

Model Development Phase Template

Date	9 July 2024
Team ID	team-740110
Project Title	Precise Coffee Quality 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:

```

from sklearn.metrics import accuracy_score
from sklearn.linear_model import LogisticRegression
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import classification_report
accuracy_lr=accuracy_score(y_test,y_test_pred)
print('-----Model Accuracy-----')
print(accuracy_score(y_test,y_test_pred))
print(accuracy_score(y_train,y_train_pred))
accuracy_lr=LR.score(x_test,y_test)
print('-----Logistic Regression-----')
print("Model Accuracy\t\t",{accuracy})
print(f'Accuracy in percentage\t{"{:.1%}".format(accuracy)}')
print(classification_report(y_test,y_test_pred))
print(classification_report(y_train,y_train_pred))

```

```

from sklearn.metrics import accuracy_score
from sklearn.tree import DecisionTreeClassifier
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import classification_report
accuracy_dtc=accuracy_score(y_test,y_test_pred1)
print('-----Model Accuracy-----')
print(accuracy_score(y_test,y_test_pred1))
print(accuracy_score(y_train,y_train_pred1))
accuracy=DTC.score(x_test,y_test)
print('-----DecisionTree Classifier-----')
print("Model Accuracy\t\t",{accuracy})
print(f'Accuracy in percentage\t{"{:.1%}".format(accuracy)}')
print(classification_report(y_test,y_test_pred1))
print(classification_report(y_train,y_train_pred1))

```

```

from sklearn.metrics import accuracy_score
from sklearn.ensemble import RandomForestClassifier
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import classification_report
accuracy_rfc=accuracy_score(y_test,y_test_pred2)
print('-----Model Accuracy-----')
print(accuracy_score(y_test,y_test_pred2))
print(accuracy_score(y_train,y_train_pred2))
accuracy=RFC.score(x_test,y_test)
print('-----Random Forest Classifier-----')
print("Model Accuracy\t\t",{accuracy})
print(f'Accuracy in percentage\t{"{:.1%}".format(accuracy)}')
print(classification_report(y_test,y_test_pred2))
print(classification_report(y_train,y_train_pred2))

```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Logistic Regression	<pre> precision recall f1-score support 0 0.96 0.70 0.81 37 1 0.08 0.50 0.14 2 accuracy 0.69 39 macro avg 0.52 0.60 0.48 39 weighted avg 0.92 0.69 0.78 39 </pre>	69.2%	<p>Confusion matrix for logistic regression</p> 
Decision Tree Classifier	<pre> precision recall f1-score support 0 0.94 0.92 0.93 37 1 0.00 0.00 0.00 2 accuracy 0.87 39 macro avg 0.47 0.46 0.47 39 weighted avg 0.90 0.87 0.88 39 </pre>	87.2%	<p>Confusion matrix for DecisionTree Classifier</p> 
Random Forest Classifier	<pre> precision recall f1-score support 0 0.95 1.00 0.97 37 1 0.00 0.00 0.00 2 accuracy 0.95 39 macro avg 0.47 0.50 0.49 39 weighted avg 0.90 0.95 0.92 39 </pre>	94.9%	<p>Confusion matrix for Random Forest Classifier</p> 