MEMORANDUM

To: Manager of Loan Risk at Capital One
From: Benjamin Hu, Hanna Yen, Kristi Zhang
Date: March 15, 2023
Subject: An Analysis of Loan Applications to Improve Repayment Rate

Purpose

In this memorandum, we will explain our plan on making accurate predictions on loan applications so we can understand and reduce the risk of approving loans.

Importance of this Analysis

Defaulting on a loan is the process of failing to keep up with the loan repayments agreed upon, indicating a pattern of risky behavior. Defaulting triggers the remainder of the loan balance due in full and significantly lowers the credit score of the client, making it harder for them to borrow in the future. In addition, there may be harsher punishments including the repossession of property and assets.

It is important to distinguish the difference between defaulting and payment delinquency. Missing a single scheduled payment which affects a borrower's credit score (but is remedied by paying any overdue amount and fees) is not considered defaulting.

Predicting whether a client will default is key to not only reducing the risk our bank incurs upon approving loans, but also building customer trust by only approving customers we know will be able to take on the responsibility of a loan.

Methodology in the Analysis

We plan to utilize the Loan Defaulter dataset to help us answer our question of how can we predict if a client will default on a loan? This dataset includes information that is typically required on a loan application such as the client's gender, whether they own a car/house, how many children they have, etc. It also includes more subtle information such as the day of the week the application was submitted, how many times it was edited, etc.

We believe we will succeed because we have access to a relatively large and diverse dataset, which will help to ensure that our models are robust and reliable. By executing the appropriate steps such as exploratory data analysis, model selection, and model evaluation, our team will be well-positioned to deliver valuable insights and predictions about loan defaults.