Strategic Growth Analysis of Unique Gifts Ltd

Acknowledgement

We would like to thank our lecturer, [Lecturer's Name], for the guidance and support throughout this project. We also acknowledge the contributions of all group members, whose teamwork and effort in data analysis, coding, and report preparation made this project possible.

We are honored offer this report to the management of Unique Gift Ltd.

Executive Summary

The sales data for the UK-based online gift retailer Unique Gifts Ltd. is analysed in this report. Over the past two years, the company has amassed a large amount of transactional records; however, intuition has frequently been used in place of data when making decisions. In order to boost sales performance, increase customer engagement, optimise inventory, and find new growth prospects both domestically and abroad, our project sought to turn this raw data into actionable insights.

First, we prepare and clean the data by eliminating duplicates, cancelled transactions, missing customer IDs, and non-products like bank adjustments and postage. Following the inclusion of the total transaction value (TotalPrice), a tool for trend analysis was developed.

After checking the data, we found that November and December saw the highest sales. The UK saw the highest revenue, which is a sign of increasing business. By checking the product, we were able to identify "bread and butter" items with moderate revenue and "cash cows" with low revenue.

Using the RFM framework, we segmented our customers into champions, loyal, potential loyal, new, risky, dormant and high value wholesalers.

Recommendations: implement targeted marketing by season and segment, optimize inventory based on product performance, focus on high-value wholesalers, and expand efforts in international markets

Table of Contents   **Page Number**

Table of Figures

Figure's Name	Page Number

01. Introduction

1.1 Project Objectives

Our goal is to look at Unique Gifts Ltd's sales data to help the company make smarter decisions. We want to:

- **See sales trends:** We want to Check which months, weeks, and days what are people buy most to plan sales and stock better.
- **Find top products:** Find out which products sell the most and which ones make the most money.
- **Know your customers:** Group your customers by group of how the buy and how many money the waste for buy , so the company can serve them better.
- **Look at countries:** Then we want to find which of countries buy most and its TotalValue.
- **Find wholesalers:** We want to find wholesalers
- **Use additional data:** Convert prices to US dollars or euros to help with international selling decisions.

1.2 Background of the Business

Unique Gifts Ltd. is a UK-based, non-store online retailer. They have built a reputation by offering unique gifts for all occasions, making them a popular choice among customers. They supply gifts not only across the UK but also to customers in other countries. they have both retail customers and wholesale customers all over the country , making their products available worldwide.

1.3 Business Problem:

When we look at the history of the business, we were able to identify some issues with the business. We have listed them below.

- **Unable to understand the Sales Patterns:** It's hard to see which months or days make the most money.

- **Confusing Product Information**: Some products sell in large quantities, while others earn more profit. The company needs to identify which products to prioritize.

- **Customers Not Targeted:** The company doesn't know which customers to focus on for marketing.

- **Country Information Missing:** They aren't sure which countries are important for sales.

- **Wholesalers vs Retail:** They don't know how big buyers behave differently from regular customers.

02. Data & Methodology

2.1. Dataset Description

The analysis uses the Online Retail Dataset, which contains detailed transaction records for a UK-based e-commerce company. The dataset includes fields such as invoice number, product code, description, quantity, unit price, invoice date, customer ID, and country. It captures transaction-level activity, making it possible to analyze sales patterns, customer behavior, and product performance.

2.2. Data Preparation and Cleaning

Before analyzing the data, we cleaned and prepared the dataset to make sure it was accurate and reliable. The main steps were:

01 . Standardizing Structure and Formats

- Column names were reformatted into a consistent style (e.g., invoice_no, stock_code, unit_price).
- Variables such as invoice numbers, stock codes, and product descriptions were converted to string type.
- Invoice dates were converted into proper datetime format to allow time-based analysis.

02 . Removing Data Errors and Irrelevant Records

- Duplicate rows were eliminated to prevent inflated sales figures.
- Cancelled transactions (identified by invoice numbers starting with "C") were removed, as they do not represent actual revenue.
- Invalid prices (zero or negative values) were excluded to retain only genuine sales records. Missing customer IDs were dropped, since these could not be linked to customer-level insights.
- Non-product transactions such as postage, manual adjustments, or bank fees were excluded to focus strictly on product sales.

03 . Enhancing Analytical Value

- A new **total_price** column was introduced to capture the monetary value of each order line

$$\textbf{total\_price} = \textbf{unit\_price} \times \textbf{quantity}$$

- Time-based attributes including year, month, day of week, and hour were extracted from the invoice date to support temporal trend analysis.

2.3. Outcome of Data Cleaning

After preprocessing, the dataset was reduced to only valid, customer-linked product sales transactions. This ensures that subsequent analyses and insights are based on reliable, commercially meaningful data.

