

A  
Mini-Project Report on  
**Loan Approval Prediction System**

Submitted in partial fulfillment of the requirements  
for the degree of

**BACHELOR OF ENGINEERING**

**IN**

**Computer Science & Engineering**

Artificial Intelligence & Machine Learning

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**A. P. SHAH INSTITUTE OF TECHNOLOGY**  
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)  
(Religious Jain Minority)



## CERTIFICATE

This is to certify that the project entitled “Loan Approval Prediction System” is a bonafide work of Aman Thakur (22106014), Mohit Suthar (22106056), Disha Suryawanshi (22106112) and Vaishnavi Sonawane (22106125) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering in Computer Science & Engineering (Artificial Intelligence & Machine Learning)**.

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## Project Report Approval

This Mini project report entitled “**Loan Approval Prediction System**” by **Aman Thakur (22106014), Mohit Suthar (22106056), Vaishnavi Sonawane (22106125), Disha Suryawanshi (22106112)**, is approved for the degree of ***Bachelor of Engineering in Computer Science & Engineering, (AIML) 2024-25.***

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Place: APSIT,  
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## DECLARATION

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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## **ABSTRACT**

With the advancement in technology, there are so many enhancements in the banking sector also. The number of applications is increasing every day for loan approval. There are some bank policies that they have to consider while selecting an applicant for loan approval. Based on some parameters, the bank has to decide which one is best for approval. It is tough and risky to check out manually every person and then recommended for loan approval. In this work, we use a machine learning technique that will predict the person who is reliable for a loan, based on the previous record of the person whom the loan amount is accredited before.

Our project aims to predict whether the loan approval to a specific individual is safe or not. The application approved or not approved depends upon the historical data of the candidate by the system. Every day lots of people applying for the loan in the banking sector but Bank would have limited funds. In this case, the right prediction would be very beneficial using some classes-function algorithm. And a Bank's profit and loss depend on the amount of the loans that is whether the Client or customer is paying back the loan. Recovery of loans is the most important for the banking sector. The improvement process plays an important role in the banking sector. Hence our project uses historical data of candidates to build a machine learning model using different classification algorithms.

**Keyword:** Loan Approval, Historical Data, Loan Amount, Bank Profit.

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# **CHAPTER 1**

## **INTRODUCTION**

## 1.1 INTRODUCTION

Banks Loans have become an important source of external financing for firms and households due financial constraints to develop firms and business. The most profit for the bank comes only from loans however the increase of loan lending is associated with a number of risks, such as risk of defaulting or credit risk, which is linked to the inability of the borrower to pay back the loan at the agreed time and conditions. Banks have limited goods, so it is essential to choose the right applicant who repays the loan within the time limits. Selecting the right candidate is the main responsibility of the bank. When process is done manually many problems arise in choosing the right person for the approval. Bank should choose correct one otherwise the bank has to face financial trouble and lack of profits. Banks aim is to invest their asset in the safe hands. If a bank is providing the loan to a person the bank should think about for what purpose they are taking, will they repay the amount they took, are their documents are valid or not, etc.

Many banks' primary line of business is loan distribution. Loans given to consumers account for the majority of a bank's revenue. Interest is charged by these banks on loans given to customers. It merely has the values  $x$  and  $y$  as independent and dependent variables. Data primary goal is to invest their funds in dependable clients. Many banks have been processing loans so far following a backward process of vetting and verification. However, as of right now, no bank can guarantee whether the customer who is selected for a loan application is secure or not. So, in order, to avoid this circumstance, we implemented the Loan Prediction System Using Python, a system for the approval of bank loans. We can grant loans to clients based on these criteria.

Our project Loan Prediction System is a piece of software that determines if or not the specific customer is qualified to receive a loan. This technique examines number of variables, including the customer's marital status, income, spending, and other elements. For wide numbers of trained data set clients, this method/technique is used. These elements are, taken to consideration when creating the necessary model. In order for obtaining the desired outcome, this model is applied for the test data set. The result will be presented as either yes or no. If the answer is yes, then the customer is capable of repaying the loan; if the answer is no, then the consumer is not capable of repaying the loan.

Banks Loans have become an important source of external financing for firms and households due financial constraints to develop firms and business. The most profit for the bank comes only from loans however the increase of loan lending is associated with a number of risks, such as risk of defaulting or credit risk, which is linked to the inability of the borrower to pay back the loan at the agreed time and conditions. When process is done manually many problems arise in choosing the right person for the approval. Bank should choose correct one otherwise the bank has to face financial trouble and lack of profits. Banks aim is to invest their asset in the safe hands. Thus we need some machine learning algorithms which chooses the applicant automatically. So our project loan approval prediction system helps to identify the applicant and whether he is capable to pay loan or not. This reduces bank work and bring more transparency in working.



Also, prediction of modernized loan approval system based on machine learning approach is a loan approval system from where we can know whether the loan will pass or not. In this system, we take some data from the user like his monthly income, marriage status, loan amount, loan duration, etc. Then the bank will decide according to its parameters whether the client will get the loan or not. So there is a classification system, in this system, a training set is employed to make the model and the classifier may classify the data items into their appropriate class. A test dataset is created that trains the data and gives the appropriate result that, is the client potential and can repay the loan.

