Random Forest Questions

1. Implement a Random Forest classifier on the Heart Disease dataset and evaluate its performance in terms of Accuracy, Precision, Recall, F-Measure, AUC, and MCC.
2. Perform hyperparameter tuning on the number of estimators in Random Forest using Random Search.
3. Extract and analyze feature importance from the trained Random Forest model.
4. Evaluate the Out-of-Bag (OOB) score for a Random Forest classifier trained on the full dataset.
5. Compare the performance of Random Forest with different values of `n_estimators`.

SVM Questions

6. Train an SVM classifier with an RBF kernel on the Heart Disease dataset and evaluate its performance in terms of Accuracy, Precision, Recall, F-Measure, AUC, and MCC.
7. Visualize the decision boundary of an SVM classifier using only two selected features.
8. Perform hyperparameter tuning on `C` and `gamma` parameters in SVM using Grid Search.
9. Compare the performance of SVM classifiers (in terms of all the measures listed above) with linear and RBF kernels. It is assumed that you have performed hyper-parameter tuning on the SVM with a linear kernel.
10. Analyze the classification report of an SVM model trained on the Heart Disease dataset.