Data analysis Retail Project: Sales Performance Analysis using Excel, SQL and Power BI.

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NIYO Bootcamps
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SKILLS FOR LIFE

ABOUT ME

- From Congo, DRC
- BSc in Business Computing wit IT
- Driven and self motivated
- Time management is one of my greatest skills
- I love technology
- I am passionate about data analytics to help companies make prediction and drive informed decision

OBJECTIVES

This retail project aims to answer the following questions:

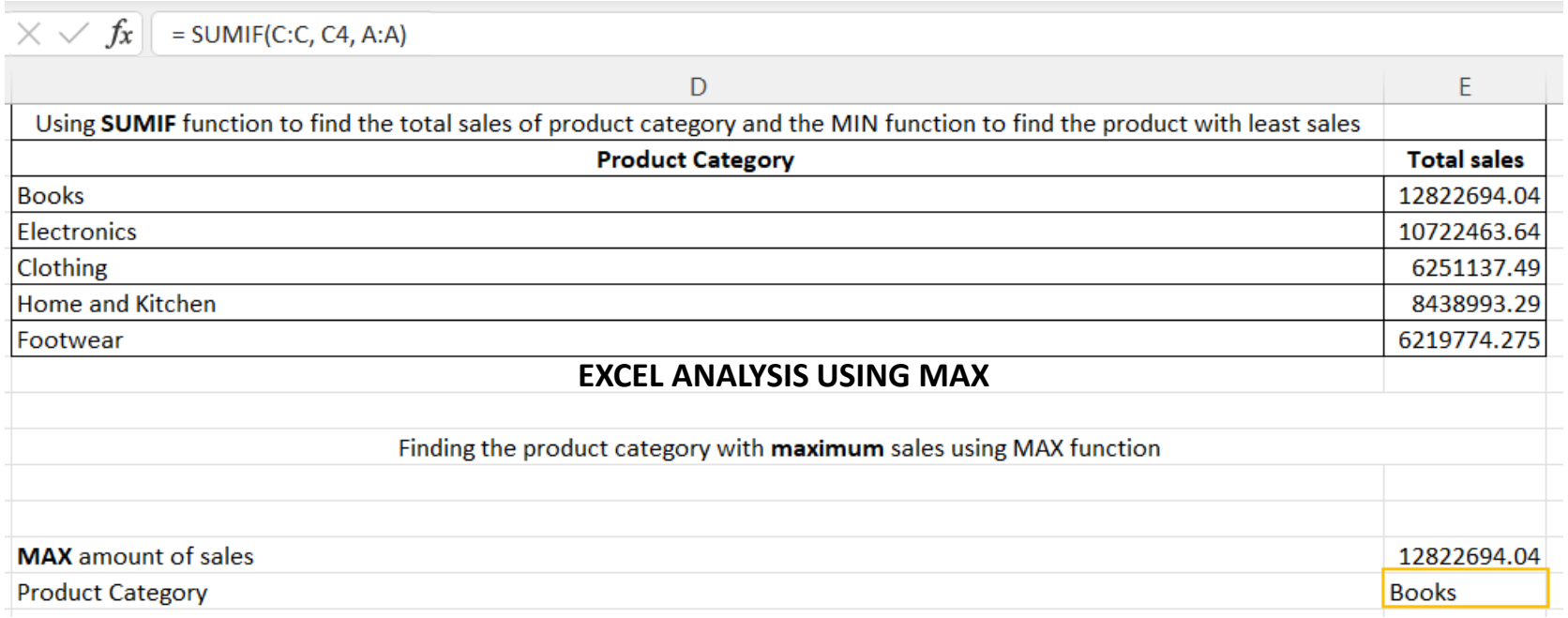
1. **Which products to market to customers?**
2. **Is the company revenue growing?**
3. **Customers preferred means of purchase**
4. **Average revenue by product unit**
5. **Customers transactions over the years**

EXCEL FINDINGS

EXCEL FINDINGS

Using SUMIF function to find the total amount of sales by product category and add Max function to find the top selling product

