

Project Development Phase

Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID36004
Project Name	Detecting Parkinson's Disease using Machine Learning
Maximum Marks	10 Marks

Random forest Classifier

```
n_features = image_features.shape[1]
image_features = np.expand_dims(image_features, axis=0)
X_for_RF = np.reshape(image_features, (x_train.shape[0], -1)) #Reshape to #images, features

from sklearn.ensemble import RandomForestClassifier
RF_model = RandomForestClassifier(n_estimators = 50, random_state = 42)
RF_model.fit(X_for_RF, y_train)
```

```
from sklearn import metrics
print ("Accuracy = ", metrics.accuracy_score(test_labels, test_prediction))

from sklearn.metrics import confusion_matrix
cm = confusion_matrix(test_labels, test_prediction)

fig, ax = plt.subplots(figsize=(6,6))
sns.set(font_scale=1.6)
sns.heatmap(cm, annot=True, ax=ax)
```

Accuracy = 0.7

Tree classifier

```
from sklearn import tree
clf = tree.DecisionTreeClassifier( random_state=3 )
clf.fit( X_for_RF, y_train)
test_prediction = clf.predict(test_for_RF)
test_prediction = le.inverse_transform(test_prediction)
```

```
print( 'Accuracy : ' , metrics.accuracy_score(test_labels, test_prediction) )
```

Accuracy : 0.55

Gaussian Classifier

```
from sklearn.naive_bayes import GaussianNB
clf = GaussianNB()
clf.fit( X_for_RF, y_train)
test_prediction = clf.predict(test_for_RF)
test_prediction = le.inverse_transform(test_prediction)
print( 'Accuracy : ' , metrics.accuracy_score(test_labels, test_prediction) )
```

Accuracy : 0.5333333333333333

Support Vector Machine

```
from sklearn import svm
clf = svm.SVC()
clf.fit( X_for_RF, y_train)
test_prediction = clf.predict(test_for_RF)
test_prediction = le.inverse_transform(test_prediction)
print( 'Accuracy : ' , metrics.accuracy_score(test_labels, test_prediction) )
```

Accuracy : 0.5333333333333333