Total data before cleaning dataset = 1067371

After Cleaning dataset = 775543

$$\text{Data Reduction (\%)} = \frac{\text{Records Before Cleaning} - \text{Records After Cleaning}}{\text{Records Before Cleaning}} * 100$$

$$= \frac{1067371 - 775543}{1037371} * 100$$

$$= 27.3\%$$

03. Sales Performance Analysis

3.1 Temporal Analysis:

3.1.1 Monthly Revenue Patterns (2009–2011)

The analysis of monthly sales revenue shows clear growth, seasonal changes, and some ups and downs over the two-year period
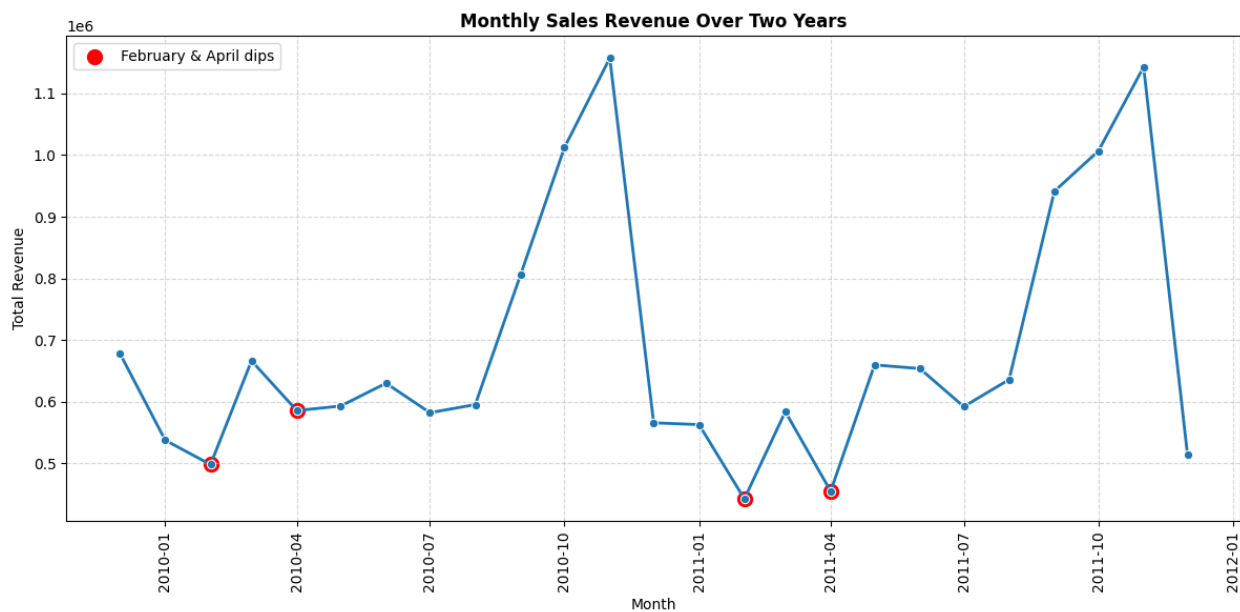
Figure 1 Monthly Revenue Patterns (2009–2011)

Growth Trend

- Sales grew strongly from 2009 to 2011. Revenue increased from about 0.5–0.67 million at the start to over 1.1 million at the peak. This growth can be seen in three stages: early setup (2009–early 2010), faster growth (mid-2010), and peak performance (late 2010–2011).

Peak Sales

Two major high points happened in the same season:

- **November 2010**: 1.15 million (the highest single month)
- **November 2011**: 1.14 million (almost the same as the year before)

These peaks were about 92% higher than the previous months, showing strong and steady sales during this period.

Seasonal Patterns

Regular dips in sales happened in both years:

- **February**: 0.49 million (2010) and 0.44 million (2011)
- **April**: 0.58 million (2010) and 0.44 million (2011)

This suggests slower demand after the holiday season.

Sales Up and Downs

- Monthly sales went up and down a lot, with a 161% difference between the highest month (1.15 million) and the lowest (0.44 million). Still, the overall trend was positive, and sales recovered quickly after each dip. This shows the business was strong and able to adapt.

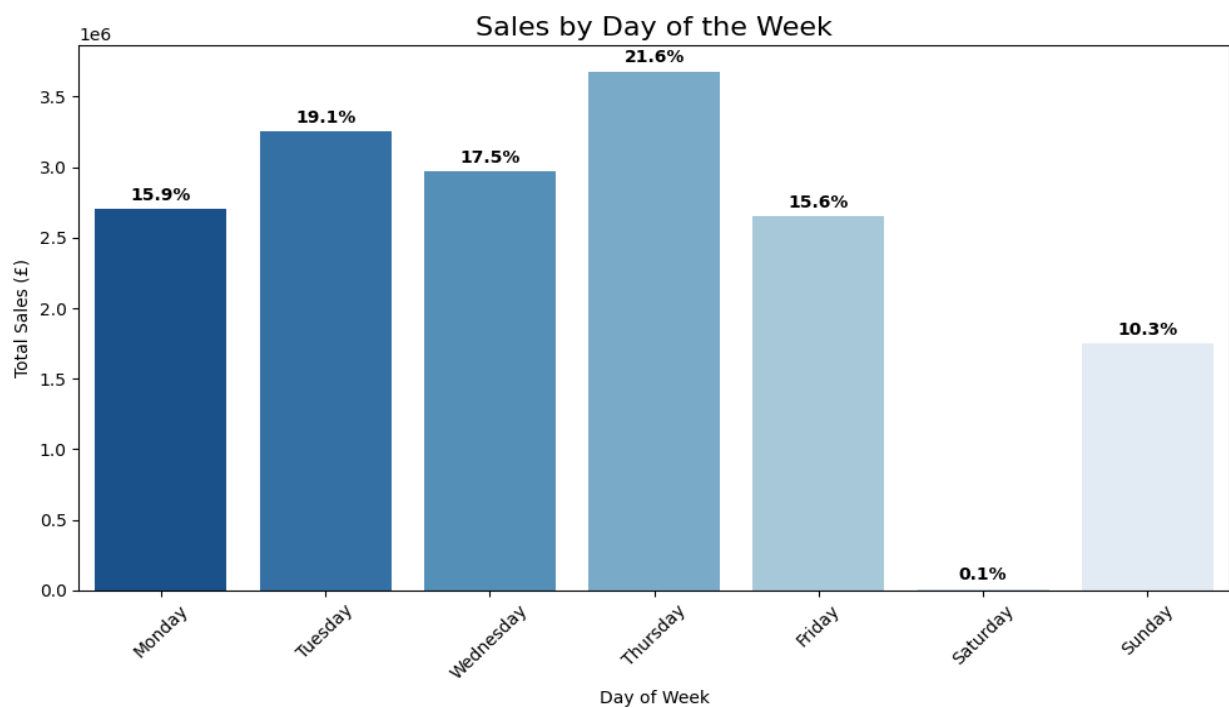### 3.1.2 Analyze sales patterns by Day Of Week

