

Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID14481
Project Name	Project - Developing a Flight Delay Prediction Model 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
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1.	Metrics	Classification Model: Confusion Matrix , Accuracy Score & Classification Report	<pre>In [24]: #Model Evaluation from sklearn.metrics import accuracy_score,confusion_matrix, classification_report print(accuracy_score(y_test, pred)) 0.9163899788711138 In [26]: print(confusion_matrix(y_test, pred)) [[2732 164] [113 304]] In [27]: print(classification_report(y_test, pred))</pre> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0.0</td><td>0.96</td><td>0.94</td><td>0.95</td><td>2896</td></tr><tr><td>1.0</td><td>0.65</td><td>0.73</td><td>0.69</td><td>417</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.92</td><td>3313</td></tr><tr><td>macro avg</td><td>0.80</td><td>0.84</td><td>0.82</td><td>3313</td></tr><tr><td>weighted avg</td><td>0.92</td><td>0.92</td><td>0.92</td><td>3313</td></tr></tbody></table>		precision	recall	f1-score	support	0.0	0.96	0.94	0.95	2896	1.0	0.65	0.73	0.69	417	accuracy			0.92	3313	macro avg	0.80	0.84	0.82	3313	weighted avg	0.92	0.92	0.92	3313
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2.	Tune the Model	Hyperparameter Tuning , Validation Method	<pre>In [31]: from sklearn.model_selection import cross_val_score, KFold, GridSearchCV kf = KFold(n_splits = 6, shuffle = True, random_state = 25) params = {'max_depth': [4,5,6], 'min_samples_split': [2,3,4], 'criterion': ['gini', 'entropy', 'log_loss']}</pre> <pre>In [32]: grid_cv = GridSearchCV(clf, params, cv = kf) grid_cv.fit(X_train,y_train)</pre> <pre>Out[32]:</pre> <div><pre>GridSearchCV estimator: DecisionTreeClassifier DecisionTreeClassifier</pre></div> <pre>In [35]: grid_cv.best_params_ Out[35]: {'criterion': 'entropy', 'max_depth': 6, 'min_samples_split': 2}</pre> <pre>In [34]: cv_results = cross_val_score(clf, X_train,y_train, cv = kf) print(cv_results) [0.92552366 0.9193173 0.91925466 0.92934783 0.92313665 0.9060559]</pre>																														

