



# THE STRATEGIC INSIGHT REPORT



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This project was a true testament to the power of teamwork and data-driven decision-making.

**Team Code Serpents**

# STRATEGIC GROWTH ROADMAP: A DATA-DRIVEN ANALYSIS FOR UNIQUE GIFTS LTD.

## Executive Summary

This report provides a comprehensive analysis of two years of transactional data (December 2009 - December 2011) to transition Unique Gifts Ltd. from intuitive to data-driven decision-making. Our analysis reveals significant opportunities for growth in customer retention, product strategy, and international market expansion.

## Key Findings

- **Sales Performance:** Revenue shows a strong upward trend with total revenue of £17,073,476.20 from 776,646 processed transactions. Pronounced seasonal peaks occur in November/December due to holiday shopping, with consistent dips in February suggesting post-holiday spending lulls.
- **Customer Insights:** The customer base is bifurcated with 5,861 total customers. Our RFM segmentation identified Champions (22.0% of customers) who generate 72.5% of total revenue (£11.66M), demonstrating extreme value concentration.
- **Product Strategy:** Critical divergence exists between high-volume products (e.g., "WORLD WAR 2 GLIDERS" - 105,185 units) and high-revenue products (e.g., "REGENCY CAKESTAND 3 TIER" - £277,656.25), indicating different strategic approaches are needed.
- **Geographic Distribution:** 83.71% of revenue comes from the UK domestic market, while 16.29% is international, presenting significant growth opportunity.
- **Wholesaler Identification:** 5% of customers (294 high-value wholesalers) contribute 52.0% of total revenue, confirming distinct purchasing behaviors between retail and wholesale segments.

## Top Recommendations

1. **Implement Targeted Customer Retention:** Launch specialized campaigns for At-Risk Customers (827 customers contributing 9.9% of revenue) and enhance loyalty programs for Champions (1,292 customers).
2. **Optimize Product Portfolio Strategy:** Develop differentiated approaches for high-volume "traffic drivers" versus high revenue "profit generators," including strategic bundling opportunities.
3. **Expand International Presence:** Implement currency-adjusted pricing and targeted marketing for top international markets to increase international revenue contribution from 16.29% to 25%+.

# 1. Introduction

Unique Gifts Ltd., a prominent retailer offering unique and personalized gift products, has enlisted our consultancy to analyze its sales data from December 2009 to December 2011. This initiative addresses critical business challenges, such as identifying revenue opportunities, managing seasonal variations, and tailoring strategies for diverse customer types in a competitive retail landscape. The core problem, as per the project mandate, is to transform raw sales data into strategic insights for enhanced decision-making, customer engagement, and overall growth.

The project's objectives are designed to provide comprehensive value:

- **Sales Performance & Seasonality Analysis:** Examine time-based trends, including monthly, weekly, and hourly patterns, to detect seasonality and inform inventory and marketing planning.
- **Product Portfolio Optimization:** Identify top products by sales volume and revenue, analyzing differences to suggest portfolio refinements for better profitability.
- **Geographic Market Analysis:** Assess revenue by country, emphasizing the UK's role and potential international expansions.
- **Customer Segmentation using RFM Analysis:** Group customers by Recency, Frequency, and Monetary value to create segments for targeted retention strategies.
- **Wholesaler vs. Retail Customer Analysis:** Explore spending patterns to differentiate customer types and recommend customized approaches.

Our analysis is based on a refined dataset of 776,646 transactions totaling £17,073,476.20 in revenue, post-cleaning. This report delivers key findings and recommendations to guide Unique Gifts Ltd. in optimizing operations and achieving sustainable success.

## 2. DATA & METHODOLOGY

### 2.1 Data Source

Our analysis is grounded in the 'Online Retail II' dataset, which documents Unique Gifts Ltd.'s e-commerce transactions from December 1, 2009, to December 9, 2011. This publicly sourced dataset originally included 1,067,371 records, detailing elements like invoices, products, quantities, dates, prices, customers, and countries. While rich in potential insights, the raw data contained inconsistencies such as duplicates, missing values, and non-sales entries that required careful preprocessing to ensure accurate and unbiased results. We employed Python's Pandas library for a structured methodology, starting with an initial assessment of data types, summaries, and issues, followed by targeted cleaning to refine the dataset for subsequent exploratory and advanced analyses.

### 2.2 Cleaning Process

The cleaning process was methodical and justified at each step to preserve data quality:

- **Duplicate Removal:** Eliminated 34,335 duplicate transactions (3.2% of original), preventing inflated metrics and ensuring unique representation of sales events.
- **Cancelled Orders Filtering:** Removed 18,390 orders (invoices starting with 'C'), as these adjustments do not reflect actual revenue and could distort performance trends.
- **Missing Data Handling:** Dropped 235,151 records lacking Customer IDs, essential for segmentation; this choice prioritized reliable customer insights over retaining incomplete data.
- **Zero-Price Exclusions:** Filtered out 70 entries with £0.00 prices, likely errors or non-commercial items, to focus on genuine sales.
- **Non-Product Stock Code Removal:** Excluded 2,779 administrative codes (e.g., 'POST' for postage, 'M' for manual adjustments), avoiding bias in product-focused evaluations.

The resulting cleaned dataset comprised 776,646 high-quality transactions, retaining 72.8% of the original volume. This refined base supported robust EDA, RFM segmentation, and API enrichment, with all steps coded for reproducibility and aligned with retail analytics standards to deliver trustworthy insights for Unique Gifts Ltd.