Figure 2 Analyze sales patterns by Day Of Week

The analysis of sales distribution across the week reveals significant differences in customer purchasing behavior:

Peak Sales Days:

- Thursday (21.6%) emerges as the strongest day, contributing the highest share of weekly sales.
- Tuesday (19.1%) and Wednesday (17.5%) also show robust activity, suggesting that midweek is a highly active shopping period.

Moderate Sales Days:

- Monday (15.9%) and Friday (15.6%) generate steady, though not exceptional, sales volumes. These are important transitional days in consumer behavior—Monday reflecting early-week purchasing momentum and Friday reflecting pre-weekend activity.

Low Sales Days:

- Sunday (10.3%) records noticeably lower sales, perhaps due to reduced consumer focus on shopping activities.
- Saturday (0.1%) is an extreme outlier, showing almost no recorded sales. This anomaly warrants further investigation—possible causes could include system downtime, incomplete data capture, or genuine operational closure on Saturdays.

Key insights from the chart :

The analysis of sales by day of the week shows that most customers shop in the middle of the week, with Thursday, Tuesday, and Wednesday having the highest sales. Monday and Friday have steady but lower sales, while Sunday is slower. Saturday shows almost no sales, which could be due to system issues or store closure.

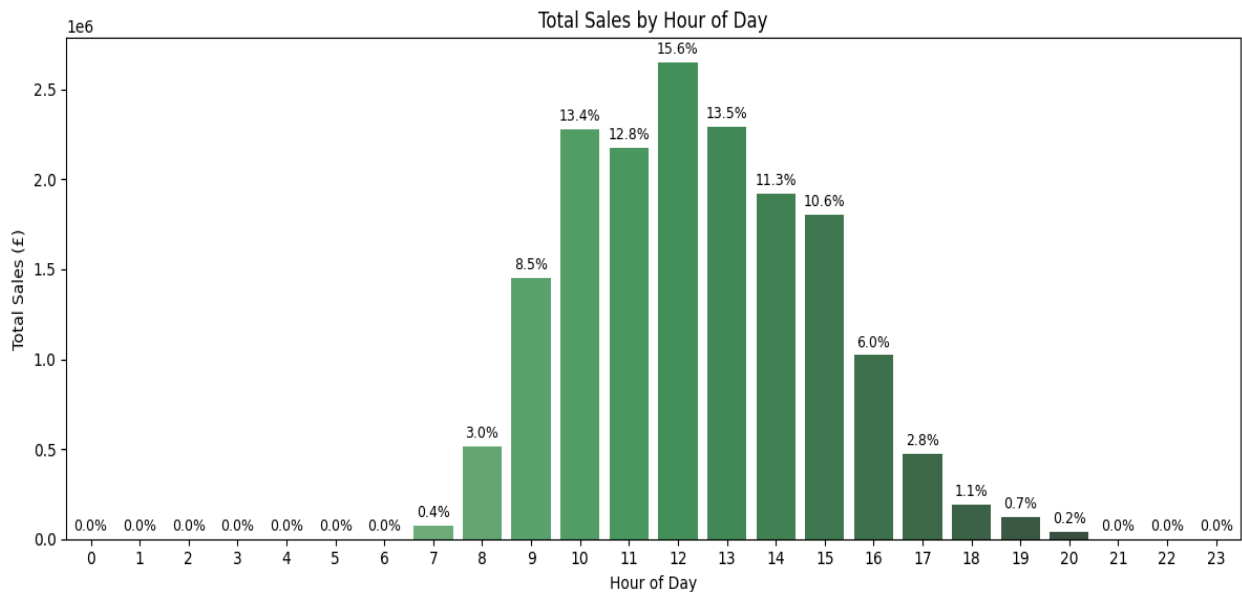### 3.1.3 Analyze sales patterns by Hour Of Day

Figure 3 Analyze sales patterns by Hour Of Day

We analyzed the distribution of sales across different hours of the day to identify peak shopping times. The cleaned dataset was grouped by transaction hour, and total revenue per hour was calculated. A bar chart visualization was created to clearly show revenue trends.

Key Findings:

- Peak Hours: Sales activity is concentrated between 10:00 AM and 3:00 PM, with a sharp increase starting in the late morning and peaking around midday (12:00–1:00 PM).

