROUD

- Dibimbing.id

  Data Analyst & Data Science Bootcamp (Non-Degree)

  May, 2025 - Present

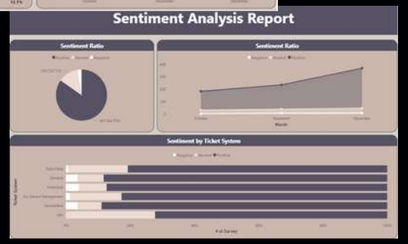
- Universitas Sebelas Maret Surakarta

  Industrial Engineering (Bachelor of Engineering)

  Aug, 2020 - July, 2024

PROJECT OVERVIEW

WHAT I’VE LEARNED



Customer Satisfaction & Sentiment Analysis Report

- The project involved two primary processes: customer satisfaction analysis to measure metrics like CSAT, CES, and NPS, and sentiment analysis to predict sentiment from text reviews using an AI model. The results from both were then combined to create a visual dashboard
- Overall customer satisfaction is low, with 45.6% CSAT and 12.1% NPS. The main issue is low Customer Service satisfaction (33.7% CSAT) and a significant number of detractors (31.93%).
- Link : https://drive.google.com/drive/folders/1H5iHQ-3C4JOfVkGRGzdnh4Alf1o0wGm3?usp=sharing

People Analytics : Job Satisfaction Report

- The project started with data understanding and cleansing. This was followed by Exploratory Data Analysis (EDA) to answer key questions on job satisfaction factors. The final steps were data visualization and providing strategic recommendations.
- The analysis found that workload and stress have a strong negative correlation with job satisfaction. In contrast, work-life balance and training hours show a positive correlation. Highest satisfaction was found in the productive age range (25-45) and in teams with an optimal size of 10-20 members.
- https://github.com/rarastyasa/People-Analytics-Job-Satisfaction-Report

MAIN PROJECT

AMAZON SALES DATA ANALYSIS FOR MARKETING INSIGHTS

MAIN PROJECT CONTENTS

- Project Background
- Bussiness Problem
- Data Understanding
- Data Analysis and Insights
- Dashboard and Visualization
- Recomendation and Actionable Insights

EXCECUTIVE SUMMARY

1. The analysis reveals that the company's revenue decline from April to June is primarily driven by the sharp drop in two core categories: T-shirts and Shirts. T-shirt sales fell by ~44.75% and orders by ~33.15%, while Shirt orders decreased by ~40% and sales by ~17.83%.

2. The decline started immediately after peak sales periods in April and May, showing that the company failed to sustain post-peak momentum. Shipping and fulfillment preferences remained stable, confirming that logistics were not the root cause.

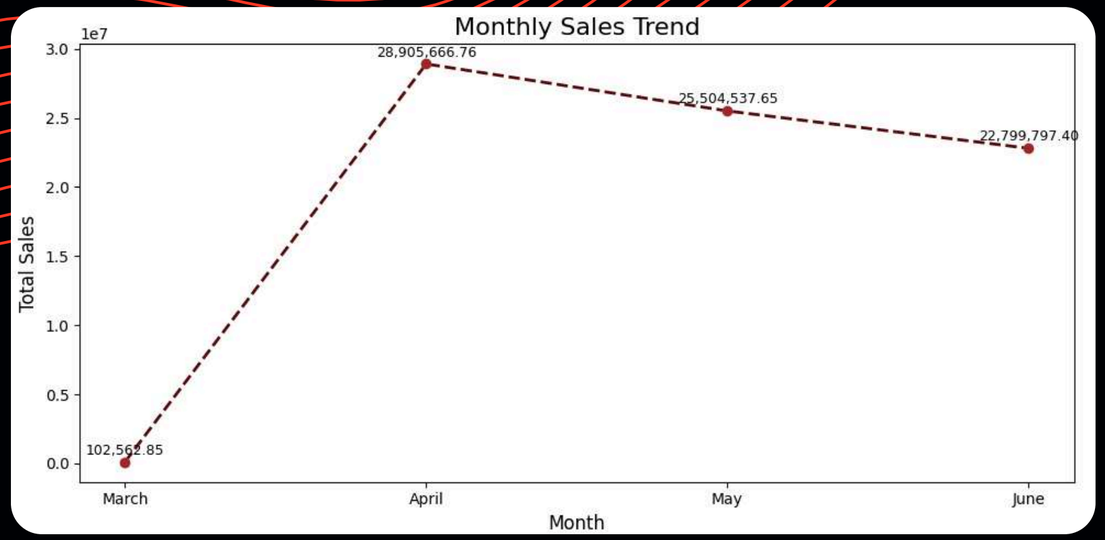
3. Geographically, Bengaluru, the largest market, stagnated at ~$2.3M (May–June) after ~$2.5M in April, making it the key priority for recovery. Other cities showed shifting preferences between T-shirts and Shirts, offering opportunities for targeted marketing but not explaining the overall drop.

4. To address the issue, the company should focus on reviving core categories, sustaining momentum through post-peak promotions, and leveraging city-specific targeting strategies to accelerate recovery.

