Customer Behaviour Analysis and Segmentation in E-commerce using Clustering Techniques

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Abstract: *Understanding customer behavior is crucial for e-commerce businesses to enhance customer satisfaction and optimize marketing strategies. This study employs clustering techniques to analyze e-commerce customer data, focusing on K-Means clustering, hierarchical clustering, DBSCAN, and Gaussian Mixture Models. The analysis includes data preprocessing, exploratory data analysis (EDA), and the application of clustering algorithms to identify distinct customer segments. The study reveals key insights into customer purchasing patterns and behaviors, leading to actionable recommendations for targeted marketing strategies. The findings highlight the effectiveness of clustering techniques in segmenting customers and improving business decision-making in the e-commerce sector.*

Keywords: Customer Behavior, E-Commerce, Clustering Techniques, K-Means, Hierarchical Clustering, DBSCAN, Gaussian Mixture Models, Data Analysis