

# Retail Customer Intelligence Report

## Executive Summary

Dataset Size: 50000 customers

Target Variable: Average Monthly Spend

Mean Spend: 335.29

Standard Deviation: 199.59

Min Spend: 8.07

Max Spend: 3026.34

Cluster Quality Score: 0.089

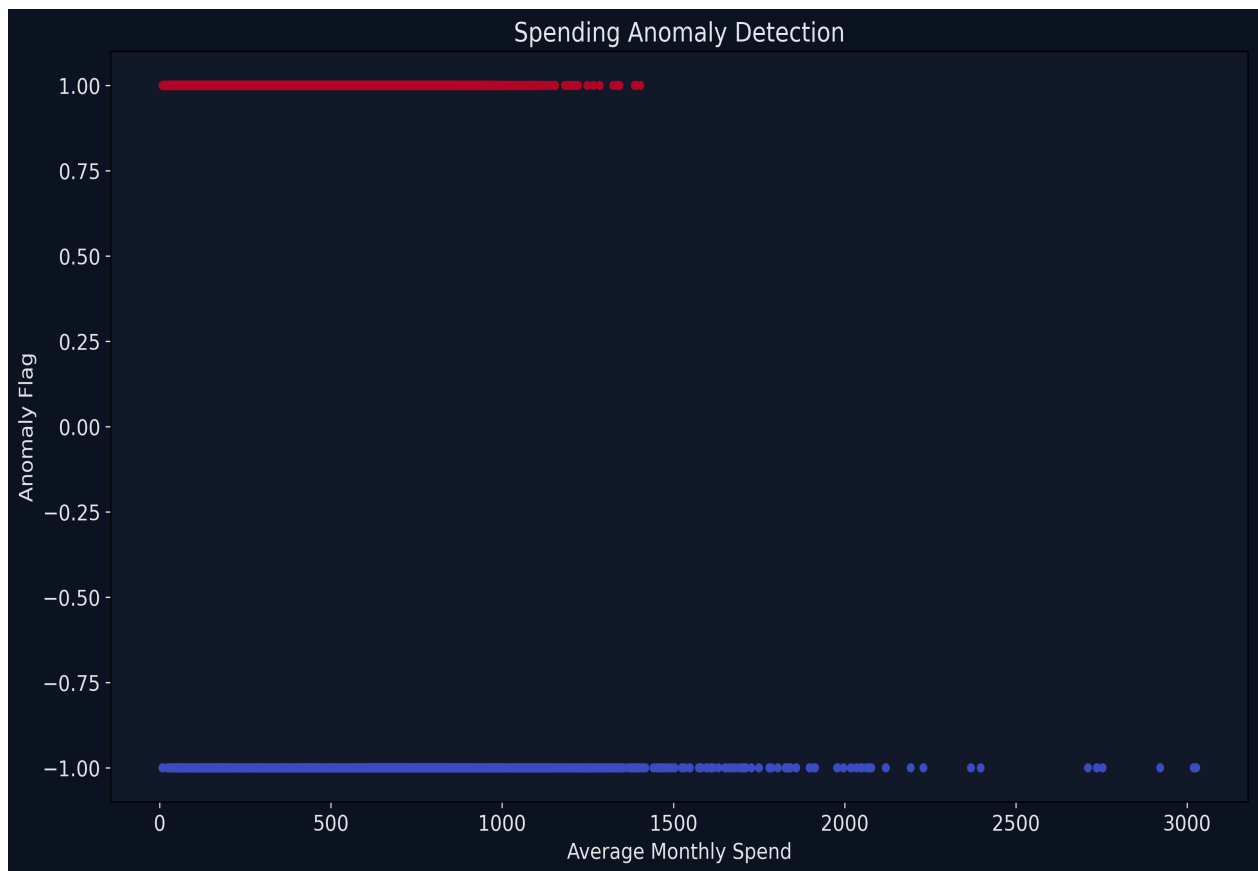
Detected Outliers: 1500

PCA Explained Variance: 68.35%

Execution Time: 82.15 seconds

This report provides structural intelligence, anomaly detection, segmentation modeling, feature importance analysis, and customer similarity mapping.

# Anomaly



Anomaly detection identifies unusual spending behaviour relative to the population.

