Smart Lender- Applicant Credibility Prediction for Loan Approval

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Abstract

- One of the most important factors which affect our country’s economy and financial condition is the credit system governed by the banks.
- The process of bank credit risk evaluation is recognized at banks across the globe.
- As we know credit risk evaluation is very crucial, there is a variety of techniques are used for risk level calculation. In addition, credit risk is one of the main functions of the banking community.

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- The prediction of credit defaulters is one of the difficult tasks for any bank.
- The banks may reduce their loss by reducing their non-profit assets, so that recovery of approved loans can take place without any loss and it can play as a contributing parameter of the bank statement. But by forecasting the loan defaulters, they may reduce the amount of money they have to put up for sale.
- Machine Learning techniques are very crucial and useful in the prediction of these types of data.

Introduction

- Loans are the core business of banks. The main profit comes directly from the loan's interest. The loan companies grant a loan after an intensive process of verification and validation. However, they still don't have assurance if the applicant is able to repay the loan with no difficulties
- For this we'll build a predictive model to predict if an applicant is able to repay the lending company or not. We will prepare the data using Jupyter Notebook and use various models to predict the target variable.

Literature Survey

SI No	Author & Year of publication	Journal	Title of the paper	Algorithm	Advantage	Limitation
1	Ambika and Santosh Biradar , 2021	IJARSCT	Survey on Prediction of Loan Approval Using Machine Learning Techniques.	The system can help to understand the factors which affect the specific outcomes most. Other model like neutral network can be used individually for enhancing reliability and accuracy prediction.	This application is working properly and meeting to all Banker requirements.	This system can not be utilized effectively by the soil testing laboratories.

2	Supriya, Pavani, Saisushma , Vimala Kumari and Vikas , 2019	IEEE	ML based loan predictio n model	Data collection and pre-processing, applying the ML models and testing. The detection and removal of outliers and imputation removal were carried out.	Experimentation concluded that, DT has significantly higher loan prediction accuracy than the other models.	Testing dataset were difficult.
3	2016, Aboobyda Jafar Hamid and Tarig Mohamme d Ahmed	IEEE	Loan risk predictio n model based on the data mining techniqu es.	This model help to find the risk to predict the loan .	Accuracy were strong.	J48 based loan prediction approach resulted in better accuracy than the other methods.

4	Mohammed Ahamed Sheik, 2020	ICESC	An Approach for Prediction of Loan Approval using Machine Learning Algorithm	Through this method we are able to predict whether that particular candidate is safe or not and the whole method of validation of attribute is automated by machine learning technique .	This model performed better as it included applicants' various attributes such as the credit history, amount of credit, duration of credit, age, the intention of loan, etc.	Time manage-ment is an issue in this method.
5	Mr. Ghorpade Dinesh B., 2021	IJCRT	Prediction of Loan Approval Using Machine Learning Algorithm.	This system, banks have many products to sell but main source of income of any banks is credit line. Earn from interest of those loans which they credits.	Applicants with high income sanctioning low amount is to more likely get approved which make sense, more likely to pay back their loans.	Finance companies cannot get benefits.

6	Sivasree M S, Rekha Sunny T,2015	IJERT	Loan Credibility Prediction System Based on Decision Tree Algorithm	Problem Understanding,Data Understanding,Data filtering,System Modeling,System Evaluation(Input,Data Preprocessing, Test set Training data, Decision Tree ,mode).	Loan repayment Capacity are presented in this section.	The data was just presented for credits.
7	Bhanu Prakash Lohani, Mayank Trivedi, 2017	IEEE	RSB: A recommendation System for Bank	A recommendation system for bank which considers a location detection module, data analysis and storage module, Loan database.	The similar Bank can give Similar approval with different benefits.	The system does not get user feedback to improve the process.

8	Ridhik Jeet Singh, 2019	IEEE	Machine Learning Based Model For Prediction of Loan Approval	The methods used for checking manually for individual consumer.The prime goal is to invests their asset in safe hands.	Authors uses an ensemble technique called majority Voting Technique which combines the power of multiple models to achieve greater prediction accuracy	The accuracy obtained is 88% using the ensemble model.
9	Vignesh Gandge, Vidhya , 2018	IEEE	A Study on Various Data Mining Techniques for loan approval.	Decision tree using ID3 algorithm was considered for credential and the recommendations were generated.	It was observed that Multiple Linear Regression gave an accuracy of 90-95% for Loan.	The algorithm needs to be increased efficiency to provide more accurate accuracy

10	Mir Ishark Maheer Dhruba Nawab Haider Ghani Sazzad Hossain, 2018	BRAC University	Application of Machine Learning in Credit risk Assessment	A precise credit risk assessment system is vital to financial institution for its proper and impeccable functioning. (RFECV,PCA)	This Model has brought about remarkable results which in turn can play major role in assessing credit risk of borrowers and enable all the worldwide financial institutions to keep operating in profitable way.	The platform can not give basic details of consumer credits.

Reference

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- Vimala, K.C. Sharmili, Prediction of Loan Risk using NB and Support Vector Machine‖, International Conference on Advancements in Computing Technologies (ICACT 2018), pp. 110-113, 2018.
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