**Project 4 Summary:**

The project focused on predicting loan approval outcomes using the Loan Prediction dataset. It involved crucial steps such as handling missing values with imputation and converting categorical data into numerical formats using label encoding. New features like "Income-to-Loan Ratio" and "Family Size" were engineered to enhance predictive capabilities. A baseline Logistic Regression model was built, achieving an F1 score of 0.78. Subsequently, a Random Forest model was trained and fine-tuned, resulting in an improved F1 score of 0.85. The Random Forest model outperformed the baseline regarding precision, recall, and overall performance. These findings underscore the importance of feature engineering and model optimization in achieving superior predictive accuracy.