

Project Development Phase
Model Performance Test

Date	19 November 2022
Team ID	PNT2022TMID23227
Project Name	Project – University Admit Eligibility Predictor
Maximum Marks	10 Marks

Model Performance Testing:

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

S.No	Parameter	Values
1.	Metrics	Classification Model: Confusion Matrix – [115,15,15,92] Accuracy Score-87.34 Classification Report – 89.85
	Tune the Model	Hyperparameter Tuning – 88.22 Validation Method – RandomizedCV

Screenshots:

Confusion Matrix:

```
#Creating the Confusion matrix
from sklearn.metrics import confusion_matrix, accuracy_score
cm= confusion_matrix(y_test, y_pred)
cm

array([[115, 15],
       [ 15, 92]], dtype=int64)
```

```
accuracy_score(y_pred,y_test) * 100
```

87.34177215189874

```
classifier.score(x_train,y_train) *100
```

89.85507246376811

```
classifier.score(x_test,y_test)*100
```

87.34177215189874

```
In [75]: from sklearn.model_selection import RandomizedSearchCV
rs = RandomizedSearchCV(svm.SVC(gamma='auto'), {
    'C': [1,10,20],
    'kernel': ['rbf','linear']
},
cv=5,
return_train_score=False,
n_iter=2
)
rs.fit(x_train,y_train)
```

```
In [62]: (rs.best_score_ ) * 100
Out[62]: 88.22113022113022
```

```
In [63]: (rs.best_params_)
Out[63]: {'kernel': 'linear', 'C': 10}
```

```
In [67]: rs_tuned = SVC(C =10,kernel = 'linear')
rs_tuned
Out[67]: SVC(C=10, kernel='linear')
```

```
In [68]: rs_tuned.fit(x_train,y_train)
C:\Users\A.Afrinbanu\anaconda3\lib\site-packages\sklearn\utils\validation.py:72: DataConversionWarning: A column-vector y was passed when a 1d array was expected. Please change the shape of y to (n_samples, ), for example using ravel().
    return f(**kwargs)
Out[68]: SVC(C=10, kernel='linear')
```

```
In [71]: Pred_tuned=rs_tuned.predict(x_test)
Pred_tuned
Out[71]: array([1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1,
        1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0,
        1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0,
        1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
        0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 0, 1, 0,
        0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0,
        1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0,
```

Pred_tuned

```
Out[71]: array([1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1,
                1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0,
                1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0,
                1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
                0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 1, 1, 1, 0, 0, 1, 0, 0,
                0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0,
                1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0,
                1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 1, 1,
                1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                0, 1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 1, 1, 1,
                0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0, 0, 1])
```

```
In [73]: accuracy_score(Pred_tuned,y_test)
```

```
Out[73]: 0.8354430379746836
```

```
In [74]: confusion_matrix(Pred_tuned,y_test)
```

```
Out[74]: array([[110, 19],
                [ 20, 88]], dtype=int64)
```