**Prediction of Modernized Loan Approval System Based on Machine learning Approach**

**Alternate Title:**

 Loan Approval Prediction Based On Machine Learning

**Aim**:

 To determine the loan approval system using machine learning algorithms.

**Abstract:**

 Loan approval is a very important process for banking organizations. The systems approved or reject the loan applications. Recovery of loans is a major contributing parameter in the financial statements of a bank. It is very difficult to predict the possibility of payment of loan by the customer. In recent years many researchers worked on loan approval prediction systems. Machine Learning (ML) techniques are very useful in predicting outcomes for large amount of data. In this paper different machine learning algorithms are applied to predict the loan approval of customers. In this paper, various machine learning algorithms that have been used in past are discussed and their accuracy is evaluated. The main focus of this paper is to determine whether the loan given to a particular person or an organization shall be approved or not.

**Existing System:**

The enhancement in the banking sector lots of people are applying for bank loans but the bank has its limited assets which it has to grant to limited people only, so finding out to whom the loan can be granted which will be a safer option for the bank is a typical process. In existing process, they are use RF algorithm in loan approval system. But the efficiency and accuracy was pretty low. Already banks are provide online transaction system, online bank account opening system, etc,. But there is no loan approval system in the banking sector. Then now we create a new system for loan approval. So now we move on to the proposed system.

**Proposed System:**

 The proposed model focuses on predicting the credibility of customers for loan repayment by analyzing their details. The input to the model is the customer details collected. On the output from the classifier, decision on whether to approve or reject the customer request can be made. Using different data analytics tools loan prediction and there severity can be forecasted. In this process it is required to train the data using different algorithms and then compare user data with trained data to predict the nature of loan. The training data set is now supplied to machine learning model; on the basis of this data set the model is trained. Every new applicant details filled at the time of application form acts as a test data set. After the operation of testing, model predict whether the new applicant is a fit case for approval of the loan or not based upon the inference it conclude on the basis of the training data sets. By providing real time input on the web app. In our project, Logistic Regression gives high accuracy level compared with other algorithms. Finally, we are predicting the result via data visualization and display the predicted output using web app using flask.

**Module Description:**

* **Dataset collection**
* **Machine Learning Algorithm**
* **Prediction**

**Dataset collection:**

 Dataset is collected from the kaggle.com. That dataset have some value like gender, marital status, self-employed or not, monthly income, etc,. Dataset has the information, whether the previous loan is approved or not depends up on the customer information. That data well be preprocessed and proceed to the next step.

**Machine learning Algorithm:**

In this stage, the collected data will be given to the machine algorithm for training process. We use multiple algorithms to get high accuracy range of prediction. A preprocessed dataset are processed in different machine learning algorithms. Each algorithm gives some accuracy level. Each one is undergoes for the comparison.

* **Logistic Regression**
* **K-Nearest Neighbors**
* **Decision Tree Classifier**

**Prediction:**

Preprocessed data are trained and input given by the user goes to the trained dataset. The K-Nearest Neighbor Classifier trained model is used to predict and determine whether the loan given to a particular person shall be approved or not.

**Software Requirement:**

* Operating System : Windows 10
* Software : python
* Tools :Anaconda (Jupyter Note Book IDE)

**Hardware Requirement:**

* Hard disk : 500 GB and above.
* Processor : i3 and above.
* Ram : 4GB and above.

**Technologies used:**

* Programming Language: Python.

**Architecture Diagram:**

Dataset

Preprocessing

User Input

Web app