# SMART LENDER - APPLICANT CREDIBILITY PREDICTION FOR LOAN APPROVAL

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**BATCH. NO :05**


**PRESENTED BY**

1.KIRUTHIK RAJ K (AC19UCS055)

2. KIRAN BABU N (AC19UCS054)

3. LOKESH K (AC19UCS063)

4. PRASHANTH S (AC19UCS087)

**IV – B.E-CSE 'B"**

**ADHIYAMAAN COLLEGE OF ENGINEERING, HOSUR.**


GUIDED BY : Anusha Bhuvaneswari G

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# OBJECTIVE

The prediction of credit defaulters is one of the difficult tasks for any bank. But by forecasting the loan defaulters, the banks definitely 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 the contributing parameter of the bank statement.

# LITERATURE REVIEW

**1) Prediction of Loan Approval using Machine Learning Algorithm**

A bank profit or loss depends on the costumer paying back the loan.

- To predict the out-come we need to follow data collection, data preprocessing ,importing libraries, and some techniques.
- To evaluate the model we perform confusion metrics, accuracy, precision, recall, f1 score.
- The result show you the credit score with lower one fail to get the loan whereas the credit score with high income and lower amount are more likely to get the loan.
- Characteristic like gender and martial status does not affect the credit score and prediction.

# LITERATURE REVIEW Contd…

**2) Loan default prediction using diversified sensitivity under sampling**

They focus whether the borrower will delay the repayment or not, the are not focused about the loan predication. They mainly focus on the imbalance problem in loan default predication.

- Prediction is done based on the hybrid under sampling method DSUS which combines a k-means clustering method, a stochastic sensitivity measure and a robust Radial Basis Function Neural Network.
- This kind of algorithm is effective in reducing the misclassification.
- This study has some limitation , that is while performing k means algorithm it would lead to unsatisfactory performance.

# LITERATURE REVIEW Contd…

**3) Prediction of Loan Status in Commercial Bank using Machine Learning Classifier**

In this paper, studies discussed about the difficult that are faced in banking sector while predicting loan credits . These loan credits are not the actual solution , but the help in the first step of loan lending process. They provide a statistical report that pose highest accuracy.

- They combine  Min-Max normalization and K Nearest Neighbor (K-NN) classifier.
- They iterate knn algorithm for 30 time to have an accuracy, which has higher accuracy compared to all other.
- Whole model is implemented using software package R tool.

# LITERATURE REVIEW Contd…

**4) Prediction of Modernized Loan Approval System based on Machine Learning Approach**

Bank runs on the loan amount  it decides the bank's profit and loss. To run a bank ,we need a good client to payback his debt ,to find the good client we use his/her historical data to build a model using different classification algorithm.

- In this paper xgboost, random forest, decision tree algorithms have been used to find out correct prediction of dataset.
- The process followed here are collect the data,process,train ,test and result analysis show us wheatear the application will be approved or not.
- When the client is collapsed financial, the algorithm fails to work.

# LITERATURE REVIEW Contd…

**5) Bank Loan Prediction System using Machine Learning**

When it comes to banking sector we get enormous loan application. We cant manually check then find the loan approval is good or safe. To reduce our work we use machine learning technique to predict the loan credibility based on the previous record.

- The process followed here are collecting the data , cleaning and filtering, selecting features , training model, testing model, check the accuracy of the approval status. The algorithm used here are logistics regression , random forest , correlation between parameters.
- This work on the bases of the parameter which does not deal with special case, but overall it is quite efficient and reliable on some instant.

# LITERATURE REVIEW

**6) A federated learning-based approach for loan defaults prediction**

In this paper the use of a federated learning approach for the task in hand and to overcome the issues discussed previously.

- Firstly, the Synthetic Minority Oversampling Technique(SMOTE) approach is proposed to overcome the class imbalance issue.
- Secondly, we focus on a default prediction system protecting data sensitivity, meanwhile, it can be shared with other banks.
- A decentralized machine learning algorithm-federated learning with the data made use of Support Vector Machines(SVM)for default prediction combined deep learning and genetic programming to enhance the results in default prediction.

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