Abstract

The prediction of imbalanced class is a problem in many real life applications, the scarcity of the minor class makes it difficult to predict them correctly. This scarcity limits the information gained from the minor class. Churn prediction is one of the imbalanced class cases and one of application in data mining task which has goal to predict customer who potentially to Churn. In this final project introduces new approach to use the advantage of *Emerging Pattern* and decision trees (EPDT) to classify rare cases in imbalanced dataset. This is achieved through two stages. The first stage involves using the rare-class *Emerging Pattern*s to create new non existing rara-class instances. The second stage involves using the rare-class *Emerging Pattern*s to oversampling the most important rare-class instances. Implementation had done which take the case study churn prediction on the one of Indonesian Telco Company. The result show that EPDT can improve minor class and accuracy up to 87%.

Keywords: *Churn Prediction, Data mining, Decision Tree, Emerging Patterns, Imbalaced class*, *Oversampling*.