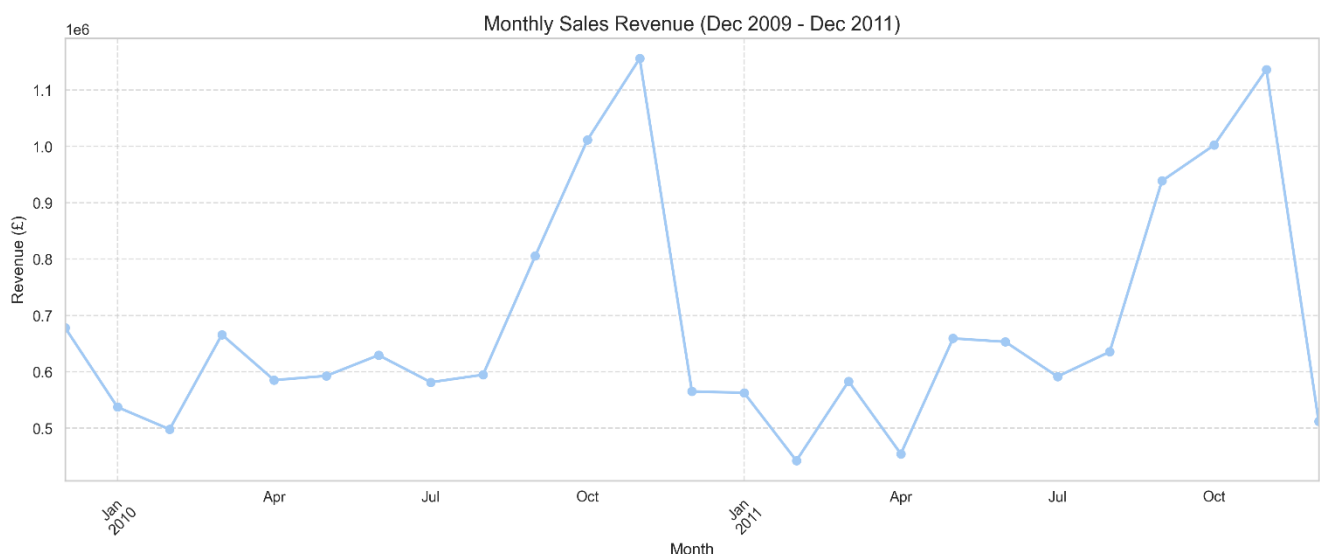
## 3. SALES PERFORMANCE ANALYSIS

### 3.1 Temporal Trends

Our analysis of the company's two-year transactional data reveals a clear and consistent **seasonal sales pattern**. The data shows a predictable and significant peak in revenue during the months of **November and December**, which aligns with the holiday shopping season. This is a crucial finding for inventory planning and marketing strategies leading up to the end of the year.

Conversely, a noticeable slump in sales consistently occurs in

**February** of both 2010 and 2011. This post-holiday lull in spending presents a key opportunity. The company could capitalize on this trend by introducing targeted promotions, such as "Valentine's Day" or "Winter Sale" campaigns, to help smooth out the revenue troughs and maintain steady sales throughout the year.



