

Customer Segmentation and Sales Analysis.

Objective

The purpose of this analysis was to better understand customer behavior and sales trends to help the retail company enhance its sales strategy. Our goal was to identify distinct customer segments and provide actionable insights for more targeted marketing.

Key Findings

1. Data Cleaning

- **Dataset Overview:** The dataset contains sales records including columns such as Customer ID, Order Date, Product ID, Category, Region, Quantity, Unit Price, and Total Amount. The dataset initially consisted of 363 rows and 10 columns.
- **Data Preprocessing Steps:**
 - **Missing Values:** The dataset contained no missing values, so no imputation or removal was necessary.
 - **Date Format Standardization:** The Order Date column was standardized to a consistent date format (YYYY-MM-DD).
 - **Duplicate Records:** There were no duplicate records in the dataset.
- **Outcome:** After data cleaning, the dataset maintained 363 rows and 10 columns with no missing values, duplicates, and consistent date formats.

```
Missing values per column:
Customer ID      0
Order ID         0
Order Date       0
Product ID       0
Product Name     0
Category         0
Quantity         0
Unit Price       0
Region           0
Total Amount     0
dtype: int64
```

2. Customer Segmentation (RFM Analysis):

We analyzed customers using Recency, Frequency, and Monetary (RFM) metrics and identified several key segments:

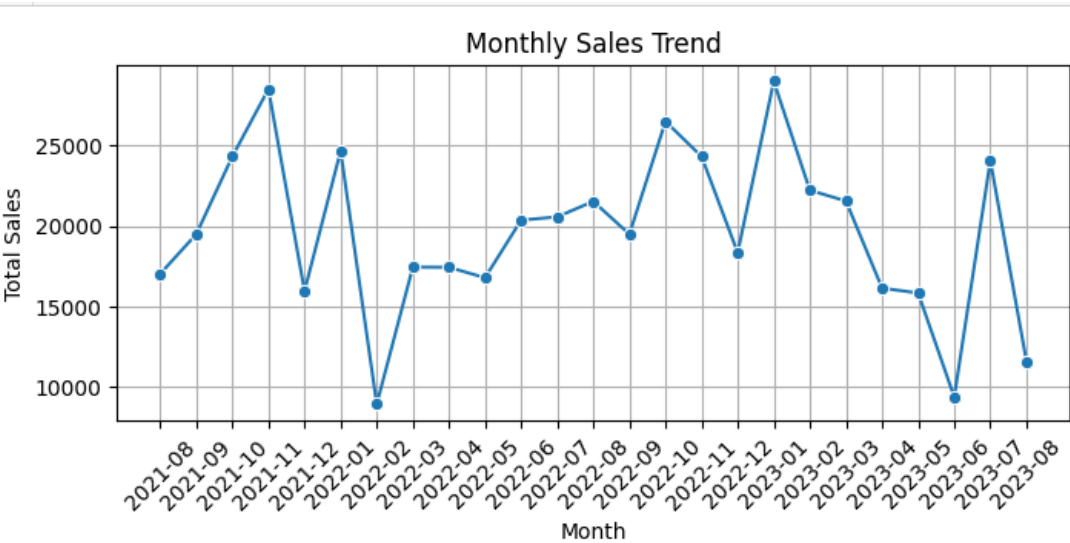
- **High-Value Customers:** These are customers who make frequent purchases, spend a lot, and have bought recently. They are the top priority as they contribute the most to revenue.

- **Loyal Customers:** This group buys frequently but spends less on each purchase. They are engaged but spend moderately.
- **At-Risk Customers:** These customers used to make large purchases but haven’t bought anything recently. They are at risk of leaving and need to be re-engaged.
- **New Customers:** Customers who have made a recent first purchase but haven't bought again. They show potential but need encouragement to keep coming back.

