

Project Development Phase

Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID15553
Project Name	Statistical Machine Learning Approaches to Liver Disease Prediction
Maximum Marks	10Marks

Model Performance Testing:

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

S. No	Parameter	Values	Screenshot
1.	Metrics	Classification Model: Accuracy Score-& Classification Report	See Below

1. Metrics

Model: Random Forest Classifier

```
In [41]: # Importing Performance Metrics:
from sklearn.metrics import accuracy_score, confusion_matrix, classification_report
```

```
In [42]: # RandomForestClassifier:
from sklearn.ensemble import RandomForestClassifier
RandomForest = RandomForestClassifier()
RandomForest = RandomForest.fit(X_train,y_train)

# Predictions:
y_pred = RandomForest.predict(X_test)

# Performance:
print('Accuracy:', accuracy_score(y_test,y_pred))
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

```
Accuracy: 0.8481012658227848
[[ 89  22]
 [ 14 112]]
      precision    recall  f1-score   support

     1       0.86       0.80       0.83        111
     2       0.84       0.89       0.86        126
```

Model: Ada Boost Classifier

```
In [43]: # AdaBoostClassifier:
from sklearn.ensemble import AdaBoostClassifier
AdaBoost = AdaBoostClassifier()
AdaBoost = AdaBoost.fit(X_train,y_train)

# Predictions:
y_pred = AdaBoost.predict(X_test)

# Performance:
print('Accuracy:', accuracy_score(y_test,y_pred))
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

Accuracy: 0.7932489451476793

```
[[ 86 25]
 [ 24 102]]
```

		precision	recall	f1-score	support
	1	0.78	0.77	0.78	111
	2	0.80	0.81	0.81	126

Model: Gradient Boosting Classifier

```
In [44]: # GradientBoostingClassifier:
from sklearn.ensemble import GradientBoostingClassifier
GradientBoost = GradientBoostingClassifier()
GradientBoost = GradientBoost.fit(X_train,y_train)

# Predictions:
y_pred = GradientBoost.predict(X_test)

# Performance:
print('Accuracy:', accuracy_score(y_test,y_pred))
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

Accuracy: 0.8059071729957806

```
[[ 86 25]
 [ 21 105]]
```

		precision	recall	f1-score	support
	1	0.80	0.77	0.79	111
	2	0.81	0.83	0.82	126