- Evening Dip: After 5:00 PM, sales decline steadily, with the lowest sales recorded between midnight and 6:00 AM.

- Business vs. Retail Behavior: This pattern suggests that a significant portion of customers may be wholesalers or business clients placing orders during standard working hours, rather than late-night online shoppers.

Business Implications:

- Promotion Scheduling: Marketing campaigns and promotional offers should be targeted around 10 AM–2 PM, when customer engagement is highest.
- Operational Planning: Since customer activity is low overnight, system maintenance or updates can be scheduled during those hours to minimize disruption.
- Customer Service & Staffing: Staffing levels should be optimized to ensure stronger support coverage during business hours when most transactions occur.

Key insights from the chart :

The hourly sales analysis shows that most sales happen during normal working hours, especially between 10 AM and 3 PM. This means many of the customers are probably wholesalers or business clients, not people shopping late at night. Knowing this helps the company plan promotions at the right time, make sure enough staff are available, and do system maintenance when sales are low. Overall, this helps the business run better and sell more.

3.2 Geographic Analysis

The geographic analysis shows the company's international market presence and highlights which countries generate the most revenue. This helps management make decisions about market expansion, marketing strategies, and resource allocation.

Revenue Distribution Visualization

A bar chart was created to show the revenue contribution of the top 10 countries. The percentages on top of each bar indicate how much each country contributes relative to the total revenue of these top countries.
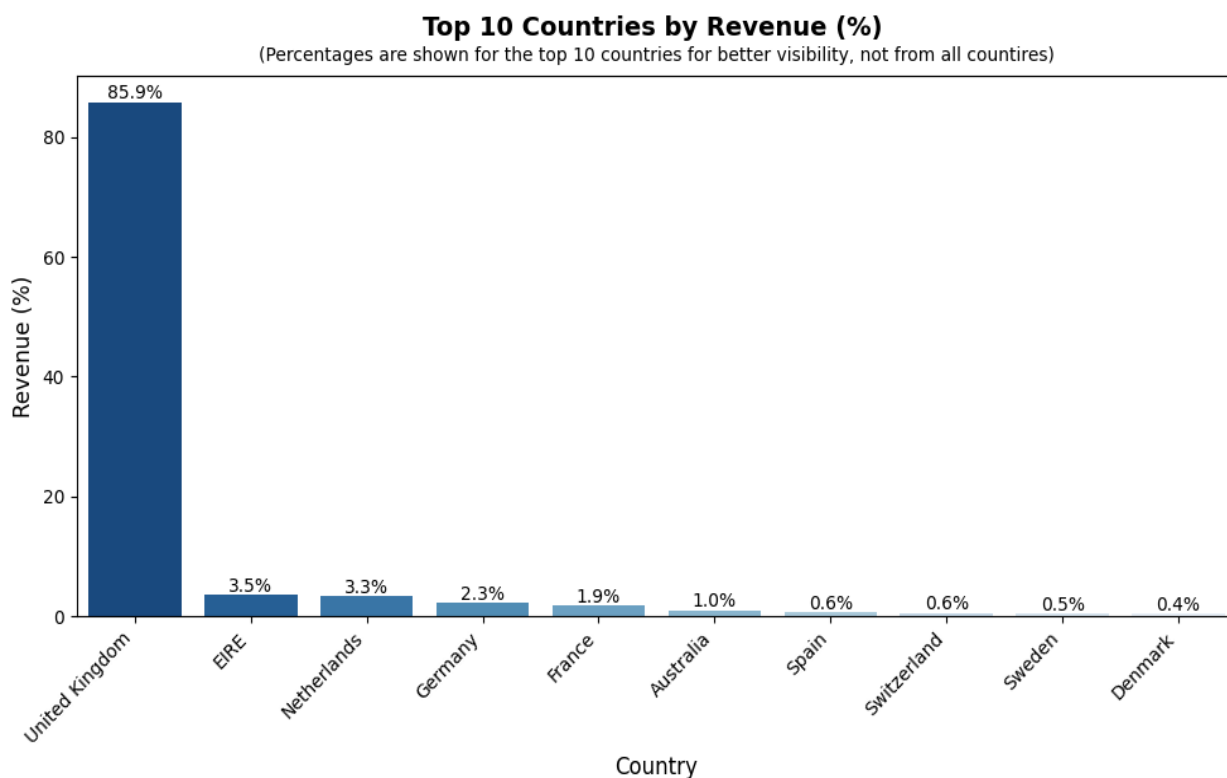
Top 10 Countries by Revenue (%)
(Percentages are shown for the top 10 countries for better visibility, not from all countires)

Figure 4 Top 10 Countries by Revenue

Top 10 Countries by Revenue

The analysis identified the top 10 countries contributing to total sales revenue. The United Kingdom leads the chart, showing a strong domestic presence, followed by several key international markets.

Country	Total Sales Revenue (£)
United Kingdom	14,306,823.82
EIRE	597,012.40
Netherlands	549,773.40
Germany	383,419.20
France	309,855.90
Australia	167,800.00
Spain	97,994.50
Switzerland	93,400.94
Sweden	86,045.14
Denmark	67,422.69

Table 1 : Top 10 countries by Their Total Sales Revenue

UK revenue share compare with other countries

The United Kingdom generates a large portion of total revenue:

- UK Revenue: £14,306,823.82 (83.67%)
- Revenue from Other Countries: £2,791,554.74 (16.33%)

This shows that most of the company's sales come from the UK, but it also makes good sales in other countries.

