KAMAL MART SALES ANALYSIS REPORT

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ABSTRACT

This report presents a comprehensive analysis of a raw sales dataset, utilizing advanced data visualization techniques to extract meaningful insights. The dataset comprises detailed sales information, including customer orders, SKUs, quantities, order amounts, order statuses, geographical locations, and product categories. The primary objective of this study was to analyze sales trends, customer behaviors, regional performance, and product category preferences.

The data underwent a thorough cleaning process to address missing values, remove duplicates, standardize inconsistent text entries, correct data types, and handle outliers. These steps ensured the dataset was accurate and reliable for analysis.

Visualizations, such as bar charts, line graphs, and pie charts, were used to depict key metrics, including sales performance by month and year, regional sales distribution, top-selling categories, and customer preferences based on size and SKU. The analysis also covered the impact of order statuses, channel distribution, and the effect of refunds or cancellations on overall sales figures.

The insights gathered from this visualization help inform business strategies, such as optimizing inventory for high-demand products, focusing marketing efforts on top-performing regions, and understanding customer preferences across different channels. Through data-driven decision-making, this report aids in enhancing operational efficiency and improving overall business outcomes.

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CHAPTER 1

INTRODUCTION

1.1 Problem Statement

In today's competitive market, understanding sales patterns and customer preferences is crucial for business success. This report analyzes sales data from Kamal Mart to extract insights that can guide decision-making processes related to marketing, inventory management, and customer engagement.

1.2 Importance of Sales Data Analysis

Sales data offers a valuable resource for identifying trends and patterns that directly affect business performance. By leveraging such data, businesses can make informed decisions that optimize operations, boost customer satisfaction, and improve profitability.

Objectives

1. Analyze regional sales performance to identify high-demand areas.
2. Understand customer preferences based on product categories and sizes.
3. Evaluate the effectiveness of different sales channels.
4. Examine trends over time (monthly and yearly) to assess seasonal demand.

CHAPTER 2

LITERATURE REVIEW/BACKGROUND STUDY

2.1 Historical Importance of Data Analysis in Sales

Sales analysis has evolved over time, with the integration of data-driven decision-making becoming increasingly critical. Historical studies show that businesses that effectively analyze their sales data can better anticipate market trends and customer needs.

2.2 Review of Relevant Literature

Several academic papers and industry reports emphasize the role of data visualization in identifying actionable insights. Research shows that companies utilizing advanced data analysis techniques, such as predictive modeling and sales forecasting, achieve greater accuracy in decision-making and performance enhancement.

2.3 Key Insights from Previous Studies

- E-commerce sales channels are highly dynamic, and businesses must constantly adapt to changing customer behaviors.
- Data quality plays a significant role in ensuring accurate analysis.
- Region-specific marketing strategies tend to yield better results when aligned with customer preferences and purchasing patterns.

Dataset Overview:

