MyHeart CVD FAQ

MyHeart CVD features an **AI calculator** that predicts the 10-Year CVD Risk based on Malaysian population data.

1. **What is MyHeart CVD?**

   MyHeart CVD is a system designed to predict the risk of cardiovascular disease (CVD) over a 10-year period specifically for the Malaysian population. It utilizes advanced algorithms and incorporates a range of patient data, including demographics, clinical parameters, medical history, lifestyle factors, and biomarkers. MyHeart CVD provides personalized risk assessments for individuals, helping healthcare practitioners make informed decisions about preventive strategies and treatment plans. By focusing on the Malaysian population and leveraging advanced algorithms, MyHeart CVD aims to improve CVD risk prediction and contribute to better cardiovascular health outcomes in Malaysia.

2. **What are the features of MyHeart CVD?**

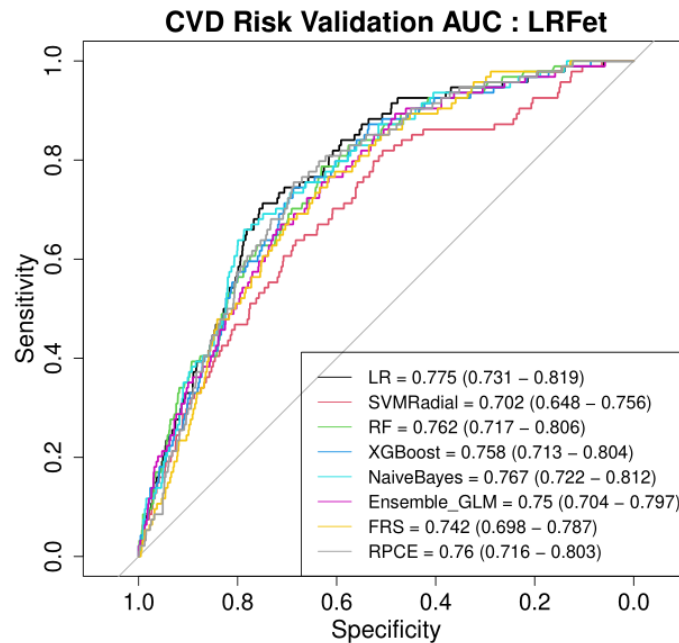   MyHeart CVD provides several features:
   - **ML-based Risk Prediction:** MyHeart CVD utilizes advanced machine learning algorithms to analyze a wide range of patient data, including demographics, clinical parameters, medical history, lifestyle factors, and biomarkers. The system learns from this data to generate personalized risk predictions for CVD over a 10-year timeframe. By considering multiple risk factors simultaneously, the ML-based risk prediction provides a comprehensive assessment of an individual's CVD risk..

   - **Conventional Risk Prediction:** MyHeart CVD also incorporates established conventional risk scores, such as the Framingham Risk Score. These conventional scores are widely recognized and validated risk assessment tools that take into account factors like age, sex, blood pressure, cholesterol levels, and smoking status. The inclusion of conventional risk scores allows for a comparative analysis and provides healthcare practitioners with different perspectives on CVD risk evaluation.

3. **How reliable is MyHeart CVD?**

   MyHeart CVD uses advanced machine learning algorithms trained on large and comprehensive datasets, ensuring high accuracy in its predictions. The tool's predictions have been validated against several benchmarks, showing reliable performance. The AUC results for the classification model, attest to the model's

reliability. However, as with any predictive model, the results should be used as part of a broader assessment rather than standalone definitive predictions.

