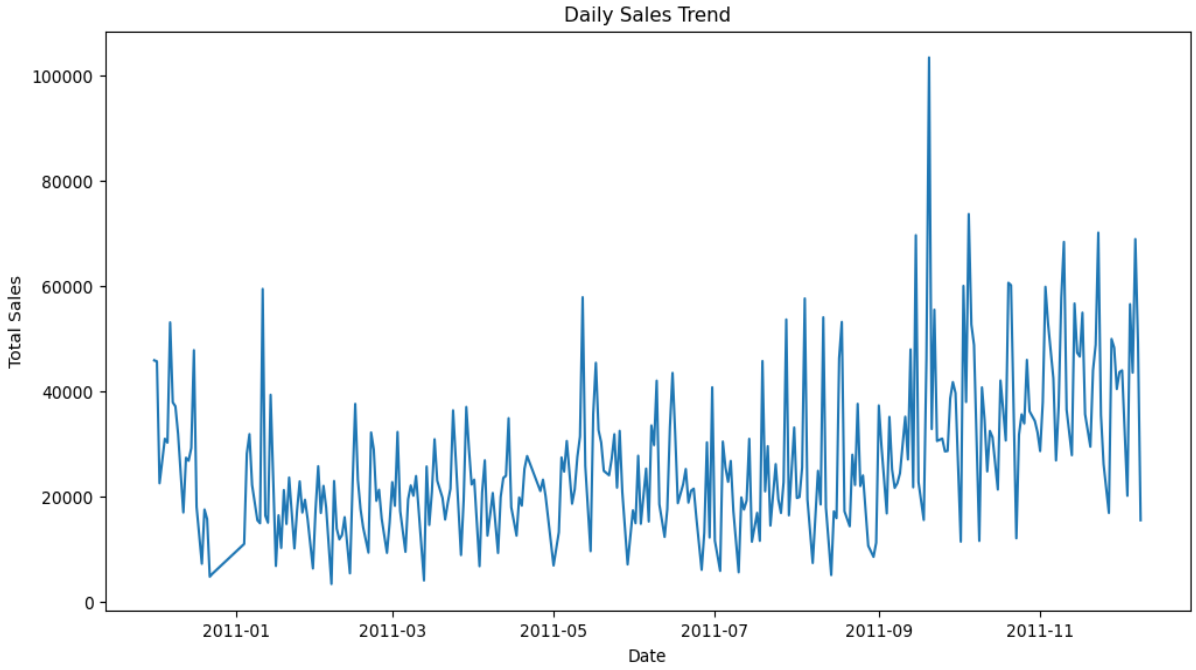
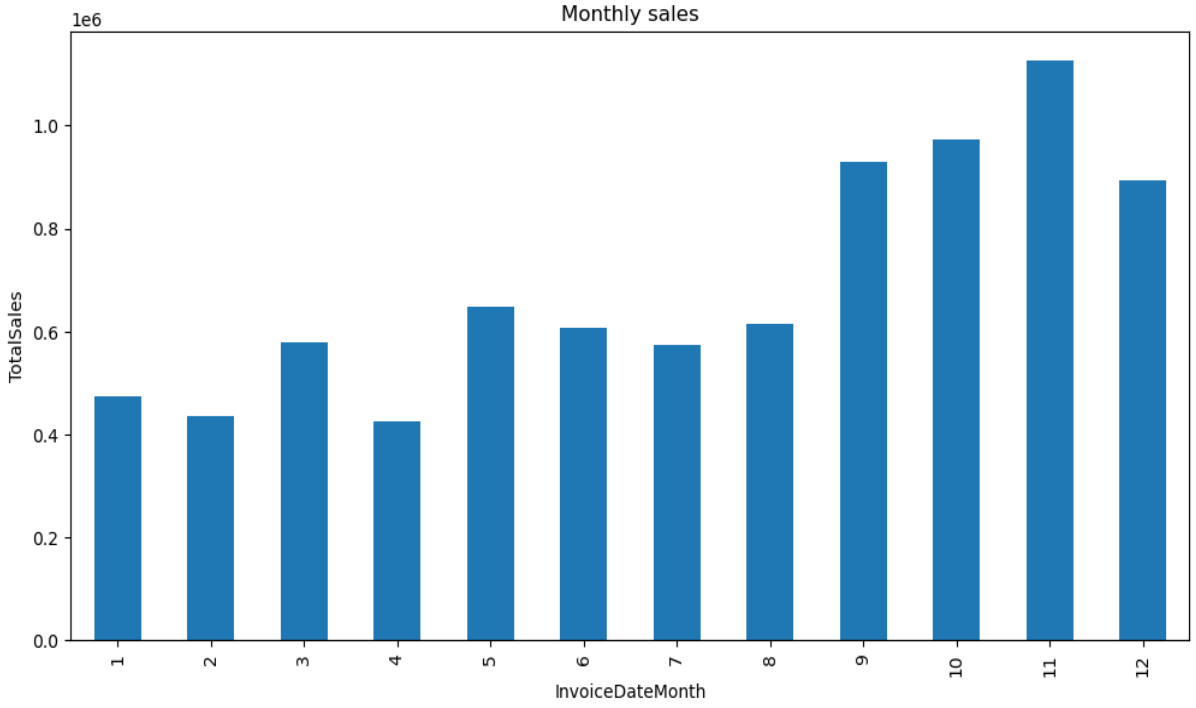
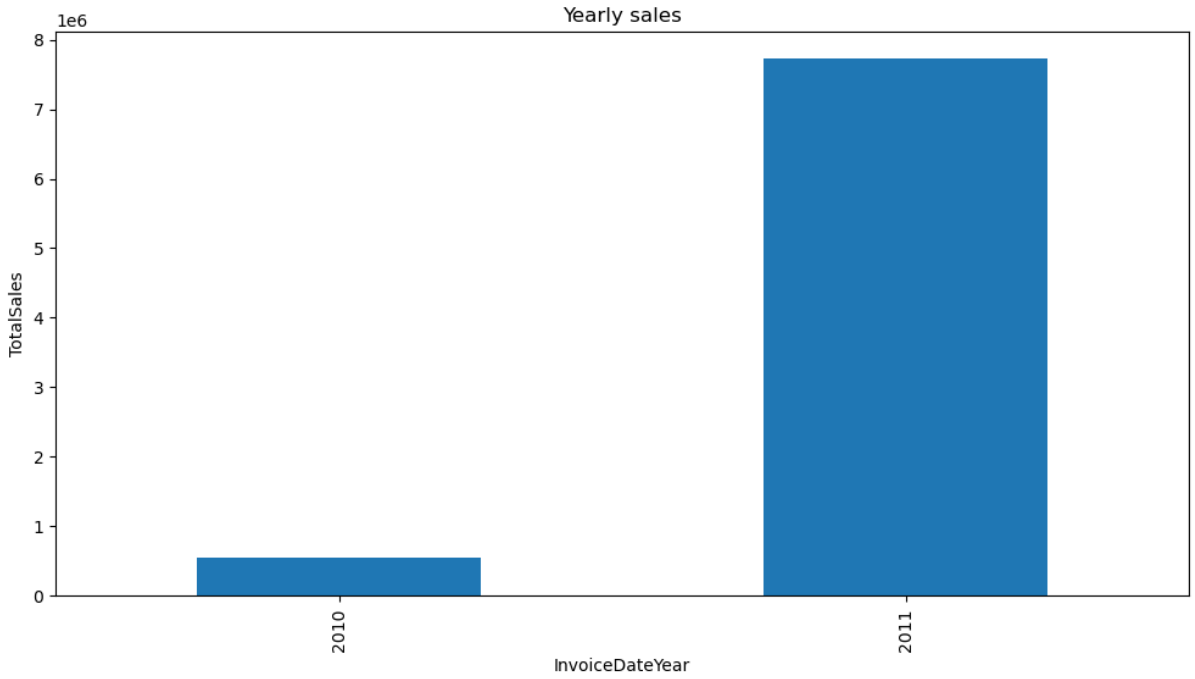
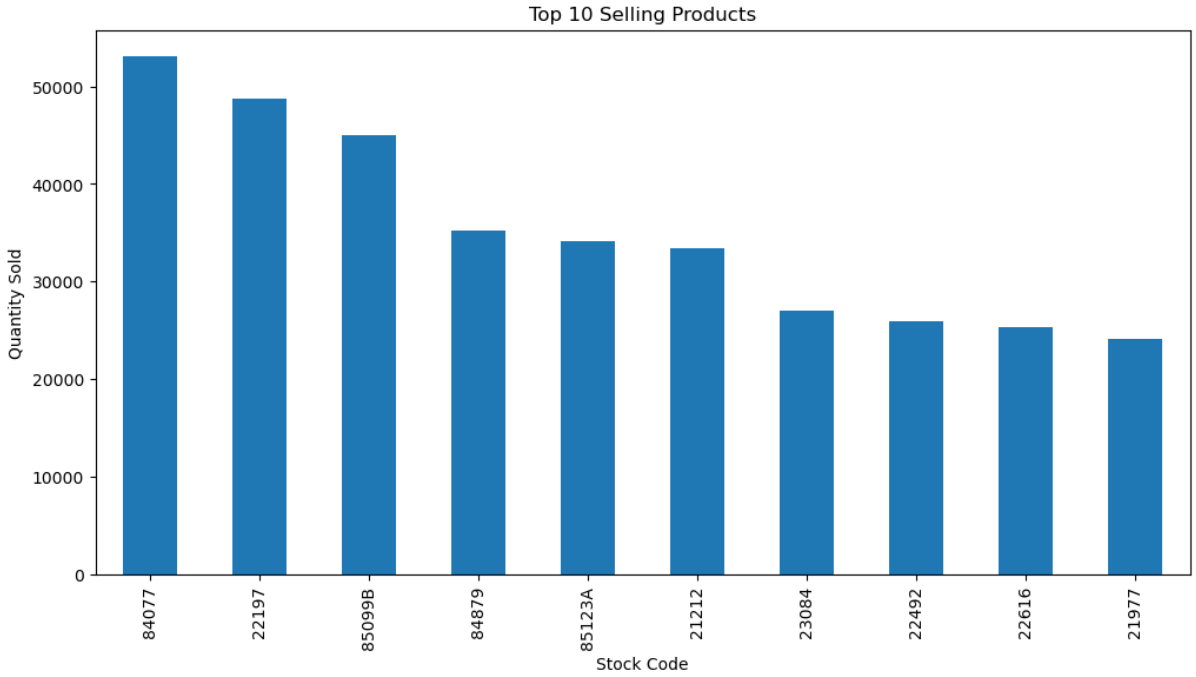
EHIZUAHUB SALES DASHBOARD

