Model Development Phase Template

Date	25 June 2024
Team ID	739968
Project Title	Movie Box Office Gross Prediction
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:

```
#importing and building the random forest model
def RandomForest(X_tarin,X_test,y_train,y_test):
    model = RandomForestClassifier()
    model.fit(X_train,y_train)
    y_tr = model.predict(X_train)
    print(accuracy_score(y_tr,y_train))
    yPred = model.predict(X_test)
    print(accuracy_score(yPred,y_test))
```

```
#printing the train accuracy and test accuracy respectively
RandomForest(X_train,X_test,y_train,y_test)
```

```
#importing and building the Decision tree model
def decisionTree(X_train,X_test,y_train,y_test):
    model = DecisionTreeClassifier()
    model.fit(X_train,y_train)
    y_tr = model.predict(X_train)
    print(accuracy_score(y_tr,y_train))
    yPred = model.predict(X_test)
    print(accuracy_score(yPred,y_test))
```

```
#printing the train accuracy and test accuracy respectively
decisionTree(X_train,X_test,y_train,y_test)
```

Model Validation and Evaluation Report:

Model	Classification Report	F1 Score	Confusion Matrix

Random Forest	`print(classification_report(y_test,ypred))`
	
	precision recall f1-score support
	
	Loan will be Approved 0.78 0.83 0.80 75
	Loan will not be Approved 0.85 0.81 0.83 94
	
	accuracy 0.82 169
	macro avg 0.81 0.82 0.82 169
	weighted avg 0.82 0.82 0.82 169
		81 %	`confusion_matrix(y_test,ypred)`
			
			`array([[62, 13],`
			`[18, 76]])`