

## LOAN STATUS PREDICTION SYSTEM

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### ABSTRACT

This article explores or presents a theoretical perspective on the topic of 'credit forecasting'. Our bank has a variety of financial products, but its main source of income is credit lines. In this way, they can earn money through interest on these loans. A bank's profit or loss largely depends on its loans, i.e. whether its customers repay or default on their loans. Banks can reduce non-performing assets by evaluating non-performing loans. This makes studying this phenomenon very important. Previous research from this period suggests that there are multiple ways to study credit management problems. However, accurate forecasting is very important to maximize profits, so research is needed on the differences between the two methods and how they compare. Illegal loan forecasting, an important forecasting technique, is used to study the problems of (i) data collection, (ii) data retention, and (iii) evaluation studies.

### I. INTRODUCTION

The project focuses on developing a credit prediction system using machine learning techniques. With fraud on the rise in the financial industry, it is important to develop effective methods to detect and prevent fraud. Predictive models that analyze a variety of variables, including an applicant's credit history, income, employment, and other relevant factors, can provide better insight into the likelihood of receiving or not receiving loan approval. This predictive process simplifies credit decisions, helping banks and lenders manage risk while also providing applicants with a better understanding of their credit eligibility. In this era of decision-making information, credit estimators play an important role in supporting borrower responsibility and supporting the financial stability of individuals and organizations. The need of the project is to create a reliable and effective financial forecast that will help reduce financial fraud and increase the security of the banking sector. This introduction sets the stage for a more in-depth exploration of the methods and processes involved in predictive lending and highlights its importance in today's world of finance.

### II. METHODOLOGY

Credit prediction is a common problem in the financial industry and can be solved through a variety of methods, including statistical methods and machine learning methods. Here is a general guide to loan estimates:

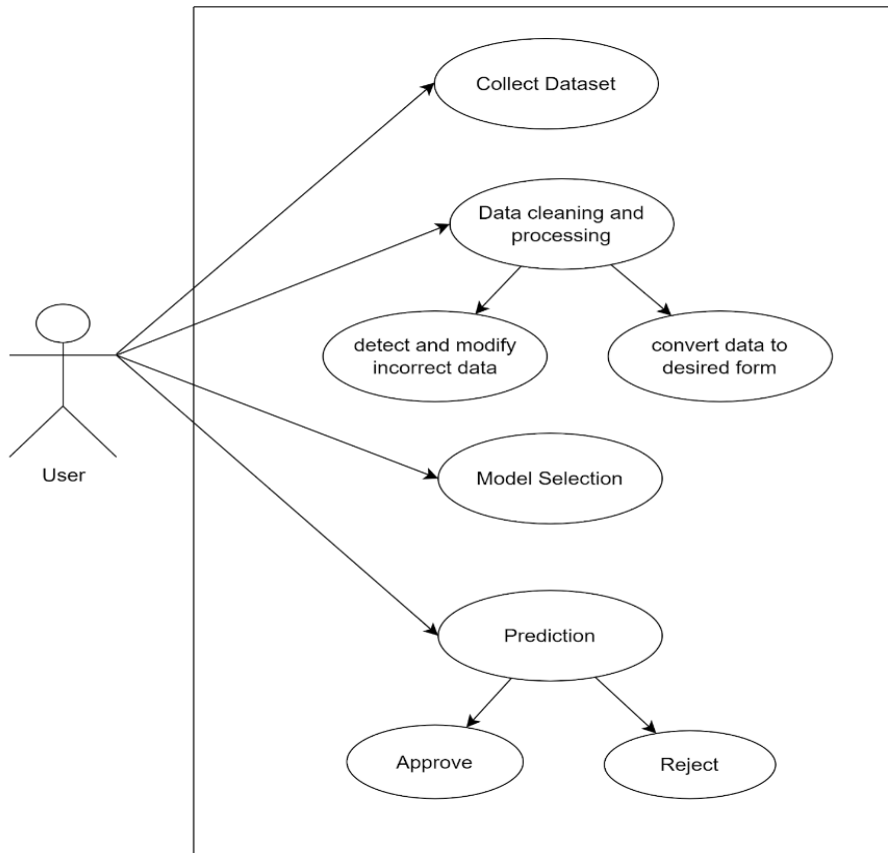
**Data collection:** Collect historical data on the loan, including features such as application documents, loan amount, loan term, credit score, employment history, income, and other variables. Information on whether the loan has been repaid is also collected.

**Data preprocessing:** Clean and preprocess data to handle missing values, outliers, and anomalies. This step may also include coding categorical variables, standardizing or standardizing numerical variables, and separating data sets into training and testing.

