Credit Risk Classification Using Kernel-Based SVM and Ensemble Learning

This project explores the application of **kernel methods** and **ensemble techniques** to model **credit risk** from a clean, synthetic dataset designed for algorithmic benchmarking. The goal is to build interpretable, effective classifiers for identifying high-risk instances using support vector machines (SVMs) and related enhancements.

Objective

Develop a **binary classifier** to predict credit risk based on structured, fully preprocessed data (no missing values or noisy formatting). The project emphasizes:

- **Support Vector Machines (SVM)** using various kernel functions
- Exploration of the **SVM decision boundary**, **support vectors**, and **dual coefficients**
- Customization of margin-based separation to reflect **asymmetric misclassification costs**
- Incorporation of **probabilistic scoring** and **ensemble learning techniques** for performance enhancement