

eCommerce Transactions

Assignment Explanations and interpretations

By Siddhi Wagh

1. Introduction

This project involves analyzing an Ecommerce transaction dataset which contains information about customer transactions for an e-commerce company. The goal is to create visualisations that should be clear, concise, and visually appealing and will address the given questions.

2. Data Cleaning Process

Tool Used: **Power BI**

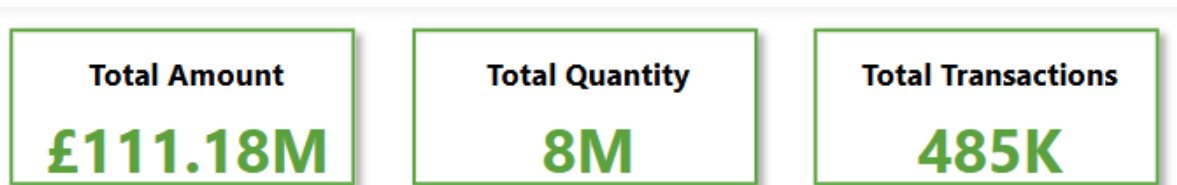
Steps Taken:

- Loaded the dataset using *Get Data* in Power BI Desktop from a given CSV file (Ecommerce_Transactions_Data).
- Transform Data (Power Query editor)
- Changed data types of Price to **Decimal**, Quantity to **Whole Number** and TransactionNo, ProductNo, CustomerNo, Country, Product to **Text**.
- Filtered out the Transactions starting with letter C as well as Negative Quantities as I want to analyse only transactions which were completed not the ones which were cancelled.
- Handled missing Customer numbers by replacing null values with "unknown" so that I do not have to delete that data as that can give me useful information about transactions.
- Created a calculated column named "Amount" by multiplying Price column by Quantity column. (Amount=Price*Quantity)
- Extracted Month, Year, and Day of Week from the Date field for trend analysis.

3. Visualizations and Analysis

- **Chart Type:** Card

Used Card visual to display key performance indicators (KPIs) including **Total Amount**, **Total Quantity**, and **Total Transactions**. These cards provide a quick, high-level overview of business performance metrics.



Measures Used:

Total Amount = SUM('Ecommerce Transaction Data'[Amount])

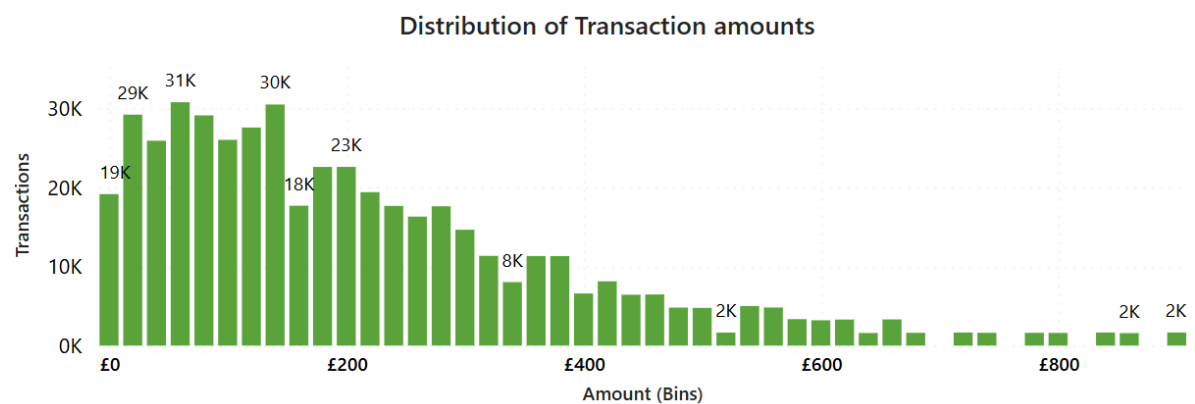
Total Quantity = SUM('Ecommerce Transaction Data'[Quantity])

Total Transactions = count('Ecommerce Transaction Data'[TransactionNo])

- **Chart Type:** Column Chart

(a. What is the distribution of transaction amounts?)