index	Order ID	Cust ID	Gender	Age	Date	Status	Channe	SKU	Category	Size	Qty	currenc	Amount	ship-city	ship-state	ship-postal-	ship-cou	B2B
1	171-1029312-	1029312	Women	44	04-12-2022	Delivered	Myntra	JNE1233-BL	kurta	XXL	1	INR	376	MOHALI	PUNJAB	140301	IN	FALSE
2	405-2183842-	2183842	Women	29	04-12-2022	Delivered	Ajio	SET414-KR-I	Set	L	1	INR	1449	GURUGRAM	HARYANA	122002	IN	FALSE
3	171-1641533-	1641533	Women	67	04-12-2022	Delivered	Myntra	SET261-KR-I	Set	S	1	INR	453	KOLKATA	WEST BENGAL	700029	IN	FALSE
4	404-7490807-	7490807	Women	20	04-12-2022	Delivered	Amazor	SET110-KR-I	Set	M	1	INR	729	THANJAVUR	TAMIL NADU	613007	IN	FALSE
5	403-9293516-	9293516	Women	62	04-12-2022	Delivered	Myntra	JNE2294-KR	kurta	XXL	1	INR	544	GURUGRAM	HARYANA	122001	IN	FALSE
6	407-1298130-	1298130	Men	49	04-12-2022	Delivered	Flipkart	JNE3797-KR	Western Dr	XXL	One	INR	735	SANGLI MIRAJ K	MAHARASHTR	416436	IN	FALSE
7	407-1298130-	1298130	W	23	04-12-2022	Delivered	Meeshc	JNE3801-KR	kurta	XXL	One	INR	735	BENGALURU	KARNATAKA	560029	IN	FALSE
8	171-5561216-	5561216	W	70	04-12-2022	Delivered	Others	JNE3405-KR	kurta	M	One	INR	435	GURUGRAM	HARYANA	122001	IN	FALSE
9	408-2935263-	2935263	W	75	04-12-2022	Delivered	Amazor	JNE3474-KR	kurta	XL	One	INR	385	BENGALURU	KARNATAKA	562149	IN	FALSE
10	404-2648970-	2648970	W	43	04-12-2022	Delivered	Myntra	JNE3466-KR	kurta	L	One	INR	771	VIJAYAWADA	ANDHRA PRAE	520002	IN	FALSE
11	404-2648970-	2648970	W	76	04-12-2022	Delivered	Amazor	JNE3795-KR	kurta	S	One	INR	517	THIRUVANANTH	KERALA	695018	IN	FALSE
12	404-2648970-	2648970	Women	45	04-12-2022	Delivered	Myntra	J0181-TP-M	Top	M	1	INR	399	ARAKONAM	TAMIL NADU	631003	IN	FALSE
13	408-0265357-	265357	Women	18	04-12-2022	Delivered	Amazor	SET217-KR-I	Set	XL	1	INR	786	GUWAHATI	ASSAM	781017	IN	FALSE
14	403-9268874-	9268874	Men	44	04-12-2022	Delivered	Myntra	SET185-KR-I	Set	M	1	INR	911	BENGALURU	KARNATAKA	562125	IN	FALSE
15	407-0442660-	442660	Women	52	04-12-2022	Delivered	Amazor	SET333-KR-I	Set	M	1	INR	967	HYDERABAD	TELANGANA	500098	IN	FALSE
16	406-7482261-	7482261	Women	18	04-12-2022	Delivered	Nalli	J0124-TP-L	Top	L	1	INR	523	NEW DELHI	DELHI	110062	IN	FALSE
17	407-7039962-	7039962	Men	30	04-12-2022	Delivered	Meeshc	SET304-KR-I	Set	XL	1	INR	1115	Bhubaneswar	ODISHA	751022	IN	FALSE
18	407-3422488-	3422488	Women	48	04-12-2022	Delivered	Others	SET184-KR-I	Set	XS	1	INR	563	SIROHI	RAJASTHAN	307001	IN	FALSE
19	171-8974687-	8974687	Men	24	04-12-2022	Delivered	Myntra	J0161-DR-X	Western Dr	XXL	1	INR	473	MUMBAI	MAHARASHTR	400097	IN	FALSE
20	406-0244536-	244536	Women	46	04-12-2022	Delivered	Amazor	SET233-KR-I	Set	M	1	INR	545	AMRITSAR	PUNJAB	143001	IN	FALSE
21	404-4376789-	4376789	Women	43	04-12-2022	Delivered	Nalli	J0231-SKD-)	Set	3XL	1	INR	1164	LUCKNOW	UTTAR PRADE	226024	IN	FALSE
22	408-1943310-	1943310	Men	31	04-12-2022	Refunded	Myntra	J0339-DR-X	Western Dr	XXL	1	INR	743	NEW DELHI	DELHI	110087	IN	FALSE
23	403-0950590-	950590	Men	30	04-12-2022	Delivered	Myntra	SET210-KR-I	Set	3XL	1	INR	575	MADURAI	TAMIL NADU	625014	IN	FALSE
24	406-3935670-	3935670	Women	19	04-12-2022	Delivered	Ajio	SET110-KR-I	Set	XS	1	INR	788	Meerut	UTTAR PRADE	250002	IN	FALSE
25	402-0398999-	398999	Women	37	04-12-2022	Delivered	Amazor	SET273-KR-I	Set	M	1	INR	612	HYDERABAD	TELANGANA	500060	IN	FALSE
26	403-5438780-	5438780	Women	37	04-12-2022	Delivered	Others	MEN5025-K	kurta	XXL	1	INR	533	INDORE	MADHYA PRAI	452014	IN	FALSE