Our project of prediction of a modernized loan approval system is incredibly helpful for banks and also the clients. This system checks the candidate on his priority basis. Customer can submit his application directly to the bank so the bank will do the whole process, no third party or stockholder will interfere in it. And finally, the bank will decide that the candidate is deserving or not on its priority basis. The only object of this research paper is that the deserving candidate gets straight forward and quick results.

Since, the data are increasing daily due to digitization in the banking sector, people want to apply for loans through the internet. Artificial intelligence (AI), as a typical method for information investigation, has gotten more consideration increasingly. Individuals of various businesses are utilizing AI calculations to take care of the issues dependent on their industry information. Hence, Artificial intelligence and machine learning algorithms are the forces driving social media, marketing, customer support, fraud detection, business intelligence, and pretty much every movie and music recommendation we see every day.

So our main objective of this project is to develop a predictive model that can accurately assess the likelihood of a loan being approved or rejected based on historical data. This model can assist financial institutions in making quicker, more informed decisions, reducing the risk of loan defaults and ensuring better financial stability. And the elements that, determine if a loan will be granted include aspects like credit history, loan amount, lifestyle, career, and assets. It is more probable that your loan will be approved if previous borrowers with criteria similar to yours have made on-time payments. This reliance on prior knowledge and comparisons with other applicants can be taken advantage of by machine learning (ML) algorithms, which can, then be used for create a data science issue to forecast the loan status of new applicant using the set of analogous criteria.

Hence, implementing a Loan Approval Prediction System enhances the overall efficiency and reliability of the loan approval process. By integrating advanced machine learning algorithms, financial institutions can achieve better risk management, improve customer satisfaction, and streamline their operations.

# **CHAPTER 2**

## **LITERATURE SURVEY**

## **2.LITERATURE SURVEY**

### **2.1-HISTORY**

The history of Loan Approval Prediction Systems reflects the growing intersection of machine learning and financial decision-making, evolving from basic statistical models in the early 2010s to sophisticated AI-driven systems today. Initially, these systems relied on traditional methods like logistic regression, but as the availability of big data increased, more complex algorithms, such as decision trees and ensemble learning methods, were introduced. Over the years, advancements have focused on improving accuracy, incorporating ethical considerations, and enhancing model interpretability, leading to the development of adaptive and explainable AI models in recent years.

- Study on a large dataset within the period of (2001-2006) indicated that loan age was the most important factor when predicting loan default while market loan-to-value was the most effective factor for mortgage loan applications. In addition to identifying factors that may influence loaned fault, there is also a need to build robust and effective machine learning models that can help capture important patterns in credit data.
- Two approaches are presented for quantifying the minimum capital requirement such as the standardized approach and the internal ratings based approach (2006). To remove the credit risk area, because there has been a continuous development of the Basel accords, which provides frameworks for supervisory standards and risk management techniques as a guideline for banks to manage and quantify their risks.
- Interest of acquiring a model that can predict defaulted customers (2012). A technique that is widely used for estimating the probability of client default is Logistic Regression. In this thesis, a set of machine learning methods will be investigated and studied in order to test if they can challenge the traditionally applied techniques.
- Presentation of a loan risk prediction model based on the data mining techniques, such as Decision Tree (J48), Naïve Bayes (NB) and BayseNet approaches (2016). The procedure followed was training set preparation, building the model, applying the model and finally evaluating the accuracy.
- Suggestion of a loan sanctioning prediction procedure based on NB approach integrated with K-Nearest Neighbor (KNN) and binning algorithms (2016). The seven parameters considered were income, age, profession, existing loan with its tenure, amount and approval status.
- Presented a loan prediction model using several Machine Learning (ML) algorithms (2017). The dataset with features, namely, gender, marital status, education, number of dependents, employment status, income, co applicant's income, loan amount, loan

tenure, credit history, existing loan status, and property area, are used for determining the loan eligibility regarding the loan sanctioning process.

- Proposed a loan prediction model using and Support Vector Machines (SVM) methods (2019). Naïve Bayes, an independent speculation approach, encompasses probability theory regarding the data classification. On the other hand, SVM uses statistical learning model for classification of predictions.
- Proposed an Exploratory Data Analysis (EDA) regarding the loan prediction procedure based on the client's nature and their requirements (2019). The major factors concentrated during the data analysis were annual income versus loan purpose, customer's trust, loan tenure versus delinquent months, loan tenure versus credit category, loan tenure versus number of years in the current job, and chances for loan repayment versus the house ownership.
- An ML based loan prediction model was presented (2019). The modules in the present approach were data collection and pre-processing, applying the ML models, training followed by testing the data. During the pre-processing stage, the detection and removal of outliers and imputation removal processing were carried out.
- Suggested that solely ML classifiers are not sufficient enough to build a model for identifying loan defaulters (2020). The data science techniques must be applied to improve the predictions. Important features were selected as predictors after doing EDA. The Random Forest algorithm is used and performance was measured on the basis of false positive rate.
- Used a historical dataset to build a model to predict the validity of loan (2021). Three algorithms Logistic Regression, Decision Tree and Random Forest were applied. Pre-processing was done to find missing values, outlier detection and removal. EDA was performed for finding out characteristics.
- The focus shifted towards the integration of AI with financial technology (FinTech) platforms (2022). Researchers explored real-time loan approval systems that could be integrated into digital banking platforms, providing instant decisions to applications.
- There was significant interest in the use of hybrid models combining traditional machine learning with deep learning approaches (2023). These models aimed to leverage the strengths of both methods, improving prediction accuracy and maintaining interpretability.
- The latest research highlights the application of reinforcement learning and automated machine learning (AutoML) techniques in loan approval systems (2024). These advancements aim to automate the model selection and tuning process, further enhancing the efficiency and scalability of loan approval systems.