Interpretation: This chart shows how frequently different transaction values occur. This shows that most transactions fall below £200. Also, there are a very little transactions with large amounts. Number of transactions reduces after £ 400.



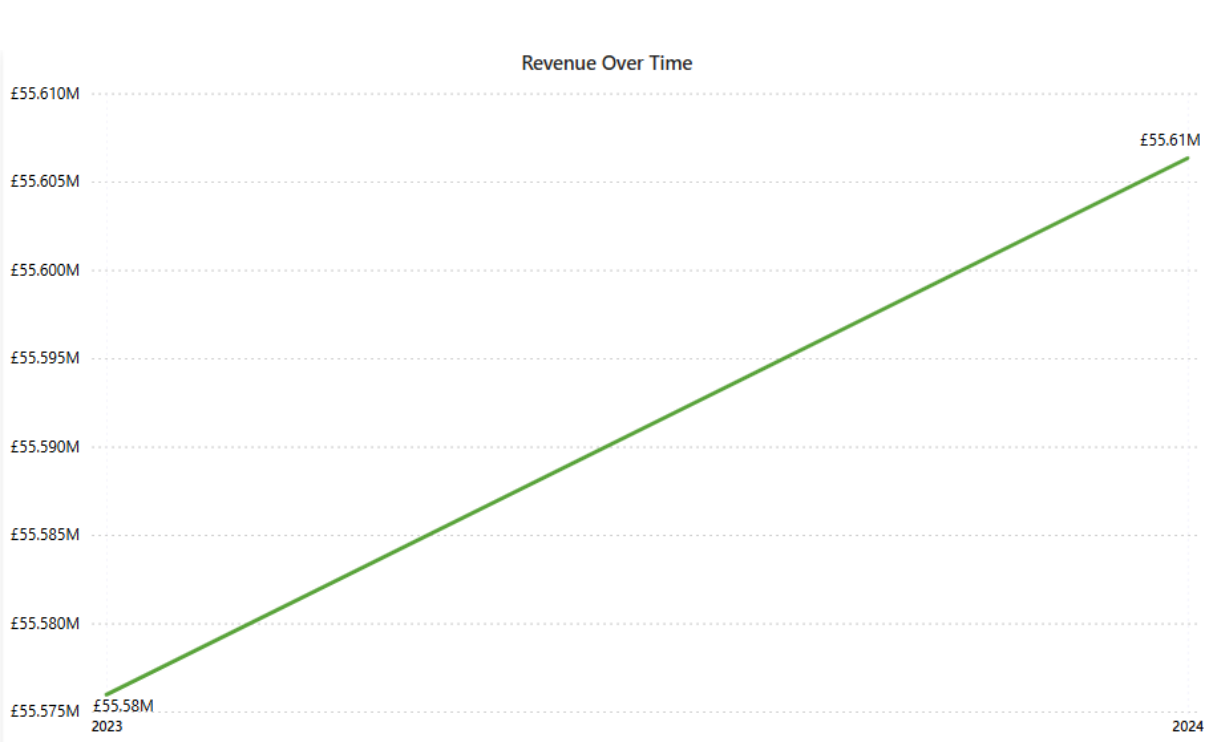
- **Chart Type:** Line Chart

(b. How does the total transaction amount vary over time?)