Key insights from the chart :

Most of the sales come from the UK, showing it is very important for the business. Other top countries also make good sales, even if smaller, showing there is room to grow in these markets. The chart makes it easy to see where revenue is coming from and helps management decide where to focus marketing or expand operations.

04. Product Portfolio Insights: Performance by Quantity vs. Revenue

To understand how products contribute to the company's performance, we analysed them in two ways:

1 Total revenue generated

2 Total sales volume.

Figures 5 and 6 present the **top 10 products** by revenue and by quantity sold. The percentages shown represent each product's share **within its respective top 10 list**, not the company's overall sales. This approach highlights the difference between high-value "cash cows" and high-volume "bread-and-butter" items.

4.1. Top 10 Products by Total Revenue (Cash Cows)

The revenue analysis shows that a small set of products dominate the top 10 group.

- The Regency Cakestand (3 Tier) contributes more than 20% of revenue within the top 10, followed by the White Hanging Heart T-Light Holder (18%) and Paper Craft, Little Birdie (12%). Together, these three account for over half of the group's revenue.
- Other important products include the Jumbo Bag Red Retrospot (10%), Assorted Colour Bird Ornament (9%), and Party Bunting (8%).
- These items sell less frequently than cheaper goods but provide strong profitability due to higher unit prices.
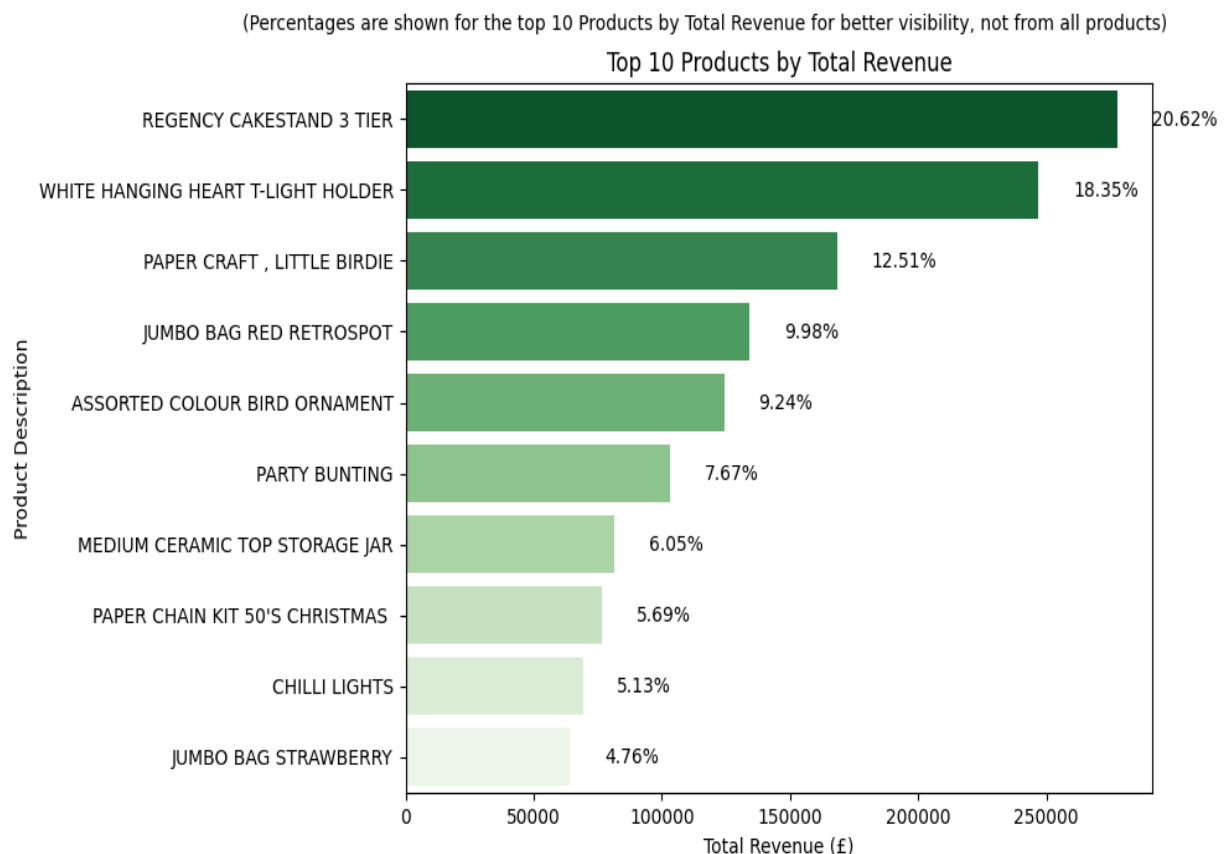

Figure 5 Top 10 Products by Total Revenue (Cash Cows)

4.2. Top 10 Products by Quantity Sold (Bread-and-Butter Items)

The sales volume ranking presents a different picture.