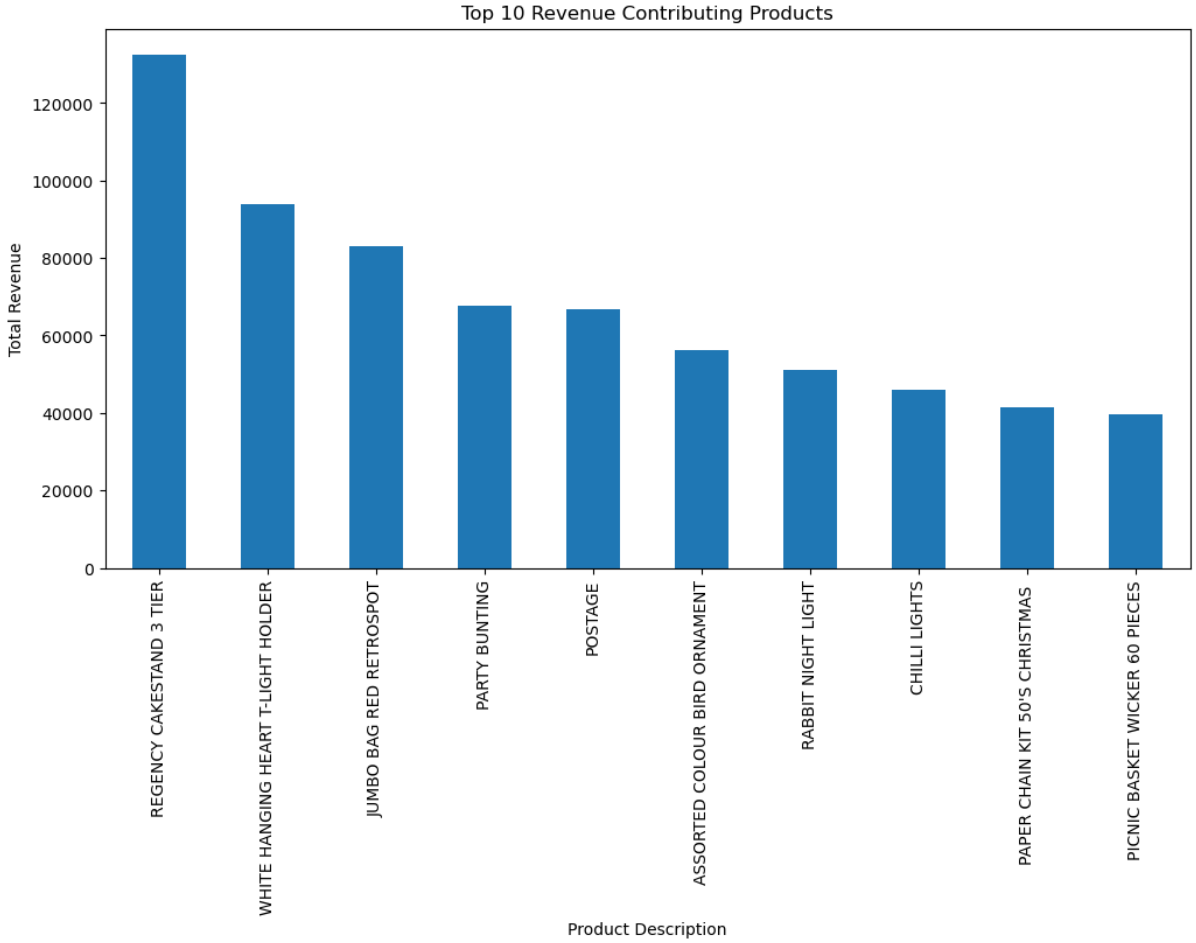
SALES ANALYSIS



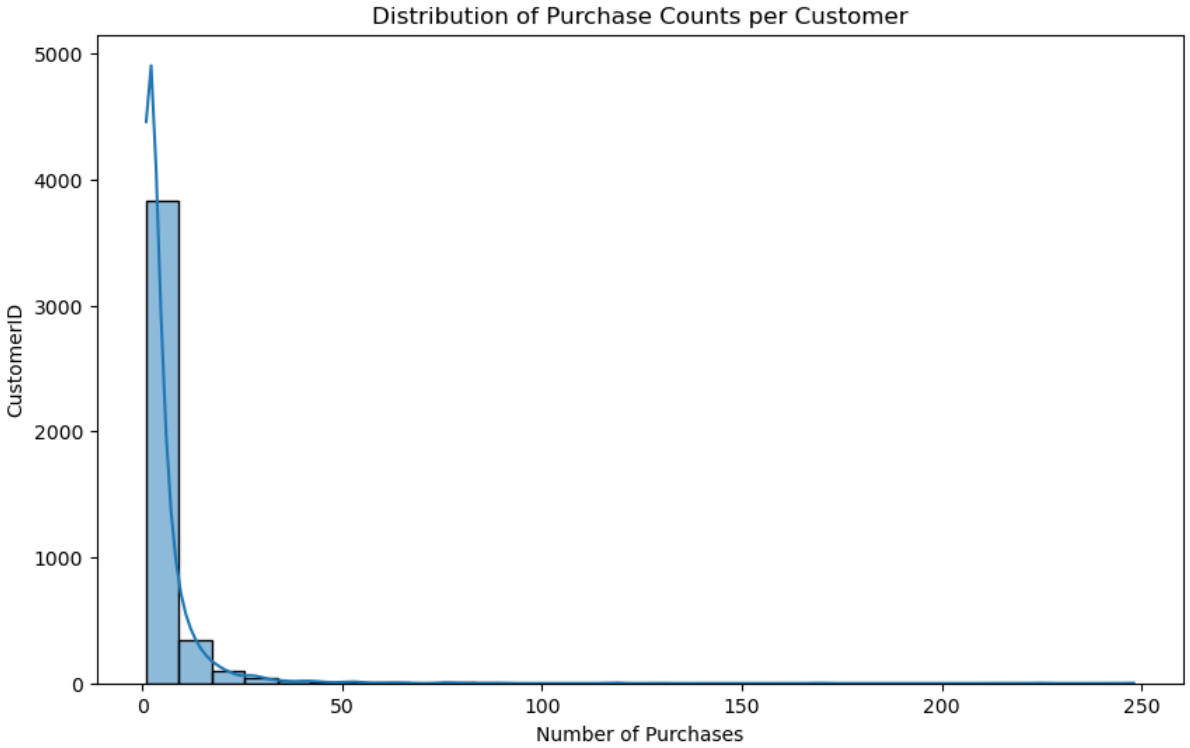


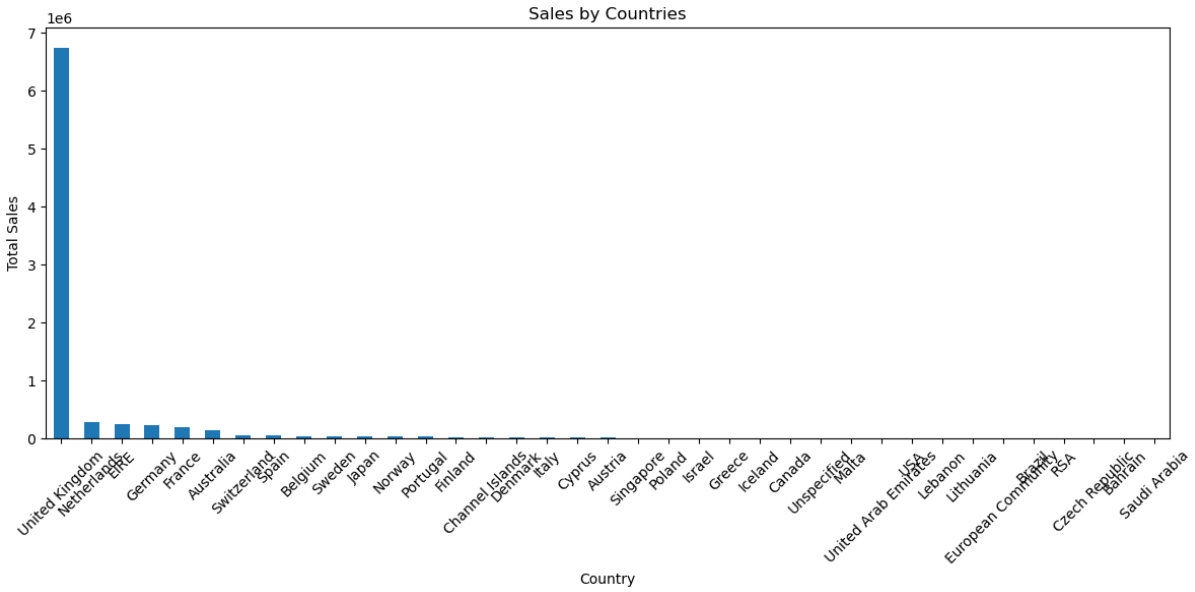

Yearly sales
1e6
8
7
6
5
4
3
2
1
0
TotalSales
2010
2011
InvoiceDateYear


Top 10 Selling Products
Quantity Sold
0
10000
20000
30000
40000
50000
84077
22197
85099B
84879
85123A
21212
23084
22492
22616
21977
Stock Code

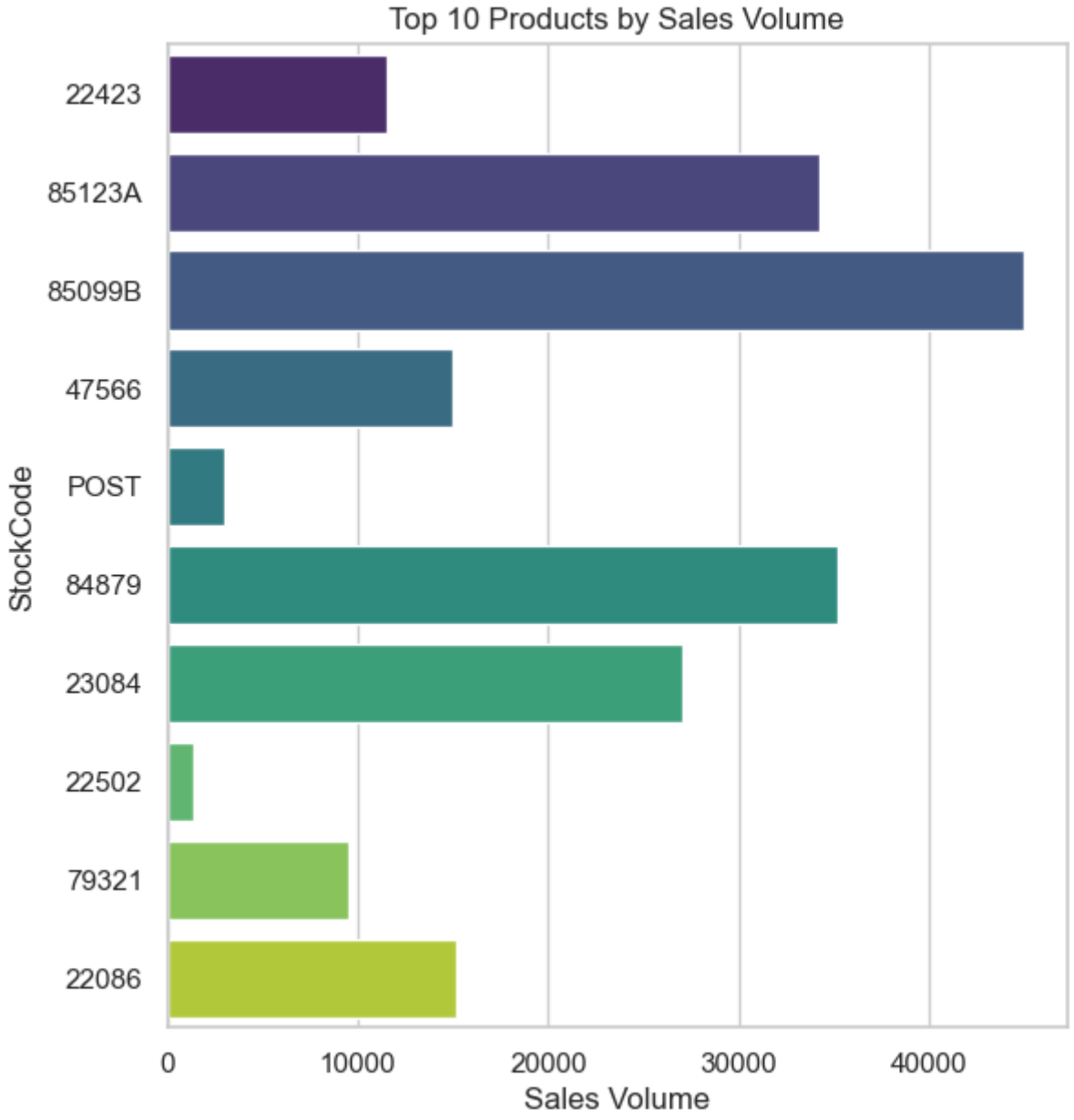

Top 10 Revenue Contributing Products
Total Revenue
0
20000
40000
60000
80000
100000
120000
REGENCY CAKESTAND 3 TIER
WHITE HANGING HEART T-LIGHT HOLDER
JUMBO BAG RED RETROSPOT
PARTY BUNTING
POSTAGE
ASSORTED COLOUR BIRD ORNAMENT
RABBIT NIGHT LIGHT
CHILLI LIGHTS
PAPER CHAIN KIT 50'S CHRISTMAS
PICNIC BASKET WICKER 60 PIECES
Product Description

