SWE 557 1 AI-ML PROGRAMMING

ABSTRACT

Title: Customer Segmentation using K-Means

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Customer segmentation is essential for businesses to understand and cater to the diverse needs and preferences of their customer base. K-means clustering offers a powerful approach to segment customers into distinct groups based on similarities in their characteristics or behaviors. The algorithm iteratively assigns customers to clusters by minimizing the within-cluster sum of squares, effectively grouping them with others who are most similar according to chosen features such as demographics, purchasing patterns, or psychographic attributes.

Through this process, K-means identifies centroids for each cluster, representing the average characteristics of customers within that group. These centroids serve as prototypes for understanding and targeting specific segments of the customer base. By leveraging K-means clustering, businesses can gain insights into customer segments, enabling more targeted marketing strategies, personalized product recommendations, and improved customer experiences. Overall, K-means clustering facilitates enhanced customer understanding and segmentation, ultimately leading to increased customer satisfaction and business success.