Model Development Phase Template

Date	I July 2024
Team ID	team-739896
Project Title	Identifying Airline Passenger Satisfaction 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:

Decision Tree:

```
accuracy=model.score(X_test,Y_test)
print("---------Decision Tree----------")
print("Model accuracy\t\t",{accuracy})
print(f'Accuracy in Percentage\t{" {:.1%}".format(accuracy)}')
print(classification_report(Y_test,Y_pred))
```

Logistic Regression:

```
accuracy=model.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_pred))
```

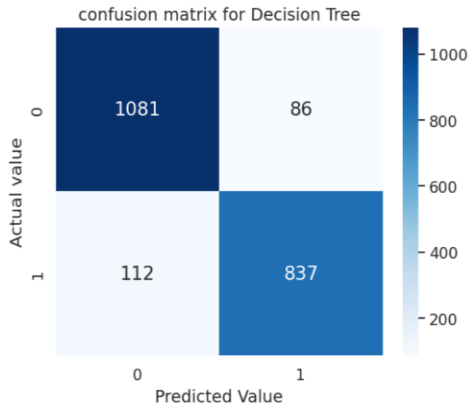
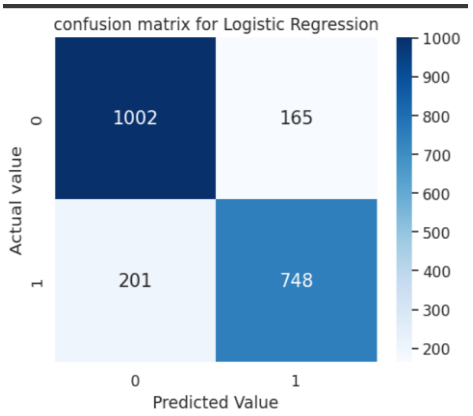
Random Forest:

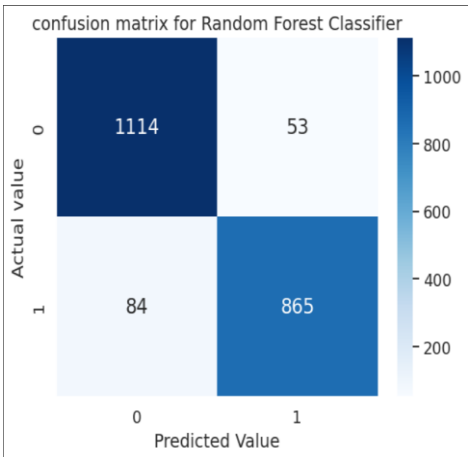
```
accuracy=model.score(X_test,Y_test)
print("---------RandomForest classifier----------")
print("Model accuracy\t\t",{accuracy})
print(f'Accuracy in Percentage\t{" {:.1%}".format(accuracy)}')
print(classification_report(Y_test,Y_pred))
```

K Nearest Nighbor:

```
accuracy=model.score(X_test,Y_test)
print("---------KNearest Neighbor----------")
print("Model accuracy\t\t",{accuracy})
print(f'Accuracy in Percentage\t{" {:.1%}".format(accuracy)}')
print(classification_report(Y_test,Y_pred))
```

Model Validation and Evaluation Report:

Model	Classification Report	Accuracy	Confusion Matrix
Decision Tree	---------Decision Tree---------- Model accuracy {0.9137562366357804} Accuracy in Percentage 91.4% precision recall f1-score support 1 0.92 0.93 0.92 2357 2 0.91 0.89 0.90 1852 accuracy 0.91 4209 macro avg 0.91 0.91 0.91 4209 weighted avg 0.91 0.91 0.91 4209	91.4%	
Logistic Regression	---------Logistic Regression---------- Model accuracy {0.839391779520076} Accuracy in Percentage 83.9% precision recall f1-score support 1 0.85 0.87 0.86 2357 2 0.83 0.80 0.81 1852 accuracy 0.84 4209 macro avg 0.84 0.83 0.84 4209 weighted avg 0.84 0.84 0.84 4209	83.9%	

Random Forest	---------RandomForest classifier---------- Model accuracy {0.9453551912568307} Accuracy in Percentage 94.5% precision recall f1-score support 1 0.93 0.97 0.95 2357 2 0.96 0.91 0.94 1852 accuracy 0.95 4209 macro avg 0.95 0.94 0.94 4209 weighted avg 0.95 0.95 0.95 4209	94.5%	
K Nearest Neighbor	---------KNearest Neighbor---------- Model accuracy {0.8933238298883345} Accuracy in Percentage 89.3% precision recall f1-score support 1 0.93 0.97 0.95 2357 2 0.96 0.91 0.94 1852 accuracy 0.95 4209 macro avg 0.95 0.94 0.94 4209 weighted avg 0.95 0.95 0.95 4209	89.3%