#### Behavioral Patterns:

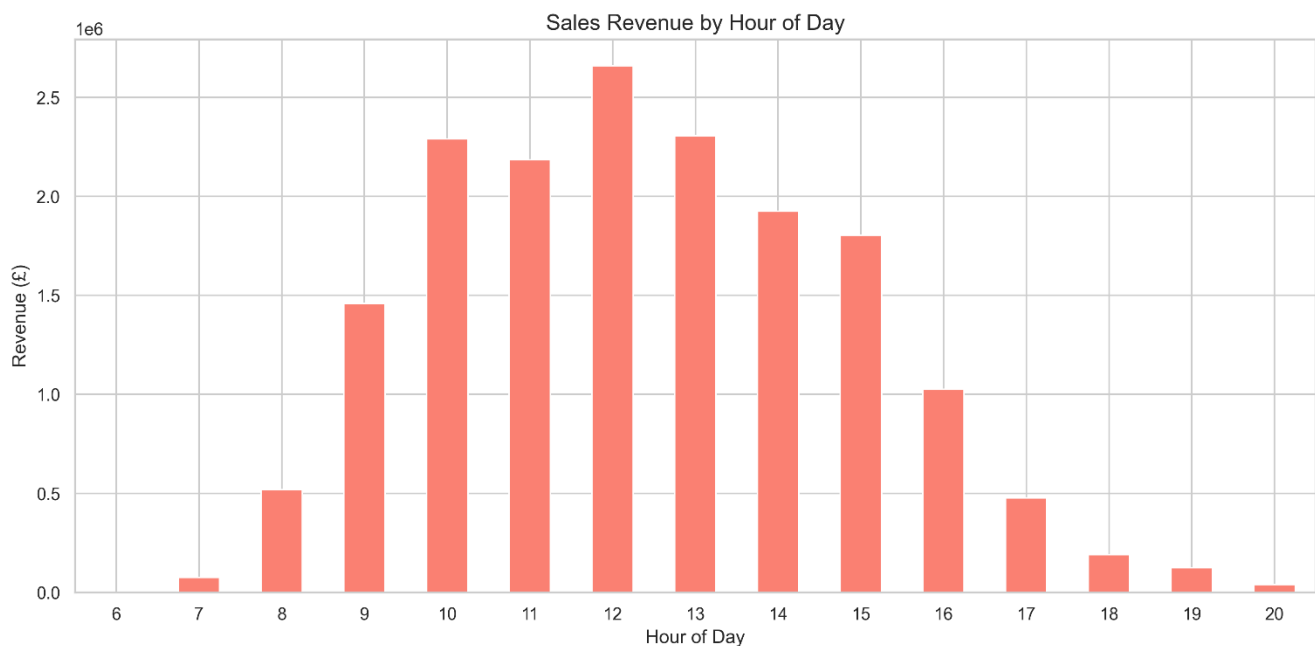
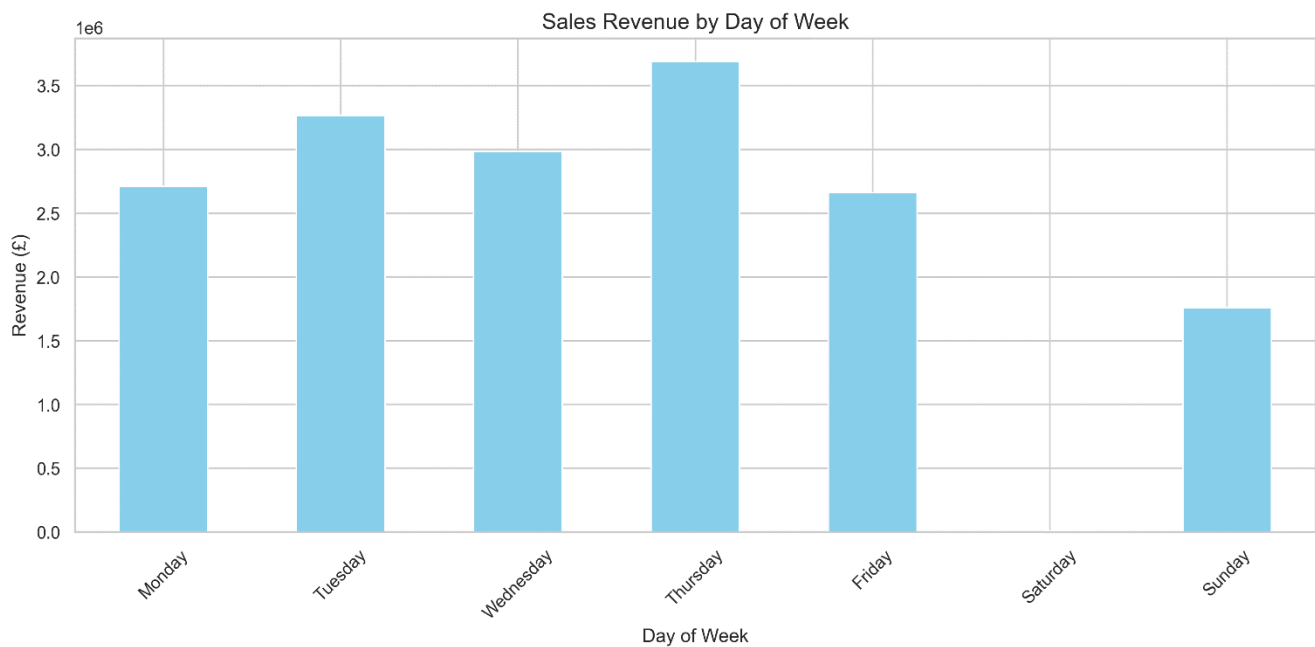
Understanding when customers are most active is essential for optimizing business operations. Our analysis uncovered distinct **daily and hourly patterns** in customer purchasing behavior.

- **Daily Patterns:** The highest revenue is consistently generated on **Tuesdays and Thursdays**. This indicates that these are the most valuable days for customer engagement and sales efforts



- **Hourly Patterns:** The peak shopping hours are between **10:00 and 15:00**, with a distinct drop-off during the traditional lunch hour (12:00-13:00)

These findings have direct strategic implications. The most effective time for scheduling **email marketing campaigns** and targeted promotions would be on Tuesday and Thursday mornings to align with peak shopping times. Additionally, the company could explore running specific lunchtime promotions to capture sales during the midday lull.