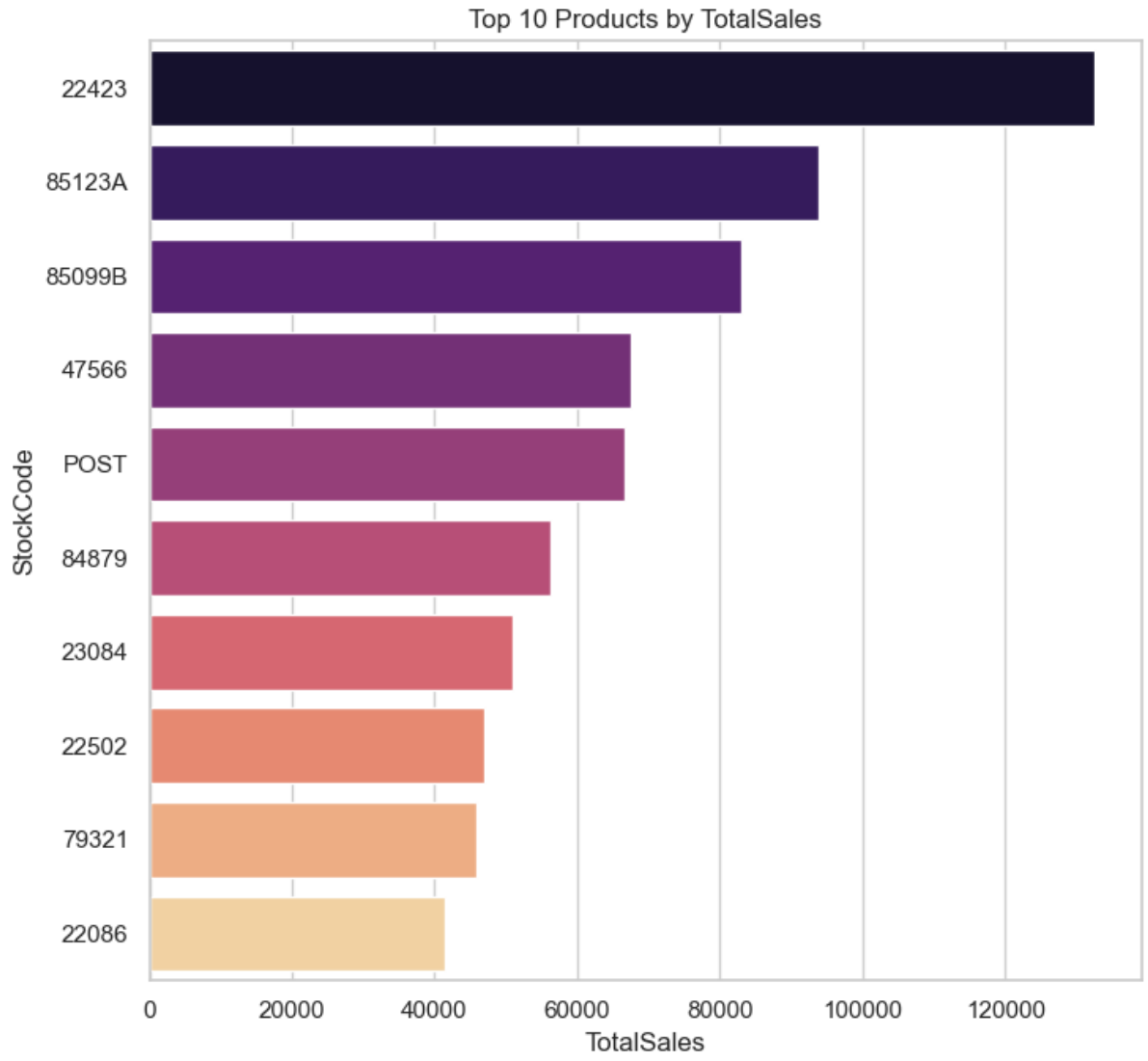
CUSTOMER ANALYSIS

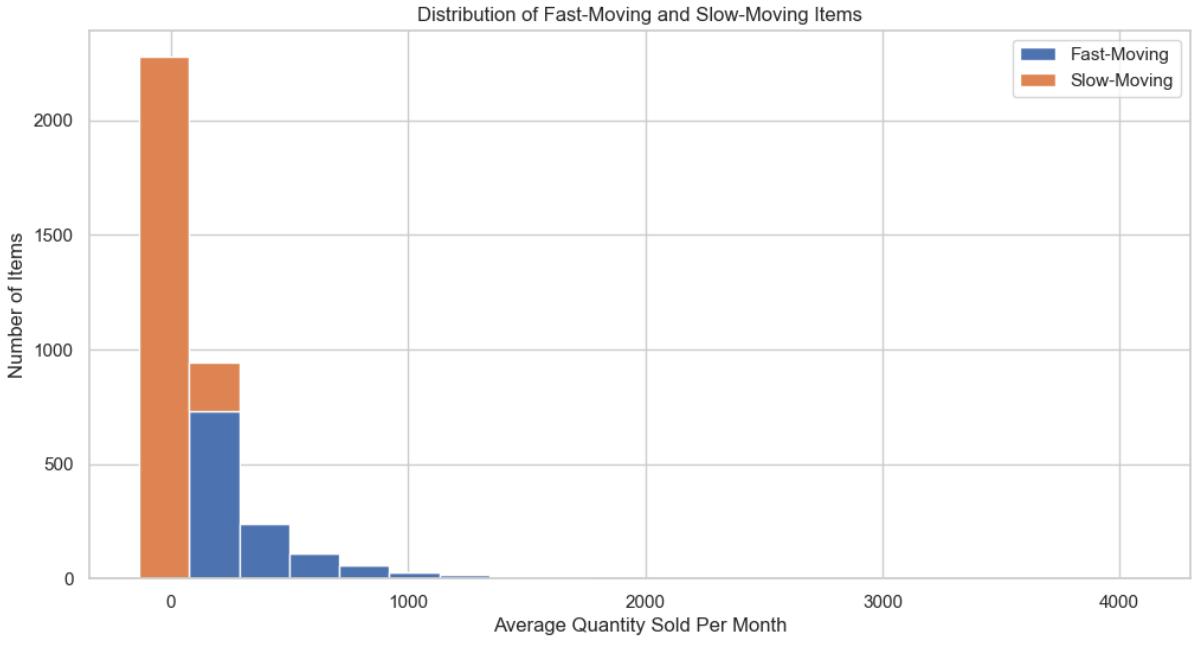




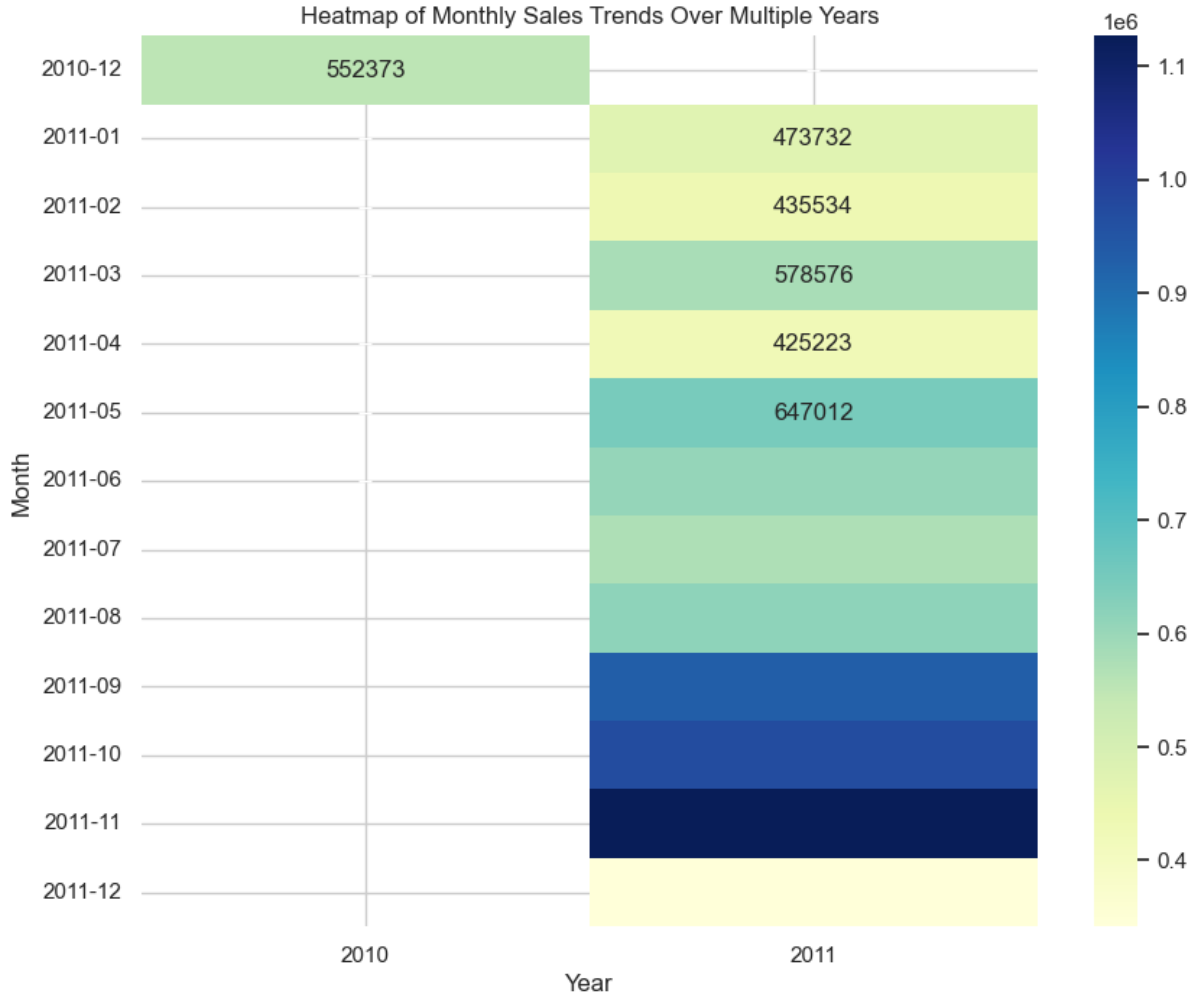
PRODUCT ANALYSIS

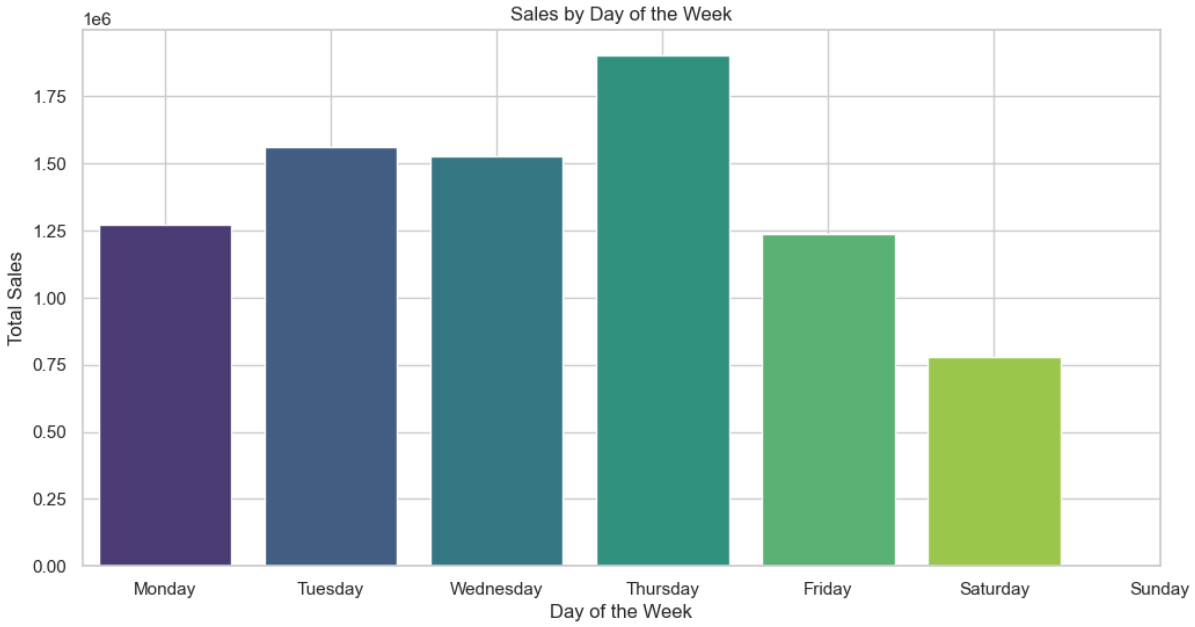



Top 10 Products by TotalSales
22423
85123A
85099B
47566
POST
84879
23084
22502