## 2.2-LITERATURE REVIEW

[1] Prabaljeet Singh Saini et.al.(2023) explores the effectiveness of various machine learning algorithms in predicting loan approvals. The study compares algorithms such as Logistic Regression, Decision Trees, Random Forests, Support Vector Machines (SVM), and Neural Networks, analyzing their performance in predicting outcomes based on factors like applicant income, credit history, loan amount, and employment status. By training and testing these models on a relevant dataset, the research evaluates their accuracy, precision, recall, and F1-score. The findings highlight the strengths and limitations of each algorithm, providing financial institutions with valuable insights into selecting the most suitable machine learning model for their loan approval processes.

[2] R Nancy Deborah et.al.(2023) discussed on developing a model to accurately predict the approval status of loan applications using machine learning techniques. The study aims to enhance the efficiency and reliability of the loan approval process by leveraging various machine learning algorithms. The model is trained on a dataset containing features such as credit history, income, loan amount, and employment details. The research emphasizes optimizing the prediction process to minimize errors and improve decision-making for financial institutions. By evaluating the performance of different algorithms, the paper identifies the most effective approach for accurate and timely loan approval predictions, contributing to more streamlined financial operations.

[3] Singh, V. et.al.(2021) presents a study focused on improving loan approval systems through the application of modern machine learning techniques. The research highlights the limitations of traditional loan approval methods and proposes a machine learning-based model that can more accurately and efficiently predict loan approvals. By analyzing key factors such as credit history, income, and loan amount, the model aims to enhance decision-making processes within financial institutions. The study compares various machine learning algorithms to determine the most effective approach, ultimately aiming to reduce processing time and increase the accuracy of loan approval decisions, thereby modernizing the overall system.

[4] Ramchandra et.al.(2021) explores the creation and implementation of a loan approval prediction model using Amazon Web Services (AWS). The study focuses on leveraging the cloud computing capabilities of AWS to design, simulate, and deploy a machine learning model that predicts loan approvals based on various financial and demographic factors. The paper details the use of AWS services such as SageMaker for model training, Lambda for serverless computing, and S3 for data storage, highlighting the scalability and efficiency offered by cloud-based platforms. The research demonstrates how using AWS can streamline the development and deployment process, enabling financial institutions to quickly implement robust and scalable loan approval prediction systems.

[5] Gupta, A. et.al.(2020) discusses the development of a predictive system designed to determine the likelihood of a bank loan being approved or rejected using machine learning algorithms. The study aims to improve the accuracy and efficiency of the loan approval process by analyzing key variables such as applicant credit score, income, employment history, and loan amount. The paper evaluates the performance of various machine learning models, identifying the most effective approaches for predicting loan outcomes. By automating the decision-making process, the system proposed in the study helps banks reduce manual errors, streamline operations, and make more informed lending decisions.

Sr.No.	Research Paper	Author	Publication year	Conclusion
1.	<b>Loan Approval Prediction using Machine Learning: A Comparative Analysis of Classification Algorithms</b>	Prabaljeet Singh Sai	2023	Compares models like Logistic Regression, Decision Trees, Random Forests, SVM, and Neural Networks based on income and credit history.
2.	<b>An Efficient Loan Approval Status Prediction Using Machine Learning</b>	R Nancy Deborah	2023	Creates a machine learning model to enhance loan approval accuracy using credit history and income.
3.	<b>Prediction of Modernized Loan Approval System Based on Machine Learning Approach</b>	Singh, V.	2021	Proposes a machine learning model to enhance loan approvals by analyzing credit history and income for faster decisions.
4.	<b>Design and Simulation of Loan Approval Prediction Model using AWS Platform</b>	Ramachandra	2021	The study shows how AWS services like SageMaker, Lambda, and S3 enhance the scalability and efficiency of loan prediction systems.

Sr.No	Research Paper	Author	Publication Year	Conclusion
5.	<b>Bank Loan Prediction System using Machine Learning.</b>	Gupta	2020	The study analyzes credit score and income to enhance accuracy and efficiency, helping banks automate decisions and reduce errors.