EXCEL ANALYSIS USING SUMIF

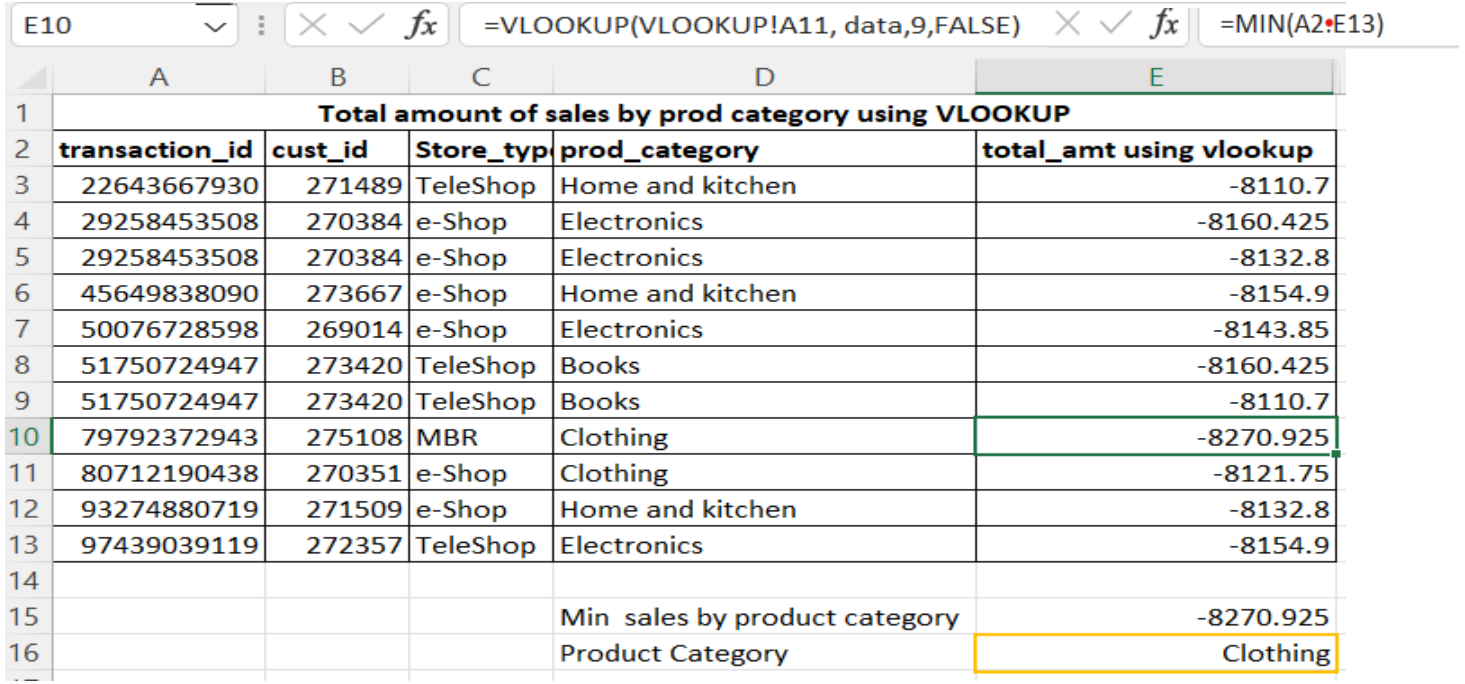


D	E
Using **SUMIF** function to find the total sales of product category and the MIN function to find the product with least sales	
Product Category	**Total sales**
Books	12822694.04
Electronics	10722463.64
Clothing	6251137.49
Home and Kitchen	8438993.29
Footwear	6219774.275
EXCEL ANALYSIS USING MAX	
Finding the product category with **maximum** sales using MAX function	
MAX amount of sales	12822694.04
Product Category	Books

EXCEL FINDINGS

Using VLOOKUP function to find the total amount of sales by product category and add Min function to find the least selling product

EXCEL ANALYSIS USING VLOOKUP AND MIN



E10 =VLOOKUP(VLOOKUP!A11, data,9,FALSE) =MIN(A2:E13)

