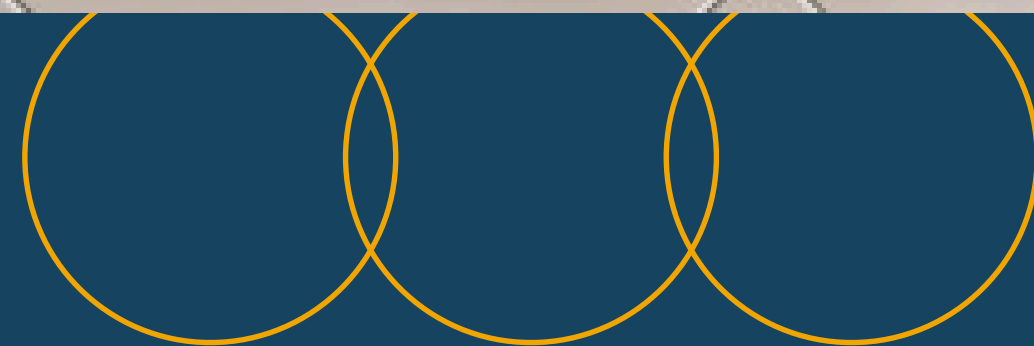


Customer Segmentation

Canva

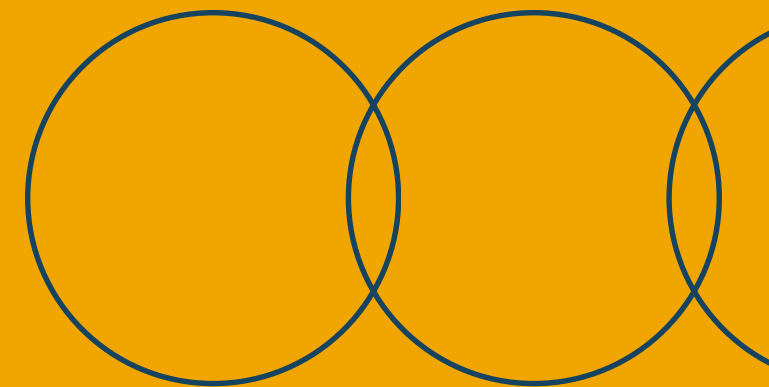
Presented by Shivam Rana



Data Preparation Steps

