

PRESENTATION ON DATA ANALYSIS FOR UK ONLINE RETAIL STORE

A decorative graphic on the left side of the slide, composed of several overlapping geometric shapes and patterns. It includes a blue triangle with white diagonal lines, a light blue circle, a dark blue square with concentric circles, a dark purple triangle, a bright pink square with white concentric semi-circles, and a grey square with a dark purple diagonal line pattern.

CONTENTS

- Overview of an online retail industry
- Problem statement and business value
- Data and Methods
- Key findings
- Recommendations and future work

INDUSTRY OVERVIEW

BOOMING UK ONLINE RETAIL SECTOR

UK online sales held 32.8% of total retail sales in 2020 propelled by companies like ASOS and Boohoo.

THE RISE OF ONLINE SHOPPING

With 87% of UK internet users purchasing online in 2020, online platforms like ASOS have witnessed a 24% increase in their customer base

THE CHANGING LANDSCAPE THROUGH DATA ANALYSIS

Leveraging data analysis like Amazon's recommendation system, has seen a 35% increase in their total sales

INNOVATIVE TRENDS IN E-COMMERCE

Advances such as AI for real-time inventory management (Ocado) and sustainability initiatives (Boohoo and Depop) are revolutionizing the industry.

PROBLEM STATEMENT

THE CHALLENGES: Understanding customer buying behaviors, predicting sales trends and examining frequent product returns

Identifying Buying Behaviors

Unveiling customer's **purchasing habits** and key customers for effective **customer targeting** and engagement remains a challenge

Sales Trend Analysis

Gaining insights into patterns of sales for accurate future sales forecasting and strategic resource allocation

Inventory and Returns Management

Understanding why specific products are frequently returned for better inventory control and reduction of financial losses

OBJECTIVES & METHODOLOGY

OBJECTIVES

- Understand customer buying habits to shape sales strategies.
- Predict future sales trends using historical data.
- Conduct market basket analysis for product bundling insights.

DATA SOURCES

The data utilized for this analysis are transactional datasets from a leading UK-based online retail store and UK CPI Index

METHODOLOGY

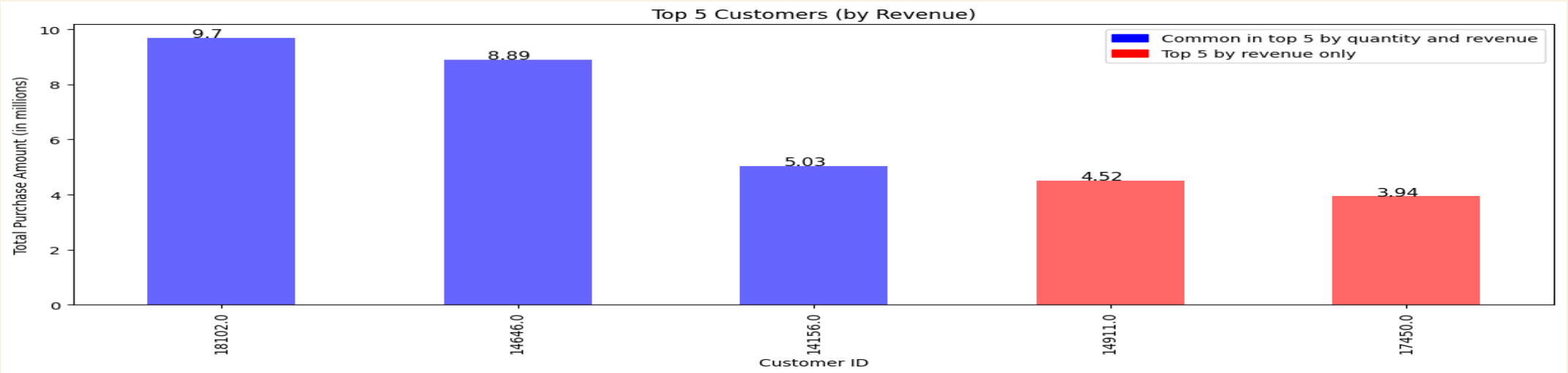
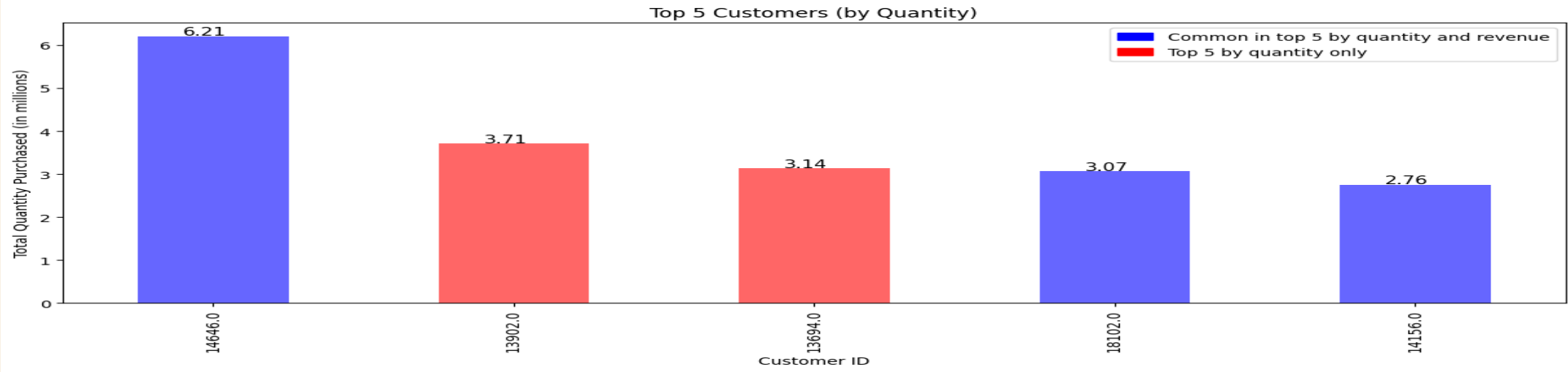
The phases of data cleaning, preparation steps, statistical analysis, exploratory data analysis, and visualization were undertaken for a well-rounded understanding