- Leading the list is the World War 2 Gliders Assorted Designs (14%), followed by the White Hanging Heart T-Light Holder (12%) and Paper Craft, Little Birdie (11%).
- The list also includes many low-cost, high-volume items, such as the Brocade Ring Purse (10%), Cake Cases (7–8%), and Fairy Cake Cases (7%).
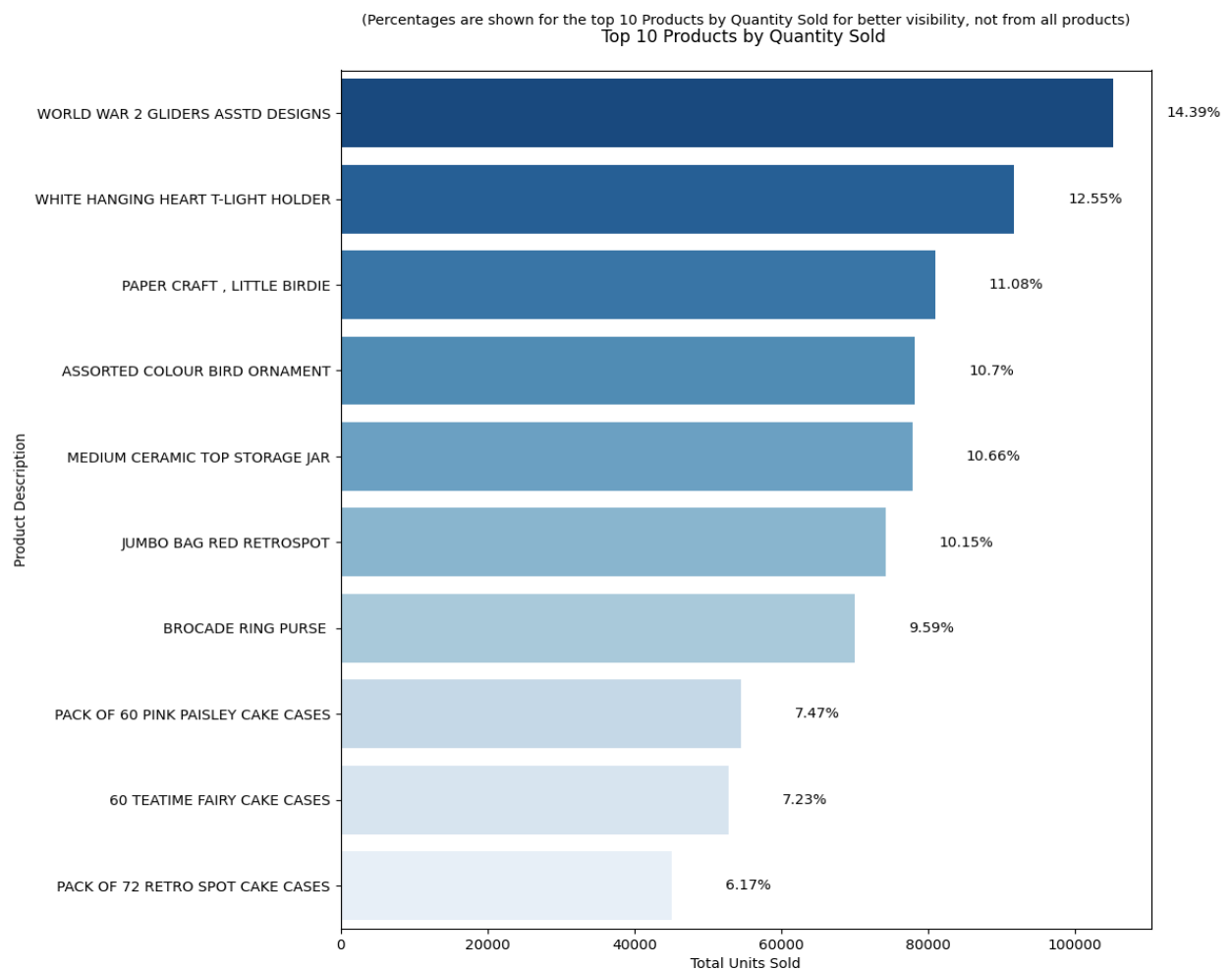- These products contribute less revenue but are vital for driving regular sales and attracting customers.

Figure 6 Top 10 Products by Quantity Sold (Bread-and-Butter Items)

4.3. Comparison and Recommendations

Only a few products, such as the White Hanging Heart T-Light Holder, appear on both lists, making them "dual performers." The company should:

- protect high-value cash cows,
- maintain stock of bread-and-butter items to sustain demand,
- focus marketing on dual performers
- apply different strategies to each product group.

Key insights from the charts :

Balancing cash cows and bread-and-butter products ensures stronger profitability while keeping customer engagement high.

