

Subscription Prediction for Bank Term Deposits

An enormous amount of data has been collected from various sources for scientific research in recent years. At the same time, data mining (DM) and machine learning (ML) is being utilized to analyze special features from the data. Meanwhile, this combination can produce comprehensive overviews to support human decision-making by showing profitable recommendations in business. Customers' term deposits typically account for most of the banking sector's revenue. It is the responsibility of banks to comprehend consumer characteristics to improve product sales. Marketing techniques target potential consumers and allow them to interact directly with banks, resulting in vast data on client demographics and attributes. In recent years, a variety of data analysis, feature selection, and machine learning techniques have been developed to investigate customer attributes and variables that can significantly impact customer decisions. These methods can identify consumers in different categories to predict whether a customer would subscribe to a term deposit, allowing the marketing strategy to be more successful. We used statistical analysis such as Exploratory Data Analysis (EDA), Principal Component Analysis (PCA), Factor Analysis, and Correlations in the supplied data set.

Furthermore, the study aims to create prediction models surrounding clients signing up for term deposits using at least three standard classification techniques: Logistic Regression, Random Forest, Support Vector Machine, and K-nearest neighbors. In this project, we use machine learning methods to create a predictive model of the data set so that the marketing campaign team can get the information they need. With the help of a collection of dependent variables, the purpose is to anticipate whether a consumer will subscribe to a term deposit (variable y). We utilize a real dataset from a Portuguese bank that used its call center to conduct direct marketing campaigns to motivate and recruit customers to their term deposit scheme to grow their business.