PROJECT BACKGROUND

As one of the world's largest e-commerce platforms, Amazon provides rich and diverse sales data covering product information, sales trends, shopping behavior, and geographic distribution. Analyzing this data enables companies to **identify top-selling product categories, understand customer purchasing patterns, and uncover high-potential regions**. Leveraging such insights allows businesses to **design more targeted and evidence-based marketing strategies**.

BUSSINESS PROBLEM



The monthly sales trend analysis reveals that sales **peaked in April** but **declined significantly in May and June.** This drop may be driven by various factors such as shifts in consumer demand, reduced promotional effectiveness, changes in shopping behavior, or differences in purchasing power across regions.

To uncover the root causes, an in-depth analysis is needed on:

- Best-selling and most profitable product categories
- Sales trend changes in specific periods
- Customer purchasing behavior and shipping preferences
- Geographic sales distribution and region-specific product popularity

DATA UNDERSTANDING

Source : Kaggle - AmazonSalesreport

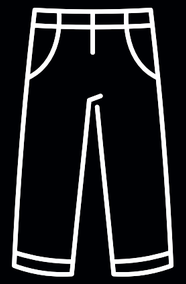
Includes: Transaction detail, Product details, Customer & shipping demographics, Logistics data

Cover transaction from March - June 2022

Contains: 128.976 transaction data and 21 column

PRODUCTS

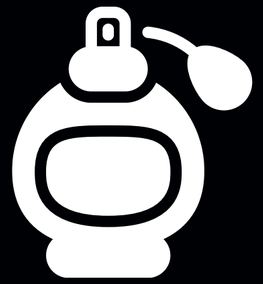
Shirt



Trousers

Socks

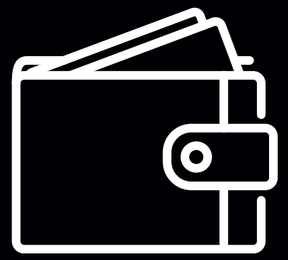
T-Shirt



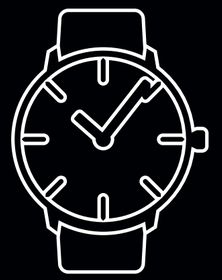
Parfume

Shoes

Blazzer



Wallet



Watch

DATA PREPROCESSING

the initial step in data analysis aimed at cleaning and preparing the dataset for further exploration.

1. Changing Data Types

Date (Object) >> Datetime
ship-postal-code (float) >> Str

2. Handling Duplicate Data

Total Duplicate Data : 1507
Data >> Drop Duplicate

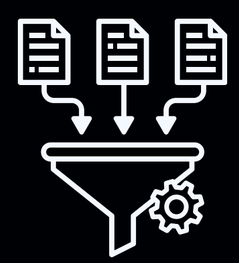
3. Handing Missing Value

Trim column that contains > 20% missing value, and fill with mode (categorical) and median (numerical)

4. Handling Outlier

Outlier : column Amount (trim) and Qty (still make sense)

