

ABSTRACT

Telkom University Surabaya (TUS) faces challenges in attracting new students in the midst of intense competition with public and private universities, especially in the East Java region. Large promotional costs and marketing strategies that have not been targeted are the main obstacles in achieving optimal results. This study aims to analyse the school origin segmentation of prospective new students with the Recency, Frequency, Monetary (RFM) approach combined with the Fuzzy C-Means (FCM) algorithm. The RFM model is used to measure the recency of contributions, frequency of involvement, and the number of students sent by each school over the past five years, while FCM is used to group schools based on the similarity of their contribution characteristics. Model evaluation was conducted using the Elbow method and Sum of Squared Errors (SSE), which showed that three clusters was the optimal number. The segmentation results showed three main clusters: Cluster 0 as High Value Customers with consistently high contribution (12.08%), Cluster 1 as Core Customers who are newly active but not yet stable in contribution (54.78%), and Cluster 2 as Lost Customers who need to be reactivated (33.14%). The results of this research are visualised through an interactive dashboard using Streamlit, making it easier to explore and understand the data. Based on the characteristics of each cluster, specific Customer Relationship Management (CRM) strategies were developed such as maintaining relationships with High Value Customers, increasing participation of Core Customers through promotions and incentives, and reactivating Lost Customers with a rebranding approach. With the right segmentation and targeted strategies, it is expected that TUS can optimise the allocation of promotional budgets and increase the number of registrants.

Keywords: *Clustering, Segmentation, Recency Frequency Monetary (RFM), Fuzzy C-Means (FCM)*