FINDINGS

- Identified top customers by revenue and quantity.
- Analyzed daily and monthly revenue trends.
- Detected frequently sold and returned items.

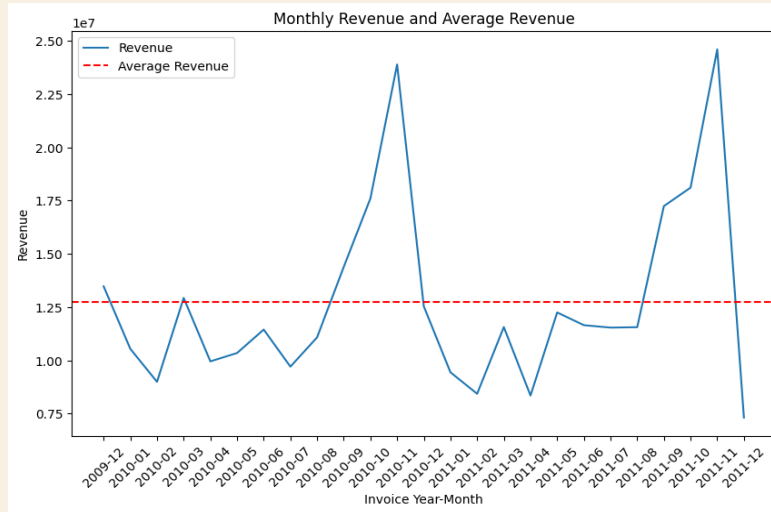
KEY FINDINGS

CUSTOMER ANALYTICS: Identified top customers (notably, the three in blue excelled in both revenue and quantity) facilitating personalized marketing, superior service, and targeted campaigns to boost sales..