# Cluster



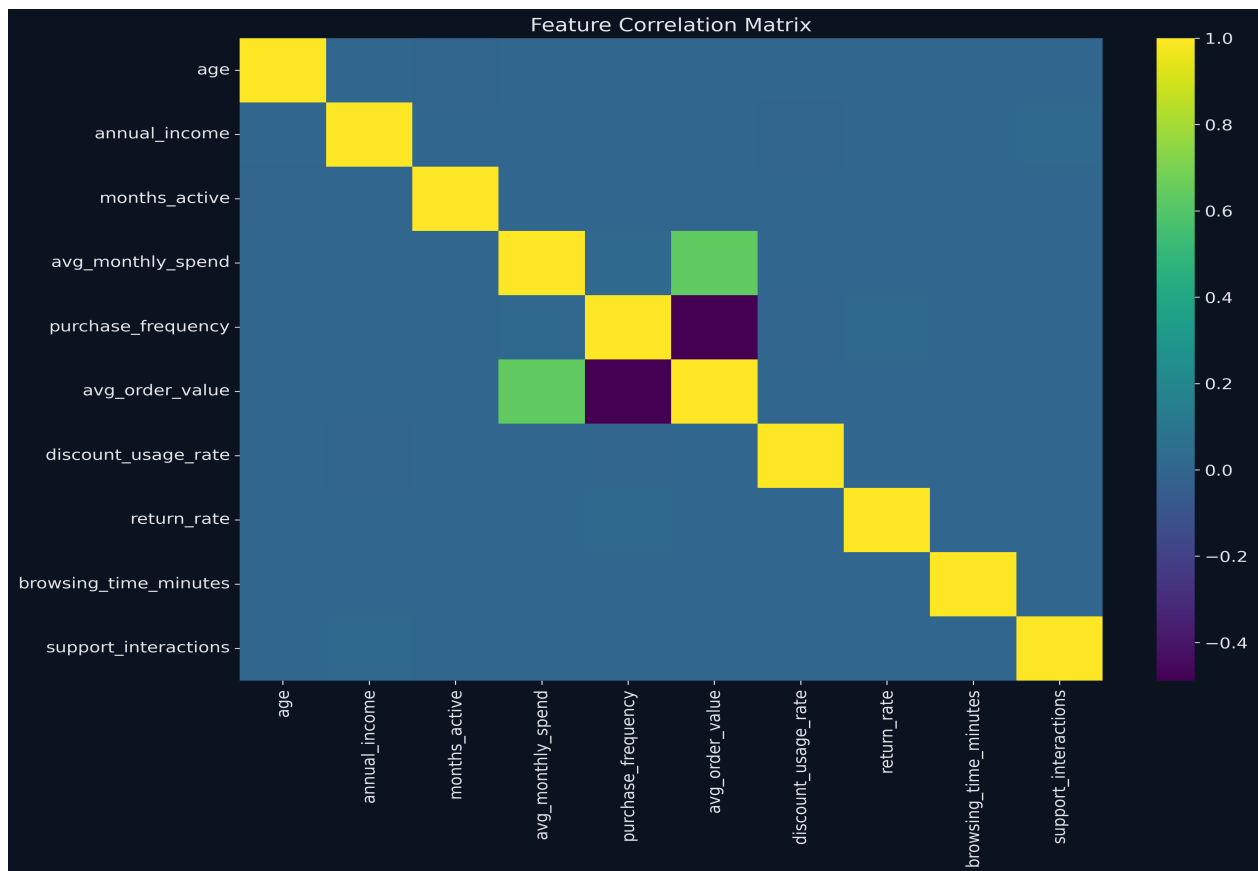
Clustering separates customers into behaviorally distinct groups.

