LITERTURE SURVEY

Date	01.10.2022
Team ID	PNT2022TMID52855
Project Name	Project - Smart Lender - Applicant Credibility Prediction for Loan Approval

PAPER 1:
TITLE:

COMPARATIVE ANALYSIS OF CUSTOMER LOAN APPROVAL PREDICTION USING MACHINE LEARNING ALGORITHMS

AUTHOR:

P. Tumuluru, L. R. Burra, M. Loukya, S. Bhavana, H. M. H. CSaiBaba and N. Sunanda

DESCRIPTION:

In today's increasingly competitive market, estimating the risk involved in a loan application is one of the most crucial challenges for banks' survival and profitability. The banks receive many loan applications from their customers and other individuals daily. Not every applicant is accepted. Most banks employ their credit scoring and risk assessment procedures to examine loan applications and make credit approval decisions. Despite this, many incidents of people failing to repay loans or defaulting on them occur every year, causing financial institutions to lose a significant amount of money. In this study, Machine Learning (ML) algorithms are used to extract patterns from a common loan-approved dataset and retrieve patterns in forecasting future loan defaulters. Customers' past data, such as their age, income, loan amount, and tenure of work, will be used to conduct the analysis. To determine the maximum relevant features, i.e. the factors that have the most impact on the prediction outcome, various ML algorithms such as Random Forest, Support Vector Machine, K-Nearest Neighbour and Logistic Regression, were used. These mentioned algorithms are evaluated with the

standard metrics and compared with each other. The random forest algorithm achieves better accuracy.

PAPER 2:
TITLE:
PREDICTION OF MODERNIZED LOAN APPROVAL SYSTEM BASED ON MACHINE LEARNING APPROACH

AUTHOR:
V. Singh, A. Yadav, R. Awasthi and G. N. Partheeban,

DESCRIPTION:
Technology has boosted the existence of humankind the quality of life they live. Every day we are planning to create something new and different. We have a solution for every other problem we have machines to support our lives and make us somewhat complete in the banking sector candidate gets proofs/ backup before approval of the loan amount. The application approved or not approved depends upon the historical data of the candidate by the system. Every day lots of people applying for the loan in the banking sector but Bank would have limited funds. In this case, the right prediction would be very beneficial using some classes-function algorithm. An example the logistic regression, random forest classifier, support vector machine classifier, etc. A Bank's profit and loss depend on the amount of the loans that is whether the Client or customer is paying back the loan. Recovery of loans is the most important for the banking sector. The improvement process plays an important role in the banking sector. The historical data of candidates was used to build a machine learning model using different classification algorithms. The main objective of this paper is to predict whether a new applicant granted the loan or not using machine learning models trained on the historical data set.

PAPER 3:
TITLE:

IMPROVEMENT OF PERSONAL LOANS GRANTING METHODS IN BANKS USING MACHINE LEARNING METHODS.

AUTHOR:
M. J. Hamayel, M. A. Abu Mohsen and M. Moreb

DESCRIPTION:

For banking organizations, loan approval and risk assessment which is related is a very complex and significant process which is needs a high effort for relevant employee or manager to take a decision, because of manual or traditional methods that used in banks. The banking industry still needs a more precise method of predictive modelling for several problems. In general, for financial institutions and especially for banks forecasting credit defaulters is a hard challenge. The primary role of the current systems is to accept, or sending loan application to a specific level of approval to be studied and it is very difficult to foresee the probability of the borrower for paying the due dues amount without using methods to predict. Machine learning (ML) techniques and the algorithm that belongs to are a very amazing and promising technique in predicting for a large amount of data. Our research proposed to study three machine learning algorithms [1], Decision Tree (DT), Logistic Regression (LR), and Random Forest (RF), by using real data collected from Quds Bank with a variable that cover credit restriction and regulator instructions. The algorithm has been implemented to predict the loan approval of customers and the output tested in terms of the predicted accuracy.

PAPER 4:

TITLE:

COMPARATIVE ANALYSIS OF ML ALGORITHMS & STREAM LIT WEB APPLICATION

AUTHOR:

S. Shukla, A. Maheshwari and P. Johri

DESCRIPTION:

Prediction of Approval of Consumer Personal Loans Applications using different Machine Learning (ML) Algorithms and convert it into a web app by using stream lit library in a very simple and efficient way. Out of the available ML algorithms a comparative analysis is performed to check which one proves out to be the best possible with maximum accuracy. This project basically provides the assumption or probability of approval or denial of the personal loan any candidate applies for. As soon as the customer provides in his or her details and all domains that are required. Various models are used to test whether the given details of the customer are okay to provide loan or not. If yes, it displays a message" loan approved" and further functionalities can be done. Else it displays a message as "Loan denied". Understanding of Test and Train Data. Implementation of steps like Feature Engineering, Feature Selection, Exploratory Data Analysis (EDA), Model Training etc. Usage of different models to train the data like below. LR, RF, XGB. Compares the accuracy from different models. The customer is asked to fill in the details required whoever wishes to apply for the loan. According to the given data if it's suitable and all the conditions are satisfied, the user gets a message related approval of the loan else it displays a message of denial.

PAPER5:

TITLE:

An Approach for Prediction of Loan Approval using Machine Learning Algorithm

AUTHOR:

M. A. Sheikh, A. K. Goel and T. Kumar

DESCRIPTION:

In our banking system, banks have many products to sell but main source of income of any banks is on its credit line. So they can earn from interest of those loans which they credit. A bank's profit or a loss depends to a large extent on loans i.e. whether the customers are paying back the loan or defaulting. By predicting the loan defaulters, the bank can reduce its Non- Performing Assets. This makes the study of this phenomenon very important. Previous research in this era has shown that there are so many methods to study the problem of controlling loan default. But as the right predictions are very important for the maximization of profits, it is essential to study the nature of the different methods and their comparison. A very important approach in predictive analytics is used to study the problem of predicting loan defaulters: The Logistic regression model. The data is collected from the Kaggle for studying and prediction. Logistic Regression models have been performed and the different measures of performances are computed. The final results have shown that the model produce different results. Model is marginally better because it includes variables (personal attributes of customer like age, purpose, credit history, credit amount, credit duration, etc.) other than checking account information (which shows wealth of a customer) that should be taken into account to calculate the probability of default on loan correctly. Therefore, by using a logistic regression approach, the right customers to be targeted for granting loan can be easily detected by evaluating their likelihood of default on loan. The model concludes that a bank should not only target the rich customers for granting loan but it

should assess the other attributes of a customer as well which play a very important part in credit granting decisions and predicting the loan defaulters.

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