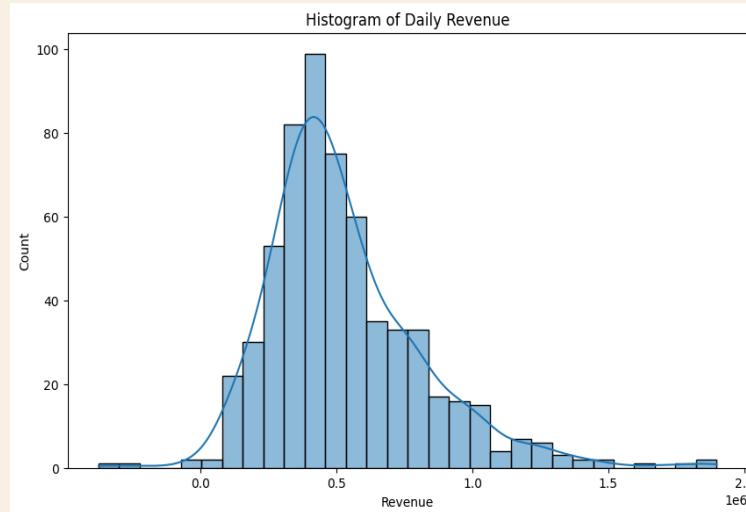
KEY FINDINGS

REVENUE TREND ANALYSIS: In-depth analysis of daily and monthly revenue trends enables strategic planning and preparedness for sales fluctuations.



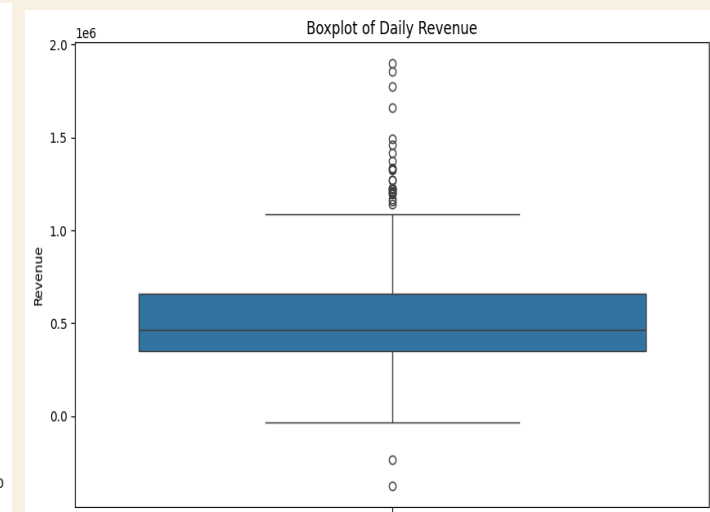
Monthly Revenue Analysis

- Notable revenue peaks in Novembers 2010, 2011 and a dip in December 2011.
- A weak positive correlation (0.67) exists signifying a subtle increase in customers with rising monthly revenue.
- Strategic actions including targeted promotions during lows and staffing adjustments can be derived from these fluctuations



Daily Revenue Snapshot

- A right-skewed distribution shows prevalent lower revenues around £528,143.52, intermittent high peaks and significant negative deviations.
- Investigate variations, heed high revenue days, address negatives, and devise strategies for stronger financial stability