index	Order ID	Cust ID	Gender	Age	Age Group	Date	Month	Status	Channel	SKU	Category	Size	Qty	currency	Amount	ship-city
26	403-5438780-7231546	5438780	Women	37	Adult	12-04-2022	April	Delivered	Others	MEN5025-KR-XXL	kurta	XXL	1	INR	533	INDORE
27	406-8343960-8137102	8343960	Women	62	Senior	12-04-2022	April	Delivered	Flipkart	JNE3690-TU-XL	Top	XL	1	INR	484	DAVANAGERE
28	406-0986513-0498758	986513	Men	20	Teenager	12-04-2022	April	Delivered	Flipkart	SET184-KR-PP-XXXL	Set	3XL	1	INR	563	RUDRAPUR
29	406-0947452-6044339	947452	Men	77	Senior	12-04-2022	April	Delivered	Flipkart	JNE3797-KR-XXL	Western Dress	XXL	1	INR	735	CHENNAI
30	406-1326018-3426760	1326018	Men	26	Teenager	12-04-2022	April	Delivered	Amazon	SET183-KR-DH-XS	Set	XS	1	INR	759	PRAYAGRAJ
31	406-9281717-2212317	9281717	Men	40	Adult	12-04-2022	April	Delivered	Amazon	JNE3797-KR-XXL	Western Dress	XXL	1	INR	715	GREAT NICOBAR
32	408-6866119-6793128	6866119	Men	52	Senior	12-04-2022	April	Delivered	Amazon	J0414-DR-XXL	Western Dress	XXL	1	INR	885	AHMEDABAD
33	403-9400852-1350710	9400852	Women	38	Adult	12-04-2022	April	Delivered	Others	JNE3601-KR-M	kurta	M	1	INR	301	SALEM
34	408-2606836-0473931	2606836	Men	39	Adult	12-04-2022	April	Delivered	Myntra	J0231-SKD-XL	Set	XL	1	INR	1238	GUWAHATI
35	405-8481179-1130753	8481179	Men	37	Adult	12-04-2022	April	Delivered	Amazon	SET320-KR-NP-S	Set	S	1	INR	856	CHENNAI
36	406-9686095-5057139	9686095	Women	73	Senior	12-04-2022	April	Delivered	Flipkart	J0351-SET-L	Set	L	1	INR	650	VADODARA
37	404-9033015-7527503	9033015	Women	41	Adult	12-04-2022	April	Delivered	Amazon	JNE3368-KR-XL	kurta	XL	1	INR	449	Payyannur
38	402-6932218-7744338	6932218	Women	41	Adult	12-04-2022	April	Delivered	Myntra	SET333-KR-DPT-XS	Set	XS	1	INR	967	CHANDIGARH
39	408-8796291-5026713	8796291	Women	35	Adult	12-04-2022	April	Delivered	Amazon	JNE3423-KR-XL	kurta	XL	1	INR	399	GURUGRAM
40	407-9654105-3225150	9654105	Women	72	Senior	12-04-2022	April	Delivered	Flipkart	J0230-SKD-M	Set	M	1	INR	969	MOHALI
41	402-0637532-2672317	637532	Men	39	Adult	12-04-2022	April	Delivered	Flipkart	J0159-DR-L	Western Dress	L	1	INR	599	BENGALURU
42	402-0637532-2672317	637532	Women	39	Adult	12-04-2022	April	Delivered	Amazon	J0334-TP-S	Top	S	1	INR	545	PUNE
43	404-3393819-5081930	3393819	Women	44	Adult	12-04-2022	April	Delivered	Myntra	SET397-KR-NP-XS	Set	XS	1	INR	1115	PUNE
44	406-5673590-1054739	5673590	Women	22	Teenager	12-04-2022	April	Delivered	Meesho	SET389-KR-NP-XL	Set	XL	1	INR	648	SONIPAT
45	403-5846829-5098742	5846829	Women	64	Senior	12-04-2022	April	Delivered	Flipkart	J0248-KR-DPT-S	Set	S	1	INR	999	NELLORE
46	171-4087298-3807569	4087298	Women	30	Adult	12-04-2022	April	Delivered	Amazon	NW001-TP-PJ-XXL	Set	XXL	1	INR	563	TIRUCHIRAPPALLI
47	408-7694743-7590732	7694743	Women	46	Adult	12-04-2022	April	Delivered	Myntra	J0092-SET-S	Set	S	1	INR	833	BENGALURU
48	406-8068610-1108329	8068610	Women	48	Adult	12-04-2022	April	Delivered	Nalli	JNE3770-KR-S	kurta	S	1	INR	487	PUNE
49	171-7917674-9759550	7917674	Women	25	Teenager	12-04-2022	April	Delivered	Myntra	JNE3703-KR-M	kurta	M	1	INR	292	VARANASI
50	406-2709798-4585159	2709798	Men	35	Adult	12-04-2022	April	Delivered	Others	SET210-KR-PP-M	Set	M	1	INR	558	UDUPI
51	405-4213846-6141157	4213846	Women	27	Teenager	12-04-2022	April	Delivered	Amazon	J0003-SET-M	Set	M	1	INR	664	HYDERABAD