## Cluster Distribution



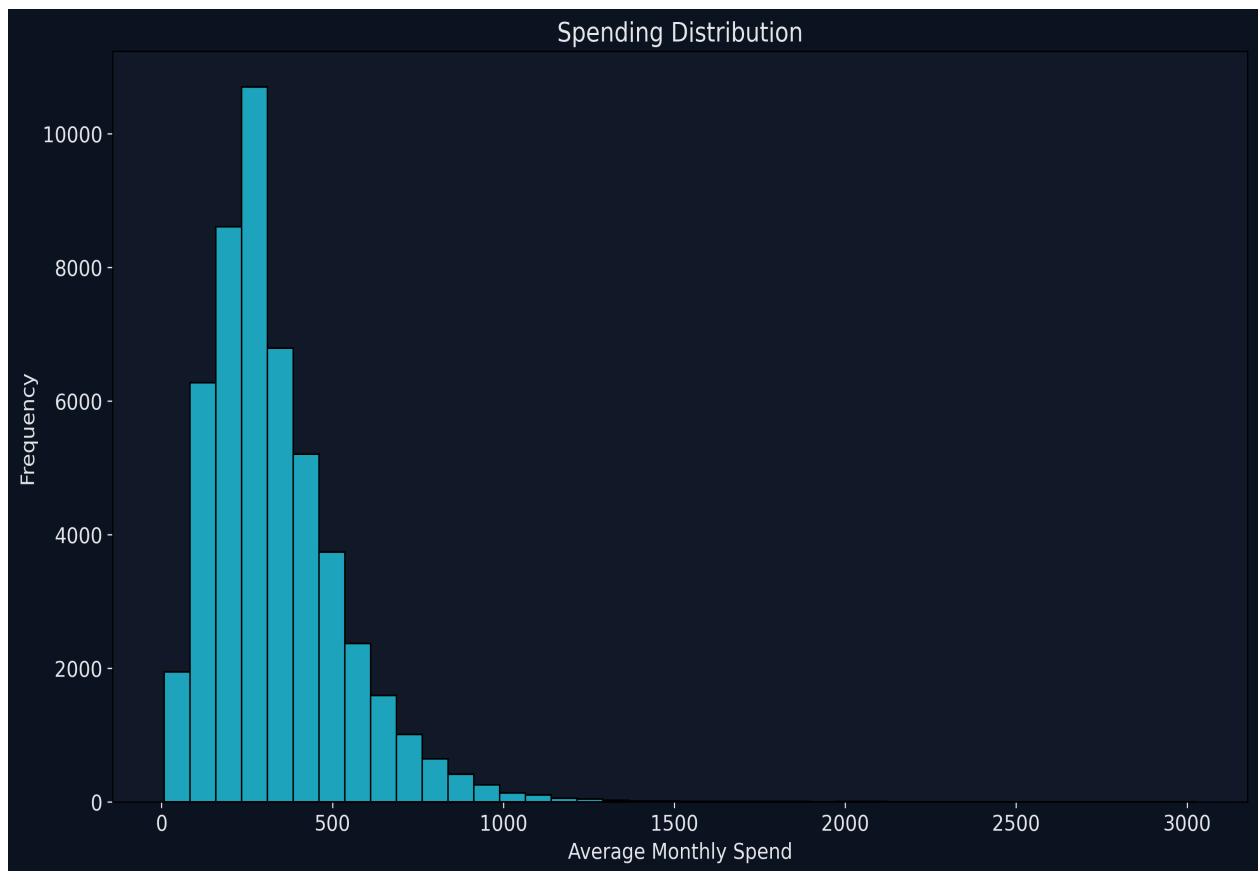
This shows how customers are distributed across segments.

# Correlation



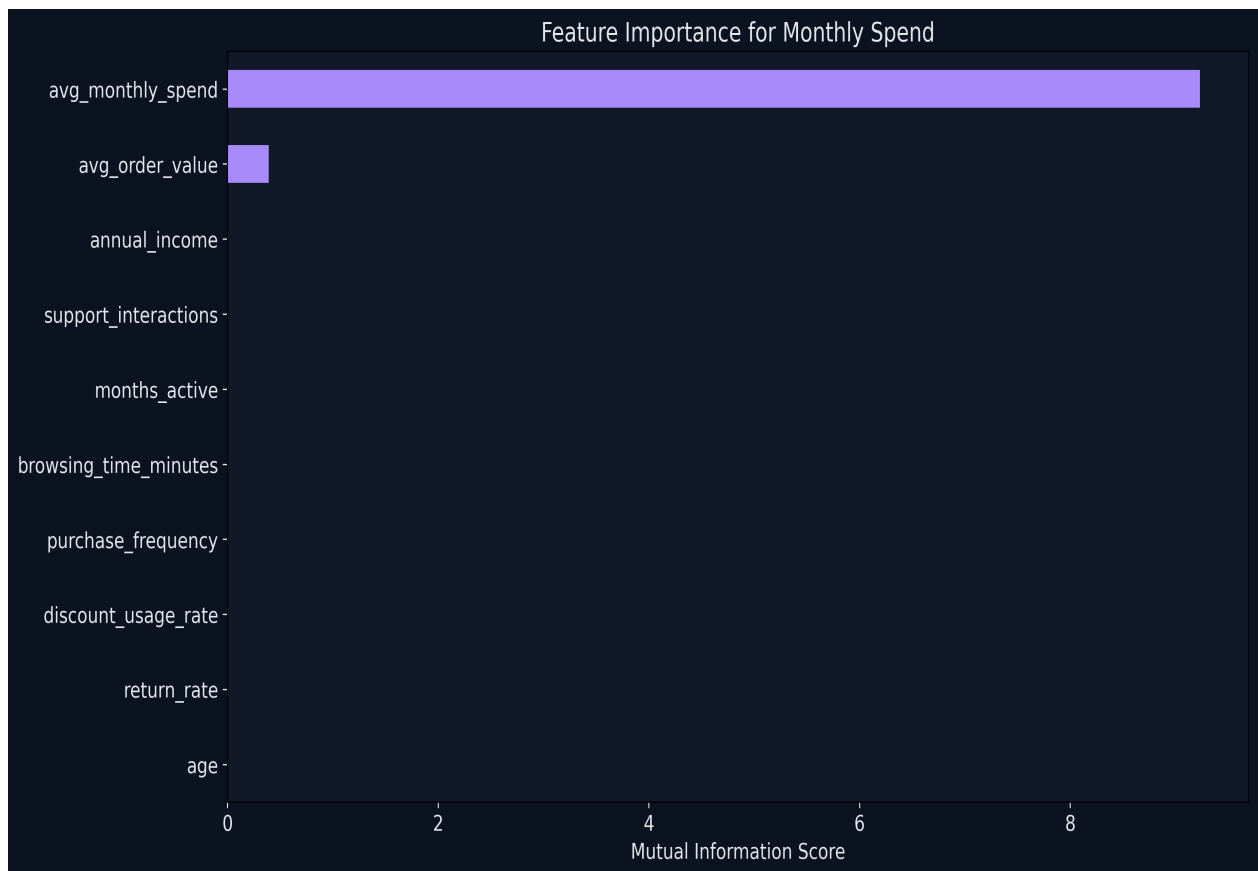
Correlation matrix reveals interdependencies among retail behavioural features.

