

## Project Initialization and Planning Phase

<b>Date</b>	11 July 2024
<b>Team ID</b>	740052
<b>Project Title</b>	Smart Lender - Applicant Credibility Prediction For Loan Approval
<b>Maximum Marks</b>	3 Marks

### Project Proposal (Proposed Solution) template

The loan approval prediction project aims to develop a robust machine learning model that accurately predicts the approval or denial of loan applications based on various applicant and loan-specific features. This model will assist financial institutions in reducing default risks and optimizing the loan approval process. By leveraging historical data, the model will provide insights and enhance decision-making efficiency. Ultimately, this project seeks to improve the overall loan approval workflow and ensure fair, data-driven outcomes.

<b>Project Overview</b>	
Objective	The objective of loan approval prediction is to accurately determine whether a loan application should be approved or denied based on applicant and loan-specific features. This helps financial institutions mitigate risk by identifying potentially defaulting loans. Additionally, it streamlines the loan approval process, ensuring efficient and fair decision-making.
Scope	The scope of the loan approval prediction project includes data collection and preprocessing, feature engineering, and model development using machine learning techniques. It involves evaluating and fine-tuning the model for accuracy and reliability. The project also covers integrating the model into existing loan processing systems to support automated decision-making.
<b>Problem Statement</b>	
Description	The loan approval prediction project involves creating a machine learning model to predict loan approval outcomes based on applicant and loan-specific features. This model aims to enhance decision-making accuracy and efficiency in the loan approval process for financial institutions.
Impact	The loan approval prediction model significantly reduces default risk and operational costs for financial institutions by automating and improving the accuracy of loan approval decisions. It also ensures a fairer and more efficient loan application process for applicants.

Proposed Solution	
Approach	The approach for loan approval prediction involves collecting and preprocessing historical loan data, applying machine learning algorithms to train a predictive model, and validating its performance to ensure reliable decision-making capabilities.
Key Features	<p><b>Credit Score:</b> Provides a numerical assessment of the applicant's creditworthiness. Higher scores indicate lower credit risk.</p> <p><b>Income:</b> Gross income of the applicant, demonstrating the ability to repay the loan.</p> <p><b>Loan Amount:</b> Total amount requested by the applicant, influencing risk assessment and loan approval decision-making.</p>

## Resource Requirements

Resource Type	Description	Specification/Allocation
<b>Hardware</b>		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
<b>Software</b>		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, pickle, matplotlib, seaborn
Development Environment	IDE, version control	Google collab, Vs code
<b>Data</b>		
Data	Source, size, format	Excel dataset, 40KB, CSV