5. Customer Deep Dive: Segmentation & Strategy

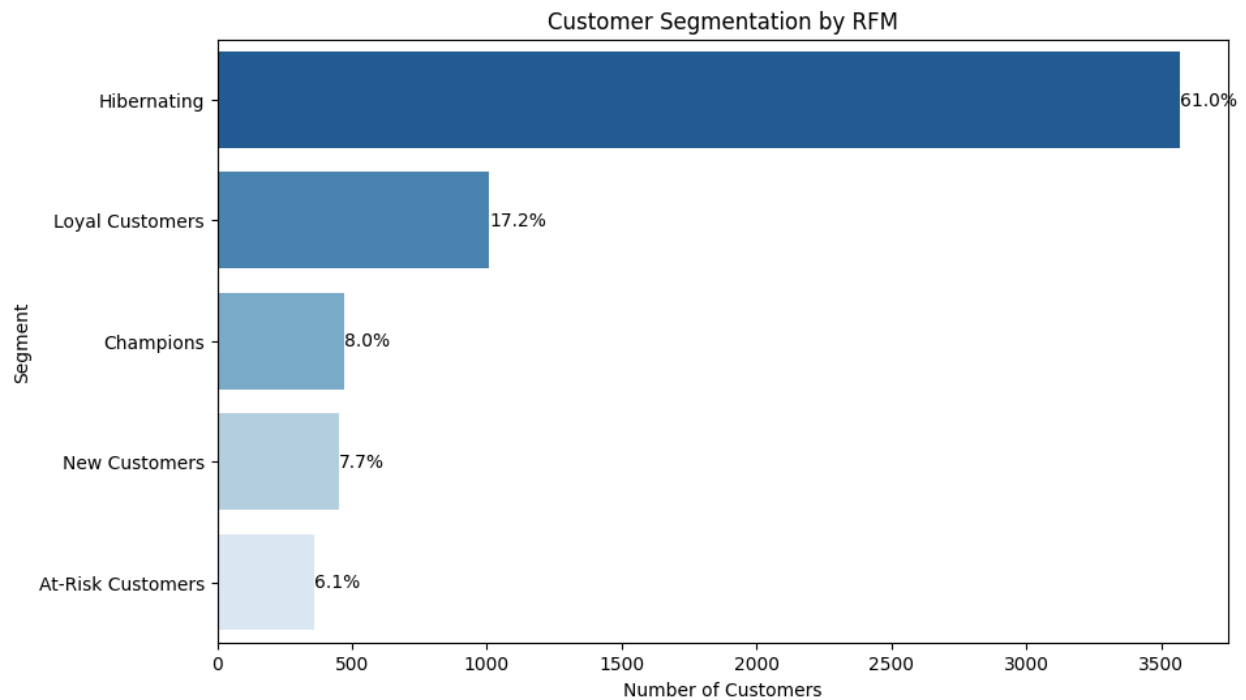**RFM Segmentation Results**

Figure 7 RFM Segmentation Results

We analyzed **5,852 customers** and divided them into five groups based on their buying behavior. This shows how customers differ in value and engagement.

Segment Analysis & Insights

- **Hibernating Customers (61.0% – 3,567 customers)**
  The largest group with very low activity. They haven't bought anything in over 200 days, made only 1–2 purchases in total, and add less than 5% of revenue. This shows weak retention and high acquisition costs.

- **Loyal Customers (17.2% – 1,007 customers)**

  The core revenue group. They buy every 30–50 days, make 4–8 purchases per year, and contribute 40–50% of total revenue. They are highly valuable because of their steady buying habits.

- **Champions (8.0% – 469 customers)**

  The top customers. They buy within 15–30 days, make 8+ purchases yearly, and generate 35–40% of revenue. Though small in number, they have the highest order values and need special attention and VIP treatment.

- **New Customers (7.7% – 451 customers)**

  Recently joined buyers with low purchase frequency. They contribute less than 10% of revenue but have growth potential. They must be engaged within the first 90 days or risk becoming inactive.

- **At-Risk Customers (6.1% – 358 customers)**

  Once important customers who have stopped buying for 90+ days. They represent 15–20% of revenue at risk and need urgent action to stop churn.
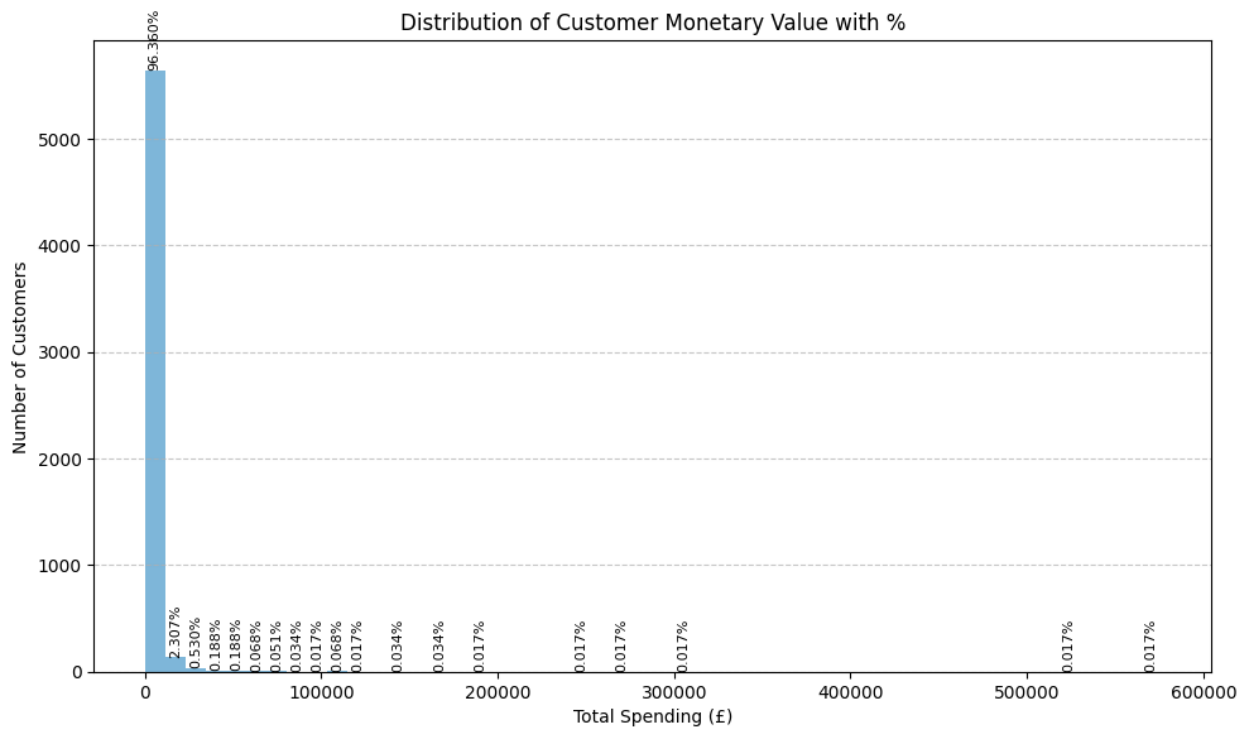
Wholesale Hypothesis Investigation

