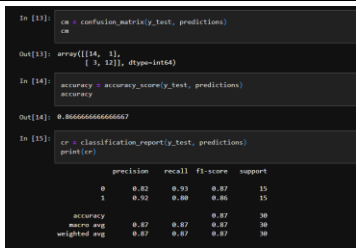



## Project Development Phase Model Performance Test

Date	19 November 2022
Team ID	PNT2022TMID39642
Project Name	Project - Detecting Parkinson's Disease using Machine Learning.
Maximum Marks	10 Marks

### Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Metrics	<b>Classification Model:</b> Confusion Matrix , Accuray Score & Classification Report	 <pre> In [13]: cm = confusion_matrix(y_test, predictions) cm  Out[13]: array([[14,  1],                [ 3, 12]], dtype=int64)  In [14]: accuracy = accuracy_score(y_test, predictions) accuracy  Out[14]: 0.8666666666666667  In [15]: cr = classification_report(y_test, predictions) print(cr)                precision    recall  f1-score   support  0               0.82       0.93       0.87         15 1               0.78       0.88       0.83         15  accuracy          0.87 macro avg         0.87       0.87       0.87         30 weighted avg      0.87       0.87       0.87         30 </pre>
2.	Tune the Model	Hyperparameter Tuning - GridSearchCV	 <pre> In [7]: from sklearn.model_selection import GridSearchCV  In [22]: model = RandomForestClassifier()  In [23]: parameters = {         'max_depth': [5,10,20,30,50],         'random_state': [0,1,2,3,4],         'n_estimators': [70,100,80,60,110]         }  In [24]: grid = GridSearchCV(model,parameters,cv=5)  In [25]: grid.fit(X_train, y_train)  Out[25]: GridSearchCV(cv=5, estimator=RandomForestClassifier(),         param_grid=[{'max_depth': [5, 10, 20, 30, 50],         'n_estimators': [70, 100, 80, 60, 110],         'random_state': [0, 1, 2, 3, 4]}],         scoring='accuracy')  In [26]: grid.best_params_  Out[26]: {'max_depth': 5, 'n_estimators': 100, 'random_state': 2}  In [27]: grid.best_estimator_  Out[27]: RandomForestClassifier(max_depth=5, random_state=2)  In [28]: grid.best_score_  Out[28]: 0.792888922889524 </pre>