128.976 rows
21 columns

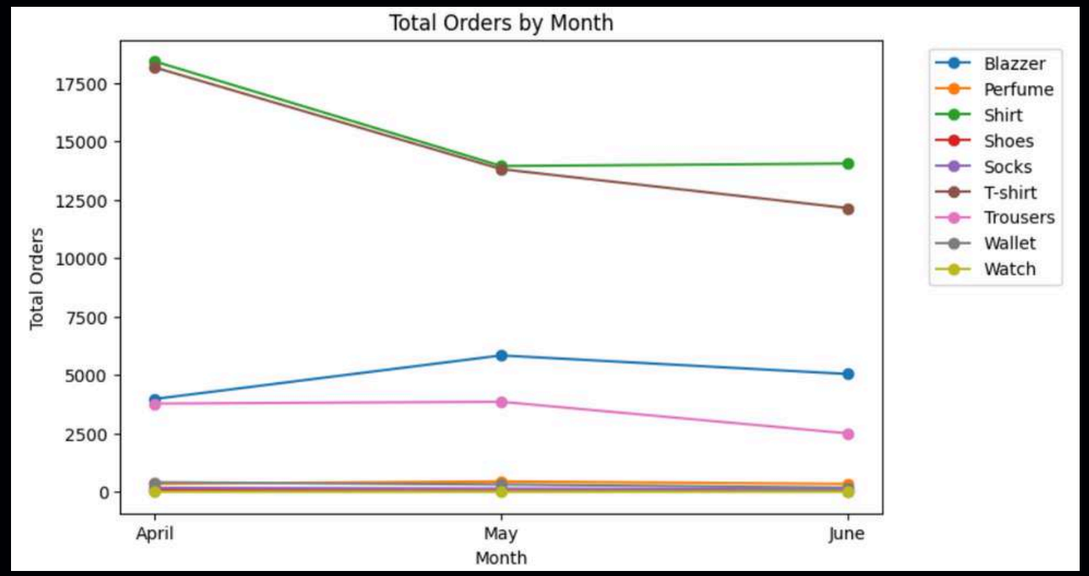


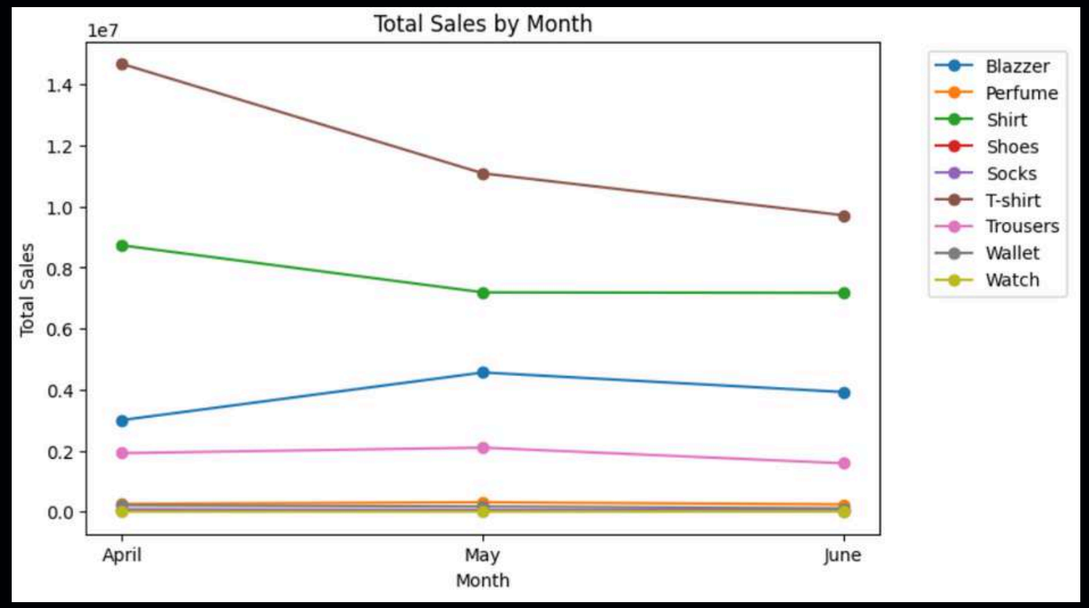
Preprocessing

124.634 rows
17 columns

DATA ANALYSIS

WARNING! MAY-JUNE REVENUE DROP TRIGGERED BY WEAK PERFORMANCE OF KEY CATEGORIES





Category: Shirt

- Total Order Apr - May decrease 24,31%
- Total Order May-June increase 0,76%
- **Total Order Apr - June decrease 40%**

Category: T - Shirt

- Total Order Apr - May decrease 23,97%
- Total Order May-June decrease 12.08%
- **Total Order Apr - June decrease 33.15%**

Category: Shirt

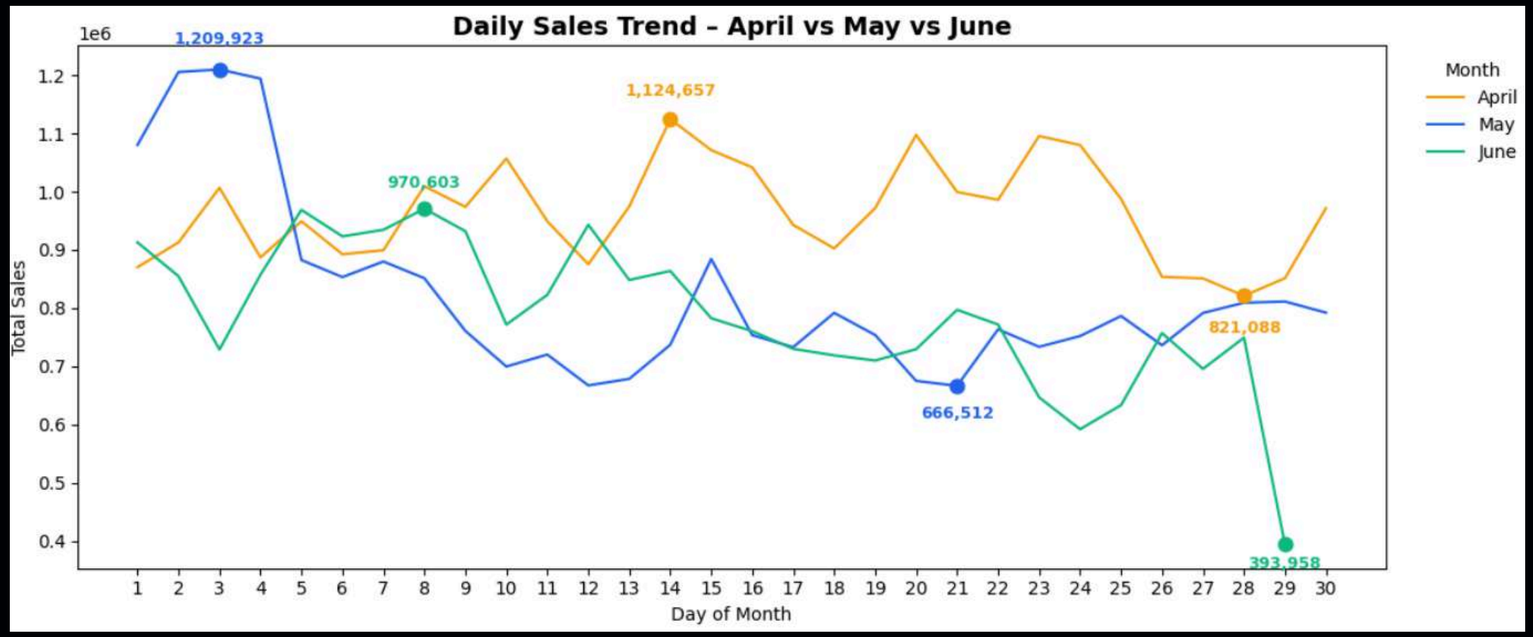
- Total Sales Apr - May decrease 24,45%
- Total Sales May - June decrease 12.39%
- **Total Sales Apr - June decrease 44.75%**