Kamal Mart | Kamal Mart-Data cleaning | Kamal Mart-Data Analysis | Report | +

The provided dataset appears to contain details about orders placed through various channels, including:

- **Order ID**: Unique identifier for each order.
- **Customer ID**: Identifies the customer.
- **Gender**: Indicates whether the customer is male or female.
- **Age**: Age of the customer.
- **Order Date**: Date the order was placed.
- **Order Status**: Status such as "Delivered" or "Refunded".
- **Channel**: Platform where the order was placed (e.g., Myntra, Amazon).
- **SKU**: Stock Keeping Unit, a unique identifier for each product.
- **Category**: Type of product (e.g., kurta, set, western dress).
- **Size**: Size of the ordered product (e.g., XS, S, M, L, XL).
- **Quantity**: Number of items ordered.
- **Amount**: The price paid for the order.
- **Shipping City**: The city to which the order was delivered.
- **Shipping State**: The state where the order was delivered.

CHAPTER 3
DATA CLEANING PROCESS

3.1 Data Collection and Preparation

The dataset provided includes orders placed across multiple platforms such as Amazon, Myntra, and Flipkart. Key fields include Order ID, Customer ID, Gender, Age, SKU, Category, Quantity, Order Amount, and Shipping Location.

3.2 Steps in Data Cleaning

To prepare the data for analysis, the following steps were taken:

3.2.1 Steps for Data Cleaning

1. **Handling Missing Values:**
   - Identified and filled missing values where possible, ensuring that critical fields such as Order ID, SKU, and Amount were complete.

2. **Removing Duplicates:**
   - Checked for and removed duplicate entries based on the Order ID to prevent data misrepresentation.

3. **Standardizing Text Values:**
   - Ensured consistency in columns like Order Status, Channel, and Shipping State. For instance, values such as "Amazon" and "amazon" were normalized to "Amazon."

4. **Correcting Data Types:**
   - Columns such as Order Date were converted to a date format, and Quantity and Amount were converted to numerical types.

5. **Addressing Outliers:**
   - Identified and removed unrealistic values, such as negative quantities or incorrect age entries.

Final Steps

After cleaning, the dataset was ready for use in analysis, and it was ensured that:

- There were no missing or duplicate entries.
- Text data was consistent and standardized.
- Data types were corrected for proper analysis.
- Outliers and inconsistent entries were handled.

- Additional features like month, year, and standardized size were extracted for better analysis.

This data cleaning process ensured that the dataset was accurate, complete, and ready for the analysis conducted above.

CHAPTER 4:

SALES ANALYSIS AND RESULTS

4.1 Overview of Sales Metrics

The analysis of Kamal Mart's dataset provided insights into several important sales metrics, including total sales, the number of orders, customer demographics, and regional performance. These metrics provide a snapshot of the business's overall sales health.