Ensuring data integrity

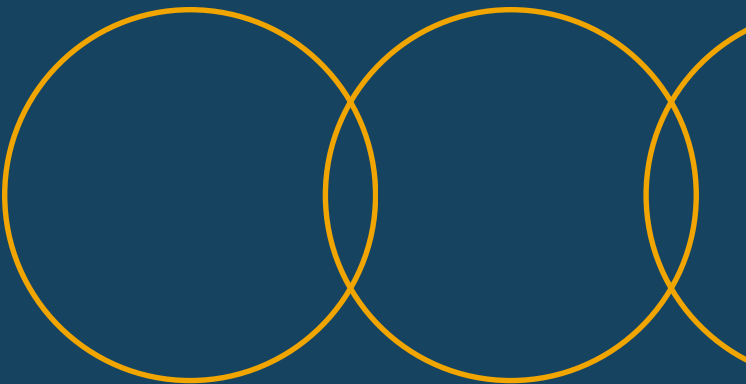
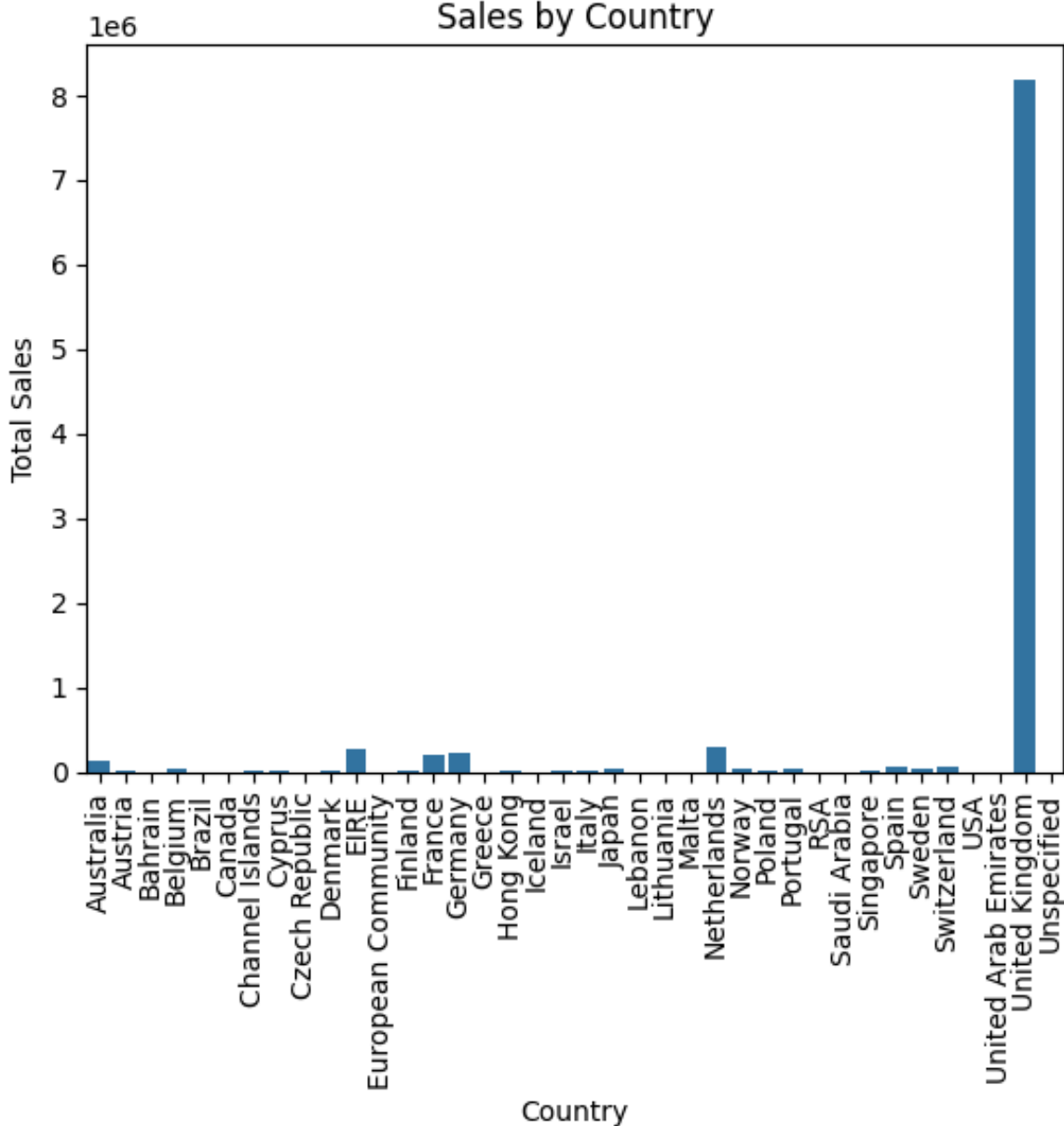
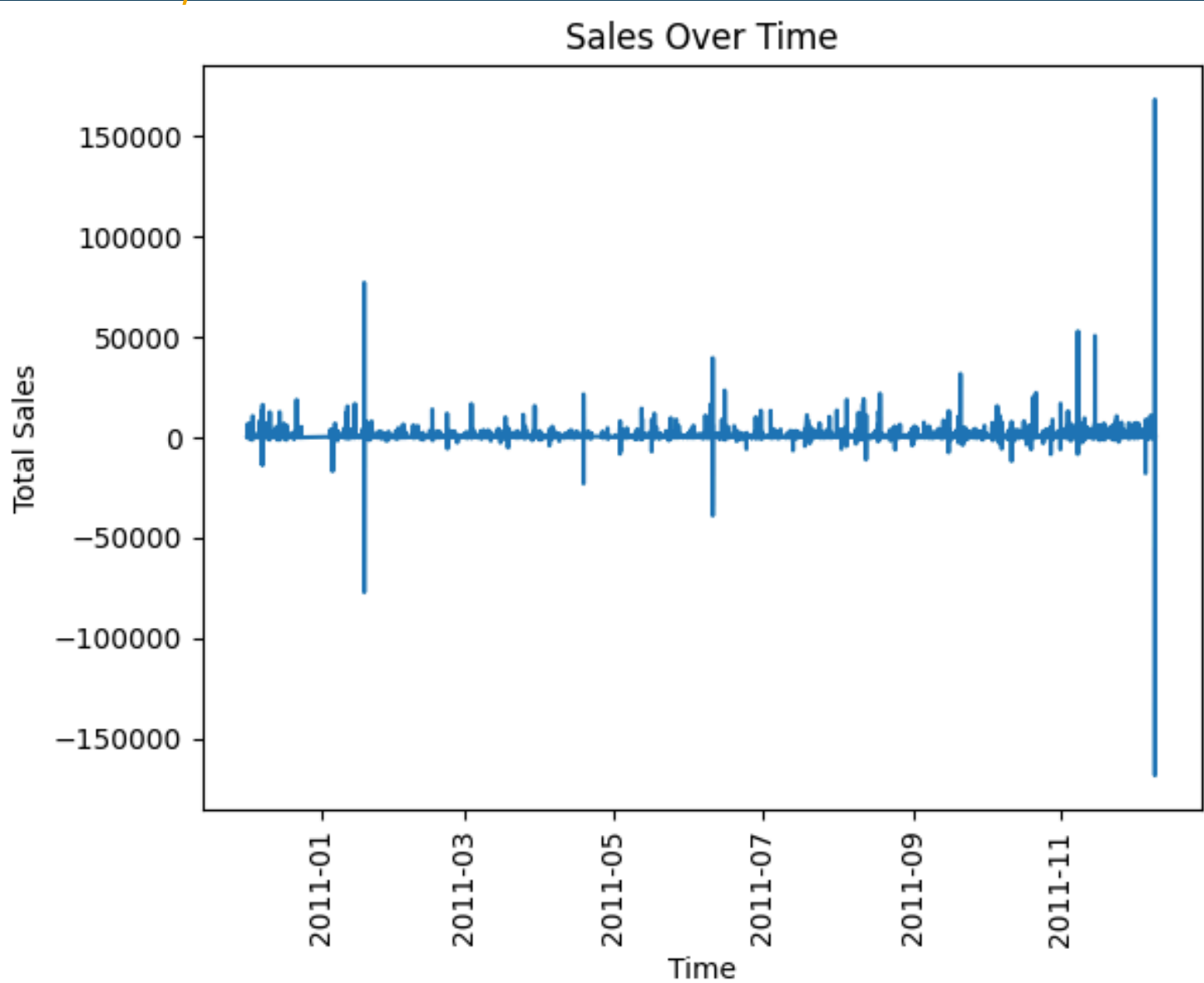
The data preparation process involved addressing null values, converting data types for consistency, and calculating TotalPrice for each transaction, ensuring cleaner data for accurate analysis and insights.