	Customer ID	Order ID	Order Date	Product ID	Product Name	Category	Quantity	Unit Price	Region	Total Amount
0	8a80ddb1-8615-4452-adce-db56c9385365	d929f0c8-5600-456b-9360-ae114e339871	2021-12-25	9c485900-229d-4b96-ac99-374754d40e1c	T-shirt	Accessories	2	55.23	North	110.46
1	ac664d43-893a-47a1-bdd7-139f73a360a7	38d57142-b1f3-4b25-ae2e-e7404d2df736	2022-10-08	3ff68652-ba71-4610-9284-71f778fd2819	Smartphone	Clothing	1	217.55	South	217.55
2	ebbc4ba3-d24f-4e25-a585-15c8e6bacbd7	58a7f2a2-5682-4510-b94e-cb56d076880d	2022-11-30	99ad1f2f-fa2e-4b27-8952-7b23249eeebc	T-shirt	Books	5	145.57	West	727.85
3	5f3f88e8-b638-4cfd-9af8-e14b63d9082f	12af190c-f3a3-4209-b7a7-fa7a66337df8	2023-02-12	b767b606-a5c1-46fc-83fa-78de163b8fca	Watch	Clothing	4	11.74	North	46.96
4	2029cf6c-dd8e-430c-ae24-586d3a5f422a	d283a232-0b04-49e9-bad3-6dcfd115b421	2023-02-17	15baeab4-63b9-4b98-a52f-40697bcd0c0f	Watch	Accessories	4	387.85	East	1551.40

3. Sales Trend Analysis:

- **Monthly and Yearly Sales Trends:** Sales peak during the holiday season, especially in December, indicating strong seasonal effects.
- **Top Product Categories:** Accessories and Clothing are top sellers, contributing significantly to overall revenue.
- **Regional Sales:** The North and East regions generate the most revenue, while other areas contribute less.



Actionable Recommendations

1. Focus on High-Value Customers:

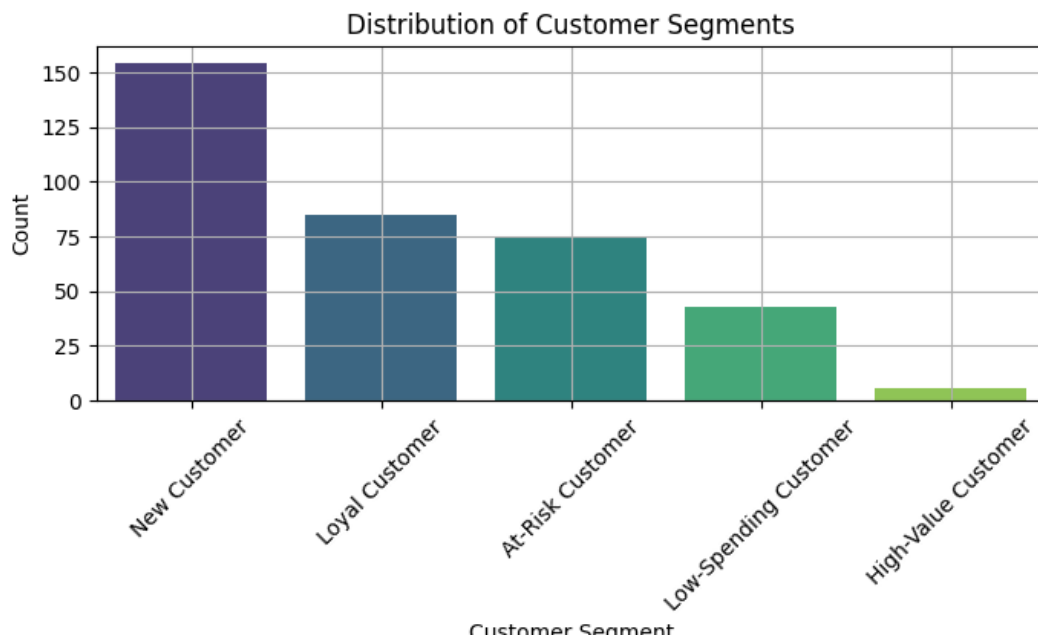
- **Loyalty Programs:** Introduce programs to reward these customers and keep them engaged.
- **Exclusive Offers:** Provide special discounts or early access to new products to incentivize continued spending.

