Model Development Phase Template

Date	15 July 2024
Team ID	740051
Project Title	**SDSS galaxy classification using Machine Learning**
Maximum Marks	4 Marks

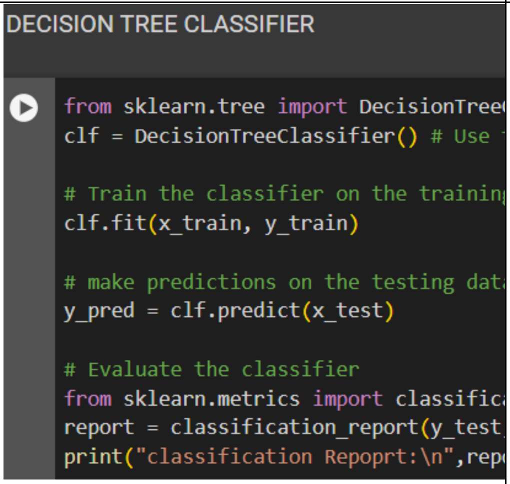
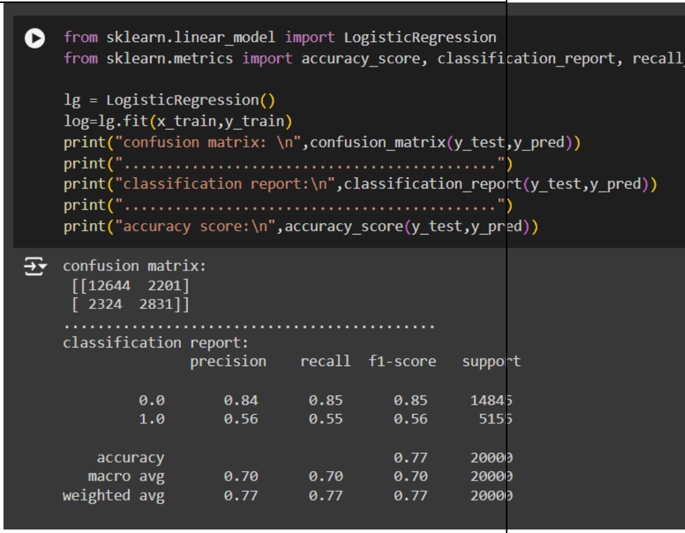
Initial Model Training Code, Model Validation and Evaluation Report

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:

Paste the screenshot of the model training code

Model Validation and Evaluation Report:

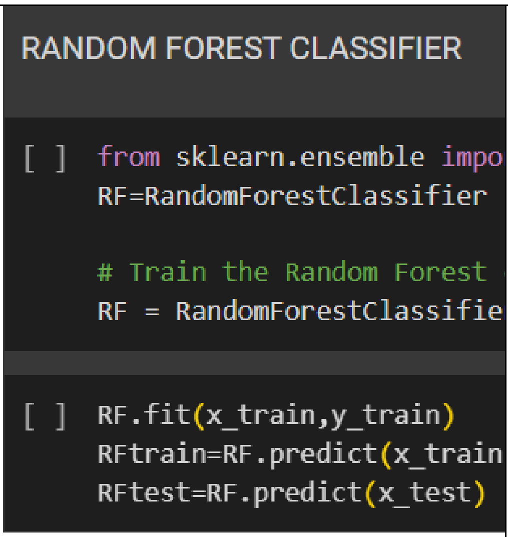
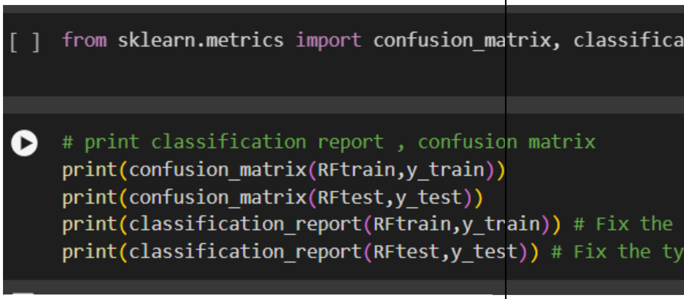
Model	**Classification Report**	**Accuracy**	**Confusion Matrix**
Decision Tree		0.77	