# **CHAPTER 3**

## **PROBLEM STATEMENT**



### **3.1 PROBLEM STATEMENT**

The challenge faced by financial institutions is the overwhelming number of loan applications and the difficulty in accurately assessing them due to the lack of personalized analysis. Traditional methods, such as manual evaluation or generic credit scoring, often fail to provide satisfactory guidance because they don't consider the specific financial profiles and needs of individual applicants. This lack of personalized assessment can lead to incorrect loan approvals or rejections, resulting in financial losses and customer dissatisfaction.

To address this issue, we aim to develop a loan approval prediction system using machine learning techniques. The system will analyze patterns in applicant data, including income, credit history, loan amount, and other relevant factors, to make personalized predictions about loan approval. By using these techniques, the system will provide financial institutions with tailored insights, helping them make more informed decisions and improving the efficiency and accuracy of the loan approval process. This approach will ultimately enhance the overall lending experience for both institutions and applicants by reducing the risk of default and ensuring fair and accurate loan assessments.

# **CHAPTER 4**

## **EXPERIMENTAL SETUP**

## 4.1 HARDWARE SETUP

### **Development Phase** (For Model Training):

- Processor: A powerful server-grade processor to manage multiple users and handle large datasets efficiently.
- RAM: 16 GB minimum (32 GB recommended for smoother performance with larger datasets).
- Storage: SSD (256 GB or more) to improve speed, especially for handling data.

### **Database Setup:**

- RAM: Adequate memory to manage and query the dataset efficiently.
- Storage: Fast storage with enough capacity to store the loan data, predictions, and related information.
- Database Type: Used reliable database system like MySQL for managing large volumes of data.

### **Operating System:**

- Windows 11: Windows is one of the most common operating systems, which is user-friendly and familiar interface for most users.

## 4.2 SOFTWARE SETUP

### **Programming Language:**

- Python: Used for building and running the machine learning model, data processing, and the web interface.

### **IDE:**

- Used IDEs like VS Code, or Jupyter Notebook for writing and debugging code.

### **Data Source:**

- Kaggle: Dataset for loan approval predictions is sourced from Kaggle, which is processed using Python libraries.

### **Backend Framework:**

- Streamlit: Used for deploying ML model in a web application interface.
- Flask: Used to build the backend of our web application and used to integrate the machine learning model with the user interface.
- Pandas: For data manipulation.

### **Frontend:**

- HTML/CSS: For the registration, login, and loan application forms.
- JavaScript: Used for adding interactivity in forms or pages.

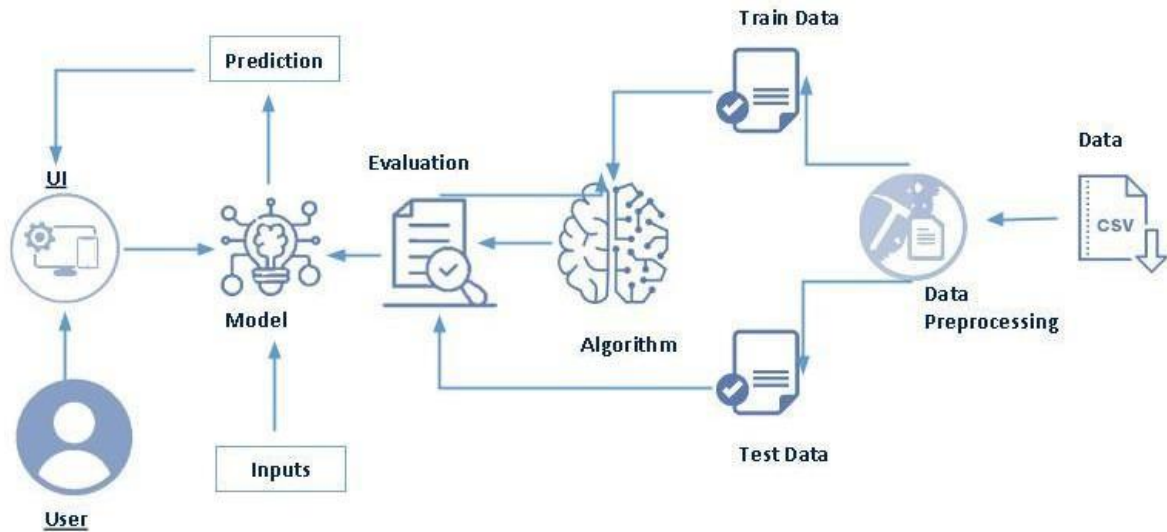
### **Browser:**

- Any modern browser (like Chrome or Firefox) for testing the web app.

# **CHAPTER 5**

## **PROPOSED SYSTEM AND IMPLEMENTATION**

## 5.1 BLOCK DIAGRAM



5.1 Control flow diagram of proposed system

The workflow of the current study is illustrated as follows:

**1. Data collection:** The dataset collected for this research work has been fetched from Kaggle. The dataset comprises of columns like gender, married, dependents, education, Self Employed, applicant income, coapplicant income, loan amount, loan amount term, credit history, property area. Then the data is preprocessed and divided into a training and testing set, with 75% training data and 25% test data.

