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# Bank Loan Prediction System using Machine Learning

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**ABSTRACT:** The quality of life for humans has improved thanks to technology. We intend to provide something fresh and unique every day. Every issue we face has a solution, and we have machines that support our way of life and help us feel relatively complete in the banking industry. Before the loan amount is approved, the sector contender receives proofs and/or backup. The system's historical data about the candidate determines whether or not the application is granted. Numerous people ask for loans every day in the banking industry, yet the bank's resources are constrained. In this situation, a classes-function algorithm would be quite helpful in making the correct forecast. Examples include classifiers for support vector machines, logistic regression, and random forests. The number of loans, or whether the client or customer is repaying the loan, determines the bank's profit or loss. For the banking industry, loan recovery is of utmost importance. In the banking industry, the improvement process is crucial. A machine learning model was developed utilizing various categorization techniques using the historical data of the candidates. Using machine learning models trained on the historical data set, the primary goal of this work is to predict whether a new applicant will be approved for a loan or not.

**KEYWORDS:** Loan Dataset, Machine Learning.

## I. INTRODUCTION

People prefer to apply for loans online because of the daily data growth brought on by the banking industry's digitization. As a typical tool for information analysis, artificial intelligence (AI) is receiving more and more attention. People from diverse industries are using AI calculations to solve problems based on their knowledge of the relevant industries. When approving loans, banks are having a lot of trouble. The bank workers oversee a large number of applications every day, which is difficult and increases the likelihood of mistakes. The majority of banks make money through loans, however it can be dangerous to select eligible clients from the pool of applicants. A bank could suffer a severe loss due to one error.

Almost all banks' main line of operation is loan distribution. Out of all applicants, one will receive a loan as a result of this project. A quick, impartial procedure that saves the bank time involves prioritising each applicant for review. The timely completion of all other client formalities by the bank authorities benefits the customers. The nicest thing is that it works well for both applicants and banks.

With the help of this mechanism, specific applications might be granted priority consideration.

## II. PROPOSED SYSTEM

Banks are having a lot of trouble approving loans. The bank workers oversee a large number of applications each day, which is difficult and increases the likelihood of mistakes. The majority of banks make money through loans, however it can be dangerous to pick eligible clients from the pool of applicants..



**Architecture:**

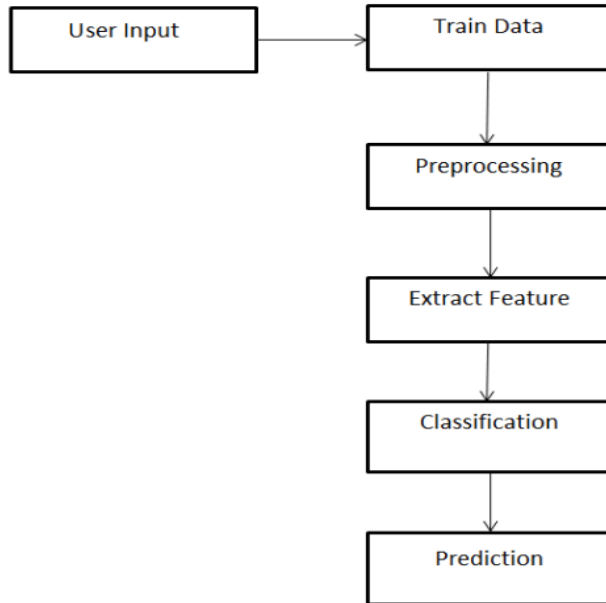


Fig: BD Architecture Diagram

**Algorithm:**

**Logistic Regression:**

It is a classification set of rules used to assign observations to a discrete set of instructions. Logistic regression is also a predictive analysis, like other regression analyses methods. Logistic regression is basically used to define the relationship between dependent binary variable and nominal or other independent variable. Now a day's logistic regression is used in many research areas like medical science, machine learning and social science. It is also used by many e-commerce applications to predict the mind set of customer to buy the product.

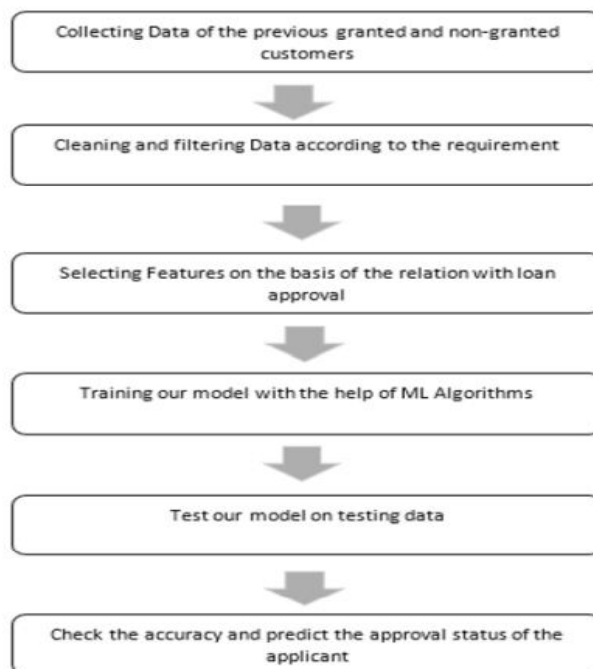
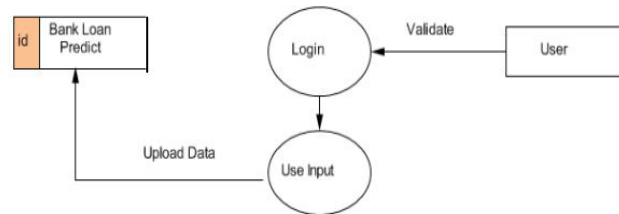


Fig: Algorithm flowchart



**Data Flow Diagram:**



**Advantages:**

- Could allow you to grow your business
- You keep full control of your company
- Bank interference is absent (as long as you make your repayments)
- possibly more favourable interest rates than credit cards .
- Familiar name with a wellestablished reputation.

**Application:**

Online Web Application

**III. COMPARISON**

When approving loans, banks are having a lot of trouble. The bank workers oversee a large number of applications every day, which is difficult and increases the likelihood of mistakes. The majority of banks make money through loans, however it can be dangerous to select eligible clients from the pool of applicants.

**IV. CONCLUSION**

In order to decrease human interference and boost productivity, the rapidly expanding IT sector of today needs to develop new technology and upgrade existing technology. Anyone looking to apply for a loan or the banking system will use this model. It will be very beneficial for managing banks. It is abundantly obvious from the data analysis that it lessens all fraud committed at the time of loan acceptance. Everyone values their time highly, thus by doing this, not only the bank but also the applicant's wait time will be shortened.



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