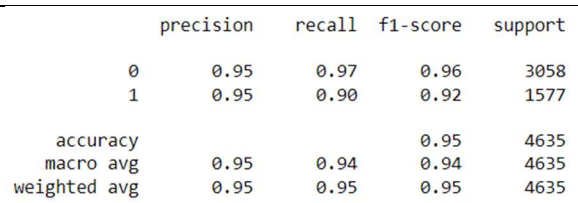
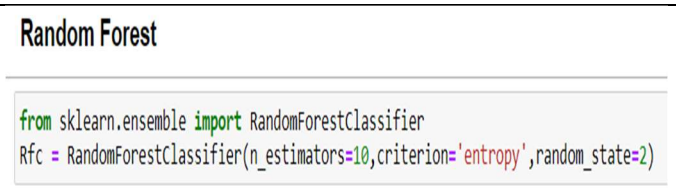
Project Development Phase
Model Performance Test

Date	15 November 2023
Team ID	Team-592109
Project Name	Airline Review Classification Using Machine Learning
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No	Parameter	Values	Screenshot
1.	Metrics	**Classification Model:** **Random Forest :** Accuracy : 94.8 Roc auc : 93.6	 precision recall f1-score support 0 0.95 0.97 0.96 3058 1 0.95 0.90 0.92 1577 accuracy 0.95 4635 macro avg 0.95 0.94 0.94 4635 weighted avg 0.95 0.95 0.95 4635
2.	Tune the Model	**Random Forest:** n_estimators = 10 criterion = 'entropy' random_state = 2	 Random Forest from sklearn.ensemble import RandomForestClassifier Rfc = RandomForestClassifier(n_estimators=10,criterion='entropy',random_state=2)

Metrics of All Models:

Random Forest:

	precision	recall	f1-score	support
0	0.95	0.97	0.96	3058
1	0.95	0.90	0.92	1577
accuracy			0.95	4635
macro avg	0.95	0.94	0.94	4635
weighted avg	0.95	0.95	0.95	4635

Decision Tree:

	precision	recall	f1-score	support
0	0.93	0.96	0.94	3058
1	0.92	0.86	0.89	1577
accuracy			0.93	4635
macro avg	0.92	0.91	0.92	4635
weighted avg	0.93	0.93	0.93	4635

K- Nearest Neighbors:

	precision	recall	f1-score	support
0	0.95	0.96	0.95	3058
1	0.92	0.90	0.91	1577
accuracy			0.94	4635
macro avg	0.93	0.93	0.93	4635
weighted avg	0.94	0.94	0.94	4635

Logistic Regression:

	precision	recall	f1-score	support
0	0.91	0.94	0.92	3058
1	0.88	0.81	0.84	1577
accuracy			0.90	4635
macro avg	0.89	0.88	0.88	4635
weighted avg	0.90	0.90	0.90	4635

Naïve Bayes:

	precision	recall	f1-score	support
0	0.91	0.90	0.90	3058
1	0.80	0.83	0.82	1577
accuracy			0.87	4635
macro avg	0.86	0.86	0.86	4635
weighted avg	0.87	0.87	0.87	4635

SVC:

	precision	recall	f1-score	support
0	0.94	0.97	0.95	3058
1	0.93	0.88	0.90	1577
accuracy			0.94	4635
macro avg	0.93	0.92	0.93	4635
weighted avg	0.94	0.94	0.94	4635

XG Boost:

	precision	recall	f1-score	support
0	0.92	0.92	0.92	3058
1	0.85	0.85	0.85	1577
accuracy			0.90	4635
macro avg	0.88	0.89	0.89	4635
weighted avg	0.90	0.90	0.90	4635

Compare All Models:

	Model	roc_auc	Accuracy
0	DecisionTree Classification	0.910443	0.925998
1	K-Nearest Neighbours	0.930898	0.940022
2	Logistic Regression	0.876259	0.897303
3	Naive Bayes Classification	0.862553	0.873139
4	RandomForest Classification	0.936497	0.948220
5	Support Vector Machine	0.921323	0.935491
6	XGBClassifier	0.886230	0.897087