**2. Data preprocessing:** Data mining technique has used in pre-processing for transforming raw data which is collected from kaggle into useful and efficient formats. There is a need to convert it in useful format because it may have some irrelevant, missing information and noisy data. Hence, this step ensures that the data is clean, normalized, and ready for model training. The cross-validation and testing approach are used to divide the data into 75% for training and 25% for testing. Techniques used to handle missing data include:

- Mean/Median Imputation: Replacing missing numerical values with the mean or median of the respective feature.
- Forward/Backward Filling: Filling missing values using the previous or next available data points.
- Dropping Rows/Columns: In cases where a significant amount of data is missing, entire rows or columns may be dropped.

**3. Train-test split:** Train-test split is a technique in machine learning where a dataset is divided into two parts:

- **Training data:** This subset is used to train the machine learning model by learning patterns and relationships from the input features.
- **Test data:** This subset is kept aside to evaluate the performance of the model on unseen data. It helps in assessing the generalizability of the model.

**4. Algorithm:** Machine learning algorithms predict the possibility of a customer would be able to repay the loan or not. Various machine learning algorithms like Logistic Regression, Decision Trees, Random Forest, XGBoost can be used. Our project aims to focus on Logistic Regression algorithm. Hence during training, the algorithm takes the train data and attempts to create a model.

**5. Model Selection:** The process of selecting a final machine learning model from among a group of candidate machine learning models for a particular training dataset of Loan customer is called model selection. A model should have parameters like:

- Skillful as compared to naive models.
- Skillful relative to other tested models.
- Skillful relative to the state-of-the-art.

Thus, Prediction of loan approval is a type of a classification problem and hence our project focuses on model of – Logistic Regression

```
from sklearn.linear_model import LogisticRegression
model = LogisticRegression()
model.fit(x_train, y_train)
```

Hence, once trained this model can be used to predict the loan approval status of new applicants based on their data. Logistic Regression outputs a probability between 0 and 1, which is interpreted as the result of the loan being approved or rejected. The test data helped us evaluate how well the model predicts loan approvals for applicants who were not part of the training process. Hence the model learns the patterns and insights during the training phase, allowing it to make predictions on unseen data.

**6. Evaluation:** Model evaluation is technique which is used for evaluating the performance of the model based on some constraints. It ensures that the model is accurate and generalizes well to unseen data. Evaluation metrics such as accuracy, precision, recall, and F1-score are calculated by running the model on the Test Data. And if the model performs poorly, it may be retrained using different algorithms, adjusted parameters, or better preprocessed data. So evaluation part is the important part for predicting the performance of the model. So our model accuracy is 91%.

**7. Prediction:** To predict we use trained model which determines whether a new loan applicants will be approved or denied. When a new user applies for a loan, the system takes their details and runs them through the model. The output will be a prediction of whether the loan should be approved or denied.

**8. User Interface:** The user, such as a bank official, will input new applicant data into the system via the UI. In our project has loan dataset with eleven independent attributes and one dependent attribute. Therefore, every independent attribute is to be filled for loan check availability in UI. Then, the UI interacts with the model, running the prediction, and then displaying the result (approved or denied).

### **Logistic Regression:**

It is a classification set of rules used to assign observations to a discrete set of instructions. Logistic regression is basically used for define the relationship between dependent binary variable and nominal or other independent variable.

Logistic Regression is used in loan approval prediction systems for several key reasons:

- **Binary Classification:** Logistic Regression is ideal for loan approval system where the outcome is binary which is either approval or rejection, which fits well with this model.
- **Interpretability:** Logistic Regression is simple and highly interpretable. It shows the relationship between each input feature (like income, loan amount) and the prediction, making it easier to understand how the model is making decisions.
- **Efficiency:** It's computationally efficient and works well with large datasets, making it a good fit for real-time prediction tasks like loan approval systems.

So using above logistic regression we can conclude the following accuracy table as below:

Algorithm used	Accuracy
Logistic Regression	90%



## 5.2 IMPLEMENTATION

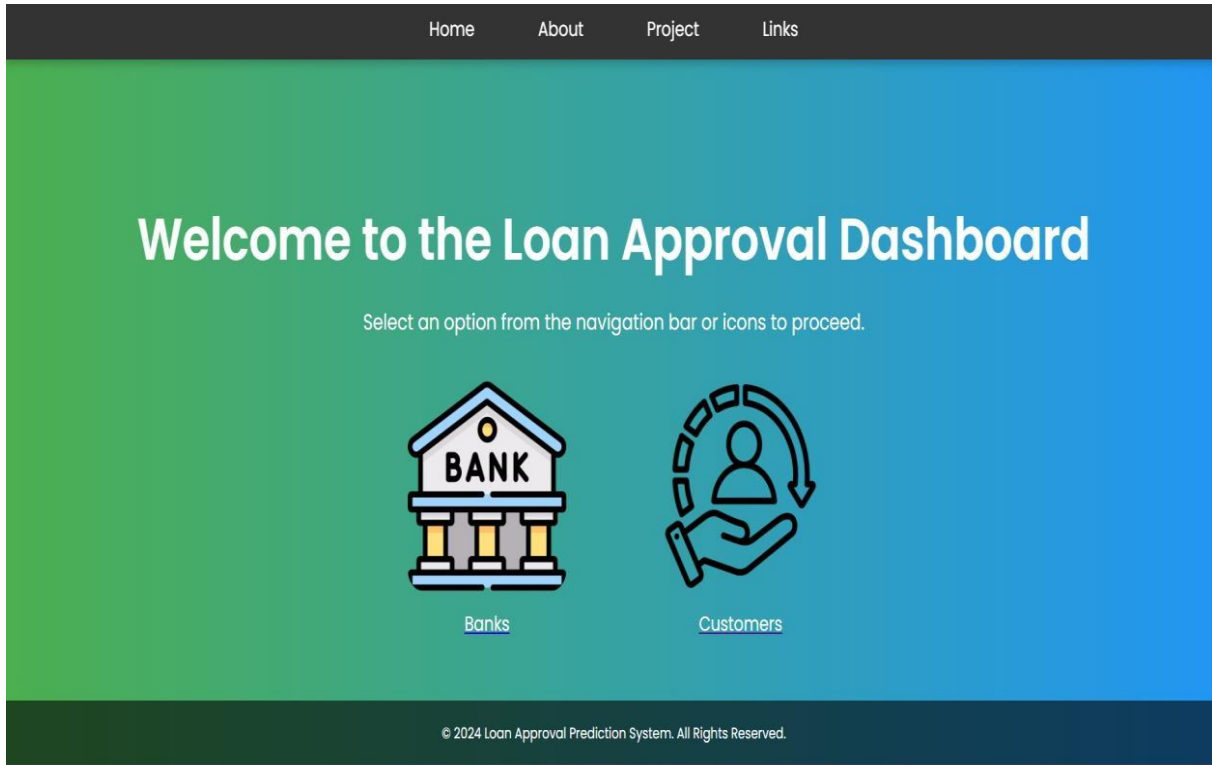


Fig 5.2.1 Main Page

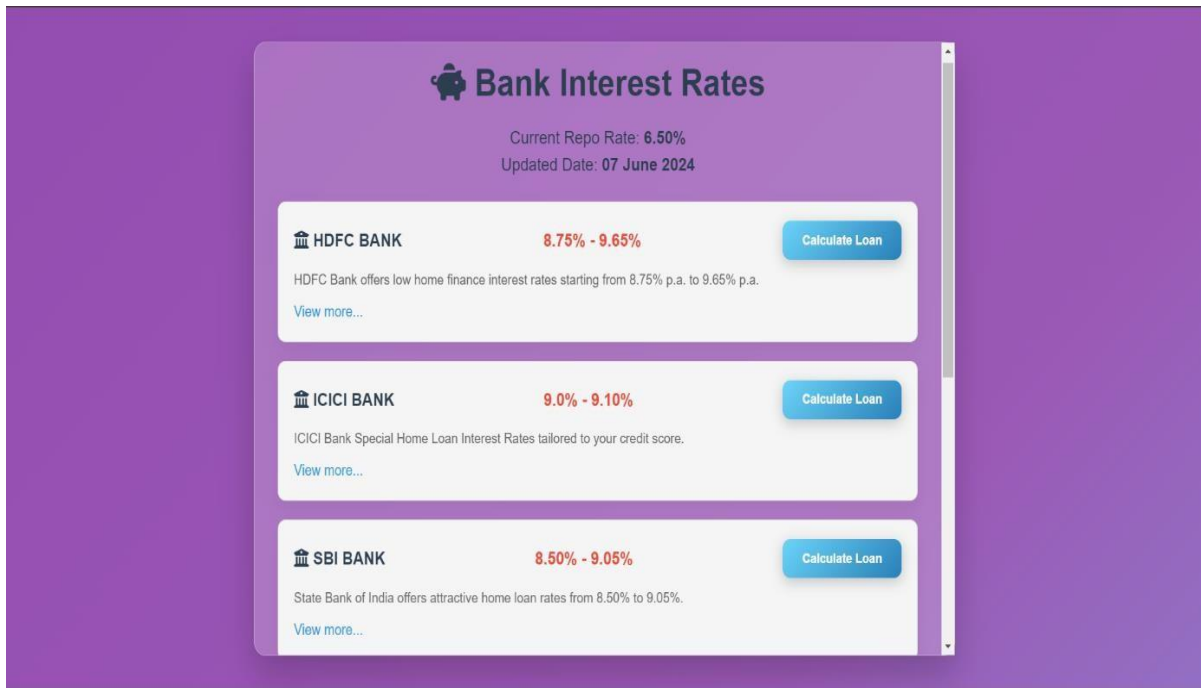


Fig 5.2.2 Customer interface page

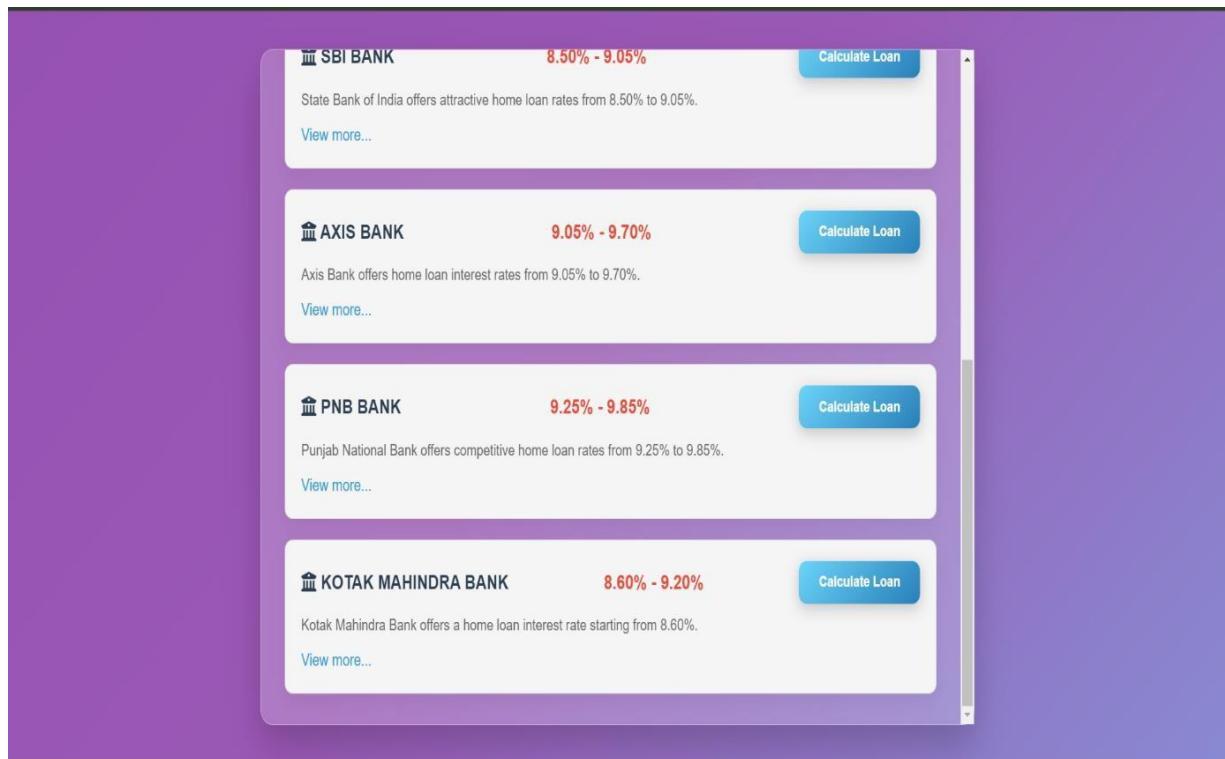


Fig 5.2.3 Customer interface page

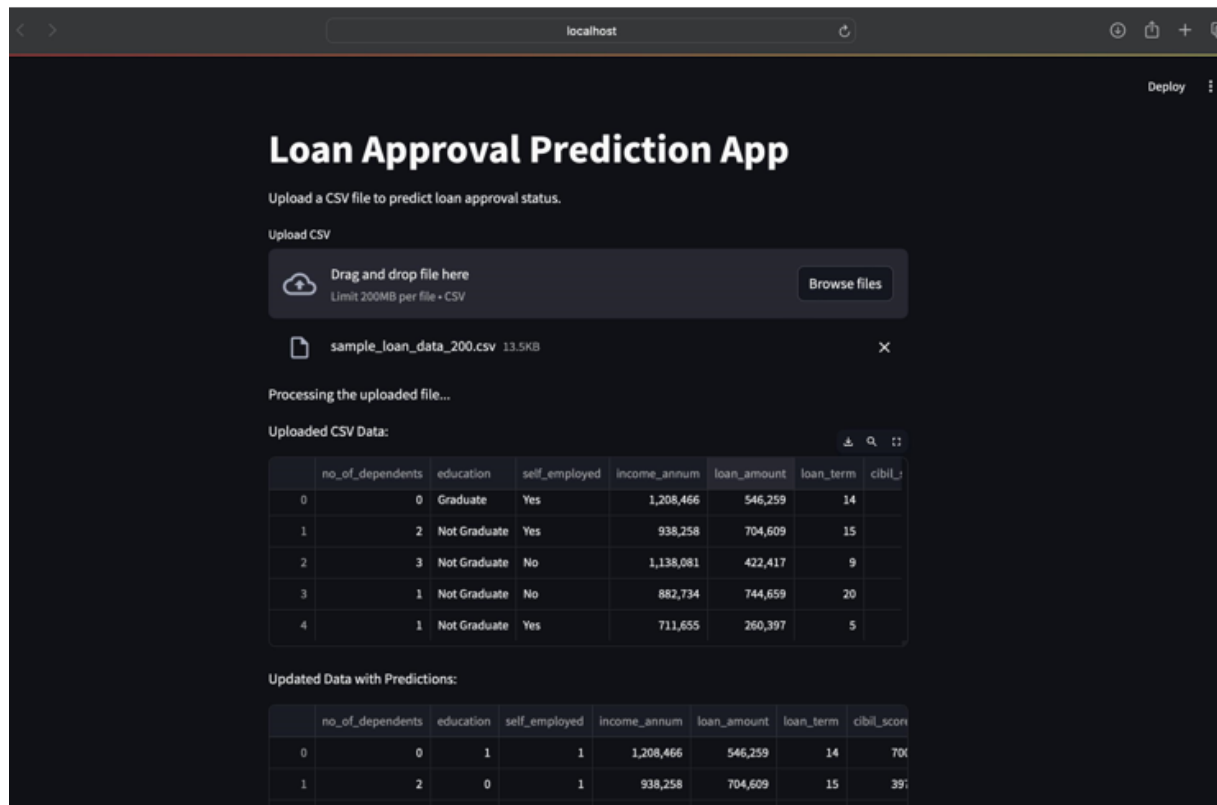


Fig 5.2.4 Bank Interface page

The screenshot displays a web application interface for loan prediction analysis. At the top, there is a browser window with the address bar showing 'localhost'. Below the browser window, there is a table with input data. This table has 7 columns: an index, 'employed', 'income\_annum', 'loan\_amount', 'loan\_term', 'cibil\_score', and 'Assets'. The data rows are as follows:

	employed	income_annum	loan_amount	loan_term	cibil_score	Assets
2	3	Not Graduate	No	1,138,081	422,417	9
3	1	Not Graduate	No	882,734	744,659	20
4	1	Not Graduate	Yes	711,655	260,397	5

Below this table, there is a section titled 'Updated Data with Predictions:'. This section contains a larger table with 7 columns: an index, 'employed', 'income\_annum', 'loan\_amount', 'loan\_term', 'cibil\_score', and 'loan\_status\_prediction'. The data rows are as follows:

	employed	income_annum	loan_amount	loan_term	cibil_score	Assets	loan_status_prediction
0	1	1,208,466	546,259	14	700	5,467,015	Accepted
1	1	938,258	704,609	15	397	1,662,181	Rejected