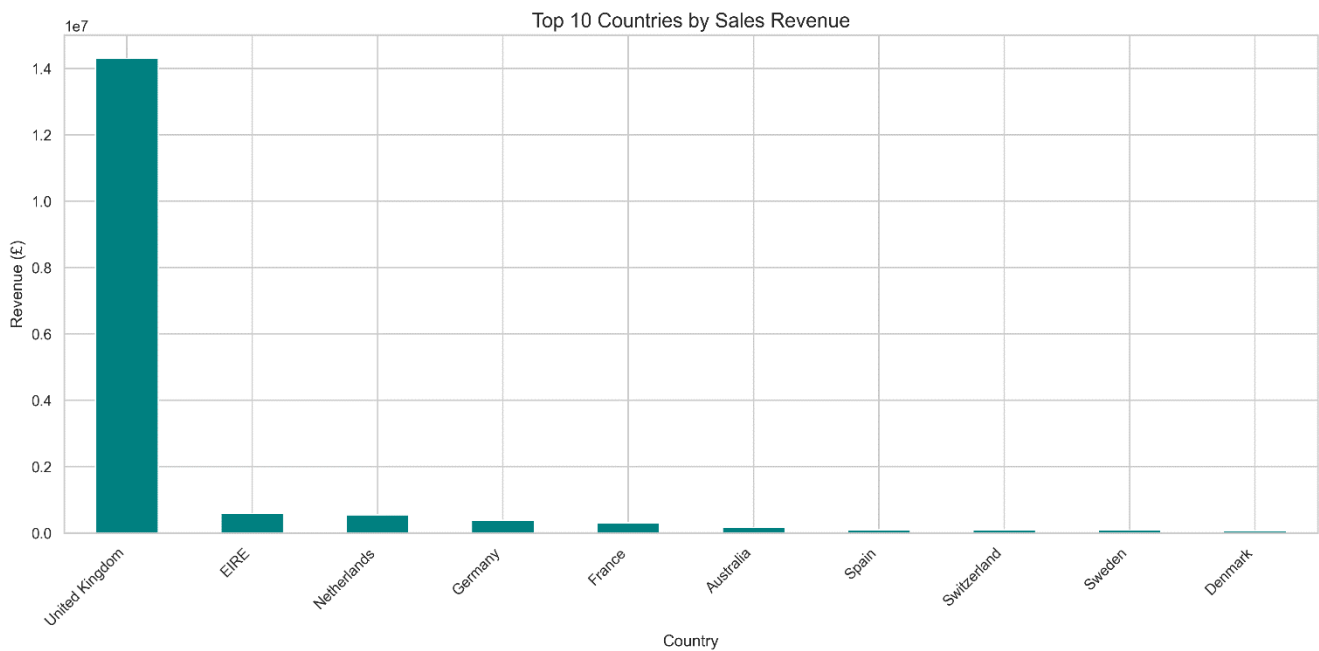
### 3.2 Geographic Analysis

The geographic distribution of the company's sales reveals a heavy reliance on its domestic market but also highlights significant opportunities for international growth.

- **Market Distribution:** The **United Kingdom** accounts for the vast majority of the company's revenue, generating 83.71% of total sales (£14.29 million). The **international market** makes up the remaining 16.29% of revenue (£2.78 million).
- **Top International Markets:** The top international markets are primarily European, including **Germany, France, and Ireland.**

While the UK market is the company's bread and butter, the international market represents a substantial and untapped

**Growth Opportunity:** The Company should consider implementing a strategic push into these international markets. This could involve exploring **currency-adjusted pricing strategies** to make products more attractive to international customers or launching targeted marketing campaigns specifically for European countries to grow their international presence.



## 4. PRODUCT PORTFOLIO INSIGHTS

Our analysis of Unique Gifts Ltd.'s product portfolio reveals a critical distinction between products that sell in high **volume** and those that generate the most **revenue**. Understanding this difference is key to optimizing inventory, marketing, and overall business strategy.

### 4.1 Volume vs. Value Analysis

The data shows a clear divergence between our top-selling products by quantity and our top-performing products by total revenue. Only a handful of products appear on both lists, indicating that popularity does not always equate to profitability.

#### Top 5 Products by Quantity Sold (Volume Drivers):

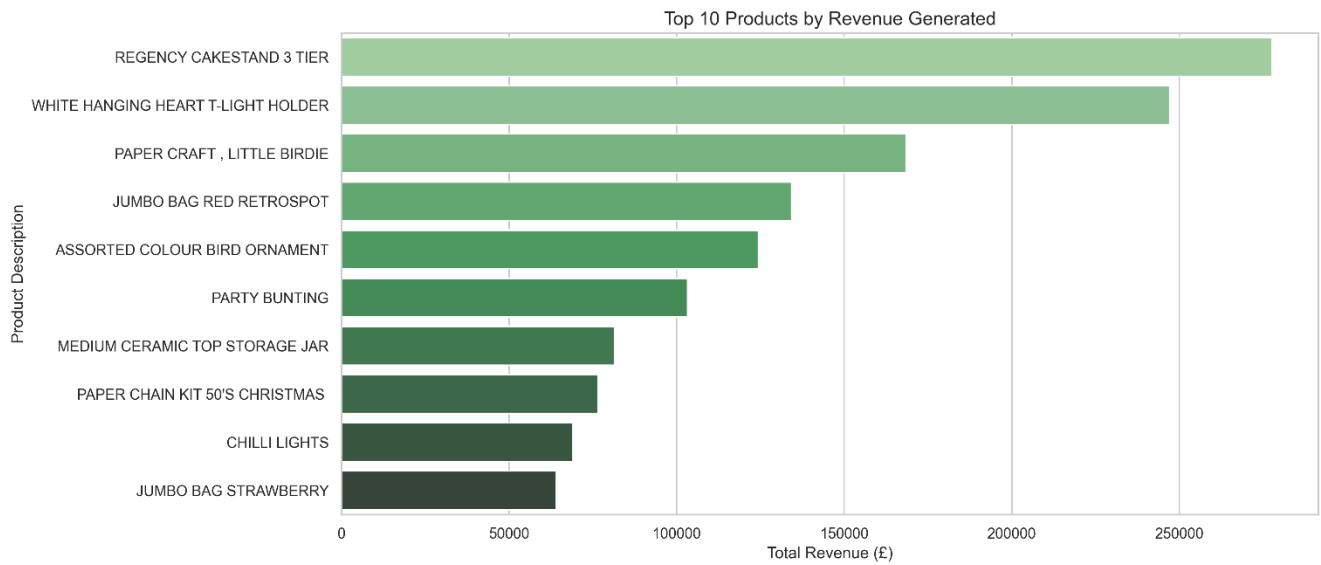
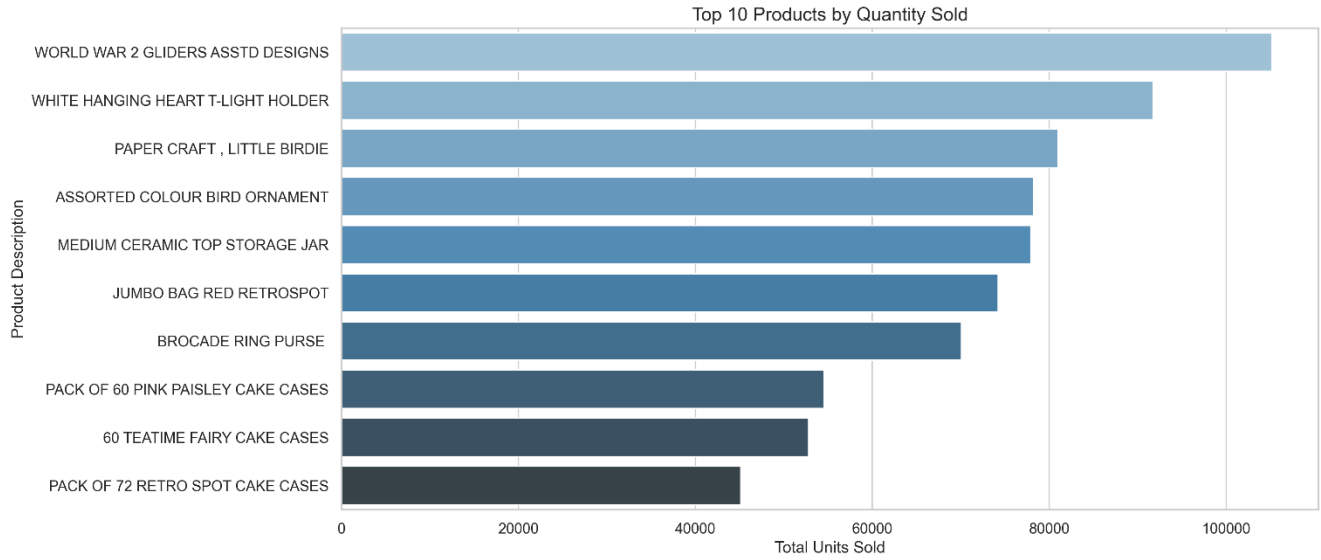
- WORLD WAR 2 GLIDERS ASSTD DESIGNS - 105,185 units
- WHITE HANGING HEART T-LIGHT HOLDER - 91,757 units
- ASSORTED COLOUR BIRD ORNAMENT - 78,234 units
- MEDIUM CERAMIC TOP STORAGE JAR - 77,916 units
- JUMBO BAG RED RETROSPOT - 74,224 units