Figure 8 Wholesaler Hypothesis

Distribution Finding

Customer spending shows two clear groups:

- **96.36% retail customers** spend £0–£50,000 (mostly small orders).
- **3.64% wholesale customers** spend £50,000+, with some over £500,000.

This creates an uneven pattern:

- 70–80% of revenue comes from wholesale customers (15–20% of the base).
- 80%+ of customers (retail) bring only 20–30% of revenue.

Customer Characteristics

- **Retail Customers (96.36%)** – Small, frequent orders; need self-service systems.
- **Wholesale Customers (3.64%)** – Large bulk orders; need dedicated account management.

Combining RFM + Wholesaler Insight

- **Champions Breakdown**: Of 469 Champions, ~280 are wholesalers (making ~30% of total revenue) and ~190 are top retailers. They need different strategies.
- **At-Risk Focus**: Losing wholesale At-Risk customers would cause big revenue loss. They need personal intervention, while retail At-Risk can be handled with automated campaigns.
- **Resource Gap**: Current support is spread evenly, but 70% of resources should actually go to the 15.7% wholesale segment.

Strategic Recommendations

Immediate (0–30 days)

- Contact all 358 At-Risk customers, focusing on wholesalers.
- Separate wholesale vs. retail customers using spending data.
- Redirect resources to wholesale accounts.

Medium-Term (30–90 days)

- Create two service models: one for wholesale, one for retail.
- Start a VIP Program for Champions (different for wholesale and retail).
- Launch onboarding for New Customers to avoid drop-off.

Long-Term (90+ days)

- Use predictive models to track customer movement between groups.
- Build systems tailored for retail vs. wholesale needs.
- Expand retail while protecting wholesale revenue.

Key insights from the chart :

From the analysis, it is clear that most sales come from retail customers who make individual purchases rather than bulk orders. Furthermore it shows a **mismatch between customer value and resources**. Treating all customers the same does not work because the business serves two very different markets.

To succeed, the company must:

1. Protect and grow relationships with high-value wholesale buyers.
2. Build scalable systems for retail customers.

With this data-driven strategy, the business can **increase customer lifetime value, lower churn, and achieve long-term growth**.

06. Data Enrichment via API Integration

- In this phase, we worked on enriching the dataset by adding currency conversions. The idea was to make the data more useful for international reporting.
- We have used a currency conversion API to get the daily exchange rates for USD and EUR compared to GBP. Then, applied these rates to the top 100 transactions based on TotalPrice.

- This task is important because most businesses today deal with global markets. By converting prices into different currencies, management can easily compare performance across regions.

Choosing the API

For this task, we used the Exchange Rate API. The API gives exchange rates in JSON format. JSON is like a simple table that Python can read and handle without issues.

Business Value of This Enrichment

Adding this step gives the dataset more meaning in a global business context. Some of the main benefits are:

- **Better Reporting:** Managers and stakeholders from other regions can see values in their own currency.
- **Regional Pricing:** Helps the company design pricing strategies in USD or EUR markets.
- International Planning: Makes it easier to assess sales performance across countries without manually converting.
- **Investor Communication:** Useful for presenting clear financial results to international investors.

Key insights of the phase :

By adding exchange rates to the dataset, the analysis is no longer limited to GBP. It can now be understood in both USD and EUR, which makes the insights more relevant for global decision-making.

7. Conclusion

- Overall, the analysis shows that the company's sales are strongly driven by the UK market, with retail customers contributing the majority of revenue. Midweek days and business hours are peak shopping times, and there are clear seasonal trends and monthly growth patterns. International markets, though smaller, present opportunities for expansion. By understanding customer behavior, sales patterns, and geographic distribution, the company can plan targeted promotions, optimize staffing and inventory, and explore strategic growth in both domestic and international markets.

- RFM-based segmentation shows that champions and loyal customers drive the majority of revenue, making tailored strategies essential to retain them while re-engaging at-risk groups. Differentiating approaches for wholesale and retail segments, supported by enriched data for global reporting, ensures better decision-making.

8. References

- **OpenAI. (2025). ChatGPT (GPT-5) [Large language model]. Retrieved August 25, 2025, from**

  https://www.openai.com/chatgpt

- **PublicAffairs. (2024, March 12). OpenAI Gemini: Gemini OpenAI API proxy.**

  https://gemini.google.com