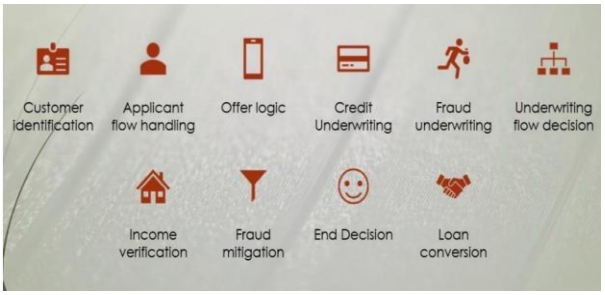
Project Design Phase-I
Proposed Solution Template

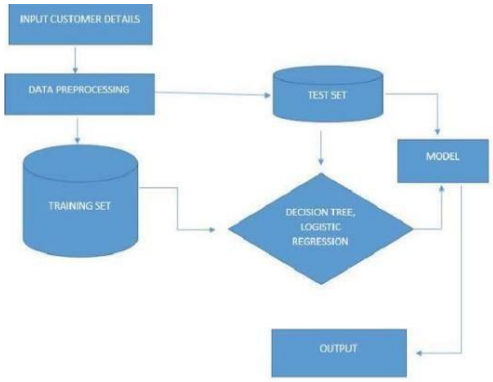
Date	19 September 2022
Team ID	PNT2022TMID35767
Project Name	Project – Smart Lender – Applicant Credibility Prediction For Loan Approval
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To reduce the manual work in the banking sector a model is designed to analyse whether an individual is fit enough to avail the loan or not. The main objective is to predict whether a new applicant granted the loan or not using machine learning models trained on the historical data set. The application approved or not approved depends upon the historical data of the candidate by the system. The historical data of candidates was used to build a machine learning model using different classification algorithms.
2.	Idea / Solution description	1. LOGISTIC REGRESSION - LOAN DEFAULTERS: A very important approach in predictive analytics is used to study the problem of predicting loan defaulters using "The Logistic regression model". Here the data is collected from the Kaggle for studying and prediction. The models are compared on the basis of the performance measures such as sensitivity and specificity. 2. RANDOM FOREST - LOAN APPROVAL: To decrease the approval time and the risk associated with the loan many loan prediction models were introduced. Here we are comparing those models and it was found that the Random Forest proved to be the most accurate and fitting where it uses a Supervised Machine Learning Algorithm that is used widely in Classification and Regression problems. It builds decision trees on different samples and takes their majority vote for classification and average in case of regression. 3. DECISION TREE – CREDIT RISK ASSESSMENT: Here an effective prediction model is used for the bankers that help them predict the credible customers who have applied for loan. Decision Tree Induction Data Mining Algorithm is applied

		to predict the attributes relevant for credibility. This can be used by the organizations to screen or filter the pool of requests by the customers and it has highest accuracy results.
3.	Novelty / Uniqueness	The novelty of the present study is that the model subtracts the two most pressing issues in the banking sector which is finding out if the borrower is risky and lend the loan to non-risky borrower. The automation of the loan eligibility process acts on the customer details provided while filling online application form. The details are gender, marital status, education, number of dependents, income, loan amount, credit history and others. We are screening the customers through three main factors which is by customer identification, credit underwriting and fraud underwriting. Previous records of applicant is used for better filtering and we direct customers with low interest loans according to their income.
4.	Social Impact / Customer Satisfaction	Since the applicants are approved with low interest loans according to their income and there will be no social impact. The customers will be convenient to pay their interest and no loan defaulters will be identified. This model also helps in concluding that a bank should not only target the rich customers for granting loan but it should assess the other attributes of a customer as well which play a very important part in credit granting decisions and predicting the loan defaulters.
5.	Business Model (Revenue Model)	1. Appliacant Flow Handling:  2. Analyzing or Pre-processing a Dataset: 

		3.Model Results: 
6.	Scalability of the Solution	This model also supports huge set of data and undergoes so many data mining techniques. Those applicants who have high income and demands for lower amount of loan are more likely to get approved and are more likely to pay back their loans. Some other characteristic like gender and marital status seems not to be taken into consideration by the company. But here all the characteristics are considered for approving a loan and not only the rich gets approved for a loan but also a candidate with low income gets to approved for a loan with a low interest. This helps them to pay back their debt without any due.