79321
22086
StockCode
0
20000
40000
60000
80000
100000
120000
TotalSales

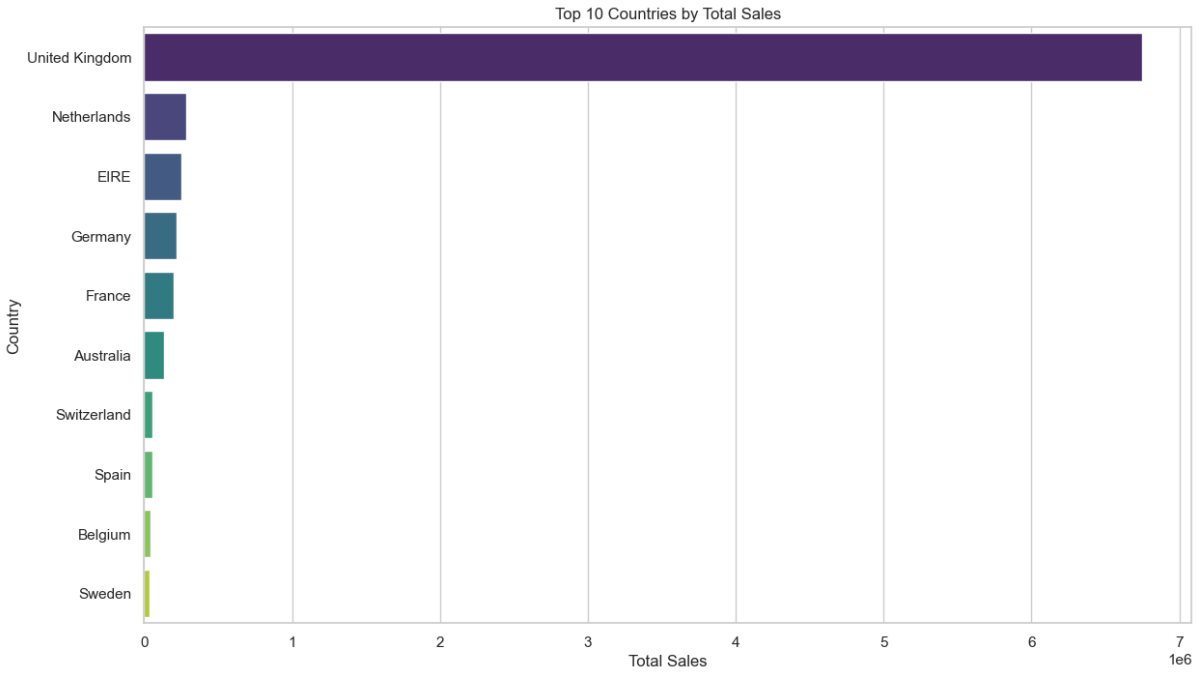

Distribution of Fast-Moving and Slow-Moving Items
Fast-Moving
Slow-Moving
2000
1500
1000
500
0
Number of Items
0
1000
2000
3000
4000
Average Quantity Sold Per Month