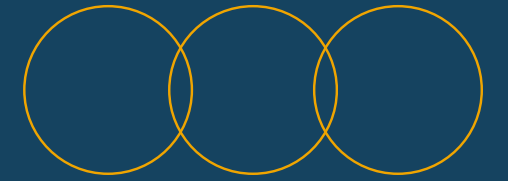
Exploratory Data Analysis

Key Insights and Findings

The EDA reveals significant patterns in retail sales, including a histogram showcasing TotalPrice distribution and a chart highlighting top country sales, guiding strategic marketing efforts effectively.



Customer Segmentation



RFM Metrics and KMeans

RFM Metrics

RFM (Recency, Frequency, Monetary) metrics evaluate customer behavior by assessing the last purchase time, purchase frequency, and total spending, helping to identify valuable customer segments effectively.

KMeans Clustering

KMeans clustering groups customers based on their RFM metrics, identifying distinct segments, such as high-value or low-frequency customers, optimizing targeted marketing strategies for each group accordingly.

Insights per Cluster

Insights derived from each cluster reveal tailored marketing opportunities, allowing personalized promotions and improved customer engagement strategies to maximize retention and increase overall sales performance.

Predictive Analysis Insights

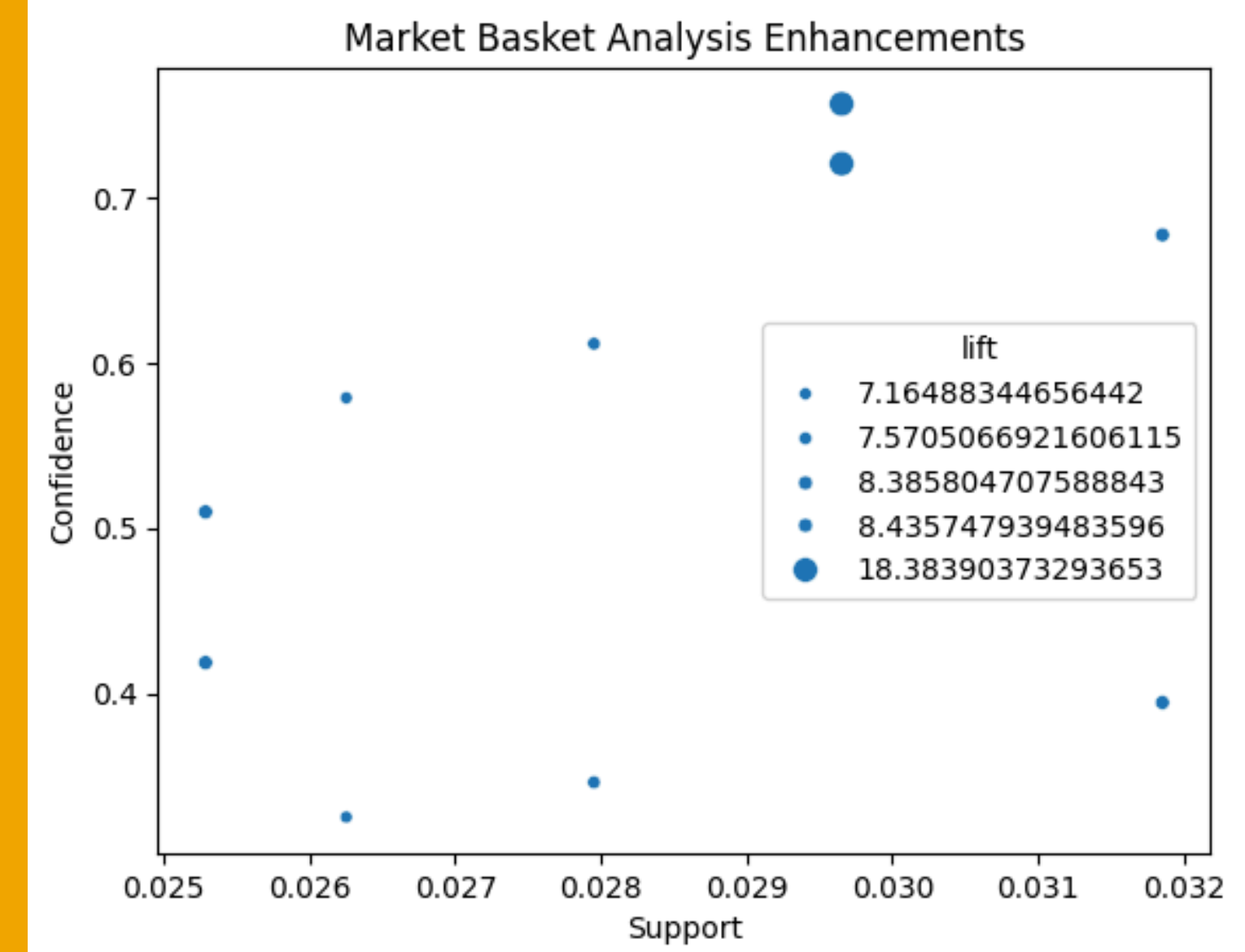
Exploring data-driven predictions

ReturnFlag Prediction

Utilizing machine learning algorithms, we analyzed factors affecting ReturnFlag, enabling accurate predictions of returns based on customer behavior and purchase patterns, ultimately enhancing inventory management strategies.

