**Executive Summary**

**Title: Utilizing K-Means Clustering Algorithm for Customer Segmentation**

**Introduction:**

The purpose of this executive summary is to provide an overview of our K-Means clustering application, which aims to segment customers based on their credit card usage behaviour. This summary highlights the dataset used, the results of clustering, and key insights drawn from the data analysis.

**Dataset:**

The dataset used in this analysis consists of credit card data from customers. It has features such as the average credit limit of each customer and the total number of credit cards each customer has.

**Methodology:**

K-Means Clustering algorithm segments customers into distinct groups based on the usage of the credit cards. This clustering technique is the unsupervised machine that groups data into clusters such that each point is near the mean

**Results:**

K-Mena model successfully segmented the dataset into 3 distinct clusters, in which the results were visualized using a scatter plot with distinct colors. Additionally, centroids were plotted to indicate the centre of each cluster.

**Insights from the analysis**

The clustering analysis revealed several insights into customer segmentation based on credit card usage behaviour.

**Cluster 1**: Consist of customers with high average credit limits and a moderate number of credit cards, suggesting affluent customers with diverse credit needs.

**Cluster 2:** Comprised of customers with low average credit limits and a low number of credit cards, indicating financially constrained individuals.

**Cluster 3:** Represents customers with moderate credit limits and a high number of credit cards, possibly indicating financially stable individuals who prefer to have multiple credit cards for various purposes.

**Conclusion:**

Overall, the K-Means clustering analysis provided valuable insights into customer segmentation based on credit card usage behaviour. This gives a great way to understand the varying needs and characteristics of the different customers, which can help the bank in applying different marketing strategies based on the different customer segments, which in turn leads to better service delivery and client satisfaction. This improves Customer relations and retention.