	A	B	C	D	E
1	Total amount of sales by prod category using VLOOKUP				
2	transaction_id	cust_id	Store_typ	prod_category	total_amt using vlookup
3	22643667930	271489	TeleShop	Home and kitchen	-8110.7
4	29258453508	270384	e-Shop	Electronics	-8160.425
5	29258453508	270384	e-Shop	Electronics	-8132.8
6	45649838090	273667	e-Shop	Home and kitchen	-8154.9
7	50076728598	269014	e-Shop	Electronics	-8143.85
8	51750724947	273420	TeleShop	Books	-8160.425
9	51750724947	273420	TeleShop	Books	-8110.7
10	79792372943	275108	MBR	Clothing	-8270.925
11	80712190438	270351	e-Shop	Clothing	-8121.75
12	93274880719	271509	e-Shop	Home and kitchen	-8132.8
13	97439039119	272357	TeleShop	Electronics	-8154.9
14					
15				Min sales by product category	-8270.925
16				Product Category	Clothing

SQL FINDINGS

SQL FINDINGS

Products in high demand across Male and Female

```
14    -- I want to find the product category in high demand accross Gender based on the total amount of product sales
15 •  SELECT c.Gender, t.prod_category, SUM(total_amt) 'SUM of total amount'
16    FROM project_retail.retail_customers c
17    INNER JOIN project_retail.retail_transactions t
18    ON c.customer_ID = t.cust_id
19    GROUP BY 2
20    ORDER BY 3 desc;
21
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Gender	prod_category	SUM of total amount
M	Books	12821754.790000048
F	Electronics	10711921.934999987
M	Home and kitchen	8435869.455000011
M	Clothing	6251137.490000002
F	Footwear	6219774.275000004
F	Bags	4124445.649999994

SQL FINDINGS

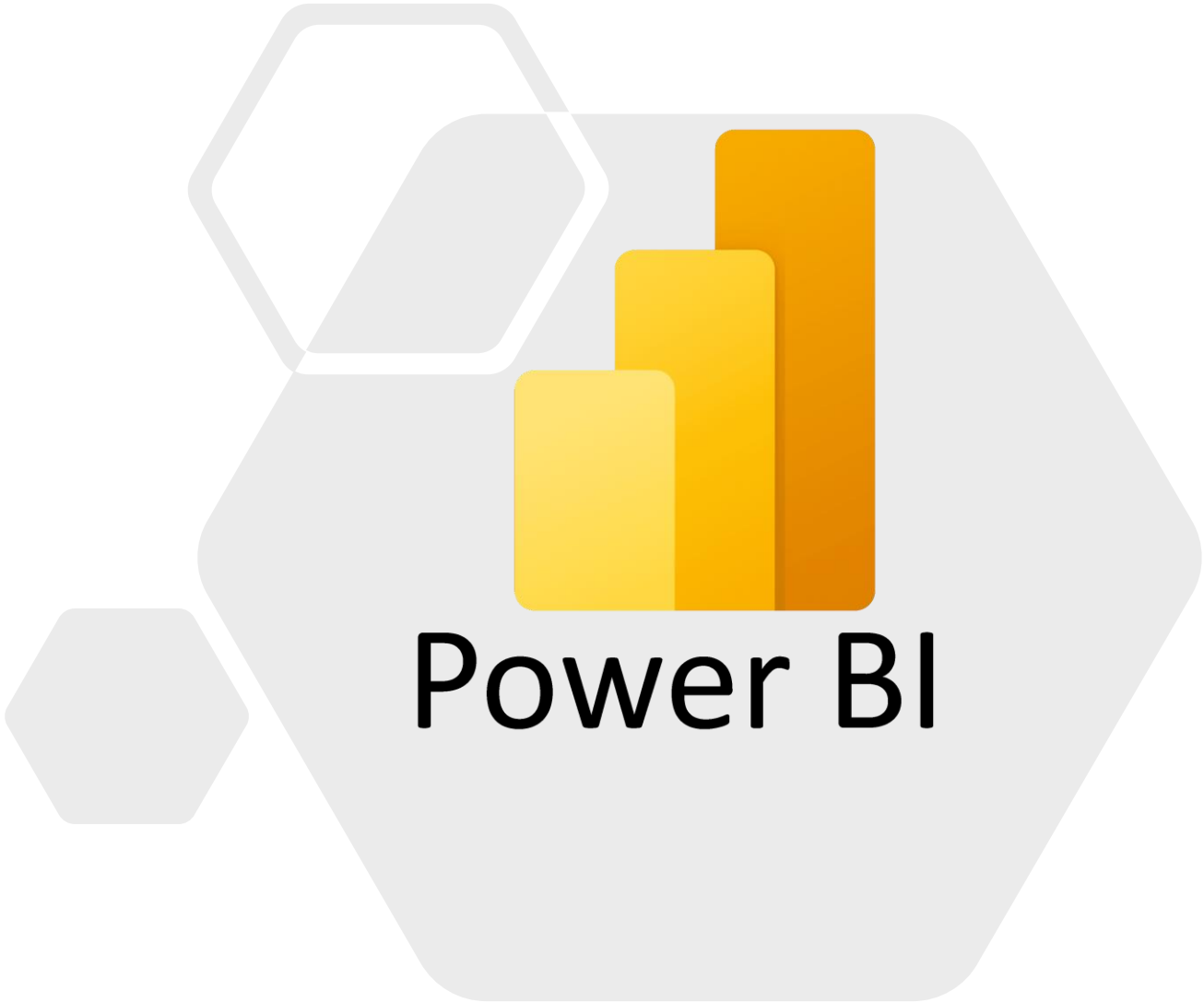
The most returned or sold product to determine profit loss or gain