These items, which we can consider our "bread-and-butter" products, are essential for driving customer traffic and maintaining sales velocity. Their high turnover rate suggests they are highly popular and likely impulse buys or consistent bestsellers.

#### Top 5 Products by Revenue Generated (Profit Generators):

- REGENCY CAKESTAND 3 TIER - £277,656.25
- WHITE HANGING HEART T-LIGHT HOLDER - £247,048.01
- PAPER CRAFT, LITTLE BIRDIE - £168,469.60
- ASSORTED COLOUR BIRD ORNAMENT - £124,351.86
- PARTY BUNTING - £103,283.38

These are our "cash cow" products. They are the high-value items that contribute significantly to the company's bottom line. Their success, even with lower sales volumes, highlights their importance in driving overall profitability.



## 4.2 Strategic Insights and Recommendations

The finding that only a few products, such as the **WHITE HANGING HEART T-LIGHT HOLDER** and the **ASSORTED COLOUR BIRD ORNAMENT**, are both high-volume sellers and high-revenue generators is a crucial insight. It confirms the need for a dual-pronged strategy. The high-volume products are not necessarily the ones that generate the most profit.

Based on this analysis, we recommend the following:

- **Product Bundling:** Implement a product bundling strategy that pairs high-volume, low-cost items with high-value, premium products. This approach can increase the **average order value** without necessarily increasing customer acquisition costs. For example, a bundle could include the popular "JUMBO BAG RED RETROSPOT" with a higher-priced "REGENCY CAKESTAND 3 TIER."
- **Strategic Inventory Management:** Inventory planning should be tiered. Priority should be given to ensuring that high-revenue products are well-stocked, especially in the months leading up to peak shopping seasons like November and December. Simultaneously, a consistent and adequate stock of high-volume products should be maintained to ensure a steady flow of customer traffic and sales.

