

# Chapter 18 Prevention of Customer Churn in Banking using Machine Learning Techniques

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## Abstract

All over the world, in different sectors churn prediction plays a very important role in the growth of the organization. For the company's revenue and profit customer churn is very harmful. The most important step to avoid churn is to detect churn and its reason, accordingly initiate the preventing measures. Now a day's machine learning plays a vital role to get rid of this problem. The objective of this paper is to predict the churn in banking sectors, by using well known machine learning techniques like support vector machine (SVM) and Naive-Bayes algorithm. The classification model is built by analyzing historical data and then applying the prediction model based on the analysis. The defined model has a prediction rate of 94.63% for an experimental dataset containing customer data of an international bank, collected from Kaggle repository.

**Keywords:** Support Vector Machine (SVM), Naïve-Bayes algorithm.

## 1. Introduction

To get and keep the loyal customer for every business organization is a big challenge. Correct prediction about a customer is going to churn or not and then successfully convincing him to stay with that company can increase the revenue of that company. Therefore, predicting customer churn, i.e. if a customer is about to leave for a better service, that is an important part for analyzing the customer behaviour. The churn model is a representation of various calculations that are built on existing historical data. The customer churn can be defined in other ways also, like low switching cost, deregulation motivates a customer to replace the sector. The churn is also classified into two: voluntary and involuntary churn [3]. Voluntary churn is defined as the termination of services by the