Model Development Phase Template

Date	15 July 2024
Team ID	739725
Project Title	Flight Delay Prediction using Machine Learning.
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

1.RandomForestClassifier

```
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import classification_report, confusion_matrix
rfc = RandomForestClassifier()
rfc.fit(x_train,y_train)

y_test_predict1 = rfc.predict(x_test)
test_accuracy = accuracy_score(y_test,y_test_predict1)
test_accuracy
```

```
y_train_predict1 = rfc.predict(x_train)
train_accuracy = accuracy_score(y_train,y_train_predict1)
```

2. Logistic Regression

```
lr = LogisticRegression()
lr.fit(x_train,y_train)

y_test_predict2 = lr.predict(x_test)
test_accuracy = accuracy_score(y_test,y_test_predict2)
test_accuracy
```

```
y_train_predict2 = rfc.predict(x_train)
train_accuracy = accuracy_score(y_train,y_train_predict2)
train_accuracy
```

3. DecisionTreeClassifier

```
dtc = DecisionTreeClassifier()
dtc.fit(x_train,y_train)

y_test_predict3 = dtc.predict(x_test)
test_accuracy = accuracy_score(y_test,y_test_predict3)
test_accuracy
```

```
y_train_predict3 = dtc.predict(x_train)
train_accuracy = accuracy_score(y_train,y_train_predict3)
train_accuracy
```

4. ExtraTreeClassifier

```
etc = ExtraTreesClassifier()
etc.fit(x_train,y_train)

y_test_predict4 = etc.predict(x_test)
test_accuracy = accuracy_score(y_test,y_test_predict4)
test_accuracy
```

```
y_train_predict4 = etc.predict(x_train)
train_accuracy = accuracy_score(y_train,y_train_predict4)
train_accuracy
```

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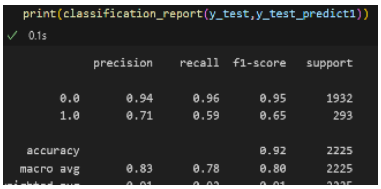
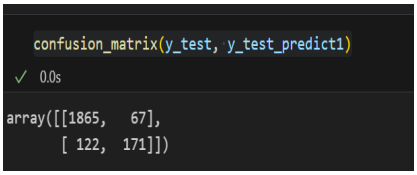
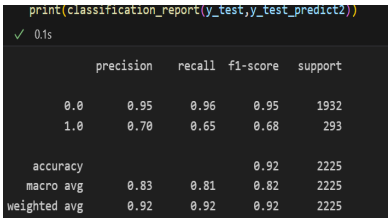
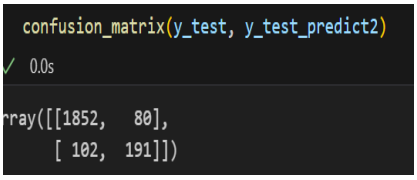
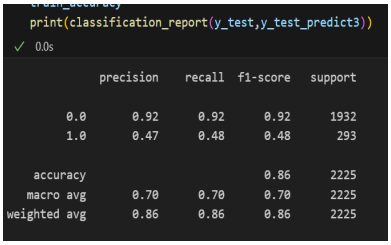
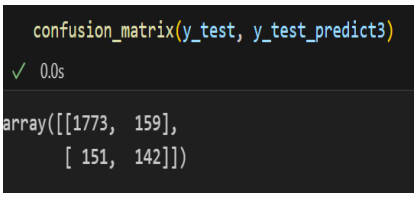
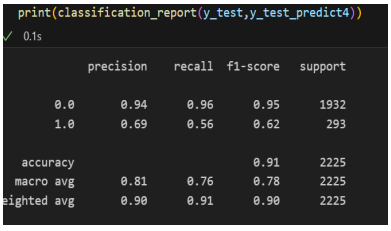
Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Random Forest Classifier		Accuracy Value	
Logistic Regression		Accuracy Value	
Decision Tree Classifier		Accuracy Value	
Extra Tree Classifier		Accuracy Value