Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID04453
Project Name	Project – Detection of Parkinson's disease using machine learning
Maximum Marks	10 Marks

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Classification Model:** Confusion Matrix
		
		Accuracy Score
		
		Classification Report
			`predictions = model.predict(testX)`
			`cm = confusion_matrix(testY, predictions).flatten()`
			`print(cm)`
			`(tn, fp, fn, tp) = cm`
			`[13 2 3 12]`
			
			`(tn, fp, fn, tp) = cm`
			`accuracy = (tp + tn) / float(cm.sum())`
			`print(accuracy)`
			`0.8333333333333334`
			
			`[154] from sklearn.metrics import classification_report`
			`print(classification_report(testY,predictions))`
			
			precision recall f1-score support
			0 0.76 0.87 0.81 15
			1 0.85 0.73 0.79 15
			accuracy 0.80 30
			macro avg 0.81 0.80 0.80 30
			weighted avg 0.81 0.80 0.80 30

2.	Tune the Model	Hyperparameter Tuning -
		
		Validation Method -
			`model=RandomForestClassifier()`
			`rf_random=RandomizedSearchCV(estimator=model,`
			`param_distributions=random_grid,`
			`n_iter=100,`
			`cv=3,`
			`verbose=2,`
			`random_state=0,`
			`n_jobs=-1)`