**Application Scorecard Development Using Both Classical ML and Advanced ML techniques as a Challenger Model.**

**Project Overview:**

The Application Scorecard Development project is aimed at creating a predictive scoring model that assesses the creditworthiness of applicants for a financial institution's lending products. The scorecard will play a critical role in automating and streamlining the loan approval process while ensuring sound risk management practices.

**Project Objective:**

Develop a robust credit scoring model that predicts the probability of default using linear model as a baseline model and build a challenger model using advanced ML techniques.

**Scope:**

The project will encompass the following key activities:

1. **Data Collection and Preprocessing:**
   * Data cleaning, imputation, and transformation to prepare it for modelling.
2. **Model Development**
   * Building a baseline model using logistic regression.
   * Building and testing various predictive models, such as decision trees, random forests, and gradient boosting and neural networks as a challenger model.
   * Fine-tuning model parameters for optimal performance.
   * Conducting model validation to assess accuracy and robustness.
   * Calibration of the model score.
3. **Scorecard Development:**
   * Developing a credit scorecard that translates model probabilities into a user-friendly score.
   * Assigning appropriate weights to individual predictor variables.
   * Establishing scorecard cutoffs for risk segmentation.

1. **Model Deployment:**
   * Productionize the model using appropriate techniques.
2. **Documentation:**
   * Documenting the entire development process, including model documentation and scorecard specifications.