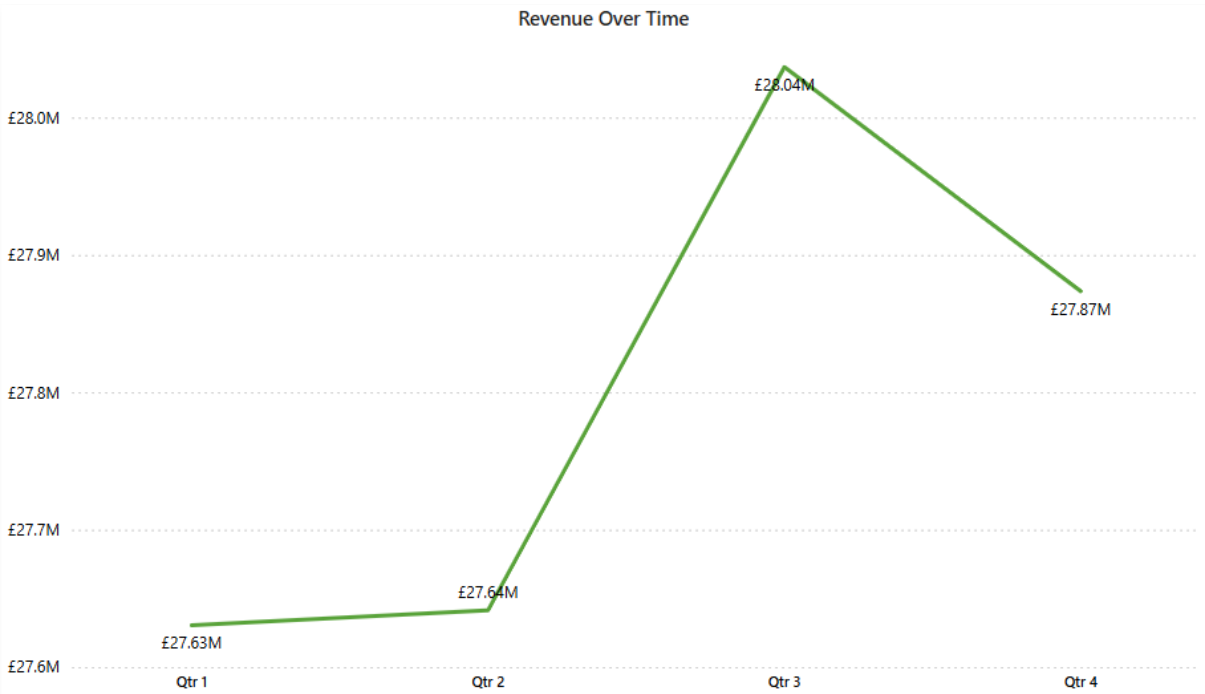
I have used line chart to Identify growth/decline trends in revenue over time.

The line chart visualizes the Total Amount over time, using a hierarchical date structure (Year → Quarter → Month → Day). It enables to analyze revenue trends across different time granularities and spot seasonal patterns.

