

Association Rule Mining for Customer Segmentation in the SMEs Sector using the Apriori Algorithm

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Abstract.

Customer's segmentation is used as a marketing differentiation tool which allows organizations to understand their customers and build differentiated strategies. This research focuses on a database from the SMEs sector in Colombia, the CRISP-DM methodology was applied for the Data Mining process. The analysis was made based on the PFM model (Presence, Frequency, Monetary Value), and the following grouping algorithms were applied on this model: k -means, k-medoids, and Self-Organizing Maps (SOM). For validating the result of the grouping algorithms and selecting the one that provides the best quality groups, the cascade evaluation technique has been used applying a classification algorithm. Finally, the Apriori algorithm was used to find associations between products for each group of customers, so determining association according to loyalty.

Keywords: Data Mining, Apriori Algorithm, Dates Product, Association Rules, Hidden Patterns Extraction, consumer's loyalty.