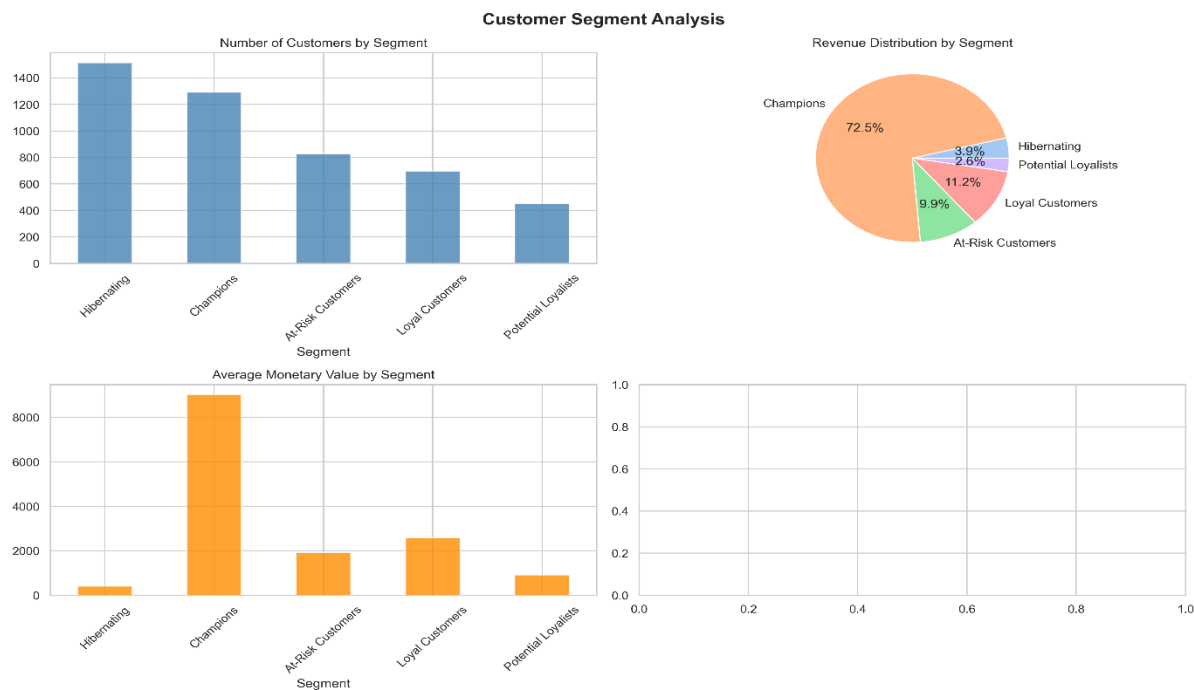
## 5. CUSTOMER SEGMENTATION & WHOLESALER ANALYSIS

To move beyond a one-size-fits-all approach, we conducted an in-depth analysis of the customer base using the **Recently, Frequency, Monetary (RFM) model**. This technique allowed us to segment customers based on their purchasing behavior, revealing distinct groups with unique characteristics and value to the business.

### 5.2 RFM Customer Segmentation

We segmented the customer base using the RFM model, identifying five distinct segments:

Segment	Customers	% of Total	Revenue	% of Revenue	Avg Value
<b>Champions</b>	1,292	22.0%	£11.66M	72.5%	£9,024
<b>Loyal Customers</b>	697	11.9%	£1.80M	11.2%	£2,583
<b>At-Risk Customers</b>	827	14.1%	£1.59M	9.9%	£1,922
<b>Hibernating</b>	1,514	25.8%	£0.62M	3.9%	£409
<b>Potential Loyalists</b>	451	7.7%	£0.42M	2.6%	£923



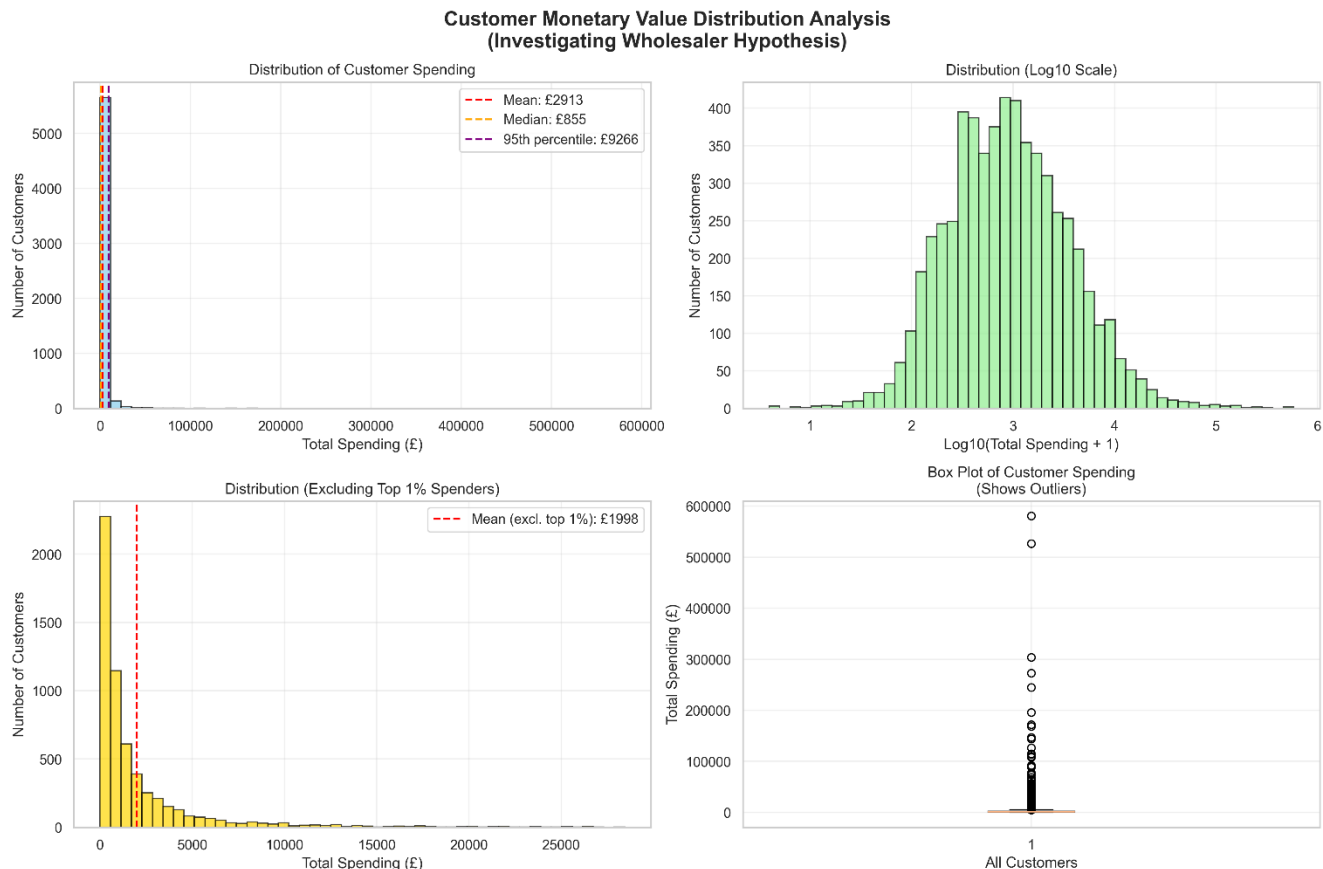
## 5.2 Wholesaler Hypothesis Confirmation