Market Basket Findings

Our analysis identified key items frequently purchased together, revealing valuable insights into customer preferences, which can inform product placement and promotional strategies for increased sales.



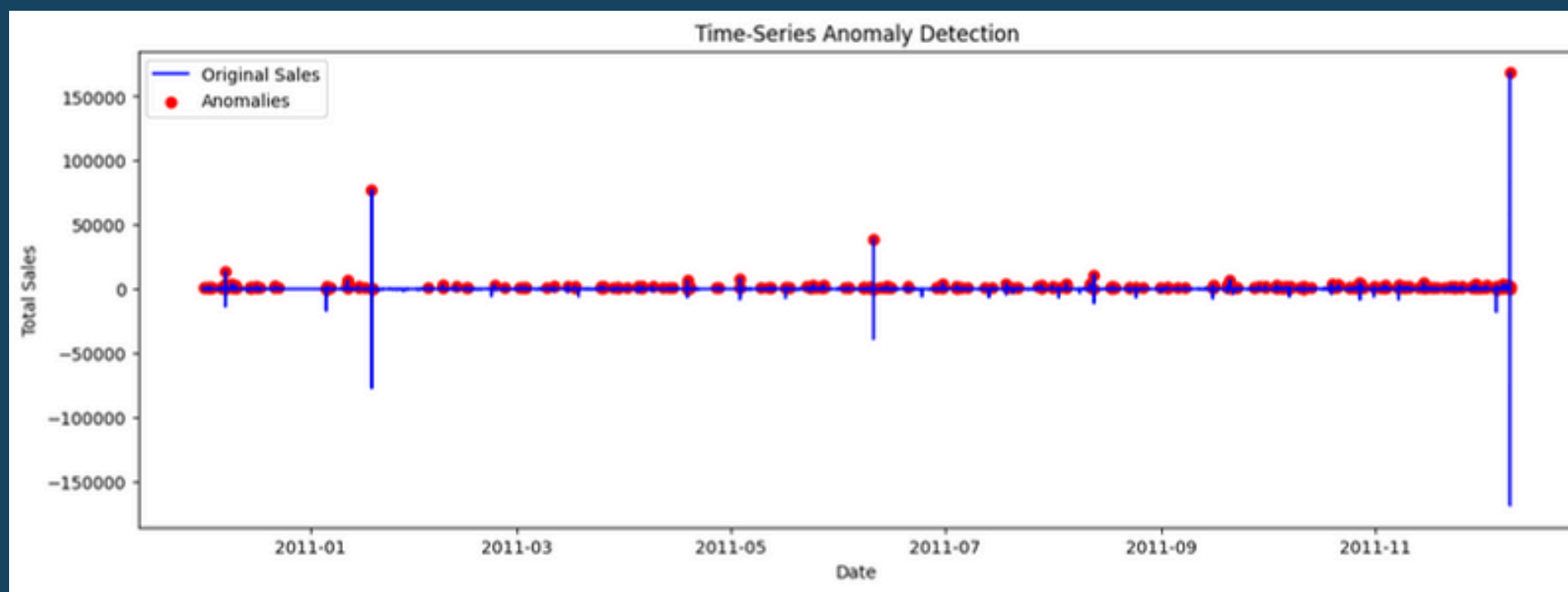
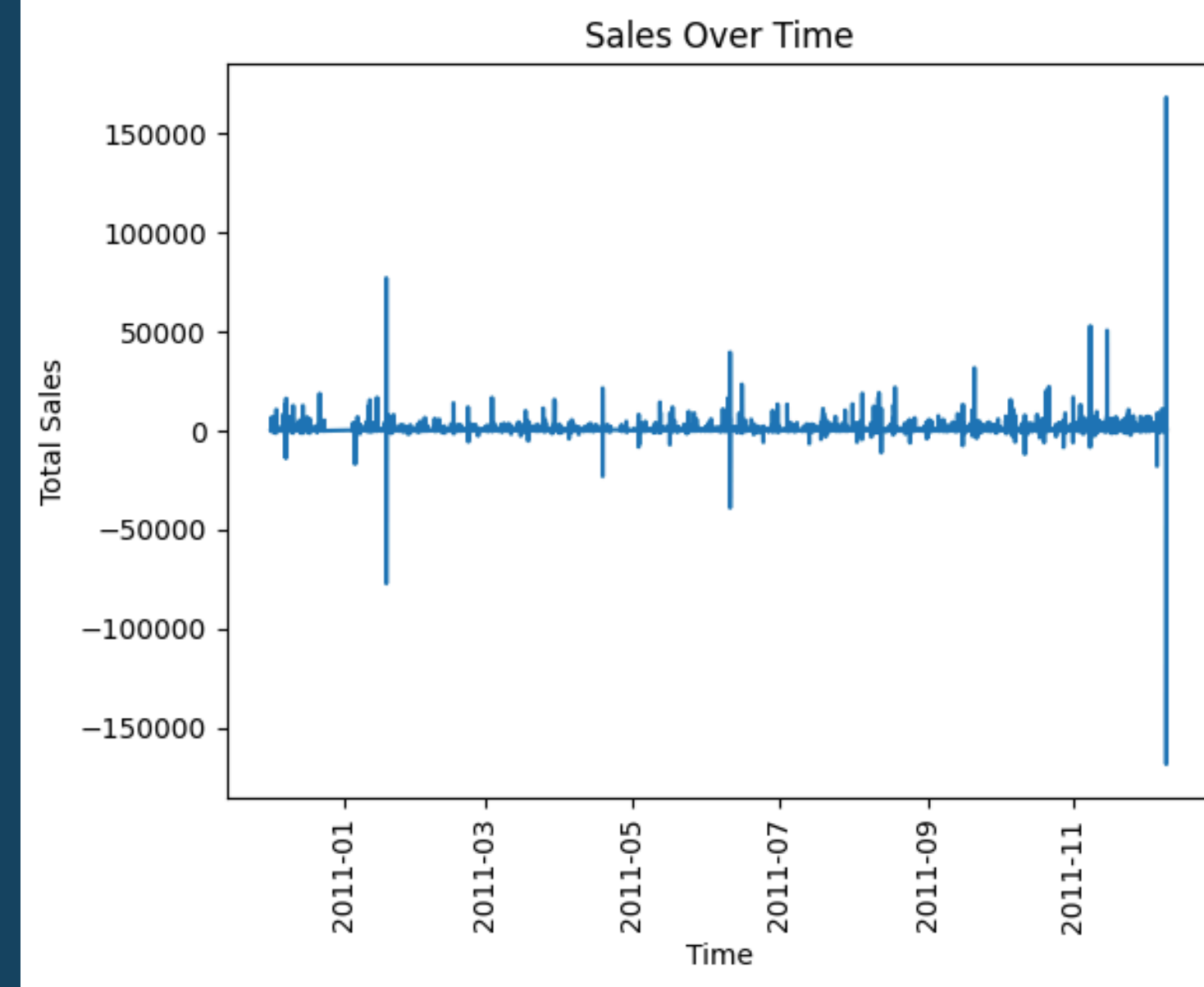
Market Basket Analysis

By implementing association rules, we evaluated transaction data to uncover hidden patterns, leading to targeted cross-selling opportunities and improved customer engagement through personalized marketing efforts.

Time-Series Sales Analysis

Understanding seasonal trends and anomalies

This section analyzes seasonal sales patterns and highlights notable anomalies. By examining time-series data, we can uncover key insights that drive strategic marketing decisions and optimize sales performance.



Marketing Insights & Conclusion

Key strategies for effective retail marketing improvements

- Shows relationship between support and confidence for product pairs.
- Bubble size represents the lift — higher lift = stronger product association.
- Identifies key product combinations for bundling and cross-selling opportunities.