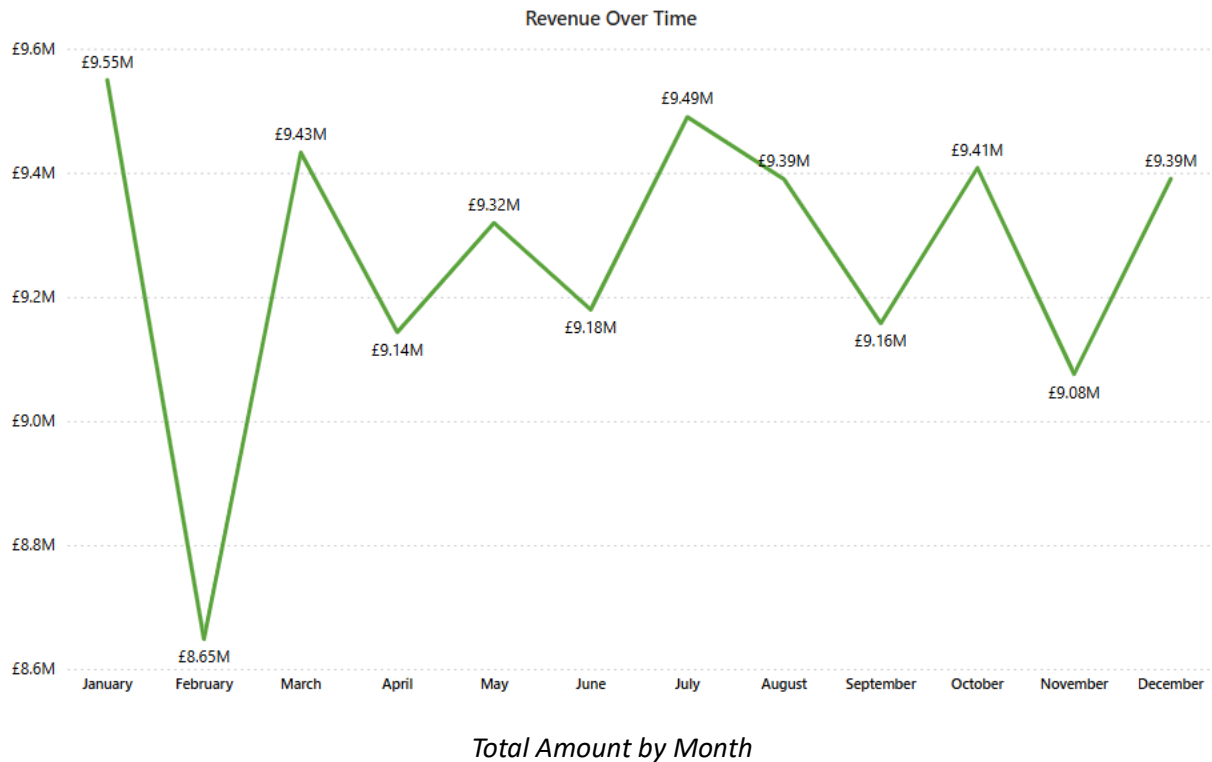
Interactivity option : Drill Down/Up, expand hierarchy



Total Amount by Year



Total Amount by Quarter



Interpretation:

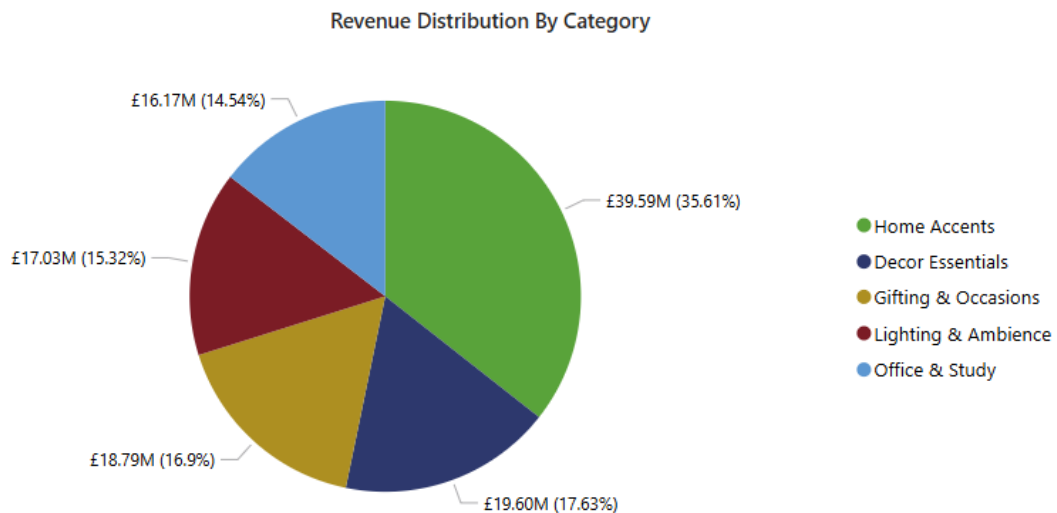
1. There is an increase in revenue from £ 55.58M in 2023 to £ 55.61M in 2024.
2. There is not much difference in Revenue of quarter 1 and quarter 2 but sudden increase with 28.04M in quarter 3. Again, decrease in revenue in quarter 4.
3. Month wise revenue shows many variations in revenue with no certain trend. But February had the lowest revenue of all.