Category: T-Shirt

- Total Sales Apr - May decrease 15,46%
- Total Sales May - June decrease 0.23%
- **Total Sales Apr - June decrease 17.83%**

The global decline in sales is most likely due to the **decline in performance of the main categories**, namely **shirts** and **T-shirts**. These categories are not only the best-selling, but also contribute the largest amount of sales.

SINCE MID-APRIL: SALES HAVE SHOWN A CONSISTENT DOWNWARD TREND



April Sales: Peak and Drastic Decline

- Daily sales in **April peaked** on **April 13**, reaching **1,124,657.27**, which was the highest point in the daily trend.
- However, after that, there was a consistent and significant decline. The **most drastic drop** occurred towards the end of the month, hitting a low on **April 28** with sales of **821,087.52.**

May Sales: A Different Peak and Consistent Decline

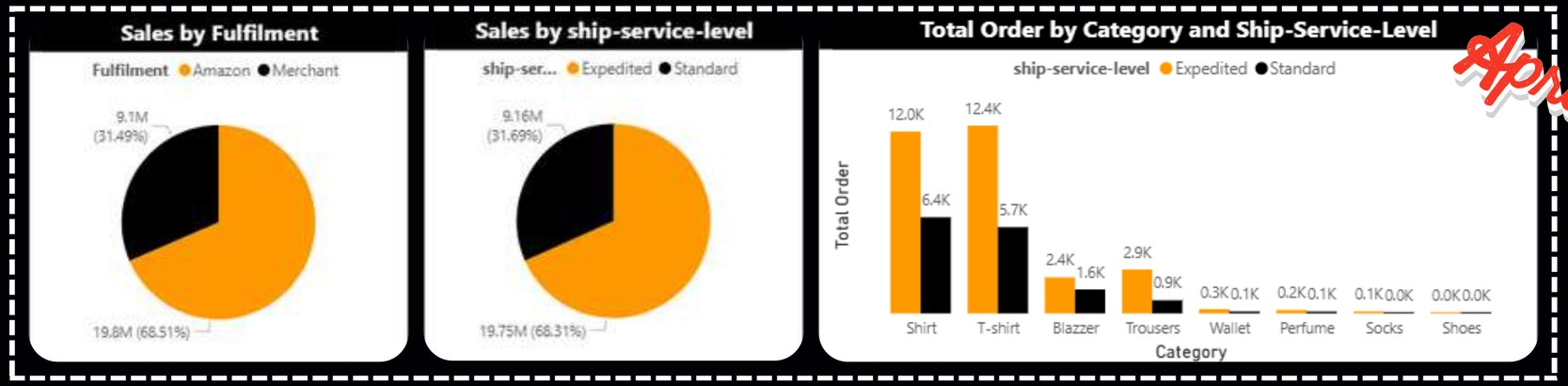
- The **highest sales** this month occurred on **May 2**, with a value of **1,209,923.02**, which was even higher than the peak in April.
- However, after this early-month spike, sales returned to a **gradual downward trend**, with a low point on **May 21** at **666,512.08**.

