Customer Segmentation & Analysis Report

Executive Summary

The primary goal of this analysis was to transform raw transactional data into actionable business intelligence. Using RFM (Recency, Frequency, Monetary) analysis and K-Means clustering, we successfully segmented the customer base to identify high-value customers and those at risk of churning.

The analysis reveals the business generated

$17.74M in total revenue from

5.88K customers. Our segmentation model identified 'Champions' as the largest customer group, with 2,000 individuals. The key takeaway is the need for tailored marketing strategies; for instance, launching a loyalty program for 'Champions' and deploying re-engagement campaigns for 'At-Risk' customers to foster growth and retention.

Methodology

The analysis was conducted using Python for data processing and machine learning, with the final results visualized in a Power BI dashboard. The core technical activities included:

- RFM Analysis: We calculated Recency, Frequency, and Monetary scores for each customer from the transactional dataset to quantify their purchasing behavior.
- K-Means Clustering: The K-Means algorithm was applied to the RFM scores to partition customers into distinct groups. The optimal number of segments was determined using the "elbow method," a technique visually confirmed in the project's technical notebook.
- LTV Forecasting: A predictive model was built to estimate the future Customer Lifetime Value (LTV) for each segment, allowing for the strategic allocation of marketing resources.
- Dashboarding: An executive-level dashboard was created to present key findings, trends, and segment breakdowns in an intuitive visual format.

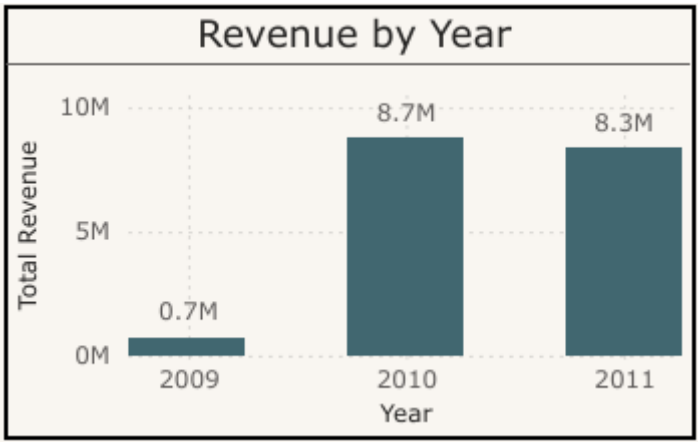
Key Analytical Findings

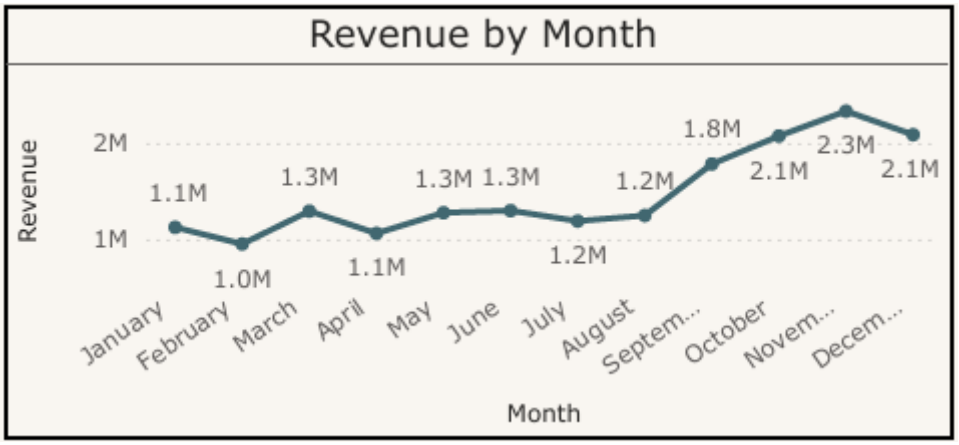
The dashboard provides a clear overview of the business's performance and customer landscape.