- Chart type: Pie Chart

(c. Which product categories generate the most revenue?)

This pie chart visualizes the distribution of Total Amount across five categories, giving a quick overview of how revenue is shared among major categories. It helps identify which category contributes the most or least to total revenue.

Interpretation: From the below visual it is clear that Home Accents accounts for 35.61% thus making it the category which generates the most revenue.

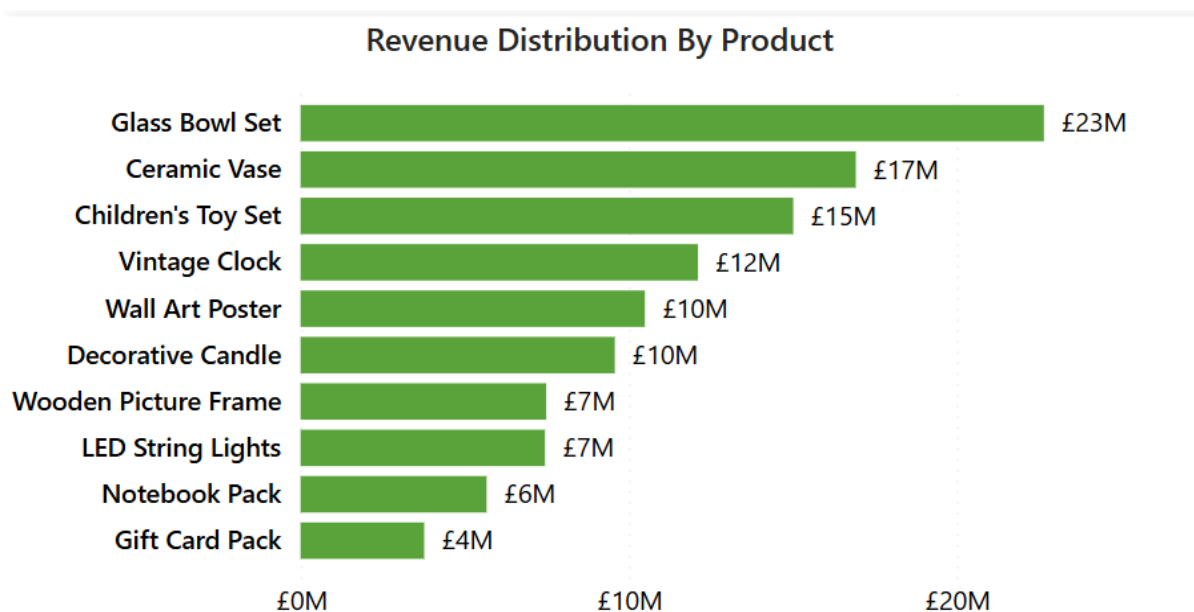


- Chart type: Bar Chart

(c. Which product categories generate the most revenue?)

Again, this bar chart displays the Total Amount of sales across various Products. I have used bar chart because there are multiple products which will make pie chart cluttered. Bar chart will allow for quick comparison of revenue performance between products without over-information.

Interpretation: Glass Bowl Set generated the highest revenue, contributing £ 23M, indicating strong customer demand followed by Ceramic vase with £17M.

