

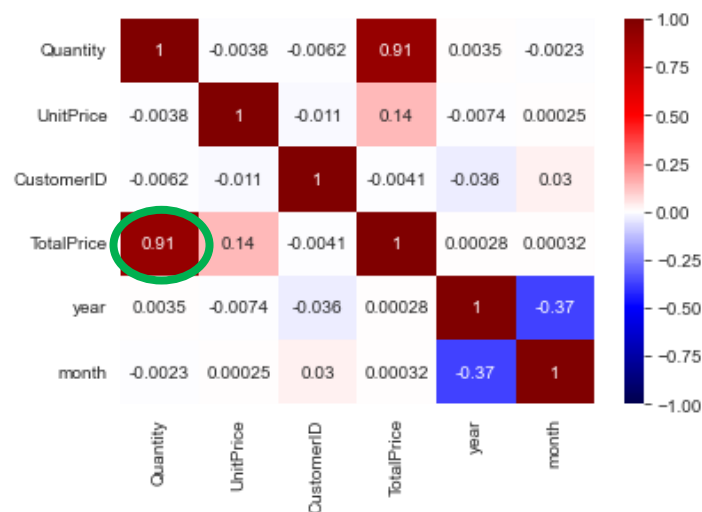
Data Description:

This dataset can be found at Kaggle, which contains all the transactions occurring between 01/12/2010 and 09/12/2011 for a UK-based and registered non-store online retail. The company mainly sells unique all-occasion gifts. Many customers of the company are wholesalers.

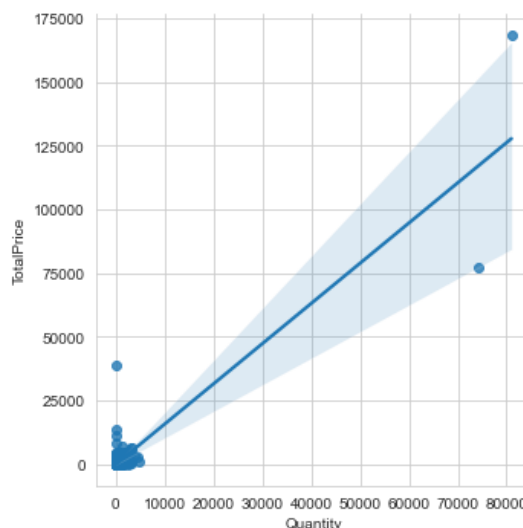
Data shape (542k,8)

- **InvoiceNo:** Invoice number that consists of 6 digits.
- **StockCode:** Product code that consists of 5 digits.
- **Description:** Product name.
- **Quantity:** The quantities of each product per transaction.
- **InvoiceDate:** Represents the day and time when each transaction was generated.
- **UnitPrice:** Product price per unit.
- **CustomerID:** Customer number that consists of 5 digits. Each customer has a unique customer ID.
- **Country:** Name of the country where customer receive the item.

