**BIA 610 GROUP B PROJECT PROPOSAL:**

**Loan Prediction Practice Problem**

Group Members: Sagar Tanna, Shrey Kshatriya, Hariom Mehta, Tigran Margaryan

***PROBLEM STATEMENT***

Dream Housing Finance company deals in all types of home loans. They have presence across all of the urban, semi urban and rural areas. Customers first apply for home loan after which the company validates the customer eligibility for loan. Company wants to automate the loan eligibility process (real time) based on customer detail provided while filling online application form. These details are Gender, Marital Status, Education, Number of Dependents, Income, Loan Amount, Credit History and others. To automate this process, we identify the customers segments, those which are eligible for loan amount so that they can specifically target those customers.

***OBJECTIVE***

The main objective of this is to automate the process of granting the loan. Loan prediction is a very common real-life problem that each retail bank faces at least once in its lifetime. If done correctly, it can save a lot of man hours from a retail bank’s end. Understanding the problem statement is a very important as well as the first and foremost step. This would help us with an intuition of what we will face ahead of time.

***METHODOLOGY & HYPOTHESIS GENERATION***

It is a classification problem where we have to predict whether a loan would be approved or not. In a classification problem, we have to predict discrete values based on a given set of independent variable(s).

After looking at the problem statement, we will now move into hypothesis generation which is nothing but the process of listing out all the possible factors that can affect the outcome. It is a very important stage in any data science/machine learning pipeline, and it involves understanding the problem in detail by brainstorming as many factors as possible which can impact the outcome.

Below are some of the factors which can affect the Loan Approval (dependent variable for this loan prediction problem):

* Salary: Applicants with high income should have more chances of loan approval.
* Previous history: Applicants who have repaid their previous debts should have higher chances of loan approval.
* Loan amount: Loan approval should also depend on the loan amount. If the loan amount is less, chances of loan approval should be high.
* Loan term: Loan for less time period and less amount should have higher chances of approval.
* EMI: Lesser the amount to be paid monthly to repay the loan, higher the chances of loan approval.

***PROJECT TIMELINE***

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| **No.** | **Module**  **Name** | **Team Member** | **Effort in Person**  **week** | **Description** |
| Phase-1 | Team Formation | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 3 days | Deciding team members for the project |
| Phase-2 | Initial Ideas  &  Finalizing topic | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 2 weeks | Exploring and deciding topics for the project |
| Phase-3 | Project Proposal | Sagar Tanna  Hariom Mehta | 2 weeks | Project Proposal Documentation |
| Phase-4 | Dataset collection and understanding the data | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 1 week | Collection of data to implement the model |
| Phase-5 | Perform EDA (Exploratory Data Analysis) and modelling | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 2 weeks | Implementation of model |
| Phase-6 | Interim Report | Shrey Kshatriya  Tigran Margaryan | 1 week | Report documentation with preliminary results |
| Phase-7 | Training and testing model | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 2 weeks | Testing of Model |
| Phase-8 | Testing and Evaluation of model accuracy | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 2 Weeks | Testing and bug fixing and improving model accuracy |
| Phase-9 | Release/Deployment | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 1-2 weeks | Final Release |
| Phase-10 | Closure | Sagar Tanna  Shrey Kshatriya  Hariom Mehta  Tigran Margaryan | 1 Week | Documentation of final report |