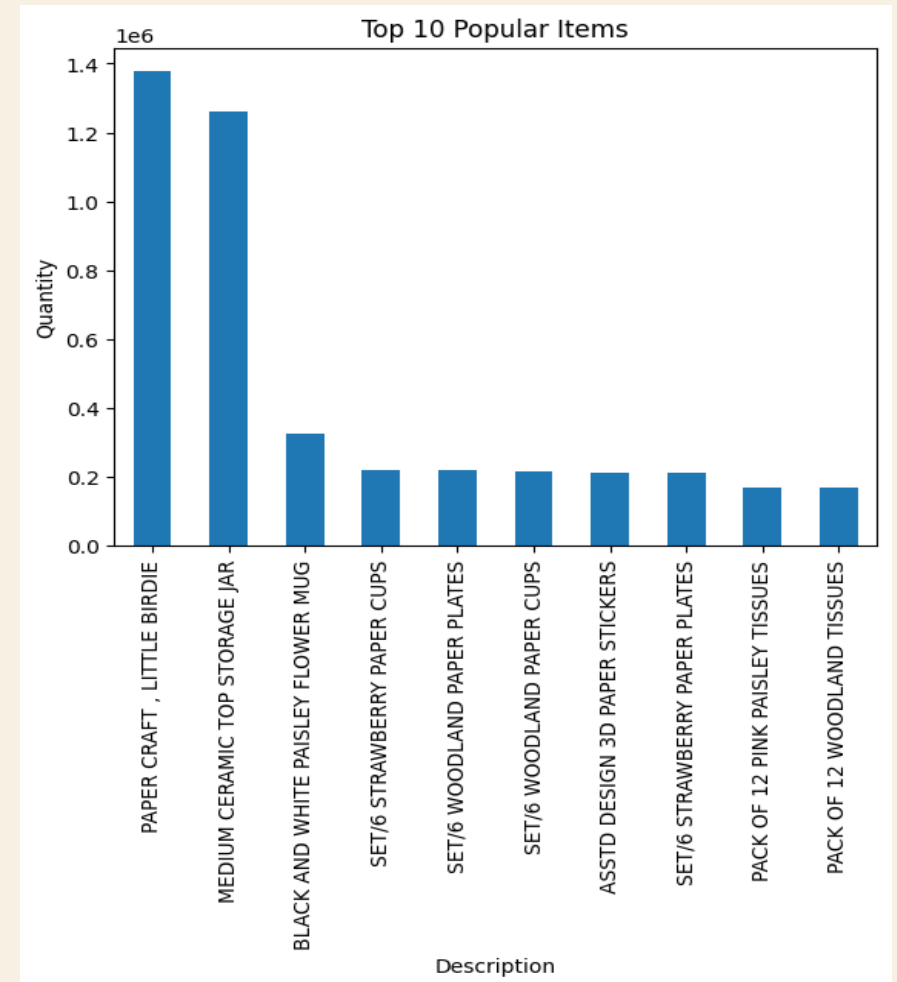
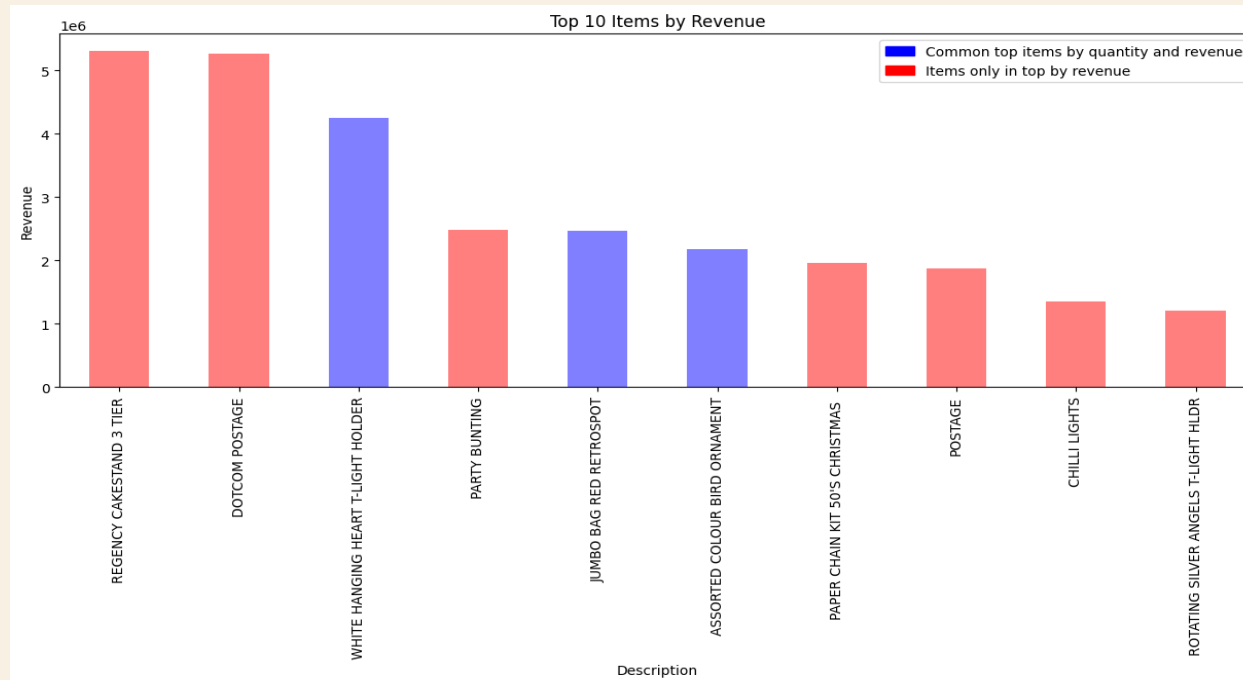