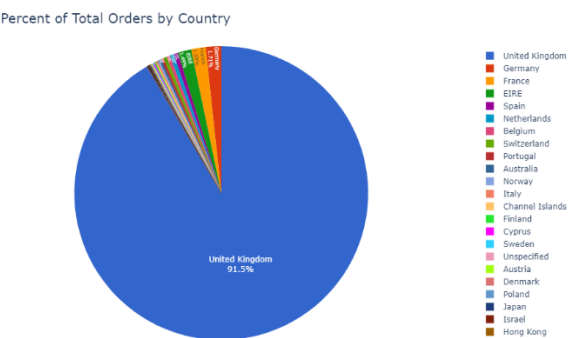
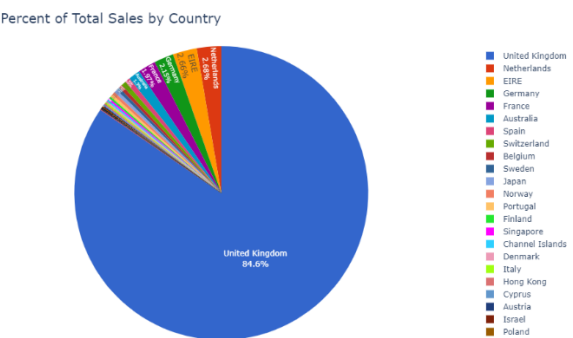
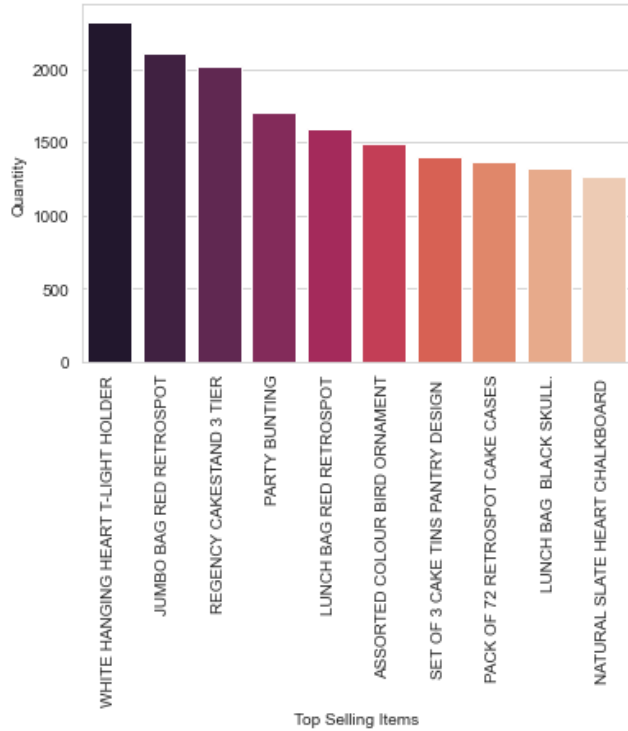
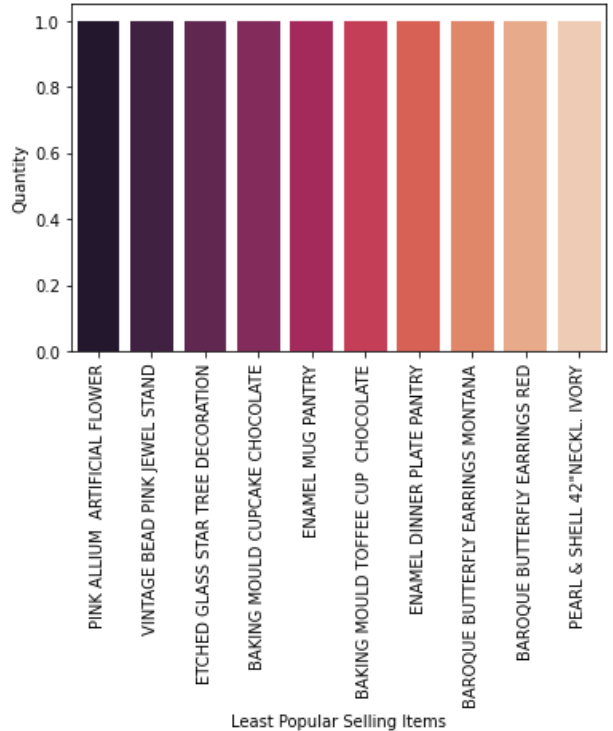
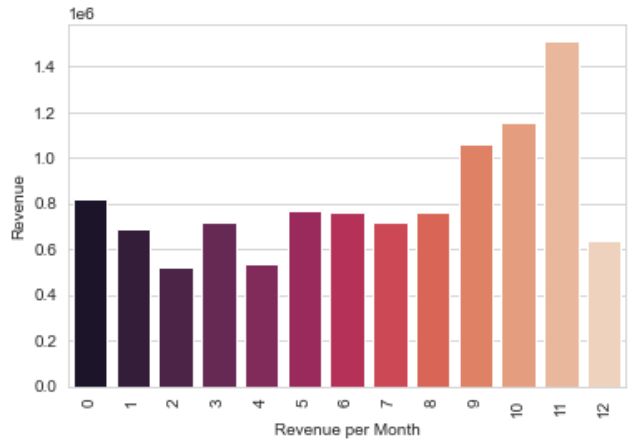
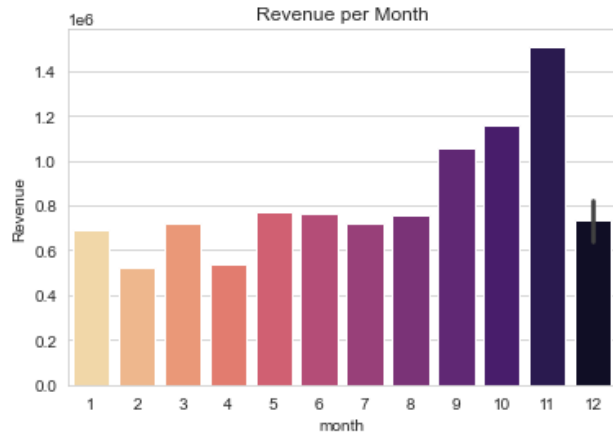
Correlation matrix:



It seems that there is a Strong Relationship between the Quantity and Total Price



Questions:

| | |
|--|--|
| <p>What are Number of Orders for each Country?</p>  <p>Percent of Total Orders by Country</p> <p>United Kingdom 91.5%</p> <p>Legend:</p> <ul style="list-style-type: none"> United Kingdom Germany France EIRE Spain Netherlands Belgium Switzerland Portugal Australia Norway Italy Channel Islands Finland Cyprus Sweden Unspecified Austria Denmark Poland Japan Israel Hong Kong | <p>What is the Sales trend for Each Country?</p>  <p>Percent of Total Sales by Country</p> <p>United Kingdom 94.6%</p> <p>Legend:</p> <ul style="list-style-type: none"> United Kingdom Netherlands EIRE Germany France Australia Spain Switzerland Belgium Sweden Japan Norway Portugal Finland Singapore Channel Islands Denmark Italy Hong Kong Cyprus Austria Israel Poland |
| <p>What are the most popular 10 items?</p>  <p>Quantity</p> <p>Top Selling Items</p> <p>WHITE HANGING HEART T-LIGHT HOLDER</p> <p>JUMBO BAG RED RETROSPOT</p> <p>REGENCY CAKESTAND 3 TIER</p> <p>PARTY BUNTING</p> <p>LUNCH BAG RED RETROSPOT</p> <p>ASSORTED COLOUR BIRD ORNAMENT</p> <p>SET OF 3 CAKE TINS PANTRY DESIGN</p> <p>PACK OF 72 RETROSPOT CAKE CASES</p> <p>LUNCH BAG BLACK SKULL</p> <p>NATURAL SLATE HEART CHALKBOARD</p> | <p>What are the least popular 10 items?</p>  <p>Quantity</p> <p>Least Popular Selling Items</p> <p>PINK ALLIUM ARTIFICIAL FLOWER</p> <p>VINTAGE BEAD PINK JEWEL STAND</p> <p>ETCHED GLASS STAR TREE DECORATION</p> <p>BAKING MOULD CUPCAKE CHOCOLATE</p> <p>ENAMEL MUG PANTRY</p> <p>BAKING MOULD TOFFEE CUP CHOCOLATE</p> <p>ENAMEL DINNER PLATE PANTRY</p> <p>BAROQUE BUTTERFLY EARRINGS MONTANA</p> <p>BAROQUE BUTTERFLY EARRINGS RED</p> <p>PEARL & SHELL 42"NECKL. IVORY</p> |
| <p>Who are the 10 Most Valuable Customers?</p>  <p>Revenue</p> <p>Revenue per Month</p> <p>0 1 2 3 4 5 6 7 8 9 10 11 12</p> | <p>How much is the revenue for each month?</p>  <p>Revenue</p> <p>Revenue per Month</p> <p>1 2 3 4 5 6 7 8 9 10 11 12</p> <p>month</p> |

Awatif Alshehri

| | |
|-----------------------------------|------------------------------|
| Best Customers: 456 | Loyal Customers: 872 |
| Customers at risk of churning: 70 | Almost Churned Customers: 10 |
| Churned Customers: 444 | Big Spenders: 1085 |

| Modeling Scores: | |
|---|-----|
| A. KMeans | 47% |
| B. MiniBatch KMeans | 45% |
| Conclusion | |
| The KMeans Model with n_clusters = 6 was the best performing model, based on Silloutte score !! | |