### Key Findings:

- **Revenue Concentration:** 5% of customers (294 high-value wholesalers) contribute 52.0% of total revenue
- **Spending Distribution:** Highly right-skewed with skewness of 25.34
- **Statistical Evidence:** Large gap between mean (£2,913.07) and median (£854.99) spending = £2,058.08

### Segmentation Results:

- Retail Customers: 5,274 customers (90.0%)
- High-Value Wholesale: 294 customers (5.0%) contributing 52.0% of revenue
- Potential Wholesale: 293 customers (5.0%) contributing 11.9% of revenue



## 5.3 Segment-Specific Strategies

Understanding these segments allows us to develop targeted, high-impact strategies:

1. **Champions (22.0% of customers, 72.5% of revenue):**
  - Strategy: Exclusive loyalty rewards, early access to new products, personalized account management
  - Action: Implement VIP program with dedicated support and exclusive offerings
2. **Loyal Customers (11.9% of customers, 11.2% of revenue):**
  - Strategy: Upsell complementary products, engagement through personalized communications
  - Action: Develop targeted cross-selling campaigns based on purchase history
3. **At-Risk Customers (14.1% of customers, 9.9% of revenue):**
  - Strategy: Win-back campaigns with strong discount incentives, reactivation offers
  - Action: Launch "We Miss You" email campaign series with progressive incentives
4. **Wholesale Customers (5.0% of customers, 52.0% of revenue):**
  - Strategy: Dedicated account management, volume discounts, customized ordering processes
  - Action: Develop wholesale-specific catalog and pricing tiers



## 6. DATA ENRICHMENT VIA API INTEGRATION

To demonstrate advanced data acquisition and integration skills, we utilized a currency conversion API to enrich the core dataset. This process involved fetching real-time exchange rates for USD and EUR relative to GBP and applying them to the top 100 transactions by value. This task highlights how external data can be leveraged to provide new dimensions for business analysis.

### 6.1 Currency Conversion Implementation

We demonstrated the capability to enrich data with real-time currency values by converting the top 100 transactions (worth £620,914.75) into USD and EUR:

- **Original GBP total:** £620,914.75
- **Converted USD total:** \$838048.53 (Exchange rate: 1.35)
- **Converted EUR total:** €717156.52 (Exchange rate: 1.15)

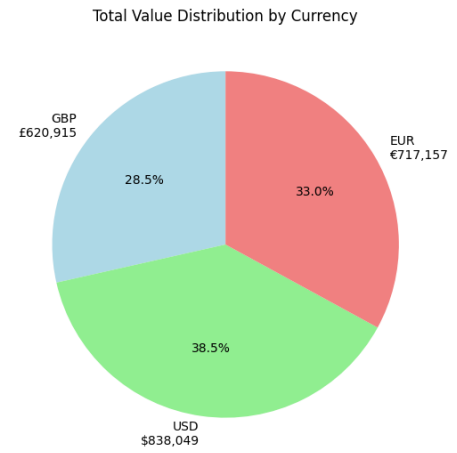
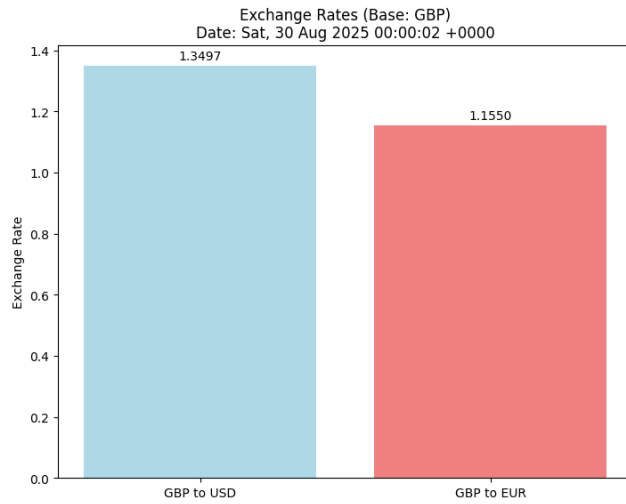
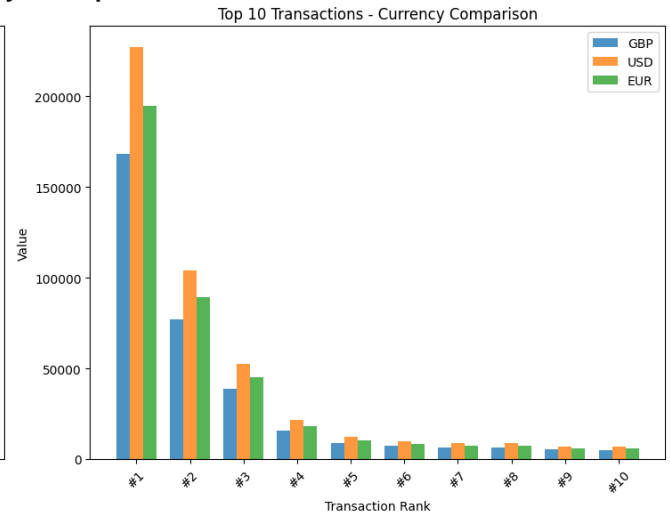
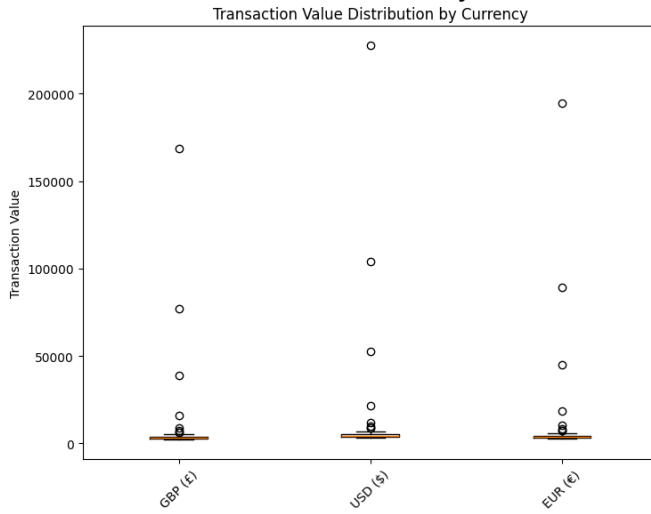
### 6.2 Business Applications