2. Re-Engage At-Risk Customers:

- **Targeted Email Campaigns:** Send personalized offers to encourage these customers to make a purchase again.
- **Customer Surveys:** Understand their reasons for reduced activity and address any issues they may have.

3. Increase New Customer Retention:

- **First-Time Buyer Discounts:** Offer promotions on their next purchase to encourage repeat business.
- **Onboarding Campaigns:** Provide information about the benefits of your products to guide new customers through their purchasing journey.



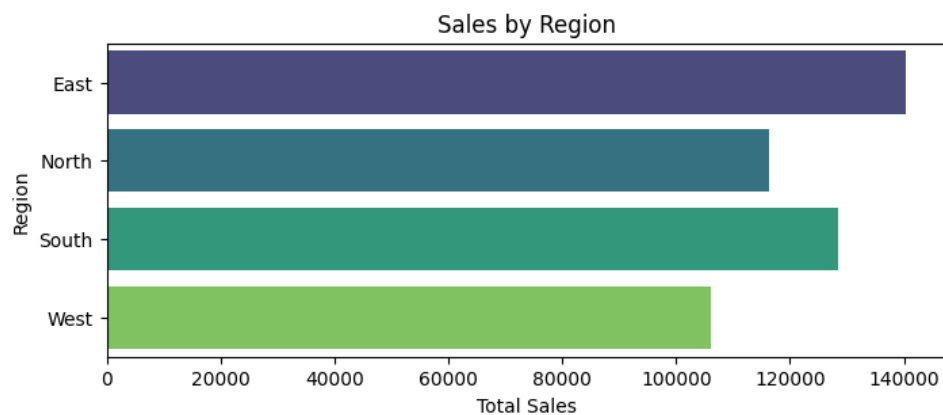
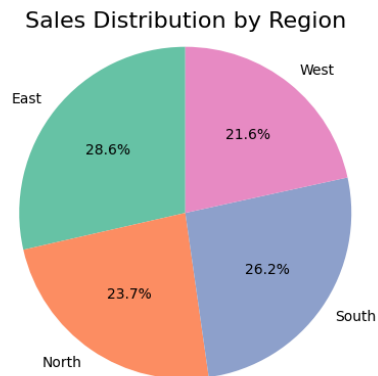
4. Boost Sales During Off-Peak Months:

- **Seasonal Campaigns:** Develop strategies to drive sales during slow periods with targeted promotions.

- **Flash Sales:** Create time-sensitive discounts to generate urgency and increase sales in lower-performing months.

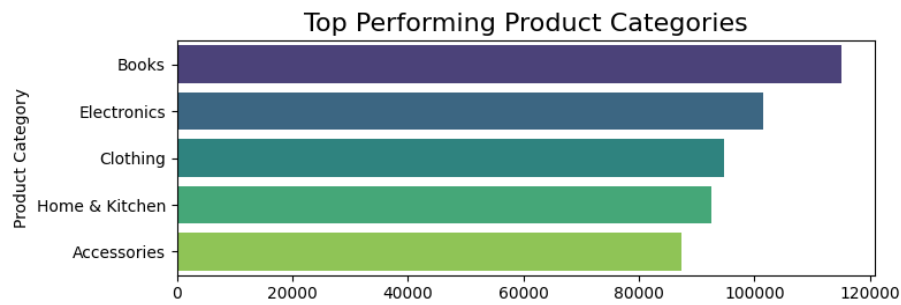
5. Expand in Low-Performing Regions:

- **Regional Marketing:** Tailor marketing efforts to specific regions with localized promotions.
- **Partnerships:** Collaborate with local influencers or businesses to increase visibility and attract more customers.



6. Optimize Product Assortment:

- **Expand Top Product Categories:** Increase the range within successful categories like Accessories and Clothing.
- **Cross-Sell and Upsell:** Use product recommendations and bundling to boost transaction values.



Conclusion

This analysis provides a roadmap for improving sales by leveraging customer segmentation and targeting. By focusing on high-value customers, re-engaging at-risk customers, retaining new buyers, boosting off-peak sales, expanding regionally, and optimizing product offerings, the retail company can enhance its market position and drive revenue growth.