Machine Learning Model Deployment for Loan Status Prediction

In recent years, machine learning has become an indispensable tool for financial institutions, particularly in the area of loan management. The ability to predict loan outcomes, such as whether a loan will be fully paid off or go into collection, is critical for minimizing risk and making informed lending decisions. However, deploying machine learning models in a user-friendly and accessible manner remains a significant challenge, especially for non-technical users who may not have the expertise to interact directly with complex algorithms.

This project addresses the problem by developing a web-based application that allows users to upload loan datasets and select from a variety of machine learning models to predict loan status outcomes. The models available for selection include a Support Vector Machine (SVM), Decision Tree, K-nearest neighbours (KNN), and Logistic Regression. The application processes the data, applies the selected model, and outputs key performance metrics such as F1-score and accuracy. This solution aims to bridge the gap between machine learning model development and practical, real-world application by providing a simple, intuitive interface for end-users.

**Objectives**

**User-Friendly Interface**: Designing a web-based platform that is visually appealing and easy to navigate, enabling users to interact with machine learning models without needing to understand the underlying code or algorithms.

**Model Selection and Deployment**: Implementing multiple machine learning algorithms that can be selected dynamically, allowing users to choose the best model for their specific dataset and needs.

**Real-Time Performance Evaluation**: Providing immediate feedback on model performance using metrics like F1-score and accuracy, helping users understand the effectiveness of the models applied.

**Scalability and Flexibility**: Ensuring the application is scalable, with the potential to integrate additional models or functionalities in the future, and flexible enough to handle various types of input data.