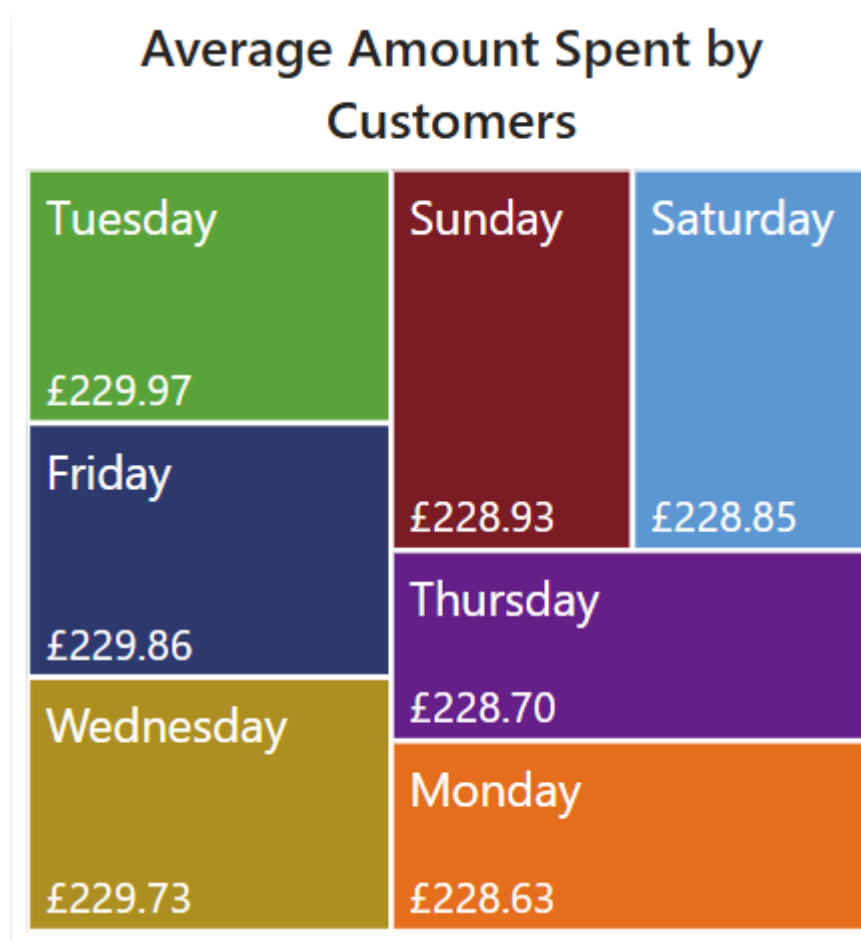


- **Chart Type:** Treemap

(d. Can you identify any trends or patterns in customer purchasing behaviour?)

This Treemap visualization displays the Average Amount spent by customers per weekday (Monday to Sunday). Used this chart to analyze which days of the week yield higher average transaction values, helping to identify peak performance days and customer behavior trends.

Interpretation: Tuesday shows the highest average amount followed by Friday. This shows that customers have purchased more on Tuesday on average.



- **Chart type:** Matrix

(d. Can you identify any trends or patterns in customer purchasing behaviour?)

This matrix visual presents a view of **Number of Customers grouped by their corresponding countries**. It helps analyze customer distribution across regions and identify which countries have the most or least customer engagement. Also the 2nd chart shows distribution of Customers per product and corresponding quantities.

Interpretation: Two of these Matrix visuals show the customer purchasing behaviour according to Country and Product. Largest number of customers are from **USA**. Also, large number of customers are buying **Ceramic Vase** followed by Children's Toy set.

Country	Customers	Product	Customers	Quantities
USA	40582	Ceramic Vase	48517	752292
United Kingdom	40298	Children's Toy Set	48246	751393
Switzerland	40477	Decorative Candle	48318	751389
Sweden	40842	Gift Card Pack	48439	753907
Spain	40269	Glass Bowl Set	48773	755394
Netherlands	40163	LED String Lights	48048	745080
Italy	40158	Notebook Pack	48865	756186
Germany	40519	Vintage Clock	48773	757727
France	40260	Wall Art Poster	48579	749771
Canada	40485	Wooden Picture Frame	48447	749625
Belgium	40474			
Australia	40478			

Other than this I have also used:

Slicers: To **filter data dynamically** based on specific fields such as **Products and Month**. This will help narrow down the data to relevant subsets for analysis.

Button: I have used a Button with Reset Arrow by using bookmarks to reset the slicers and filters to their default state with a single click.