Cost Sensitive Feature Selection in Decision-Theoretic Rough Set Models for Customer Churn Prediction: The Case of Telecommunication Sector Customers

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Abstract : In recent days, there is a change and the ongoing development of the telecommunications sector in the global market. In this sector, churn analysis techniques are commonly used for analysing why some customers terminate their service subscriptions prematurely. In addition, customer churn is utmost significant in this sector since it causes to important business loss. Many companies make various researches in order to prevent losses while increasing customer loyalty. Although a large quantity of accumulated data is available in this sector, their usefulness is limited by data quality and relevance. In this paper, a cost-sensitive feature selection framework is developed aiming to obtain the feature reducts to predict customer churn. The framework is a cost based optional pre-processing stage to remove redundant features for churn management. In addition, this cost-based feature selection algorithm is applied in a telecommunication company in Turkey and the results obtained with this algorithm.