Overall Business Performance

- Total Revenue: $17.74 Million
- Total Customers: 5.88 Thousand
- Total Orders: 805.62 Thousand
- Average Monetary Value: $3.02 Thousand per customer

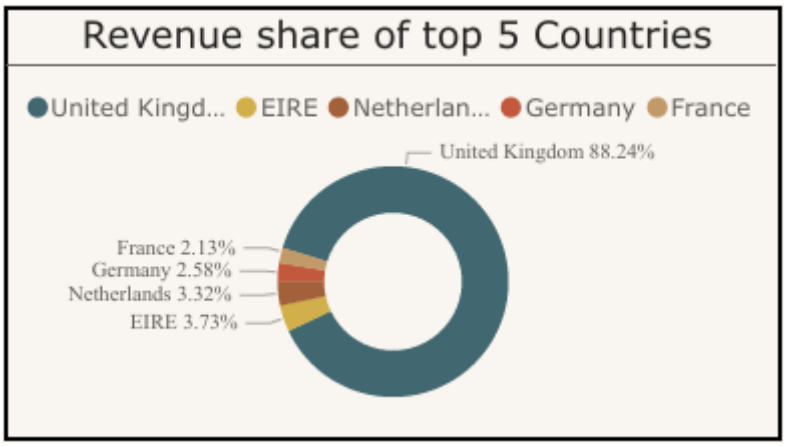
Revenue & Sales Trends





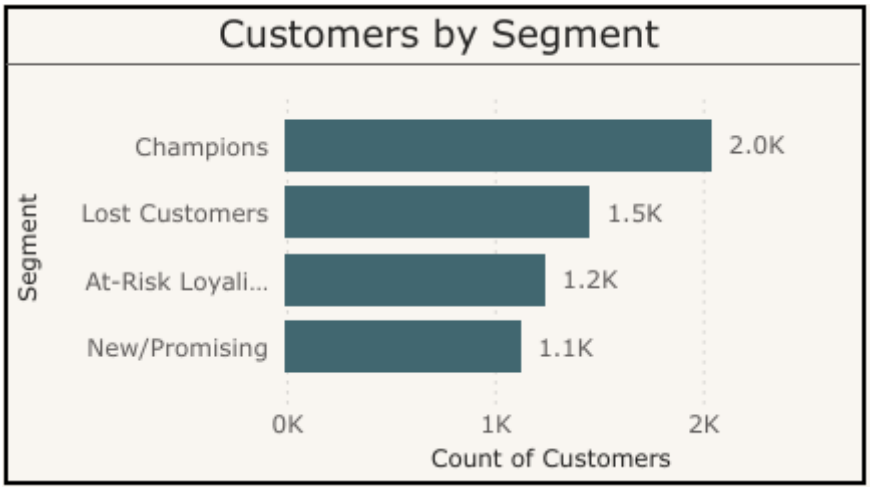
- Yearly Revenue: Revenue grew substantially from $0.7M in 2009 to a peak of $8.7M in 2010 and remained strong at $8.3M in 2011.
- Monthly Trends: Sales exhibit clear seasonality, with revenue building throughout the year and reaching a peak of $2.3M in November.

Geographic Insights



- The United Kingdom is the primary market, contributing 88.24% of the total revenue share. It is also the leader in order volume with 725.30K orders.

Customer Segments



The customer base was categorized into four main segments, each with a distinct size and profile:

- Champions: The largest group, with 2.0K customers. These are the most valuable customers who buy frequently and have spent the most.
- Lost Customers: A significant group of 1.5K customers who have not made a purchase in a long time.
- At-Risk Loyal Customers: Comprising 1.2K customers, this group consists of previously frequent buyers whose recency is declining.
- New/Promising: A group of 1.1K customers who are either new or have low engagement but show potential for growth.

Actionable Recommendations

Based on the segmentation results, we recommend the following targeted marketing strategies:

- For 'Champions' (2.0K Customers): Nurture this top segment by launching an exclusive loyalty program. Offer rewards, early access to new products, and personalized communication to maximize retention and encourage brand advocacy.
- For 'At-Risk' & 'Lost Customers' (2.7K Customers Total): Implement targeted "win-back" campaigns. Use personalized emails and promotional offers to re-engage these customers and remind them of the brand's value before they churn permanently.
- For 'New/Promising' (1.1K Customers): Develop an automated onboarding program. Guide new customers with a welcome email series that showcases products and offers a small incentive for their next purchase to encourage repeat business.