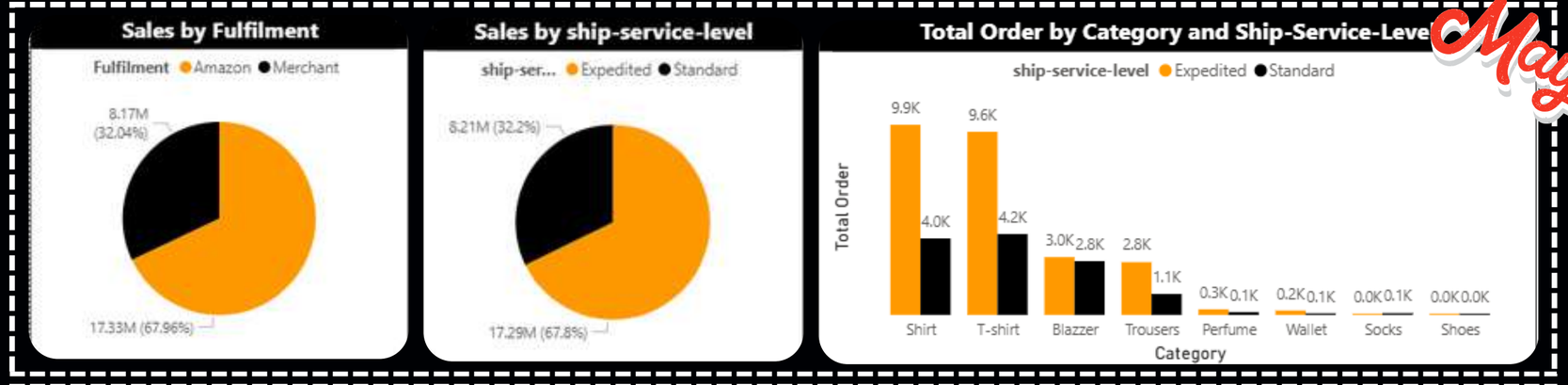
June Sales: Volatility and a Sharp Decline

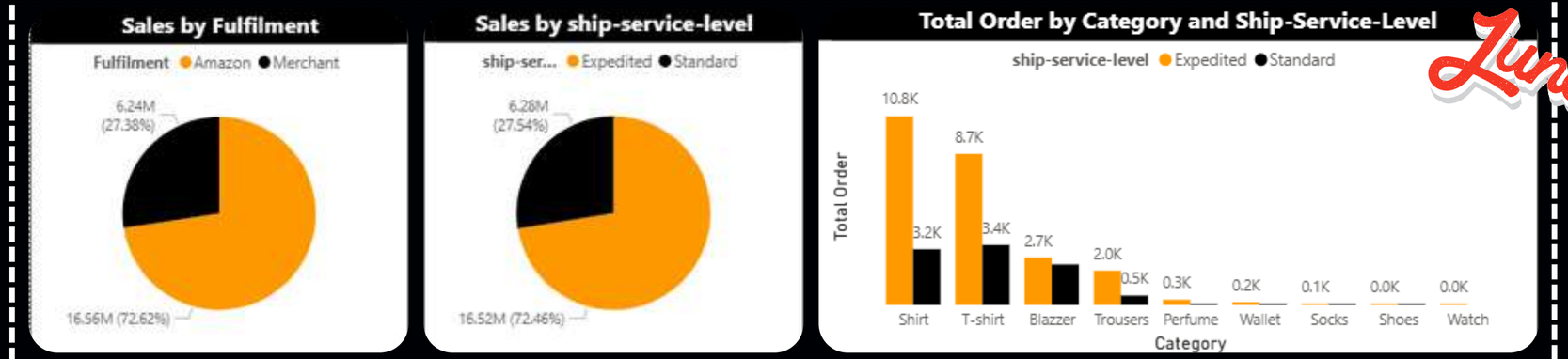
- Monthly sales trend continued to decline, June showed significant daily fluctuations. The **highest sales** in June occurred on **June 8**, reaching **970,602.98**.
- However, sales once again showed a **gradual downward trend**. The **most drastic drop** occurred towards the end of the month, hitting a low on **June 30** with a value of **393,857.76.**

The sales spike at the beginning of May indicates that there were still moments of very high demand, likely driven by **promotions** or **special events**. However, after this peak, the downward trend again became dominant. This suggests that the main problem is not a constant decline in demand, but rather an **inability to maintain sales momentum after peak periods.**

