

# Prediction of Insurance Customers' Behavior Using a Combination of Data Mining Techniques

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## ABSTRACT

Today, the segmentation and differentiation of customers based on their behaviors and needs is the most important action of insurance companies. Therefore, these companies widely and purposefully carry out advertising and marketing in all communication environments in order to identify and stimulate their clients. For better effectiveness of this approach, customers are segmented and differentiated based on special criteria and objectives. Clustering is an analytical method for detecting the performance and behavior of clients through their information. This allows companies to make decisions and carry out purposeful advertising toward them through the performance of clients. The main objective of this study is to provide a way to identify and predict the performance and behavior of new customers in choosing the insurance type in order to protect their house against risks by combining the K-medoids method with neural network to identify the cluster of new customers for offering insurance products advertisements. In this regard, due to the excess of characteristics in datasets and their dispersion, first the conceptual patterns have been discovered through K-means and K-medoids techniques and after determining the cluster of customers, their cluster is predicted using these patterns just through demographic information from new customers. The significant feature of this study is the combination of clustering and classification methods in pattern discovery. The conducted experiments show the success of proposed method in the recognition and discovery of customers' needs, behavior, and performance based on which advertising takes place.

**Keywords:** Marketing, Purposeful Advertising, Clustering, K-Medoids, K-Means, Neural System, Customer Segmentation, Pattern Discovery.