



**INFORMATICS
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In Collaboration with

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**Forecasting of Customer's Eligibility for The Bank Loan and,
Also Predict Credit Limit, Using ML Approach**

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ABSTRACT

Banks are currently experiencing a large amount of data being generated, and this requires them to thoroughly examine a person's information before deciding to grant a loan. This is because lending money always comes with a major risk. However, the task of reviewing this data can be difficult and time-consuming. Also access to credit plays an essential role in boosting economic growth by providing individuals with the necessary capital for investments. However, many customers find it challenging to determine their eligibility for a bank loan and the potential credit limit available to them. In recent years, machine learning (ML) techniques have been used to automate the loan application process and predict a customer's credit limit. This research proposes a novel ML-based approach to forecast customer eligibility for bank loans and credit limits. To make this process more efficient, a machine learning model has been developed. This model uses Random Forest, a machine learning technique, to analyze the data and predict the loan amount. The goal of this study is to provide an accurate assessment of a person's eligibility for a loan by analyzing their data through this machine learning model.

This study makes use of a dataset that includes financial and demographic data for a particular group of customers. To extract important characteristics needed for building predictive models, the dataset is preprocessed and modified. For building eligibility models, author used several classification algorithms Random Forest, Gaussian Naive Bayes, Decision Tree Classification and k-Nearest Neighbors Algorithm. Accuracy, precision, recall, and F1-score are only a few of the evaluation criteria used to assess the models' performance.

The experimental findings show how well the proposed approach predicts with accuracy a customer's eligibility for bank loans and credit limits. The hybrid model got an R-squared value of 0.84, also had the best accuracy (97%). The results showed how ML algorithms can be used to improve the loan application procedure and help banks make wise lending decisions. The results of this study have the potential to dramatically increase the efficiency of the banking industry, decrease the time and resources needed to process loan applications and give customers a more transparent and equal lending experience.