SHIPPING & FULFILLMENT: PROVING THEY AREN'T THE CAUSE OF THE REVENUE DROP



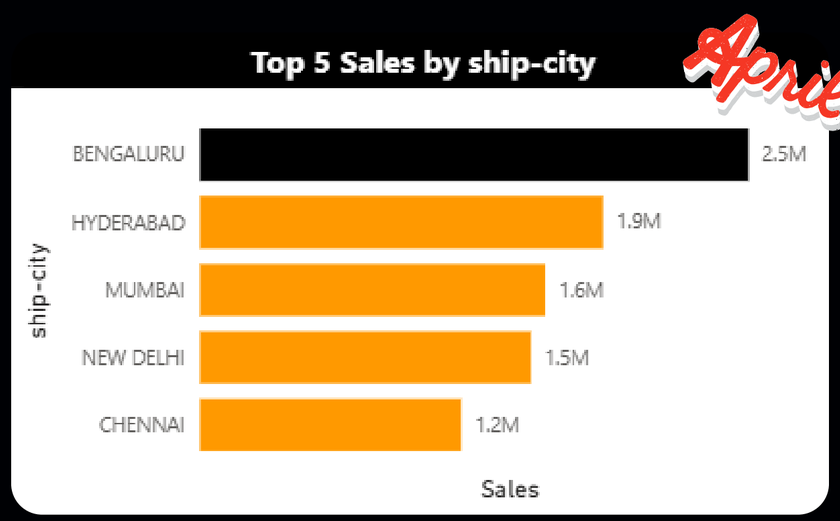


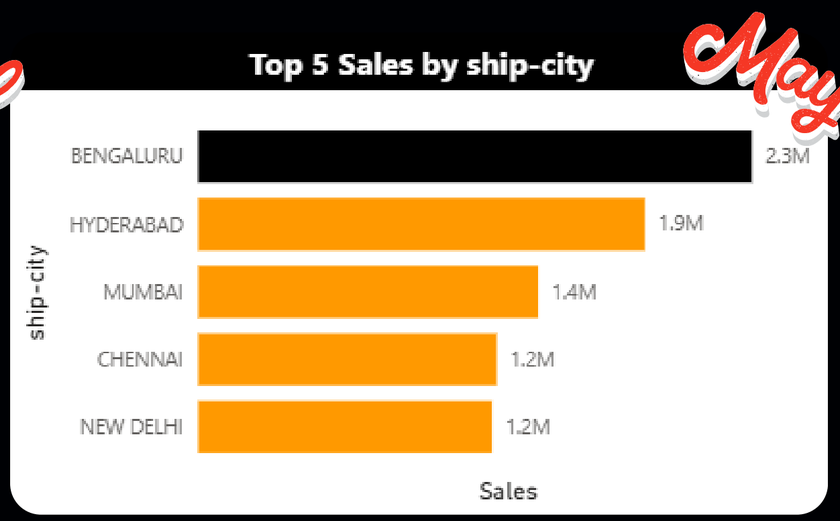


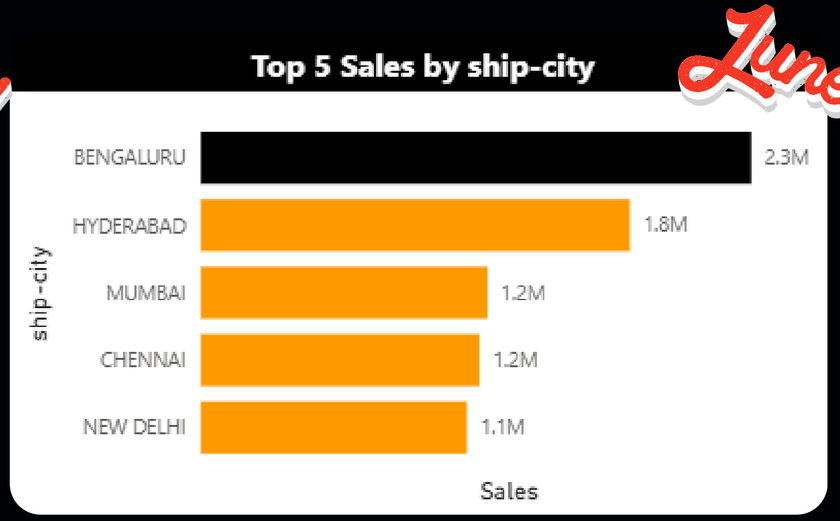
There were no significant changes in customer preferences. **Expedited** and **Amazon** continued to dominate for each month. And Expedited dominant for all the category.

Based on the monthly analysis, Amazon's sales decline from April to June **was not caused by a change in shipping or fulfillment** method preferences. Instead, this decline is directly correlated with the weakening performance of the two flagship product categories: T-shirt and Shirt.

BENGALURU : TARGETED AND INTENSIVE MARKETING CAMPAIGN





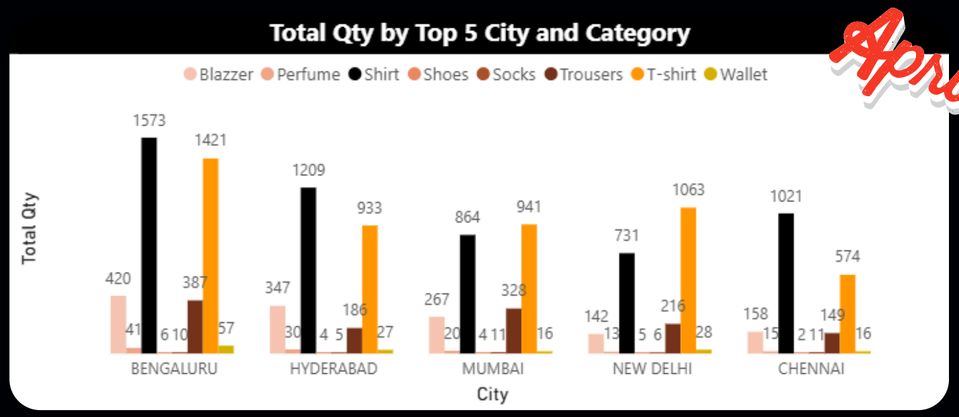


Bengaluru consistently holds the highest sales volume from April to June, making it the **most important market**.

- April: Bengaluru reached a sales peak of 2.5M, far surpassing other cities like Hyderabad (1.9M) and Mumbai (1.6M).
- May: Sales in Bengaluru declined to 2.3M, mirroring the overall monthly sales trend.
- June: Sales in Bengaluru remained stagnant at 2.3M.