# Distribution



Distribution of monthly spending shows spread and skewness of revenue patterns.

# Feature Importance



Mutual information ranking identifies strongest drivers of monthly spend.

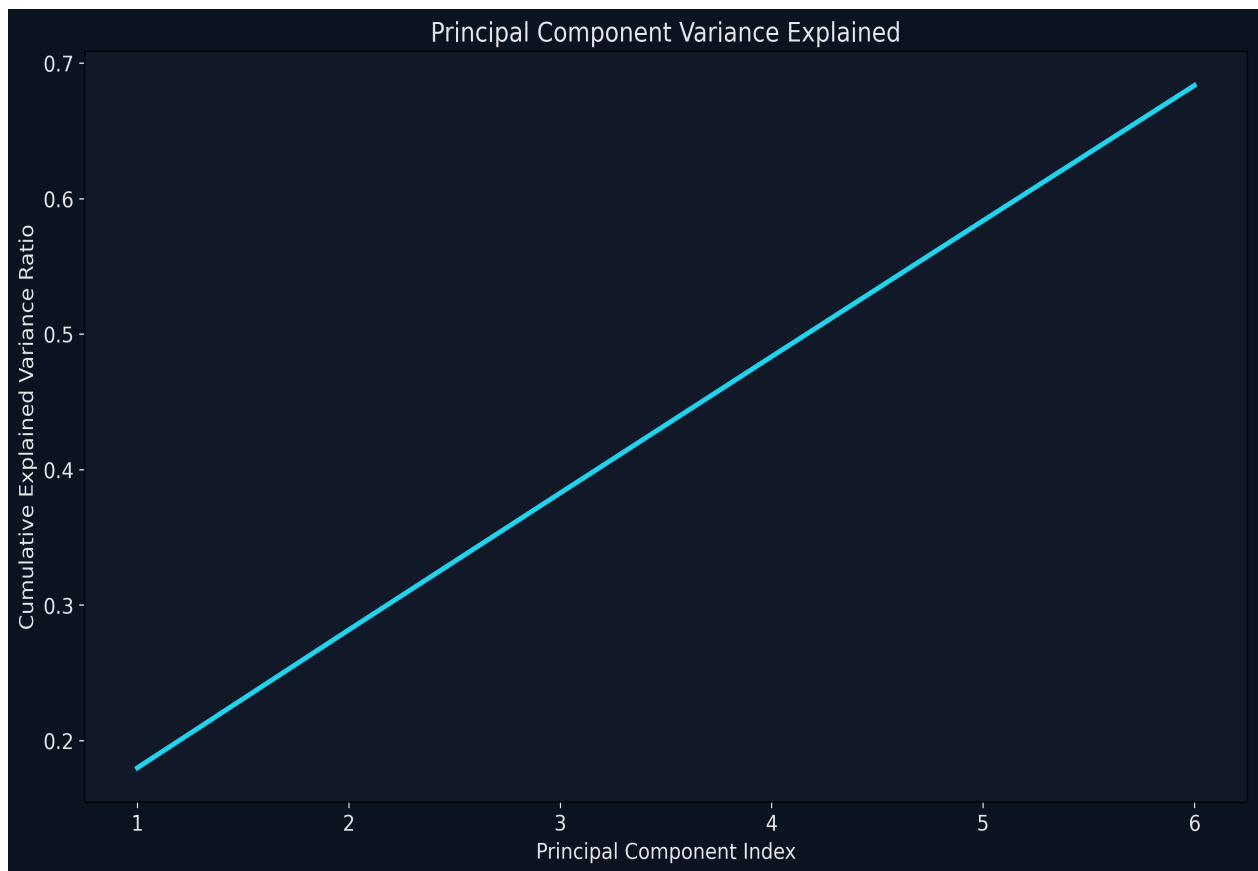
# Pca Projection



This projection visualizes customer distribution in reduced dimensional space.



## Pca Variance



This chart shows how much structural variance is captured by successive principal components.