2	0	1,138,081	422,417	9	734	4,378,247	Accepted
3	0	882,734	744,659	20	737	3,255,951	Accepted
4	1	711,655	260,397	5	733	2,170,548	Accepted
5	0	397,643	663,558	25	390	2,538,608	Rejected
6	0	306,439	840,119	17	393	4,324,249	Rejected
7	0	314,266	514,976	27	660	4,511,281	Accepted
8	0	1,451,114	249,009	11	701	5,814,348	Accepted
9	1	1,400,333	194,386	24	649	1,267,066	Accepted

At the bottom of the 'Updated Data with Predictions' section, there is a button labeled 'Download Predictions'.

Fig 5.2.5 Prediction Analysis

# **CHAPTER 6**

# **CONCLUSION**

## **6.1 CONCLUSION**

Today's fast-growing IT industry needs to discover new technology and update the old technology that helps us to reduce human intervention and increase the efficiency of the work. The project loan approval system uses machine learning and make decisions about who gets loans faster and more accurately. This helps lenders manage risks better and ensures borrowers get quicker responses on their applications, making the lending process smoother for everyone involved. This model is used for the banking system or anyone who wants to apply for a loan. It will be very helpful in bank management. From the analysis of the project, it is clear that it reduces all the frauds done at the time of loan approval. And time is also very precious for everyone through this not only the bank but also the waiting time of the applicant will also reduce by using this application.

