

عنوان مقاله:

FDiBC: A Novel Fraud Detection Method in Bank Club based on Sliding Time and Scores Window

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خلاصه مقاله:

One of the recent strategies for increasing the customer's loyalty in banking industry is the use of customers' club system. In this system, customers receive scores on the basis of financial and club activities they are performing, and due to the achieved points, they get credits from the bank. In addition, by the advent of new technologies, fraud is growing in banking domain as well. Therefore, given the importance of financial activities in the customers' club system, providing an efficient and applicable method for detecting fraud is highly important in these types of systems. In this paper, we propose a novel sliding time and scores window-based method, called FDiBC (Fraud Detection in Bank Club), to detect fraud in bank club. In FDiBC, firstly, based on each score obtained by customer members of bank club, 14 features are derived, then, based on all the scores of each customer member, five sliding time and scores window-based feature vectors are proposed. For generating training and test data set from the obtained scores of fraudster and common customers in the customers' club system of a bank, a positive and a negative label are used, respectively. After generating training data set, learning is performed through two approaches: 1) clustering and binary classification with OCSVM method for positive data, i.e. fraudster customers, and 2) multi-class classification including SVM, C4.5, KNN, and Naïve Bayes methods. The results reveal that FDiBC has the ability to detect fraud with 78% accuracy and thus can be used in practice.

کلمات کلیدی:

Financial Fraud Detection, Club System, Banking Industry and Sliding Window

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