**Project Title:** *Credit Score & Default Prediction for Corporate Finance Firms*

**Intent & Motivation**  
Corporate finance companies face constant credit risk—if a borrower defaults, lenders and investors suffer losses. Early identification of firms likely to default helps banks, rating agencies and investors make better lending and investment decisions. I want to explore how data-driven models can provide such early warnings and complement traditional credit ratings.

**Objectives**  
• Build a predictive model that estimates a company’s credit score and probability of default.  
• Compare classical statistical techniques with modern machine-learning approaches to see which gives more accurate predictions.  
• Show how such a model could assist financial institutions in risk management and strategic planning.

**Expected Benefits**  
• Practical learning of credit-risk analytics and real-world finance applications.  
• A framework that banks or corporate lenders could adapt to improve loan screening and reduce non-performing assets.  
• Academic contribution by evaluating different modelling approaches on corporate finance data.

**Proposed Data & Methods**  
The project will use publicly available corporate financial statements and, if possible, anonymised bank–firm relationship indicators (such as credit-line usage). Key inputs will include profitability, liquidity, leverage and activity ratios.

Aim to implement:  
• **Classical models:** Altman Z-score, logistic or probit regression.  
• **Machine-learning models:** Random Forests, Gradient Boosting, possibly Neural Networks.  
• Techniques for feature selection and handling imbalanced classes (e.g., threshold tuning or resampling).

**Outcome**  
The final model will compare accuracy, sensitivity and specificity across methods and highlight which techniques are most reliable for predicting default in corporate finance firms. This work will also deepen my understanding of both finance and data-science tools, making it a strong academic and practical learning experience.