4.2 Regional Sales Performance

The sales data reveals that Maharashtra leads in terms of total orders, followed by Karnataka and Uttar Pradesh. This information helps in focusing marketing efforts and optimizing inventory based on regional demand.

4.3 Customer Preferences by Category and Size

1. **Product Categories:**

    o **Kurta** and **Sets** are highly popular, particularly among adults.

    o **Western dresses** are favored by younger customers, especially teenagers.

2. **Size Distribution:**

    o Larger sizes, such as L, XL, and XXL, are more commonly ordered, indicating that these sizes should be prioritized when managing inventory for categories like **kurta** and **sets**.

    o

4.4 Monthly/Yearly Sales Trends

An analysis of monthly sales data shows a notable decline in sales from May to June, followed by a gradual recovery. Seasonal trends suggest increased demand around holidays and festivals.

CHAPTER 5:

VISUALIZATION TECHNIQUES

5.1 Types of Visualizations Used

- Bar Charts: Used to compare categories, such as Orders by States and Orders by Channels.

- Pie Charts: Illustrate proportions (e.g., Channel Distribution and Gender Preferences).

- Line Charts: Show trends over time, such as Monthly Sales Trends.

- Stacked Bar Charts: Visualize category popularity across age groups.

### 5.2 Key Insights from Visualizations

The visualizations provide an accessible way to explore the data, with interactive dashboards enabling deeper insights into sales performance, customer preferences, and channel effectiveness. For example, the Age vs Gender chart reveals a slightly higher proportion of female customers across most age groups.

- **Order vs Sales**: Shows a correlation between the count of orders and the sales amount over the months. There's a visible decline in sales from May to June.
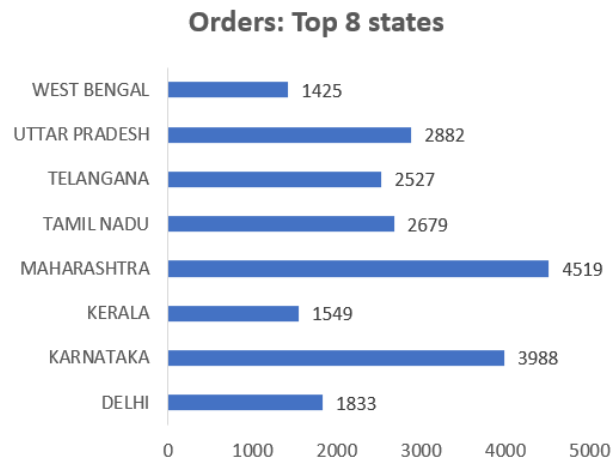
Row Labels	Sum of Amount	Count of Order ID
April	7377407	10758
May	7424523	10825
June	6374447	9464
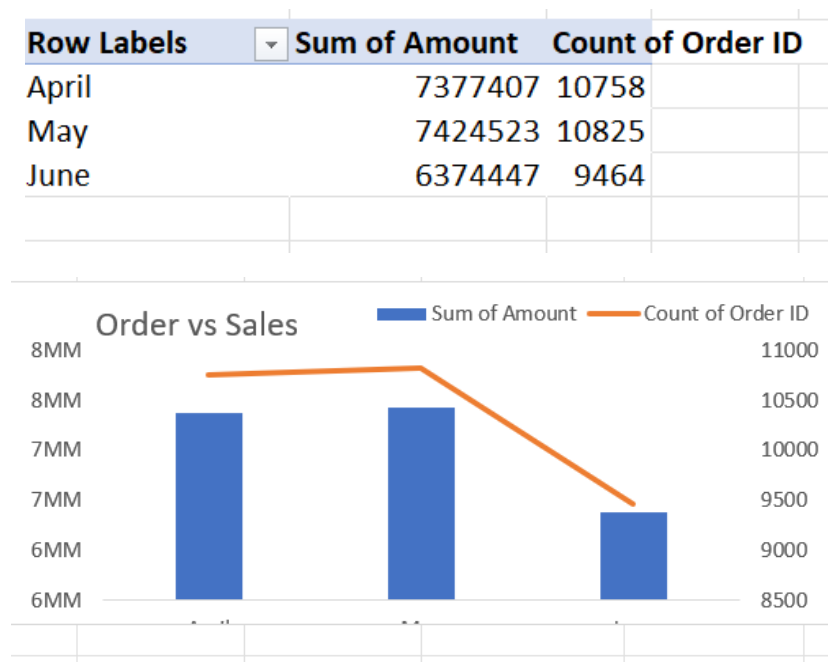
- **Orders by Channels**: Amazon is the most popular channel (35%), followed by Myntra (23%), and Flipkart (22%).