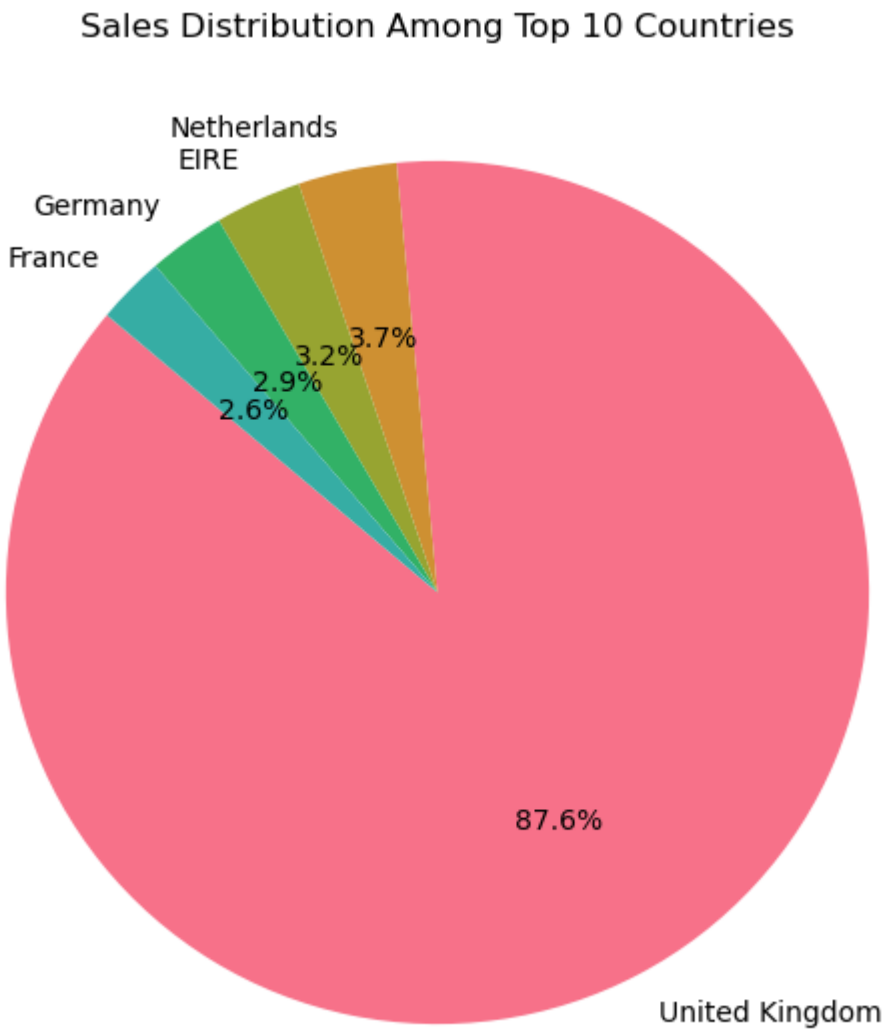
TIME SERIES ANALYSIS

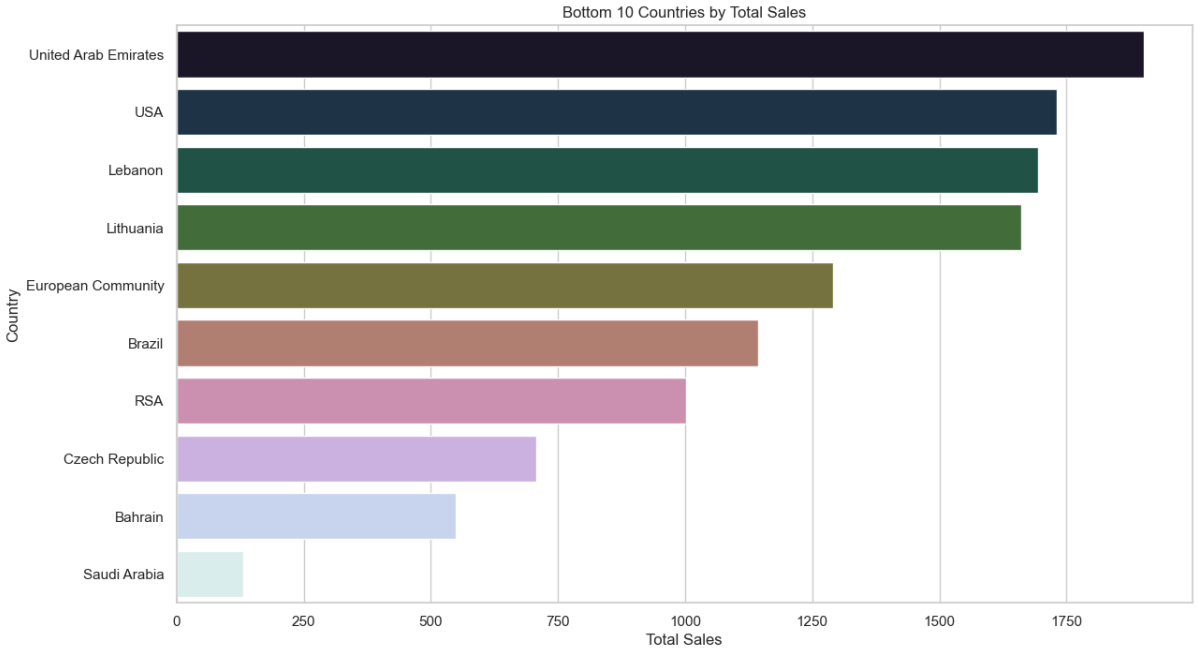


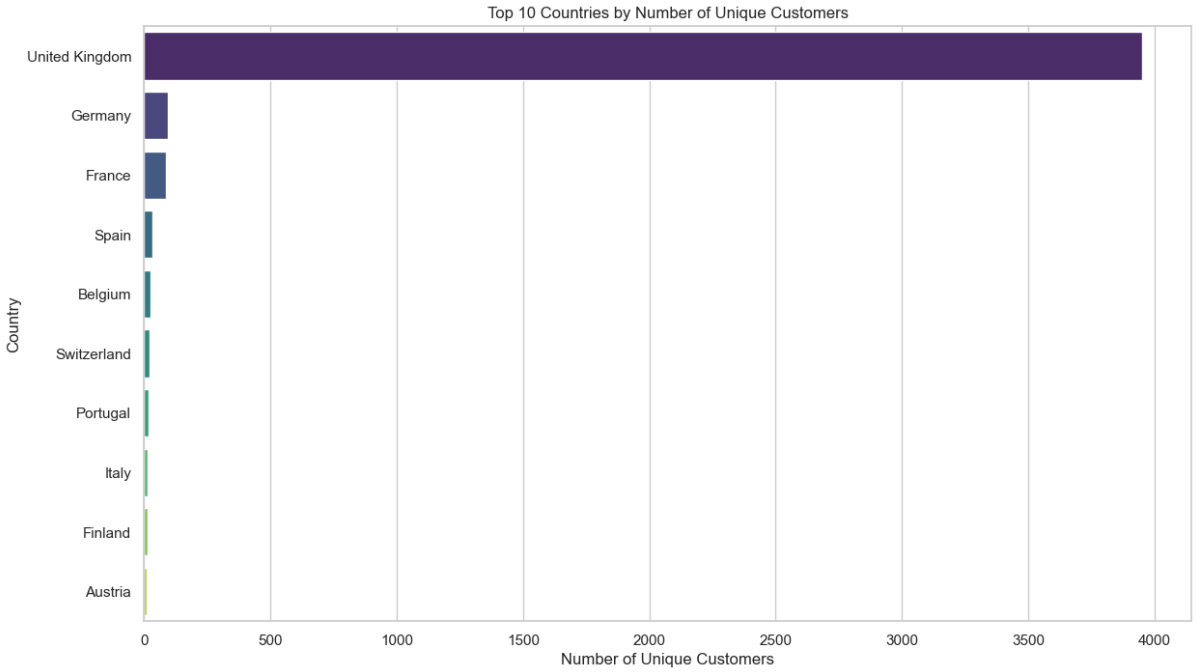


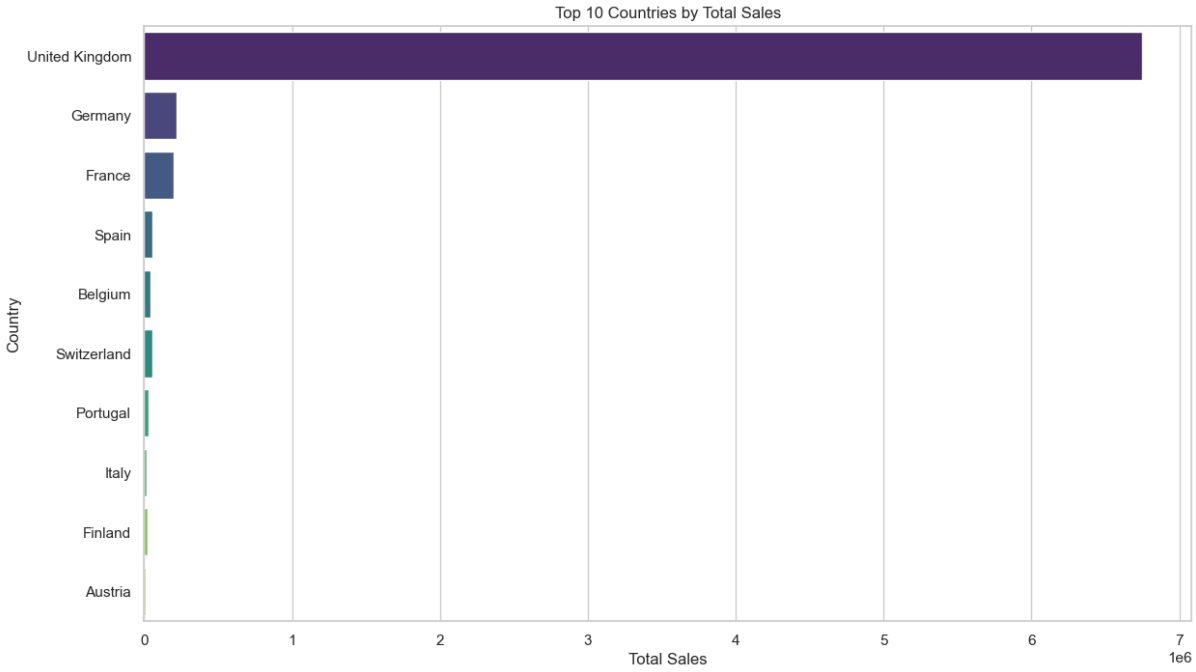