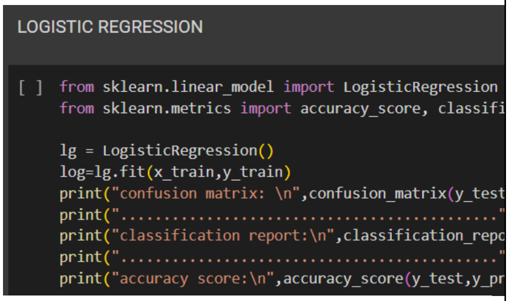
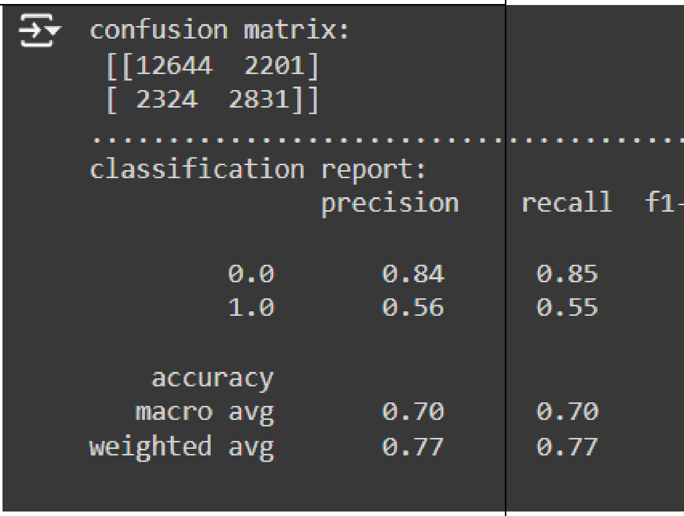
DECISION TREE CLASSIFIER

```
from sklearn.tree import DecisionTree
clf = DecisionTreeClassifier() # Use

# Train the classifier on the training
clf.fit(x_train, y_train)

# make predictions on the testing data
y_pred = clf.predict(x_test)

# Evaluate the classifier
from sklearn.metrics import classifica
report = classification_report(y_test
print("classification Repoprt:\n",repo
```

```
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, classification_report, recall

lg = LogisticRegression()
log=lg.fit(x_train,y_train)
print("confusion matrix: \n",confusion_matrix(y_test,y_pred))
print("..........................................")
print("classification report:\n",classification_report(y_test,y_pred))
print("..........................................")
print("accuracy score:\n",accuracy_score(y_test,y_pred))
```

```
confusion matrix:
 [[12644  2201]
 [ 2324  2831]]
.........................................
classification report:
               precision    recall  f1-score   support

         0.0       0.84      0.85      0.85     14845
         1.0       0.56      0.55      0.56      5155

    accuracy                           0.77     20000
   macro avg       0.70      0.70      0.70     20000
weighted avg       0.77      0.77      0.77     20000
```

RandomForest	
	RANDOM FOREST CLASSIFIER
	[ ] from sklearn.ensemble impo
	      RF=RandomForestClassifier
	
	      # Train the Random Forest
	      RF = RandomForestClassifie
	
	[ ] RF.fit(x_train,y_train)
	      RFtrain=RF.predict(x_train
	      RFtest=RF.predict(x_test)
		1.00	
			[ ] from sklearn.metrics import confusion_matrix, classifica
			
			  # print classification report , confusion matrix
			  print(confusion_matrix(RFtrain,y_train))
			  print(confusion_matrix(RFtest,y_test))
			  print(classification_report(RFtrain,y_train)) # Fix the
			  print(classification_report(RFtest,y_test)) # Fix the ty

Logistic Regression	
	LOGISTIC REGRESSION
	[ ] from sklearn.linear_model import LogisticRegression
	     from sklearn.metrics import accuracy_score, classifi
	
	     lg = LogisticRegression()
	     log=lg.fit(x_train,y_train)
	     print("confusion matrix: \n",confusion_matrix(y_test
	     print("..."
	     print("classification report:\n",classification_repo
	     print("..."
	     print("accuracy score:\n",accuracy_score(y_test,y_pr
		0.77	
			confusion matrix:
			 [[12644 2201]
			 [2324 2831]]
			....
			classification report:
			              precision recall f1-
			
			         0.0 0.84 0.85
			         1.0 0.56 0.55
			
			    accuracy
			   macro avg 0.70 0.70
			weighted avg 0.77 0.77