Model Development Phase Template

Date	15 July 2024
Team ID	740662
Project Title	Golden Harvest: A predictive model for apple quality assurance
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:

```
model_=DecisionTreeClassifier()
model_.fit(x_train,y_train)
dt_pred=model_.predict(x_test)
acc_score=accuracy_score=(y_test,dt_pred)
from sklearn.metrics import accuracy_score
acc_score=accuracy_score(y_test,dt_pred)
print("acc_score of decision tree model %.2f" % acc_score)
```

```
acc_score of decision tree model 0.80
```

```
model=RandomForestClassifier(n_estimators=100)
model.fit(x_train,y_train)
forest=model.predict(x_test)
accuracy=accuracy_score(y_test,forest)
print("acc_score of randomForest model %.2f"%accuracy)
```

```
acc_score of randomForest model 0.91
0.915
```

```
model.score(x_test,y_test)
```

```
0.9
```

```
model1=xgb.XGBClassifier().fit(x_train,y_train)
y_pred=model1.predict(x_test)
model1.score(x_test,y_test)
```

```
0.915
```

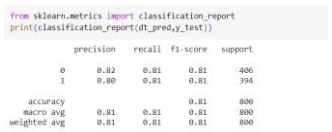
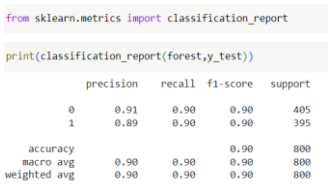
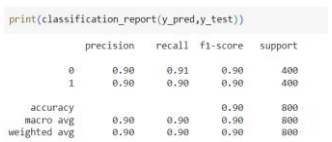
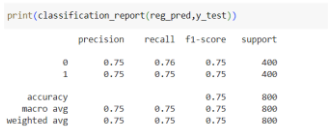
```
print("acc_score of model %.2f"%accuracy_score(y_test,forest))
```

```
acc_score of model 0.90
```

```
reg_model=LogisticRegression()
reg_model.fit(x_train,y_train)
reg_pred=reg_model.predict(x_test)
reg_acc_score=accuracy_score(y_test,reg_pred)
print("acc_score of logistic regression model %.2f"%accuracy_score(y_test,reg_pred))
```

```
acc_score of logistic regression model 0.75
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Decision tree		80%	-
Random forest		91%	-
XGB		90%	-
Logistic Regression		75%	-