## REFERENCES

- [1] Prabaljeet Singh Saini, Atush Bhatnagar, Lekha Rani, “Loan Approval Prediction using Machine Learning: A Comparative Analysis of Classification Algorithms”, 2023 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE), Greater Noida, 2023, 10.1109/ICACITE57410.2023.10182799.
- [2] R Nancy Deborah; S Alwyn Rajiv; A Vinora; C Manjula Devi; S Mohammed Arif; G S Mohammed Arif, “An Efficient Loan Approval Status Prediction Using Machine Learning”, 2023 International Conference on Advanced Computing Technologies and Applications (ICACTA), Mumbai, 10.1109/ICACTA58201.2023.10392691.
- [3] Singh, V., Yadav, A., Awasthi, R., & Partheeban, G. N, “Prediction of Modernized Loan Approval System Based on Machine Learning Approach”. 2021 International Conference on Intelligent Technologies. doi:10.1109/conit51480.2021.9498475.
- [4] Ramachandra, H., Balaraju, G., Divyashree, R., & Patil, H. (2021). Design and Simulation of Loan Approval Prediction Model using AWS Platform. 2021 International Conference on Emerging Smart Computing and Informatics (ESCI). doi:10.1109/esci50559.2021.9397049.
- [5] Gupta, A., Pant, V., Kumar, S., & Bansal, P. K. (2020). Bank Loan Prediction System using Machine Learning. 2020 9th International Conference System Modeling and Advancement in Research Trends (SMART). doi:10.1109/smart50582.2020.9336801.