**Feature Engineering:** Create new features or modify existing features to improve the predictive ability of your model. For example, you can create features such as debt-to-income ratio, credit-to-income ratio, and credit utilization.

**Model Selection:** Select an appropriate prediction model. You can use traditional statistical models (such as logistic regression) or advanced machine learning models (such as decision trees, random forests, support vector machines, or neural networks). Model selection depends on problem complexity and data quality.

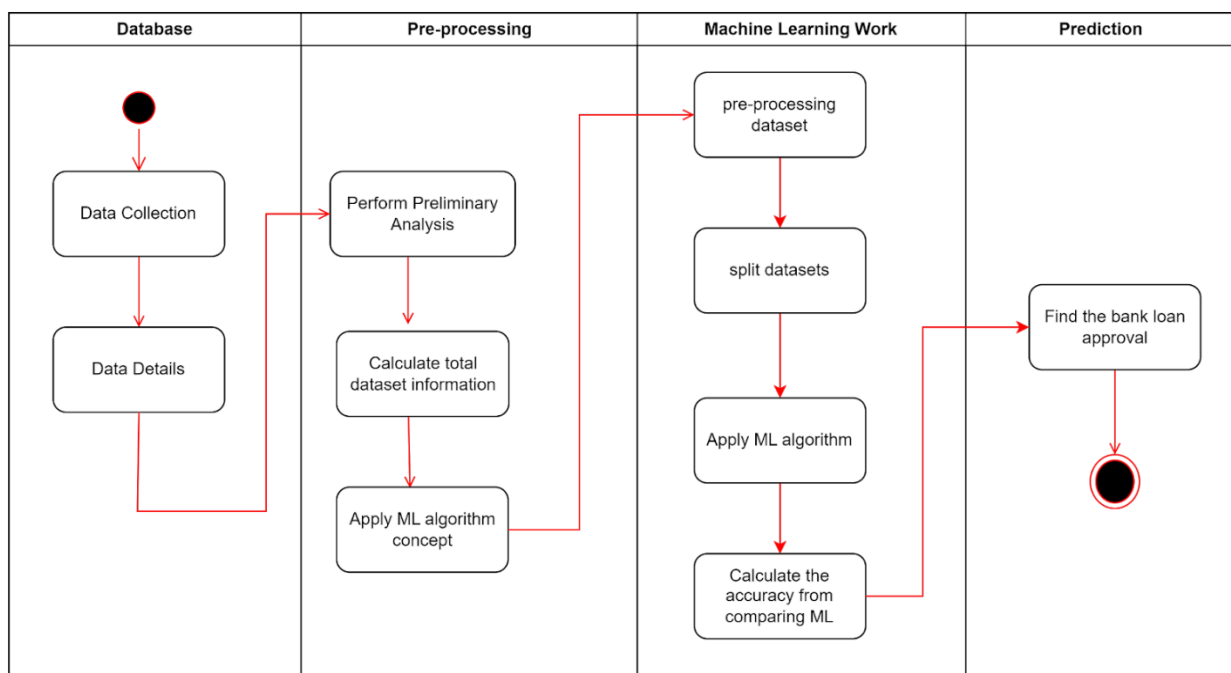
**Training Model:** Shows the selected training data model. This involves finding weak models that fit the data and improving their performance. **Model validation:** Evaluate the effectiveness of a model by testing it using anecdotal evidence.



**Figure 1:** Use Case showing the working of Loan Status Prediction system

### III. RESULTS AND DISCUSSION

Using graphs to illustrate the performance of a credit prediction machine learning model is a simple way to explain the steps in evaluation. Below is a simple workflow diagram that explains the key activities involved in evaluating a performance model:



**Figure 2:** Activity Diagram

Evaluating the effectiveness of a machine learning model is an important step in assessing the model's ability to achieve its intended purpose. We tested various machine learning models on data of different accuracy and got a clear picture based on the accuracy of various models. Together, these measures help ensure compliance with regulatory and risk management standards.

#### IV. CONCLUSION

In summary, our credit prediction results provide evidence for the effectiveness of machine learning models in evaluating loan approval outcomes. Through careful evaluation and model selection, we help financial institutions make informed decisions and achieve certainty and confidence in their lending decisions. Results demonstrate the potential to improve risk assessment, reduce operating costs and improve customer experience. However, regular monitoring and fair trials are necessary. This study lays an important foundation for establishing truthful and fair lending and improving efficiency and accountability in the financial sector.

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