

Project Initialization and Planning Phase

Date	3 rd August 2024
Team ID	740293
Project Title	Loan Sanction Amount Prediction Data With ML
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) Report

The objective of this project is to develop a predictive model that accurately forecasts loan approval decisions using machine learning techniques. By leveraging historical loan application data, the model aims to automate and enhance the loan eligibility process, reducing manual intervention and increasing efficiency in loan processing.

Project Overview

Objective	The primary objective of this study is to develop and evaluate machine learning models for predicting loan eligibility, thereby aiding financial institutions in making informed and efficient lending decisions. Implement and compare various classification models such as logistic regression, decision trees, and random forests to identify the most accurate method for predicting loan approval outcomes.
Scope	Preprocess the data by handling missing values, encoding categorical variables, and normalizing numerical features. Conduct a thorough analysis of the dataset to understand the distribution of variables, detect outliers, and identify correlations. Evaluate the performance of different models and select the best-performing one based on predefined criteria.



Problem Statement

Description	The process of loan approval is critical for financial institutions, requiring precise and timely decision-making. Traditional methods of evaluating loan applications can be slow and prone to errors, often relying heavily on manual assessment. This project aims to develop a predictive model that automates the loan eligibility determination process, utilizing machine learning algorithms to enhance accuracy and efficiency.
Impact	This project will significantly enhance the efficiency and accuracy of loan approval processes for financial institutions by automating and streamlining decision-making through machine learning. Customers will benefit from quicker loan processing times and increased transparency.

Proposed Solution

Approach	The project approach involves preprocessing the provided dataset to handle missing values, encode categorical variables, and normalize numerical features. This is followed by exploratory data analysis to uncover patterns and correlations. Various machine learning models, including logistic regression, decision trees, and random forests, are then developed, trained, and optimized.
Key Features	automation of loan approval processes using machine learning models for improved efficiency and accuracy, the integration of voice command technology for enhanced user accessibility and interaction, and a comprehensive approach to data preprocessing and exploratory data analysis to ensure robust and reliable predictions.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	8 GB
Software		
Frameworks	Python frameworks	Flask

Libraries	Additional Libraries	Flask,render_template,request, pandas, NumPy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook, PyCharm
Data		
Data	Source, size, format	Kaggle dataset