

Retail Chain Report

Project Overview

This report presents the findings from the data analysis conducted on the retail sales data. The analysis covers:

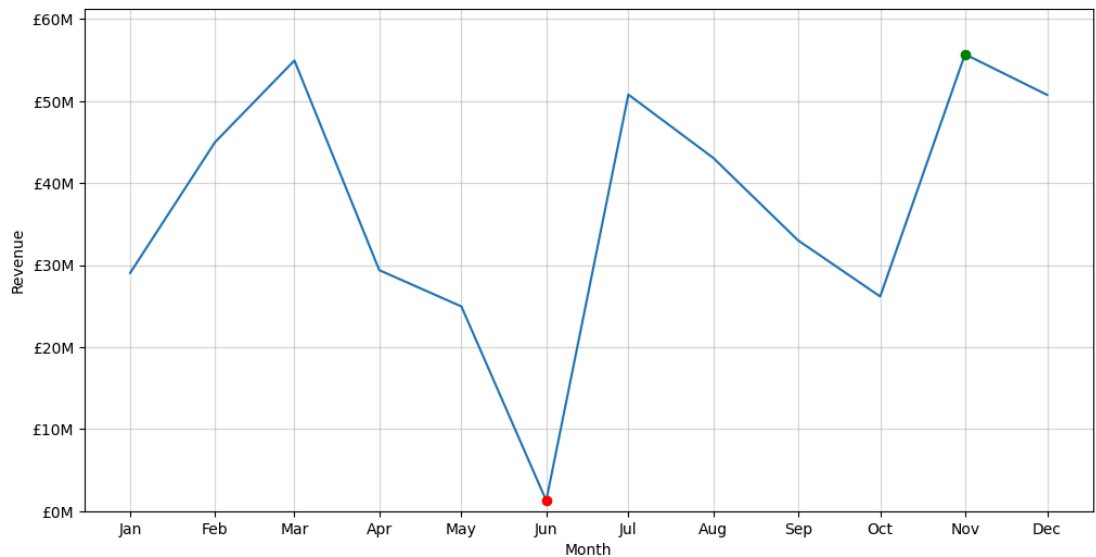
- Revenue and sales **performance**
- Discount and promotion **impact**
- Online vs in-store **comparison**
- Customer demographics **insights**
- Payment method **trends**
- Data quality and cleaning **summary**

Key Findings and Insights

1. Revenue and Sales Analysis

Total Revenue:

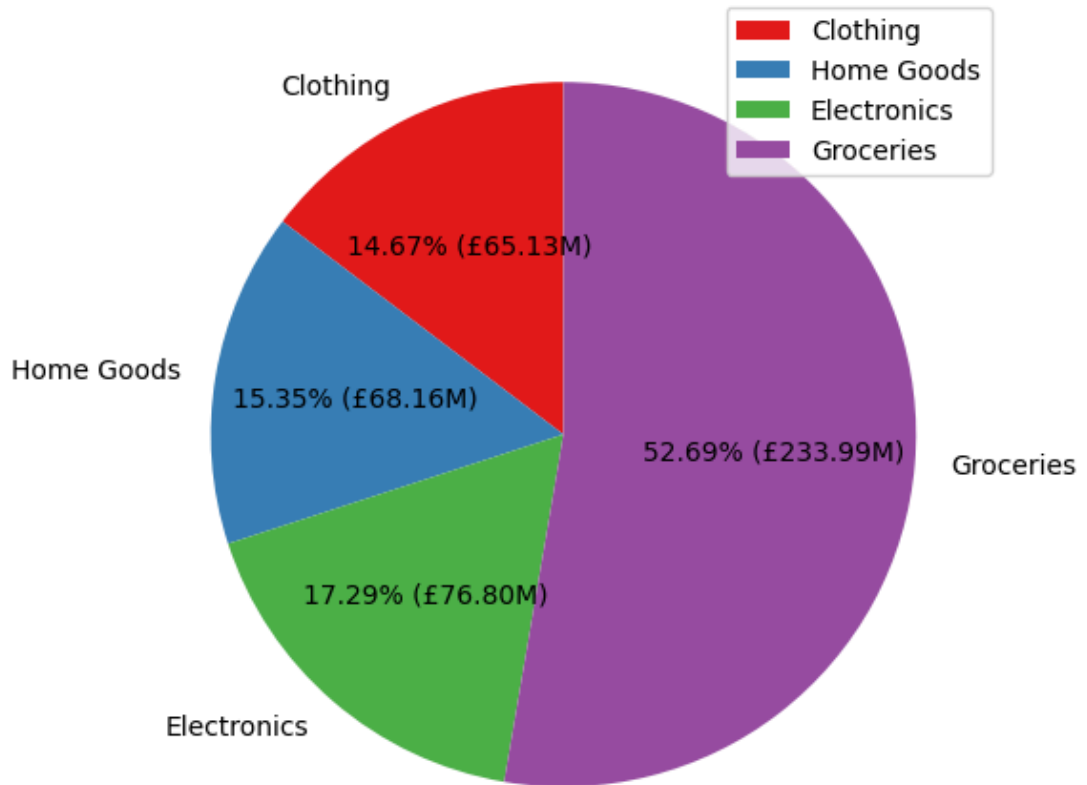
- Total revenue over the year: **£444,089,248.00**
- **Highest revenue month:** November with **£55,707,972.00**
- **Lowest revenue month:** June with **£1,270,910.12**