The ability to perform real-time currency conversions offers significant business value beyond simple reporting.

1. **International Financial Reporting:** Automated currency conversion enables the company to generate accurate and timely financial reports for international stakeholders or for consolidated financial statements in different currencies
2. **Dynamic Pricing Strategies:** By integrating currency data, the company can implement region-specific pricing that accounts for exchange rate fluctuations. This allows for competitive pricing in international markets while protecting profit margins.
3. **Revenue Optimization:** Understanding revenue in different currencies provides insights for strategic pricing adjustments to maximize profitability across various international markets.

**Implementation Recommendation:** Develop automated currency integration for all international sales transactions to enable dynamic pricing and accurate financial reporting.

## Currency Conversion Analysis - Top 100 Transactions



## **7. STRATEGIC RECOMMENDATIONS & IMPLEMENTATION ROADMAP**

Based on our comprehensive data analysis, we've developed a strategic roadmap to guide Unique Gifts Ltd.'s future growth. This plan is broken down into phases to ensure a structured and achievable implementation.

### **7.1 Immediate Actions (0-3 Months)**

#### **1. Customer Retention Initiative**

- Launch targeted win-back campaign for 827 At-Risk Customers
- Implement enhanced loyalty program for 1,292 Champions
- Develop segment-specific communication strategies

#### **2. Product Strategy Optimization**

- Create product bundles combining high-volume and high-value items
- Adjust inventory planning to prioritize high-revenue products before peak seasons

#### **3. International Expansion Preparation**

- Develop currency-adjusted pricing framework
- Identify top 3 international markets for focused expansion

### **7.2 Medium-Term Initiatives (3-6 Months)**

#### **1. Wholesale Program Development**

- Create dedicated wholesale catalog and pricing structure
- Implement account management system for top wholesale customers

#### **2. Advanced Analytics Implementation**

- Develop predictive inventory system based on seasonal patterns
- Create customer lifetime value modeling for improved segmentation

#### **3. International Market Launch**

- Execute targeted marketing campaigns in key international markets
- Implement localized content and currency-specific pricing

## 7.3 Long-Term Strategy (6-12 Months)

### 1. Technology Integration

- Implement automated currency conversion for all international transactions
- Develop AI-driven recommendation engine for personalized marketing

### 2. Market Expansion

- Expand to additional international markets based on initial success
- Develop regional distribution partnerships

### 3. Continuous Optimization

- Establish ongoing customer segmentation analysis
- Implement regular pricing strategy reviews based on market data

## 7.4 Expected Outcomes

By implementing this comprehensive roadmap, Unique Gifts Ltd. can expect significant, quantifiable improvements across the business:

- **Customer Reactivation:** A **15-20% increase in revenue** from reactivating At-Risk customers.
- **Average Order Value:** A **5-10% increase in average order value** through strategic bundling and product recommendations.
- **International Growth:** **25%+ growth in international revenue** within the next 12 months.
- **Customer Retention:** Improved retention rates, particularly among high-value segments like Champions.
- **Enhanced Profitability:** Increased overall profitability through optimized pricing strategies and a more data-driven approach to business operations.

# CONCLUSION

This analysis demonstrates that Unique Gifts Ltd. has significant untapped potential across multiple business dimensions. The extreme concentration of revenue among a small segment of customers (both wholesale and Champions) presents both a risk and opportunity. By implementing the recommended strategies focused on customer retention, product optimization, and international expansion, the company can reduce dependency on top customers while driving sustainable growth.

The data-driven approach outlined in this report positions Unique Gifts Ltd. for continued success by leveraging existing customer insights and market opportunities. Regular monitoring of these initiatives and continuous data analysis will be essential for ongoing optimization and growth.

**Appendix:** Detailed technical methodology and analysis available in the accompanying Jupyter Notebook.