The sales decline is not happening uniformly across all regions. Instead, the **drop is concentrated in the largest market, Bengaluru**. While the city remains the most profitable, the sales decline from $2.5M to $2.3M in this key market is the most critical signal of the underlying issue.

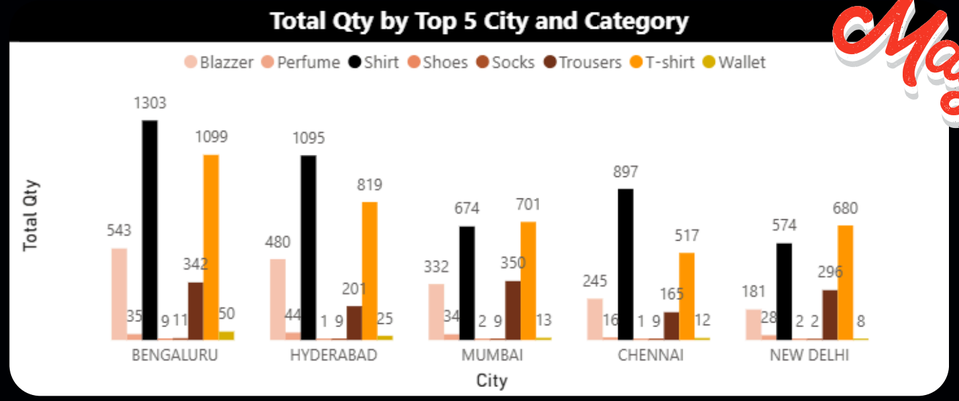
CUSTOMER BEHAVIOR AND CITY-SPECIFIC PRODUCT INSIGHTS FOR HIGHLY TARGETED MARKETING STRATEGIES



April

April: Peak Performance & Regional Trends

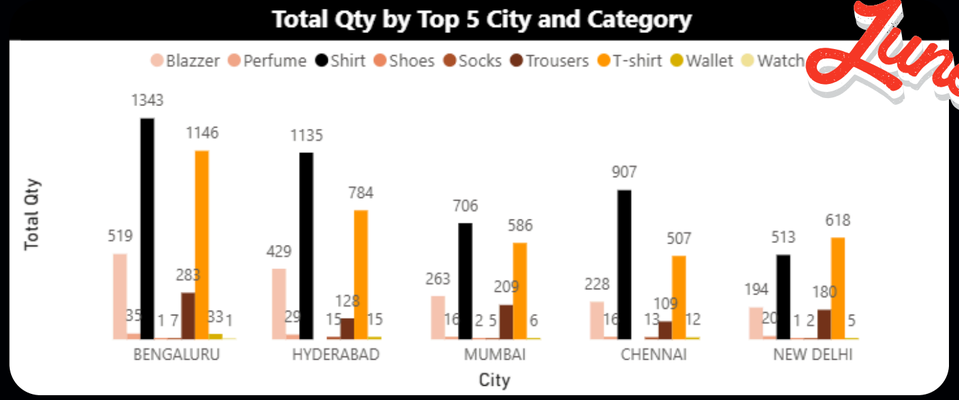
- Shirt dominated in Bengaluru (1573 Qty) and Hyderabad (1209 Qty).
- Conversely, T-shirt was more popular in Mumbai (941 Qty) and New Delhi (1063 Qty).



May

May: Start of the Decline & Consistent Preferences

- Shirt still led in Bengaluru (1303 Qty) and Hyderabad (1095 Qty).
- T-shirt remained the top choice in Mumbai (701 Qty) and New Delhi (680 Qty).



June

June: Continued Decline & Preference Shift

- In Mumbai, preferences reversed. Shirt became the top-selling product (706 Qty), displacing T-shirt (586 Qty) from its peak position.
- In other cities, the same trends still held, with Shirt dominating in Bengaluru and Hyderabad, while T-shirt remained the leader in New Delhi.

The shifting product preferences **are not the direct cause** of the sales decline. The primary issue is a consistent drop in the total sales volume of our key products, Shirt and T-shirt.
The monthly shifts in which product is more popular in specific cities are a valuable insight, not a problem. They reveal **dynamic consumer behavior** and are crucial for developing a **smarter, highly targeted marketing strategy** to effectively recover sales in each key market.

CONCLUSION

Root Cause of Decline: The downturn is driven by weakened performance in two core categories (T-shirt & Shirt).

Timing of Decline – Clear Post-Peak Effect: The core issue lies in failing to sustain momentum after peak/promotional periods.

Shipping & Fulfillment Not the Cause: No significant changes in fulfillment patterns explain the decline

Geographically, Decline Concentrated in the Largest Market: Recovery efforts must prioritize Bengaluru due to its outsized impact on total revenue.

City Preferences are Dynamic (Not the Root Cause): These shifts provide targeting insights, but the true root cause remains the decline in volume of core categories.