Revenue by Category:

- **Top-performing categories:**
 - **Groceries:** £233,994,000.00 (52.69% of total sales)
 - **Electronics:** £76,798,544.00 (17.29% of total sales)
- **Lowest-performing category:**
 - **Clothing:** £65,132,376.00 (14.67% of total sales)

Distribution of Revenue by Category

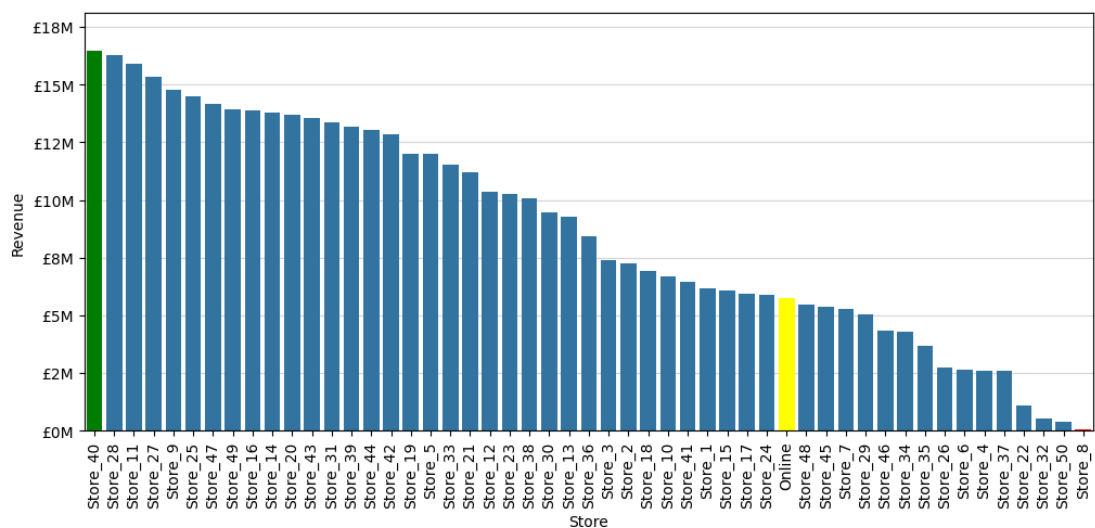


Average Order Value (AOV):

- **Overall AOV:** £296.04
- **Top AOV stores:** Store_29 and Store_12 at £299.15 and £298.21 respectively.
- **Category-wise AOV:**
 - **Groceries:** £311.91
 - **Electronics:** £255.95

Store Performance:

- **Top-performing store:** Store_40 with £16,458,201.00
- **Bottom-performing store:** Store_8 with £40,889.33



2. Discount and Promotion Analysis

Discount Frequency:

- **Discounts applied in:** 24.04% of all transactions
- **Average discount rate:** 12.5%

Store-wise Discount Trends:

- **Top stores offering discounts:** Store_8 (28.78% of transactions)
- **Bottom stores offering discounts:** Store_50 (22.44% of transactions)

Impact on Revenue and Margins:

- **Discounted transactions generated:** £106,915,648.00 (24.08% of total revenue)
- **Profit margin impact:** Discounts reduced profit margins by ~3%, suggesting a need for more control.