COUNTRY-SPECIFIC ANALYSIS

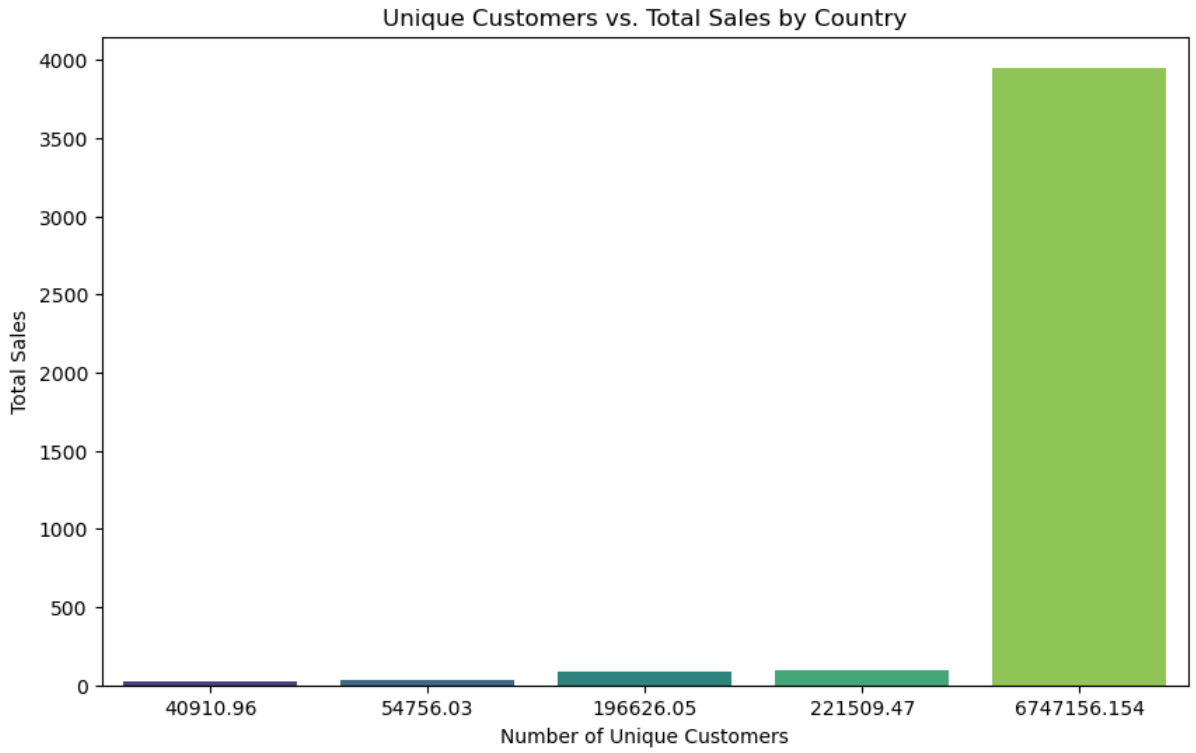



Sales Distribution Among Top 10 Countries
Netherlands
EIRE
Germany
France
3.7%
3.2%
2.9%
2.6%
87.6%
United Kingdom

