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Loan Approval Prediction Model Using Customer Behaviour

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Abstract: *Nowadays bank and bank data are very important. In this covid-19 era, people need money a lot, so people are applying for more loans now than before. It is necessary but it is difficult to check all this. Often wrong selections of data can result in loss to the bank. If this data is accurate the bank gets profit. Banking industry always needs a more accurate predictive modelling system for many issues. The bank can earn money from the interest on the credit card used in the loan approval process. All this require a real based application model to be accurate and this model is made using machine learning (ML). In India, the large number of people applying for the loans for various purpose of reasons. The bank employees are not able to analyses or predict whether the customer can payback the amount or not (good customer or bad customer) for the given interest rate. Besides of Credit Score, we believe there are other factors which should be taken in consideration while taking a decision on loan approval. This model is capable of doing that using machine learning algorithm to predict that whether a customer should be provided loan or not..*

Keywords: Loan defaults, Machine Learning, Logistic Regression, Covid-19 Crisis.

I. INTRODUCTION

The main purpose of "Loan Approval Prediction Model Using Customer Behaviour" is to assign loan to the users(people) based on particular criteria such as gender, married, dependents, education, self-employed, credit history, property area and income. The main motivation to implement this project is to help bank staff and the customers who really need loan. This system predicts that whether user (customers, people) is eligible for loan or not. This prediction model not only helps the applicant or user but also help the bank by minimizing the risk and reducing the number of defaulters. In order to execute this system user must to register for loan and user needs to fill the registration form after filling all this details system will predict whether user is eligible for loan or not. At the last simple message will be displayed You are eligible for loan or no, you are not eligible for loan.

II. LITERATURE SURVEY

The [1] author, Afran khan, Eakansh, Abishekh, Nidhi singh Loan approval Prediction model a comparative analysis - This paper will compare different prediction models and give overall limitations and advantages information. From this paper, we get to grasp which algorithm is more efficient: 1. Logistic Regression 2. Decision Tree 3. Random Forest Advantages: Give us accurate information related to loan approval prediction.

The [2] author, Vaidya, Ashlesha Loan approval Prediction approach using Logistic Regression –In this paper, we learn that Logistic Regression is used because its statistical model and its input uses logistic regression.

Advantages: Logistic Regression is one of the simplest Machine learning algorithms that comes under Supervised Learning technique and is used for solving regression problems.

Reference [3] Name (Write Paper Title)/Publication Year- Afran khan, Eakansh, Abhishek, Nidhi Singh -Publisher: IEEE, 2020 Seed Idea/ Work description- Loan approval prediction models a comparative analysis Problems found- This paper will compare different prediction models and deduce their limitations as well as advantages.

Reference [4] Name- Arora, Nisha and Pankaj Deep Kaur Publisher: Applied Soft Computing 86 (2020), 105936 Seed Idea/ Work description- An application to credit risk assessment Problems found- This paper gives the credit risk information of customers.

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Reference [5] Name- Mohammad Ahmad Sheikh, Amit Kumar, Goel Tapas Kumar -Publisher: IEEE, 2020 Seed Idea/ Work description- An Approach for Prediction of Loan Approval
Problems found- Loan prediction is a very common real-life problem that every finance company faces in their leading operations.

2.1 Problem Definition

Banks wants to automate the loan eligibility process (real time) supported customer detail provided such as gender, married, dependents, education, self-employed, credit history, property area and income while filling online form.
To automate this process, focus on customers segments, those are eligible for loan amount so they'll specifically target these customers.

III. Implementation Details of Module

The proposed system is web-based Machine Learning Model which is built in python for values are removed. Later on, in next step the features are been extracted using various machine learning techniques. And the is trained which is used to compare the features from input data. Depending on basics of feature the outputs been classified.

As we have taken lots of factor's backend. We have used loan dataset from Kaggle, in which we have taken 500 customers data for prediction of loan, which they have given to bank in information form at the time of applying the loan. Once it's collected it's divided into 80 percent for training and 20 percent for testing. The dataset is passed in pre-processing state where unwanted data or null taken in account while taking a decision on loan approval, the factors like marriage status, source of employment, number of dependents, history of past loans, property, investments, etc. The difficult task in this model, to create a relationship between in these factors, so that we can approve loan on these factors besides of considering Credit Score as a major factor.

After cleaning and pre-processing the data, we have applied Logistic Regression algorithm and training data is used to validate testing data. So, the last step in implementation is deployment. We are building this model to solve some complex problems, the ML model can only do those things, when it is put in production or actively used by users.

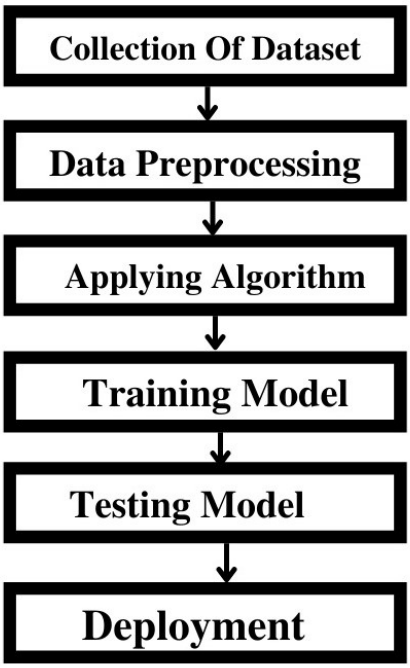

Fig. Flow Of Implementation

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IV. CONCLUSION

Due to Economic Crisis happened due to Covid-19, many people need loans. For banks, Prediction of loan approval status accurately is very important as it affects the profit and loss of the banks. This ML model is working accurately and able to take a decision on loan approval. As we have considered a lot of factors and creating the relationship between them, we made this model to take a decision more on customer behaviour. We have used Logistic Regression algorithm for loan prediction and the accuracy of model is good than other models. So, we have made this model for those customers who are reliable, needy and fair customers for repayment of loan amount to banks.

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