| Row Labels	Count of Order ID
Ajio	1931
Amazon	11016
Flipkart	6703
Meesho	1398
Myntra	7254
Nalli	1484
Others	1261
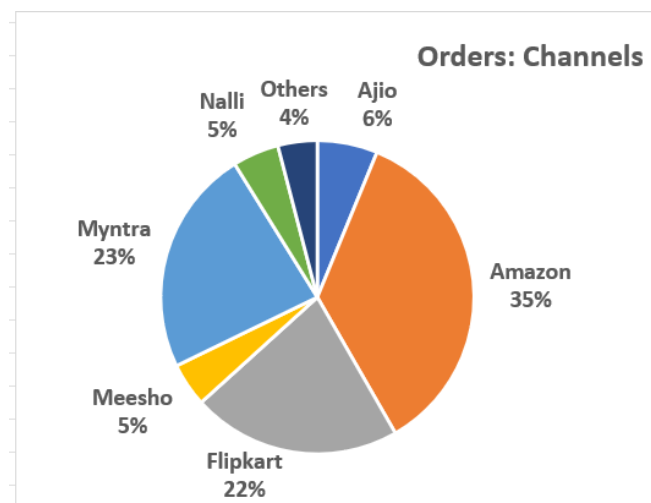
- **Orders by States**: Maharashtra is the leading state in terms of orders placed, with over 4,519 orders. Karnataka and Uttar Pradesh follow.

Row Labels	Count of Order ID
DELHI	1833
KARNATAKA	3988
KERALA	1549
MAHARASHTRA	4519
TAMIL NADU	2679
TELANGANA	2527
UTTAR PRADESH	2882
WEST BENGAL	1425

Orders: Top 8 states

State	Orders
WEST BENGAL	1425
UTTAR PRADESH	2882
TELANGANA	2527
TAMIL NADU	2679
MAHARASHTRA	4519
KERALA	1549
KARNATAKA	3988
DELHI	1833

- **Age vs Gender**: Majority of the customers are adults, with a slightly higher percentage of women compared to men across age groups.

Count of Order ID	Column Labels	
Row Labels	Men	Women
Adult	15.66%	34.98%
Senior	5.72%	13.31%
Teenager	9.20%	21.13%

Orders: Age vs Gender

|	Men	Women
Adult	15.66%	34.98%
Senior	5.72%	13.31%
Teenager	9.20%	21.13%
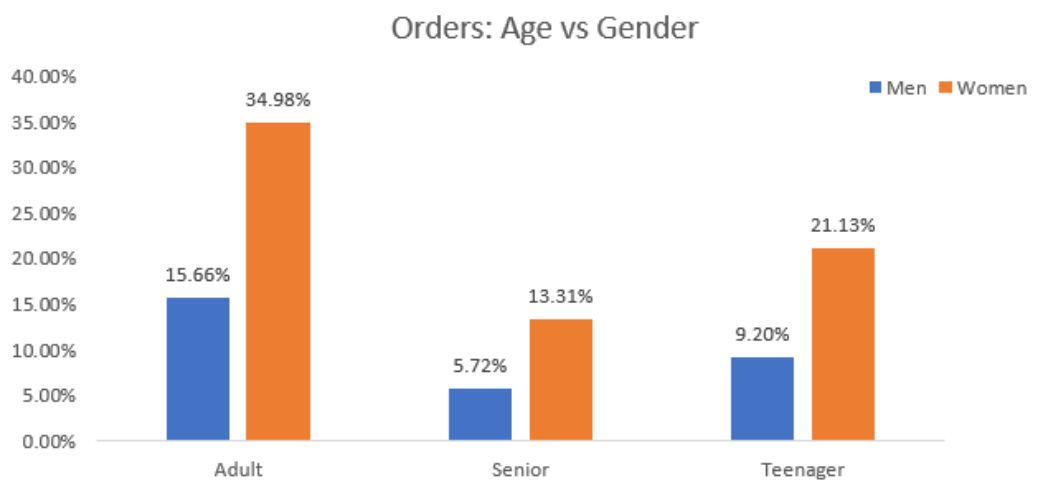
- **Category Popularity by Age**:

  - **Kurta**: Popular across all age groups, especially adults.
  - **Set**: Highly popular among teenagers.
  - **Western Dress**: Also relatively popular among teenagers compared to other age groups.
  - **Saree**: Popular mostly among adults and seniors.
  - **Ethnic Dress, Blouse, Bottom**: These categories are less popular across all age groups.
    Size Distribution: Sizes such as L, XL, and XXL seem to be the most ordered, especially in categories like western dresses, kurtas, and sets.

Count of Order ID	Column Labels		
Row Labels	Adult	Senior	Teenager
Blouse	112	39	78
Bottom	35	15	28
Ethnic Dress	137	54	73
kurta	5236	2010	3200
Saree	725	273	382
Set	6301	2350	3740
Top	1114	414	665
Western Dress	2063	754	1249

Categories: Different Age Group
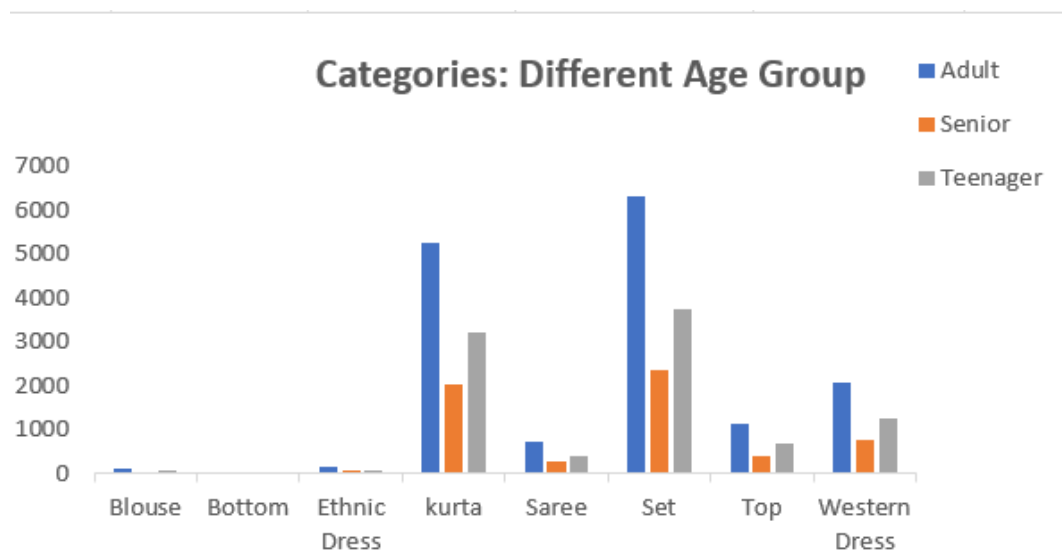
- **Category Popularity by Age Group**

  This pivot chart illustrates the popularity of different product categories (e.g., kurta, set, western dress) among various age groups (Teenager, Adult, Senior).

- **Teenagers**: Prefer sets and western dresses.
- **Adults**: Have a strong preference for kurtas, followed by sets and western dresses.
- **Seniors**: Kurtas and sarees are preferred categories.

Size Count by Categories

This chart visualizes the distribution of sizes across categories. Larger sizes (L, XL, XXL) dominate the dataset, which could suggest that the target audience leans towards these sizes, especially in categories like kurtas and sets.