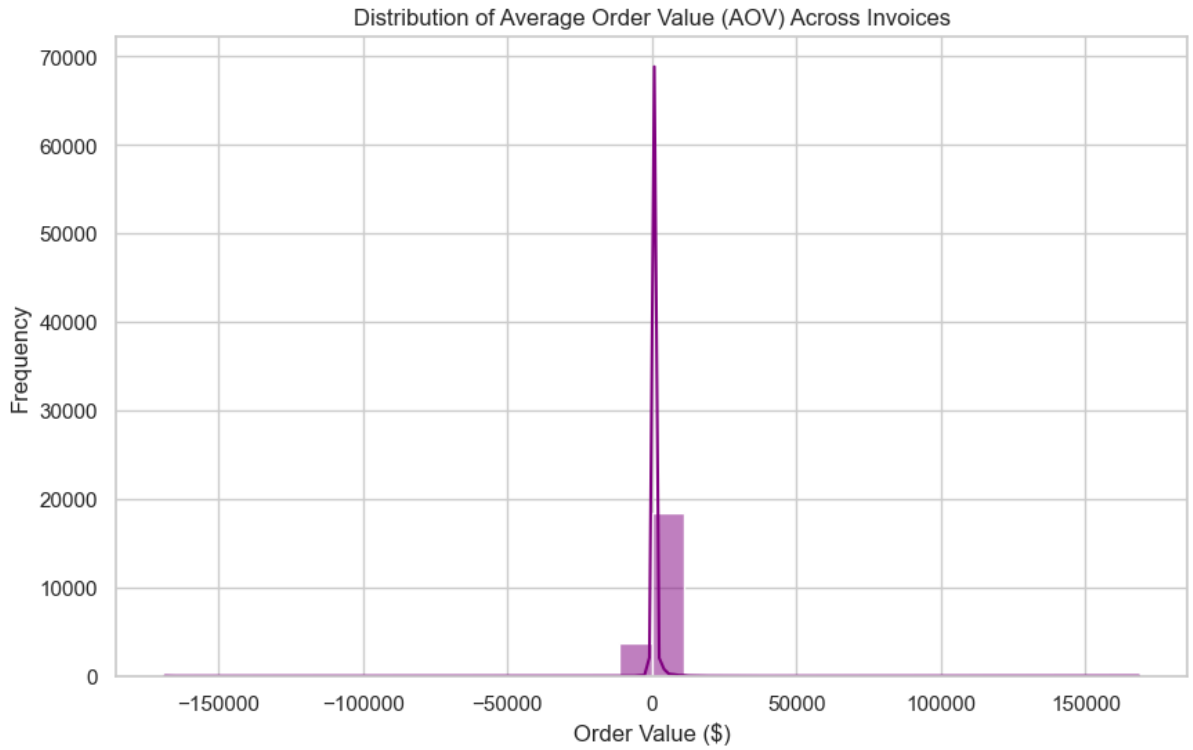

Bottom 10 Countries by Total Sales
United Arab Emirates
USA
Lebanon
Lithuania
European Community
Brazil
RSA
Czech Republic
Bahrain
Saudi Arabia
Country
0
250
500
750
1000
1250
1500
1750
Total Sales

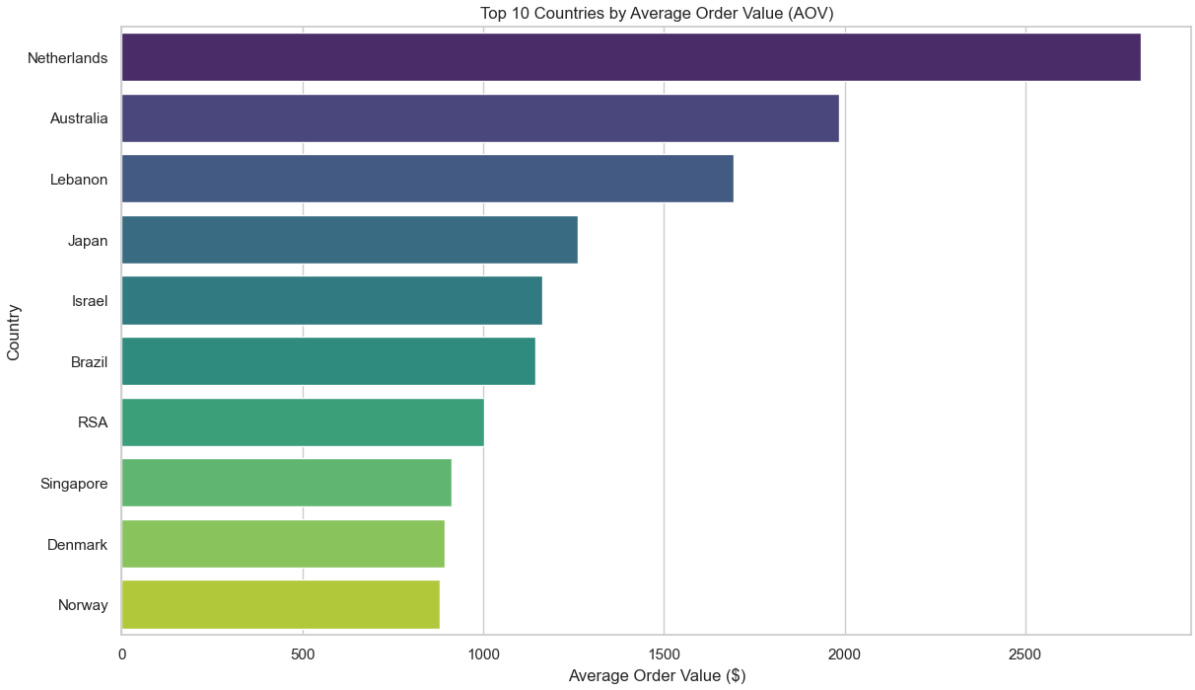

Top 10 Countries by Number of Unique Customers
United Kingdom
Germany
France
Spain
Belgium
Switzerland
Portugal
Italy
Finland
Austria
Country
0
500
1000
1500
2000
2500
3000
3500
4000
Number of Unique Customers

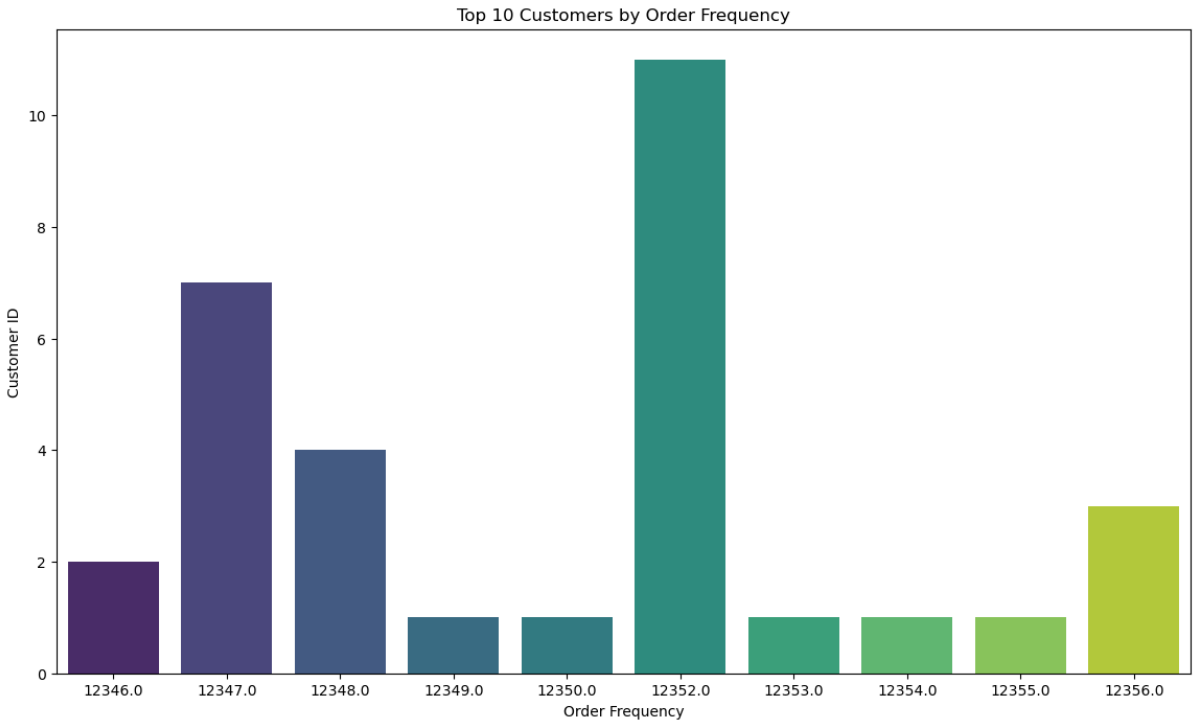

Top 10 Countries by Total Sales
United Kingdom
Germany
France
Spain
Belgium
Switzerland
Portugal
Italy
Finland
Austria
Country
0
1
2
3
4
5
6
7
Total Sales
1e6