```
66    -- I want to find which product category has been sold or returned by looking at the quantity and the total amount of sales
67 •  SELECT prod_category, prod_subcategory, qty, tran_date, SUM(total_amt) 'Total amount',
68    CASE
69    WHEN qty IN (1,2,3) THEN 'Product sold'
70    WHEN qty IN (4,5) THEN 'Product sold'
71    ELSE 'Product returned'
72    END AS 'Returned/Sold'
73    FROM project_retail.retail_transactions
74    GROUP BY 3;
75
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

prod_category	prod_subcategory	qty	tran_date	Total amount	Returned/Sold
Clothing	Women	-5	28-02-2014	-2034956.9500000007	Product returned
Books	DIY	-2	24-02-2014	-761968.2200000008	Product returned
Home and kitchen	Children	-3	24-02-2014	-1071984.810000001	Product returned
Home and kitchen	Children	-1	22-02-2014	-363407.9800000001	Product returned
Electronics	Personal Appliances	-4	21-02-2014	-1641795.7399999993	Product returned
Electronics	Computers	5	20-02-2014	18530617.949999977	Product sold

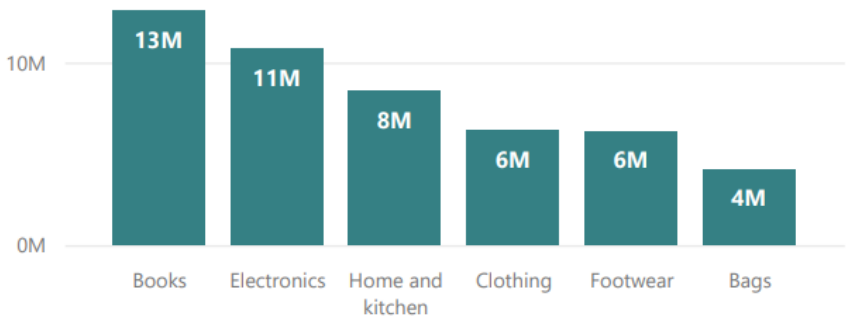
POWER BI FINDINGS



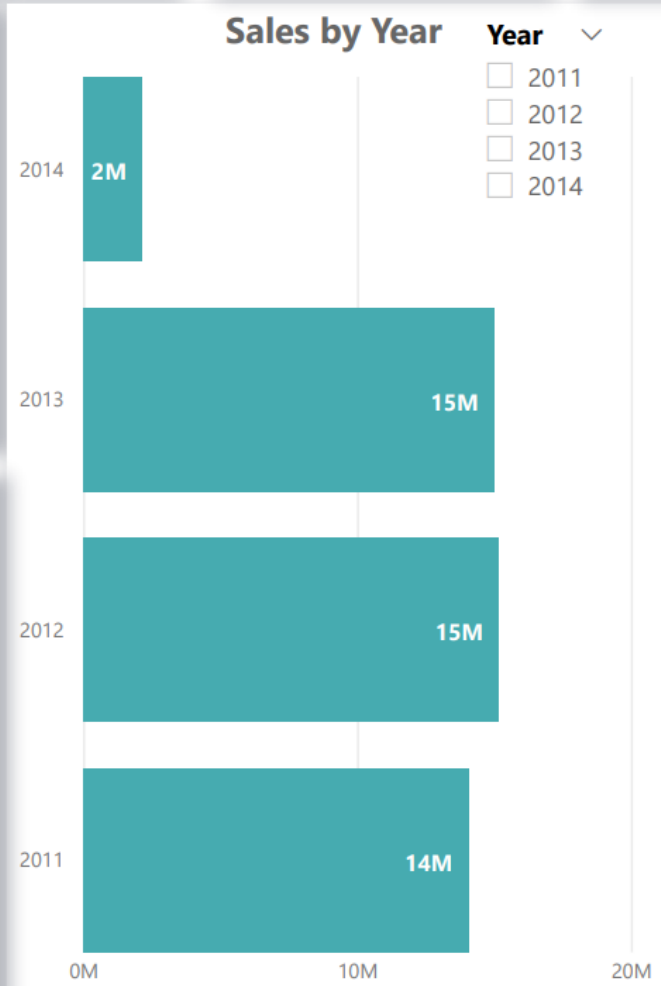
Retail Sales Analysis Dashboard

Male	Female	Total Sales	Average Age
51%	49%	48.58M	41
2892	2753		

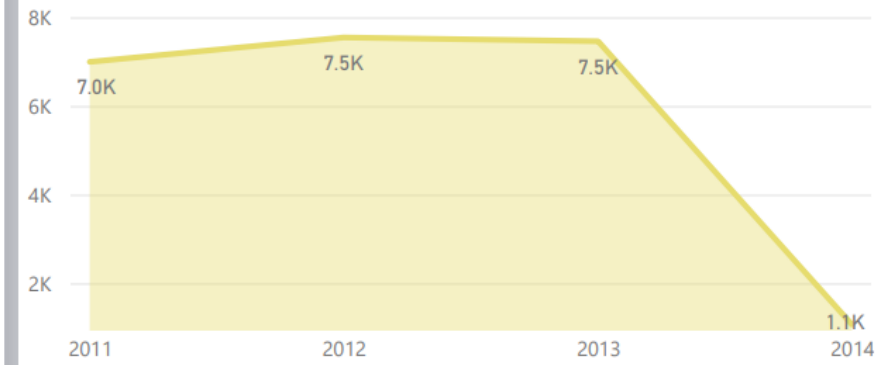
Product in high demand among Male and Female