Recommendation for Marketing Strategy

REVITILIZE CORE CATEGORIES

Post-Peak Flash Sale: Launch special pricing campaigns in the weeks following peak periods to maintain purchase momentum.

Product Highlight Campaign: Use social media and email marketing to showcase the best-selling T-shirt and Shirt designs from the peak month.

POST-PROMOTION RETENTION STRATEGY

Send personalized re-targeting ads to peak-month buyers, offering loyalty discounts for their next purchase.

Provide exclusive vouchers valid for a maximum of 14 days after the first purchase to encourage repeat orders before momentum fades.

GEOGRAPHIC FOCUS ON THE LARGEST MARKET (BENGALURU)

Increase promotion intensity for T-shirt & Shirt categories specifically in Bengaluru with region-exclusive offers.

Use localized content (language, local cultural references) in online ads to enhance engagement.

OPTIMIZE TARGETING BASED ON CITY PREFERENCES

Mumbai & New Delhi: Drive T-shirt sales through new design promotions and local influencers.

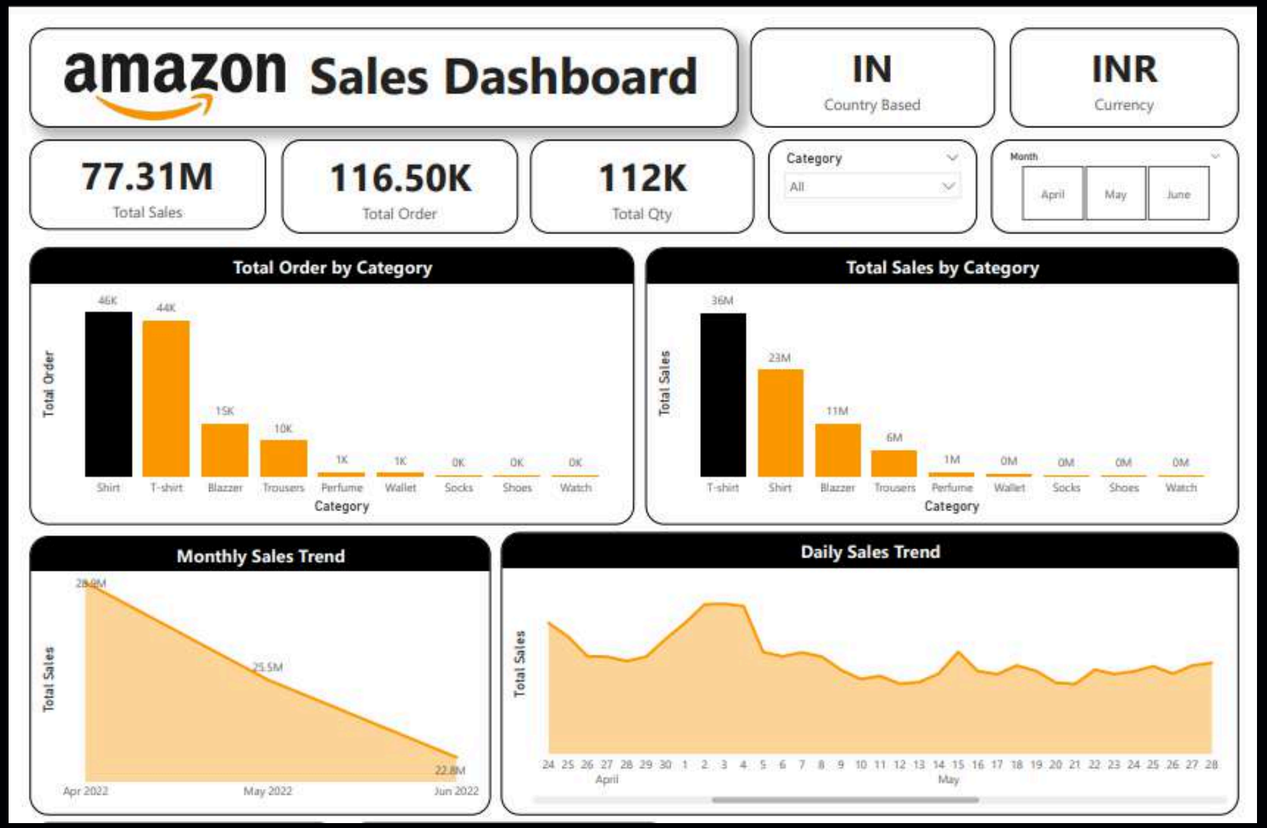
Hyderabad & Bengaluru: Strengthen Shirt sales with premium or limited-edition collections.

ACCELERATE PURCHASE CYCLE WITH SHORT-TERM OFFERS

Use countdown deals (e.g., “12 hours only”) on marketplaces to create urgency.

Launch rotating weekly promos for core categories so consumers develop a habit of buying in shorter cycles.

DASHBOARD



Made with Power BI

DOCUMENTATION

Kaggle Source:
AmazonSalesReport

Cleaned Dataset:
Data Amazon Cleaned

Colab Notebook:
Notebook

Dashboard File
PBIX


THANK YOU :)