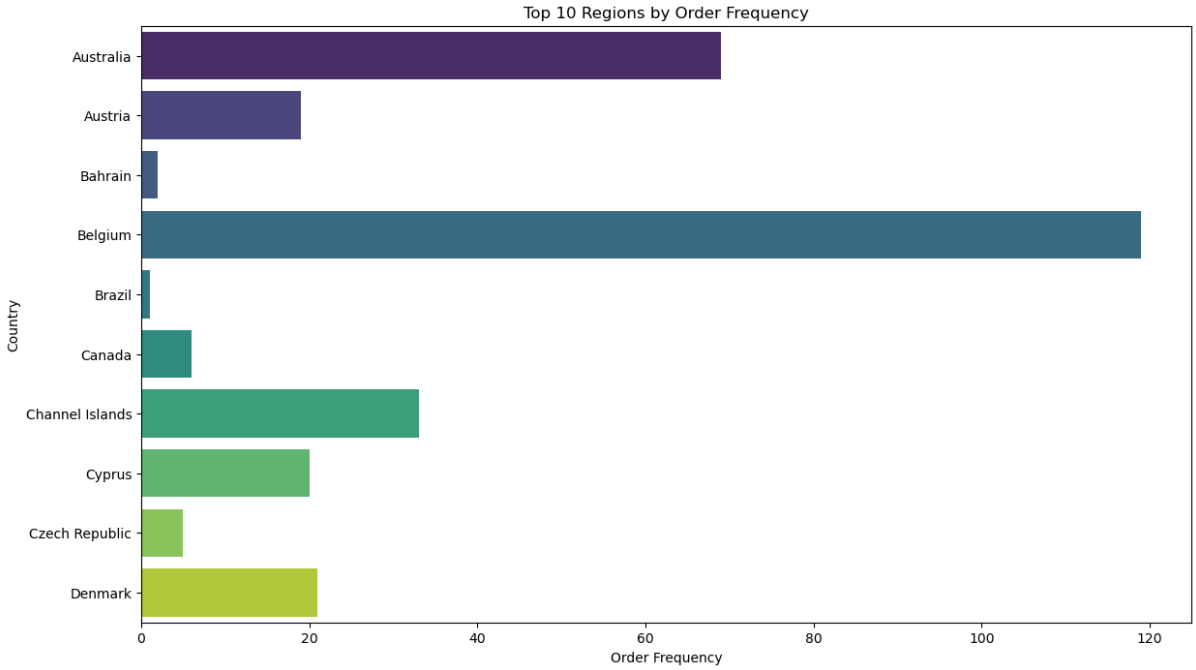

Unique Customers vs. Total Sales by Country
4000
3500
3000
2500
2000
1500
1000
500
0
Total Sales
40910.96
54756.03
196626.05
221509.47
6747156.154
Number of Unique Customers

INVOICE-LEVEL ANALYSIS




Top 10 Countries by Average Order Value (AOV)
Netherlands
Australia
Lebanon
Japan
Israel
Brazil
RSA
Singapore
Denmark
Norway
Country
0
500
1000
1500
2000
2500
Average Order Value ($)


Top 10 Customers by Order Frequency
Customer ID
0
2
4
6
8
10
12346.0
12347.0
12348.0
12349.0
12350.0
12352.0
12353.0
12354.0
12355.0
12356.0
Order Frequency


Top 10 Regions by Order Frequency
Australia
Austria
Bahrain
Belgium
Brazil
Canada
Channel Islands
Cyprus
Czech Republic
Denmark
Country
0
20
40
60
80
100
120
Order Frequency

Project overview

This data analysis project aims to provide insights into the sales performance of the store from December 2010 to December 2011. By analyzing various aspects of the sales data, we seek to identify sales trends over time, customer purchasing behaviour, top performing products and key markets

Data Source

The primary dataset used for this analysis is the “Data.csv” file and the data set contains the following columns;

- InvoiceNo: This contains the invoice number of the items bought from the superstore.
- StockCode: This contains special codes for each product bought from the store
- Description: This gives a detailed description of the item bought from the store
- InvoiceDate: This contains the date the item was bought from the store.
- Quality: This contains the number of items bought from the store.
- CustomerID: A unique number that represents the customer that bought the item from the store
- Country: This represent the region that the customer is located.

Tools

- Python – Data cleaning, Data Analysis and Visualization

Data Cleaning/Preparation

1. Data loading and inspection
2. Handling missing data
3. Handling duplicate values and outliers
4. Data cleaning and formatting

Exploratory Data Analysis (EDA)

EDA involved exploring the data set to answer key questions asked such as;

1. **Sales Analysis**

   - Total Sales: Calculate total sales revenue

   - Sales Trends: Analyze sales trends over time

   - Top-Selling Products: Identify top-selling products

   - Revenue Contribution: Determine which products or categories contribute the most to revenue.

2. **Customer Analysis**

   - Customer Segmentation: Segment customers based on purchase behaviour, such as frequency of purchase, total spending, or preferred products.

   - Customer Lifetime Value (CLV): Estimate the lifetime value of customers by analyzing their total spending over time.

   - Customer Retention: Track repeat customers and analyze patterns in repeat purchases.

   - Geographical Distribution: Analyze sales distribution across different countries using the `Country` column.

3. **Product Analysis**

   - Product Performance: Evaluate the performance of different products by analyzing sales volume and revenue generated by each `StockCode` or `Description`.

   - Inventory Management: Monitor stock levels by examining the `Quantity` sold over time and identify fast-moving or slow-moving items.

   - Product Returns: If negative quantities are present, they might indicate returns,

which can be analyzed to understand return rates for different products.

4. **Time Series Analysis**

- Seasonality: Detect seasonal trends in sales by analyzing `InvoiceDate` over multiple periods.

- Peak Sales Periods: Identify peak sales periods during the year, such as holidays or promotional events.

5. **Country-Specific Analysis**

- Regional Sales Performance: Compare sales performance across different countries and identify key markets.

- Market Penetration: Analyze the penetration of products in various countries by looking at the number of unique customers or total sales in each country.

6. I**nvoice-Level Analysis**

- Average Order Value: Calculate the average order value by dividing the total sales by the number of invoices.

- Order Frequency: Analyze the frequency of orders from different customers or regions.

Data analysis

Python code to get our total sales of each product:

```
df_cleaned['TotalSales'] = df_cleaned['Quantity'] * df_cleaned['UnitPrice']

df_cleaned.head()
```

Python code to get the total sales revenue of all the product been sold:

```
total_sales_revenue = df_cleaned['TotalSales'].sum()

total_sales_revenue
```

Results/findings

The analysis results are summarized as follows:

1. The company recorded an increase in sales over the past year, with a noticeable increase/peak during the holiday season
2. Product with the stock code 84077 is identified as the top selling product in terms of sales.
3. The product REGENCY CAKESTAND 3 TIER brought in more revenue for the store.
4. Customer segments with high lifetime value should be targeted for marketing strategies.
5. The United Kingdom has the highest sales performance making them a key market.
6. The product with the stock code 23843(PAPER CRAFT, LITTLE BIRDIE) is the most returned product
7. It was observed that Netherland has the highest Average Order Value (AOV)
8. Australia is the region with the highest order frequency.

Recommendations

- Invest more in marketing and promotion during peak seasons to maximize revenue
- Focus on expanding and promoting the top selling product with stock code 84077 and also the REGENCY CAKESTAND 3 TIER that brought in more revenue.
- Implement a strategy to target an retain high lifetime value customers effectively.
- It was observed that there are more slow-moving products than fast-moving products and this should be looked into.