ABSTRACT

This project focuses on customer segmentation using the K-Means clustering algorithm implemented in Python. By leveraging Python's data analysis libraries like Pandas, NumPy, and visualization tools such as Matplotlib and Seaborn, the study analyzes customer data to identify distinct groups based on behavioral and demographic attributes. The K-Means algorithm, an unsupervised machine learning technique, is employed to minimize intra-cluster variance while maximizing inter- cluster differences, enabling meaningful segmentation. The project highlights the use of techniques like the elbow method and silhouette score to determine the optimal number of clusters. The insights gained from this segmentation can assist businesses in enhancing customer relationship management, enabling personalized marketing strategies, and improving overall customer satisfaction and retention.

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