Risk Score	AUC (CI%)
MyHeart CVD Risk Score	0.78 (0.733 - 0.818)
Framingham Risk Score	0.74 (0.698 – 0.787)

CVD Risk Validation AUC : LRFet

LR = 0.775 (0.731 – 0.819)
SVMRadial = 0.702 (0.648 – 0.756)
RF = 0.762 (0.717 – 0.806)
XGBoost = 0.758 (0.713 – 0.804)
NaiveBayes = 0.767 (0.722 – 0.812)
Ensemble_GLM = 0.75 (0.704 – 0.797)
FRS = 0.742 (0.698 – 0.787)
RPCE = 0.76 (0.716 – 0.803)

4. **How do the 10-Year CVD Risk Prediction Calculators work?**
The 10-Year CVD Risk Prediction use relevant features from the REDISCOVER data and were selected based on their predictive value for CVD event risk.

A tool called SHAP (SHapley Additive exPlanations) is used to understand these models. SHAP plots show the impact of each feature on the model's prediction, allowing users to understand which factors are most influential in predicting the risk of CVD.

The SHAP plot may look like this:
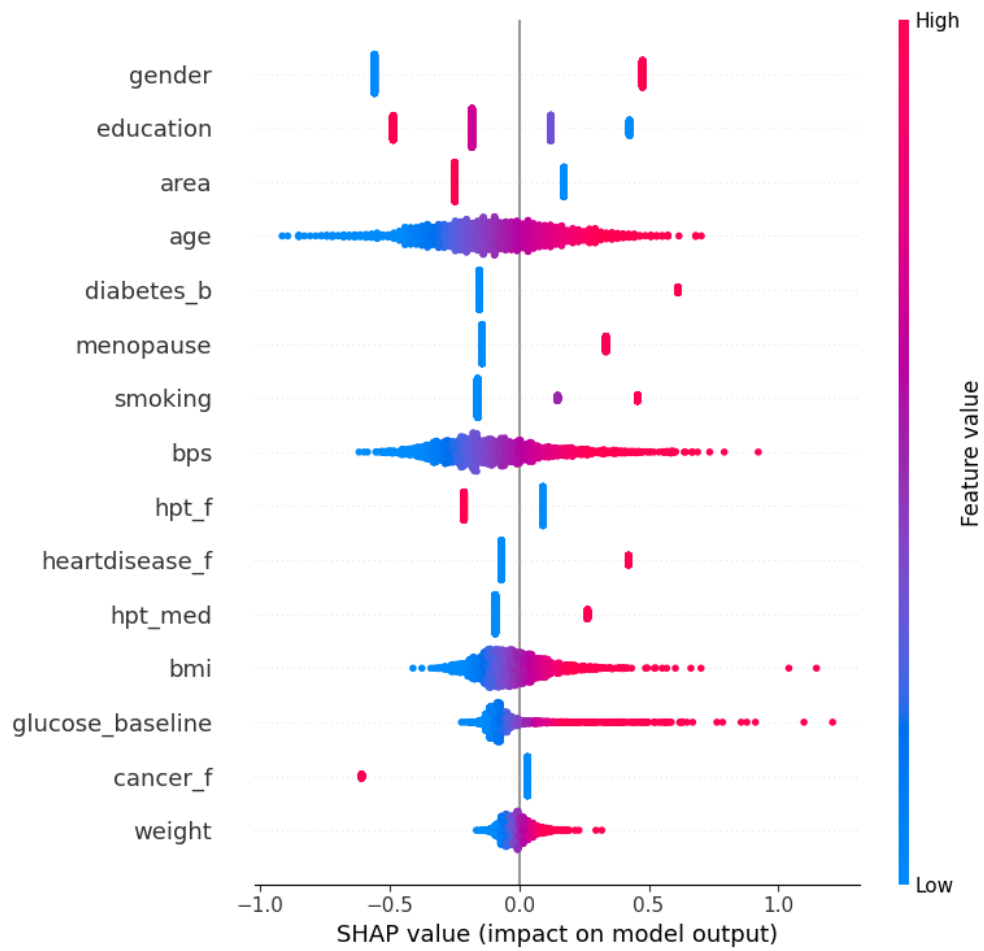
By examining these plots, users can gain insight into the model's decision-making process, seeing which factors are deemed most critical in each context.