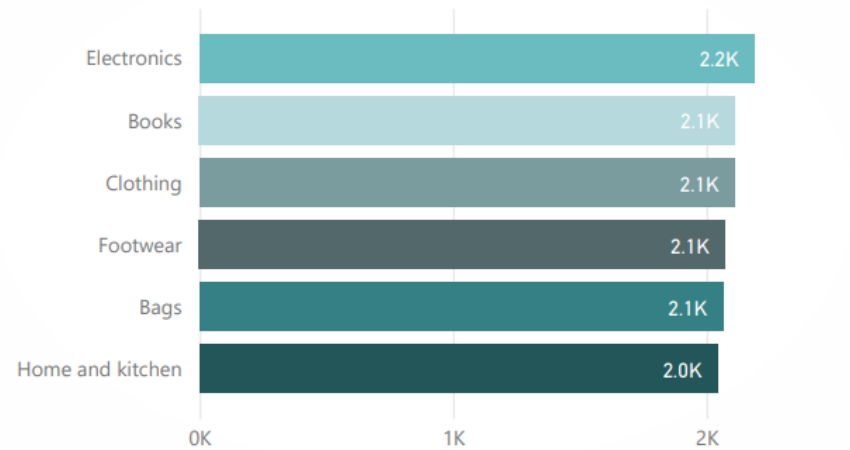
Sales by Year



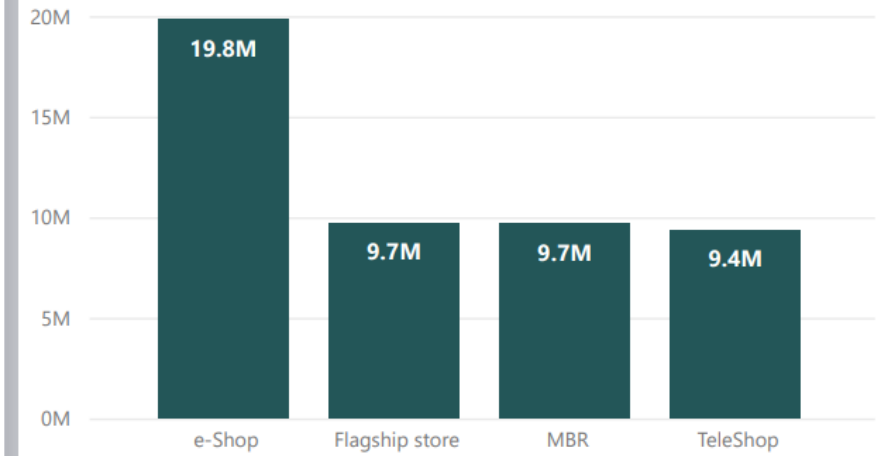
Customers transactions by year



Average revenue per product unit



Customers preferred means of purchase



Recommendations/Insights

According to the data analysis that we have done, we can conclude that :

- Revenues clearly started to grow from 2011 to 2013 but then started to decline from 2013, dropping 84.82% in 2014 resulting in a loss of profit of 12,495,973.17. Customer orders fell significantly in 2014, from 7,456 in 2013 to 1,065.
- This massive drop in 2014 can be explained by two major factors, including the drop in customer orders and the increase in product returns. Clothing is the most returned product and therefore the least sold, generating a loss of 2,034,956.95.
- The company must understand why people return their products especially clothing, to identify the area for improvement and avoid future losses.
- The company must develop new consistent marketing strategies to retain existing customers, focus on why customers buy and how to attract new customers. Furthermore, discounts, seasonal offers and promotions should be added to win more customers.

Recommendations/Insights

- Looking at the top-selling product by gender, the data shows that books are in high demand and are the product to market to customers, followed by electronics and home and kitchen which are indeed the products with the highest and lowest average revenue. The company is expected to invest in more clothing, shoes and bags to increase sales and revenue.
- Data shows that the company attracts more men than women, indicating that it needs to invest more in introducing diverse products line and designs that will target female customers.
- The online shop was the preferred shopping channel for customers, indicating that the business needs to invest more in its online platform to provide customers with the best shopping experience and increase sales.

Challenges

date data type (tran_date) was giving a NULL value

```
132    -- we need to find the top 5 dates with the highest profit
133 •  SELECT tran_date, Year(tran_date), sum(total_amt)
134    FROM project_retail.retail_transactions
135    GROUP BY 1
136    ORDER BY 3 desc
137    limit 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

tran_date	Year(tran_date)	sum(total_amt)
23-07-2012	NULL	87033.11499999999
10/4/2013	NULL	82848.47999999998
12/4/2012	NULL	82755.66
25-09-2011	NULL	82722.50999999997
17-11-2012	NULL	81921.38500000001

Conclusion

- In conclusion, this project has answered all the objectives questions.
- Using data analysis tools including Power BI, SQL and Excel allowed me to analyse the data and make sense of a meaningless retail data set.

THANK YOU!