**Case Study Title:**

Credit Risk Prediction Model for Loan Applicants

**Objective:**

Develop an advanced predictive model to accurately assess the credit risk of loan applicants, using historical loan application and repayment data. The goal is to enable the finance company to minimize risks associated with bad loans while maximizing the approval of safe loans.

**Key Tasks:**

**Data Analysis:**

Historical Data Exploration: Analyze historical loan application and repayment data to understand past trends and borrower behaviors.

Feature Identification: Identify key factors contributing to loan default risks.

**Loan Type Analysis:**

Performance Assessment: Perform an in-depth analysis of different loan types and their performance over time.

Risk Correlation: Correlate loan types with default rates to understand risk profiles associated with each loan type.

**Customer Segmentation:**

Loan Preferences: Segment customers based on their loan preferences, considering factors like loan amount, term, type, and interest rates.

Repayment History: Further segment these groups based on their repayment history, such as timely payments, late payments, or defaults.

**Predictive Modeling:**

Model Development: Build a model to predict credit risk using statistical or machine learning techniques.

Model Validation and Optimization: Validate and optimize the model for accuracy and reliability.

**Risk Minimization Strategy:**

Risk Assessment: Evaluate and quantify the risk associated with each loan applicant using the model.

Approval Strategy Development: Develop strategies to balance risk minimization with approving a high number of safe loans.

**Data Description:**

**1. 'Application\_data.csv':**  contains all the information of the client at the time of application.

The data is about whether a client has payment difficulties.

**2. 'Previous\_application.csv':** contains information about the client’s previous loan data(Historical data). It contains the data whether the previous application had been Approved, Canceled, Refused or Unused offer.

**Outcome:**

The project aims to deliver a comprehensive tool for credit risk assessment, enhancing the finance company's ability to make informed lending decisions. This tool will not only contribute to reducing financial losses due to bad loans but also support business growth through the identification and approval of creditworthy applicants.