Revenue Range Distribution

- Wide-ranging revenue with a median at £466,458.75 and 26 notable outliers, points towards special sales events or potential issues in our right-skewed distribution.
- Exploration of these outliers can support emulation of successful trends and rectification of underlying shortcomings for overall sales stability.
- Note: days to investigate is automated see days_to_investigate.xlsx

KEY FINDINGS

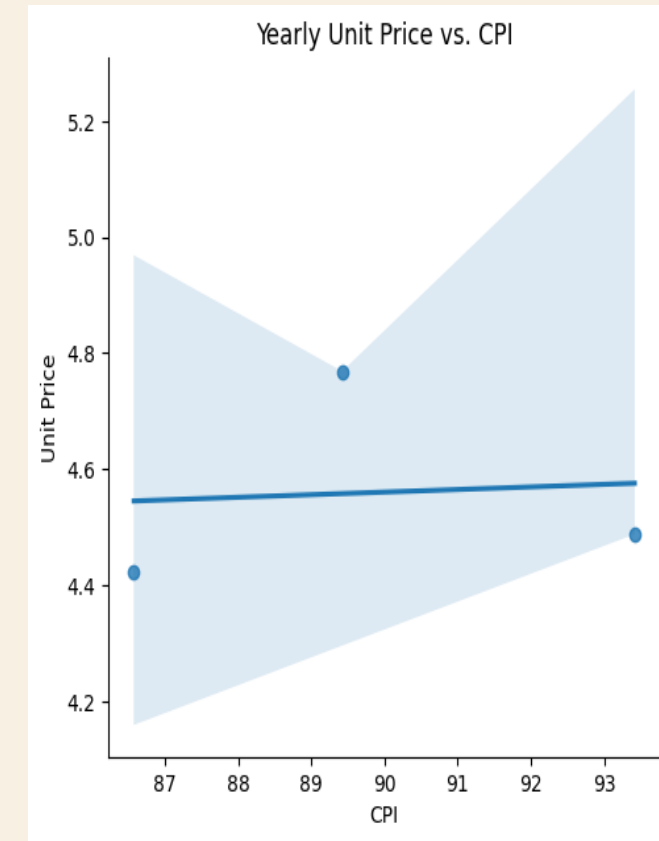
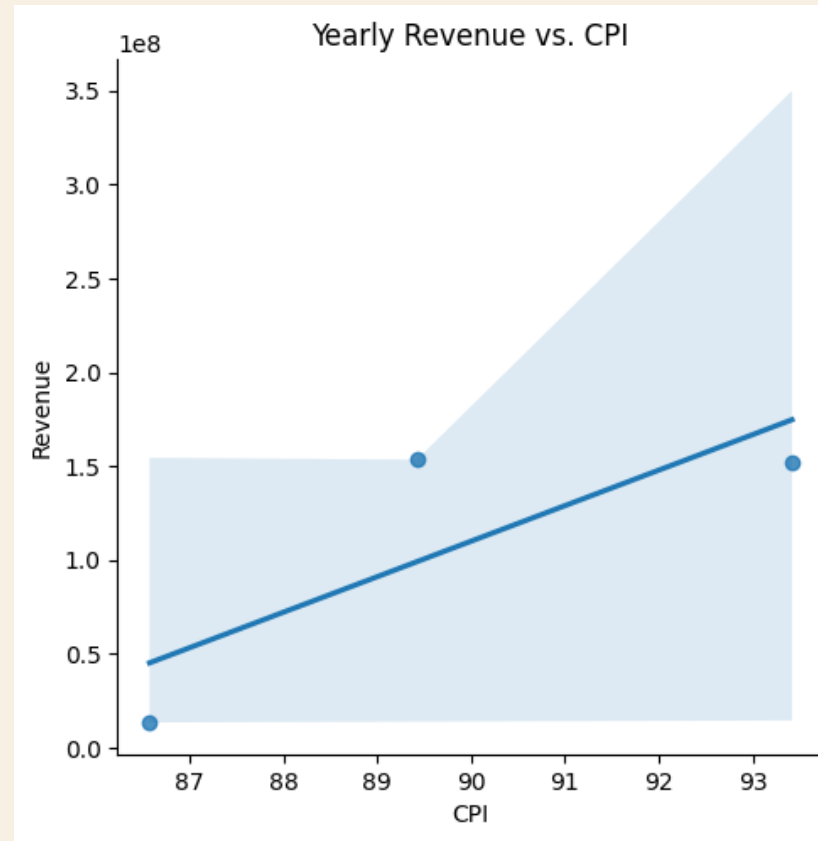
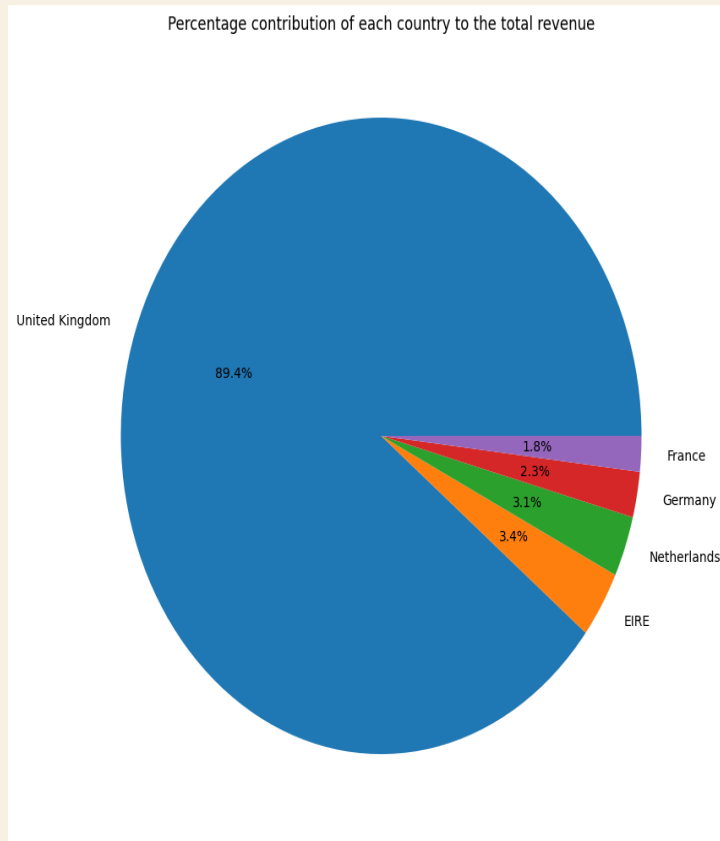
PRODUCT ANALYSIS: Understanding profitability alongside popularity is crucial as top-selling items aren't always high-revenue items. Returns amounting to £24m signal potential quality or fulfillment issues to ascertain. Resolving these could improve revenue and customer satisfaction.



Returns by Year		
	Quantity	Revenue
2009	-429,233	-422,016
2010	-9,467,759	-10,427,056
2011	-7,840,196	-13,719,196
Grand Total	-17,737,188	-24,568,269

FURTHER OPPORTUNITIES

CPI AND GEOGRAPHIC ANALYSIS: With UK's dominant 89.4% revenue contribution and minor shares from EIRE, Netherlands, Germany, and France, there's scope to broadening market reach for balanced revenue diversification. No significant CPI correlation presents opportunity to explore other pricing and revenue influencers.





RECOMMENDATION & FUTURE WORK

RECOMMENDATIONS

- Allocate resources towards engaging and retaining identified key customers.
- Gear business planning around peak sales periods.
- Investigate frequently returned items and implement corrective actions.

FUTURE WORK

- Invest in predictive analytics to enhance sales forecasting.
- Utilize sentiment analysis to refine products and services.
- Develop a recommendation system leveraging Market Basket Analysis.



SUMMARY

- Conducted an in-depth analysis of customer behavior, sales trends, and product returns.
- Derived actionable insights for strategic decision making.
- Identified opportunities for further analysis and performance improvement.

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THANK YOU