Count of Qty	Column Labels							
Row Labels	Blouse	Bottom	Ethnic Dress	kurta	Saree	Set	Top	Western Dress
3XL		13	39	1209		1326	223	537
4XL					102	11		
5XL					146	15		
6XL					192	16		
Free	28				1380			
L	53	13	50	1874		2018	356	780
M	43	7	47	1821		2477	377	713
S	37	11	39	1280		1979	285	545
XL	33	13	40	1646		1745	374	586
XS	1	4	18	616		1289	231	344
XXL	34	17	31	1560		1515	347	561

Size count by Categories
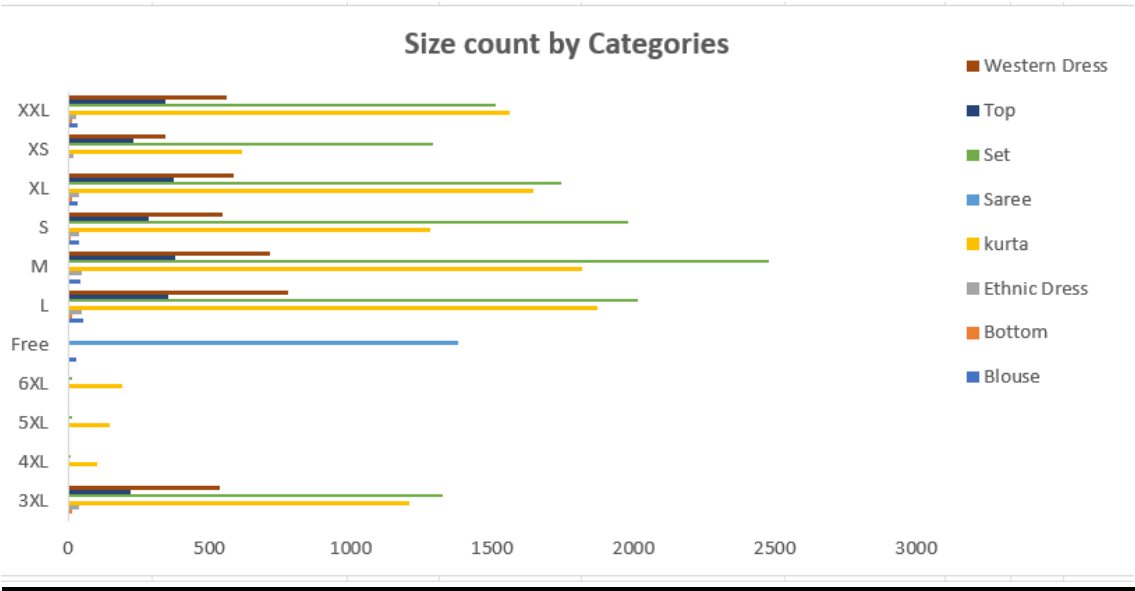
CHAPTER 6

RECOMMENDATIONS

6.1 Strategies for Inventory Management

- Stock larger sizes (L, XL, XXL) in greater quantities, especially for popular product categories like kurta and sets.

- Reduce inventory for less popular categories, such as blouses and bottoms.

6.2 Targeted Marketing Campaigns

- Focus marketing efforts on regions with the highest sales volumes, particularly Maharashtra, Karnataka, and Uttar Pradesh.

- Tailor promotions for specific customer segments based on age and product preferences. For example, offer discounts on sets and western dresses for teenagers, and promote kurtas and sarees to adults.

6.3 Enhancing Customer Experience

- Improve the user experience on top sales channels like Amazon, Myntra, and Flipkart by providing personalized product recommendations and optimizing the purchasing process.

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Interactive dashboard:

Kamal Mart 3 months Report 2022

CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 Summary of Key Findings

This sales analysis provided insights into customer preferences, regional performance, and popular product categories. The data-driven approach allows for improved decision-making, particularly in areas like inventory management and marketing.

7.2 Future Areas for Analysis

- Investigate customer loyalty and repeat purchasing patterns.
- Explore potential correlations between sales performance and external factors, such as marketing campaigns or seasonal promotions.
- Enhance the dataset by integrating feedback data to understand customer satisfaction levels.