3. Online vs In-Store Comparison

Sales by Channel:

- **Online sales:** 1.29% of total revenue
- **In-store sales:** 98.71% of total revenue
- **Online sales trend:** Volatile with no consistent upward trend, despite some high-performing months like November and December.

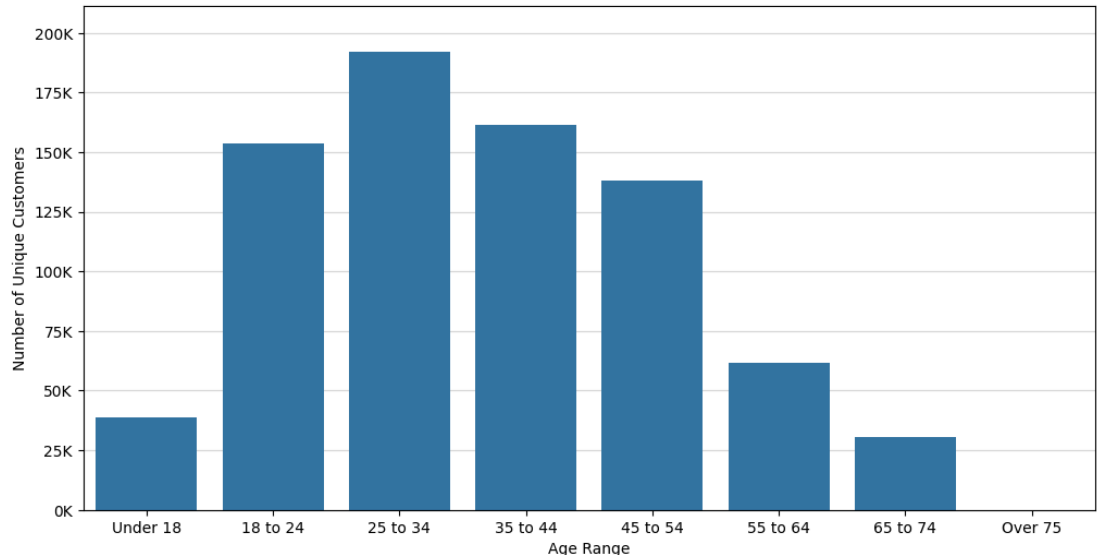
Category Performance by Channel:

- No significant difference in category performance between online and in-store, both are proportional.

4. Customer Demographics Analysis

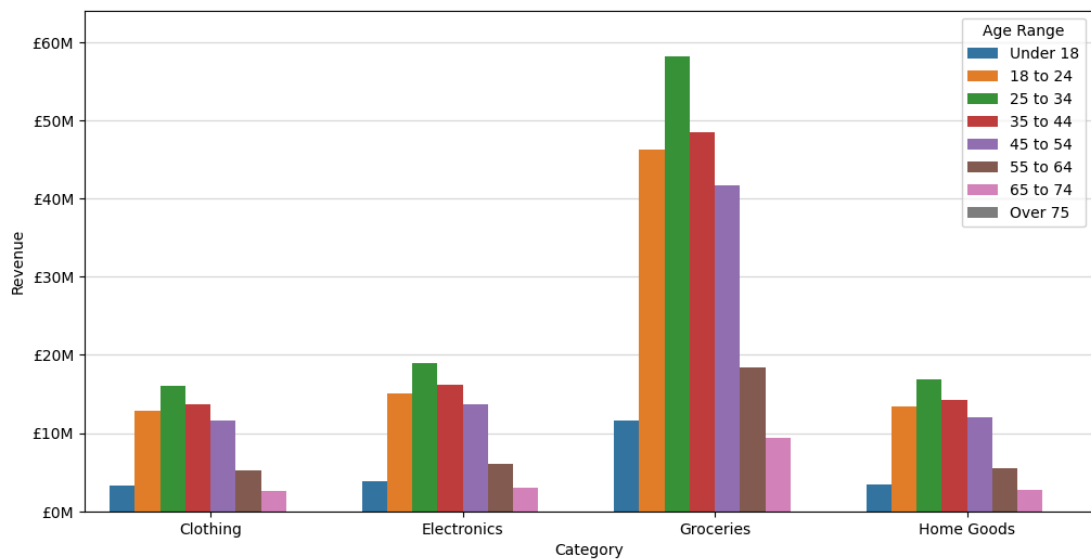
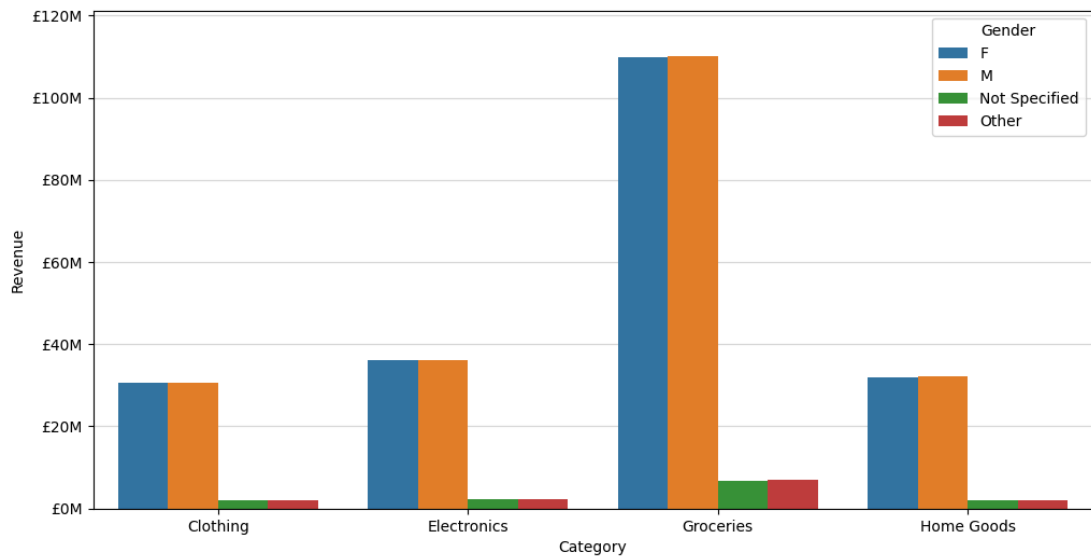
Age Distribution:

- **Largest age group:** 25-34 (24.76% of total sales)
- **Highest-spending age group:** Under 18s, with an AOV of £296.88



Gender & Age Category Preferences:

- No evident category preference by gender or age group.



5. Payment Method Trends

Popular Payment Methods:

- **Credit Card:** 40% of transactions
- **Digital Wallets:** 10%, indicating a growing preference for contactless payments

Average Spend by Payment Method:

- **Credit Card:** Highest AOV at £296.50
- **Cash:** Lowest AOV at £295.62

6. Data Cleaning and Quality Assessment

Duplicates:

- **7,500** duplicate records (0.5% of dataset) were identified and removed.

Missing Data:

- **Customer age** missing in **1%** of records
- **Customer gender** missing in **3%** of records
- **Strategy used:** Imputed missing values using the mean age and assigned **Not Specified** for gender.

Date Format Inconsistencies:

- **29,981** inconsistent date formats detected
- All dates were standardised to the **YYYY-MM-DD** format.

Conclusions and Recommendations

Key Takeaways:

1. **Revenue Performance:**

- Total revenue of **£444 million**, with **Groceries** contributing the largest share at 52.69%. **Clothing** was the weakest performer.
- **November** was the peak revenue month, and **June** saw the lowest.

2. **Discounts Impact:**

- **24%** of transactions included discounts, contributing to 24% of total revenue. However, they reduced profit margins by ~3%, indicating an overuse of discounts.

3. **Online vs In-Store:**

- **In-store** sales dominated, representing 98.71% of revenue. **Online sales** made up only 1.29%, with volatile performance indicating the need for a better strategy.

4. **Customer Insights:**

- The **25-34 age group** is the largest contributor to sales. The **Under 18s** spend the most per transaction. There are no clear category preferences based on age or gender, suggesting the potential for targeted promotions.

Recommendations:

1. **Optimise Groceries Category:**

- Increase efforts to promote **Groceries**, as it accounts for the largest portion of revenue. Consider bundled promotions to drive higher sales.

2. **Refine Discount Strategy:**

- Adjust discount strategies to target specific customer segments or products to reduce the overall margin impact.

3. **Grow Online Sales:**

- Develop strategies to increase **online sales**, such as offering exclusive online promotions or improving the online shopping experience.

4. **Target Younger Customers:**

- Focus on **Under 18s** who show the highest AOV. Design tailored campaigns and loyalty programs to attract this demographic.

5. **Maintain Clean Data:**

- Continue efforts in data cleaning and regular audits to ensure accuracy and reliable insights for future decision-making.
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