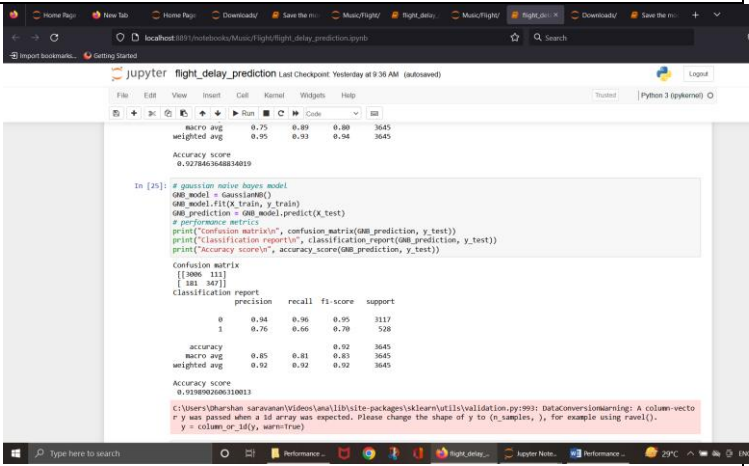


Project Development Phase Model Performance Test

Date	16 November 2022
Team ID	PNT2022TMID32270
Project Name	DEVELOPING A FLIGHT DELAY PREDICTION MODEL USING MACHINE LEARNING
Maximum Marks	10 Marks

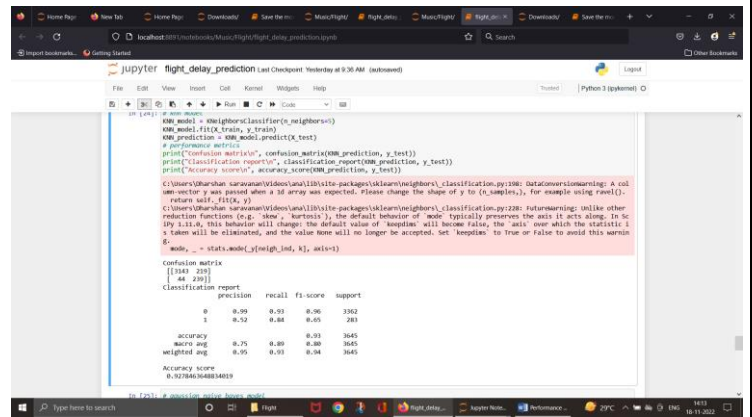
Model Performance Testing:

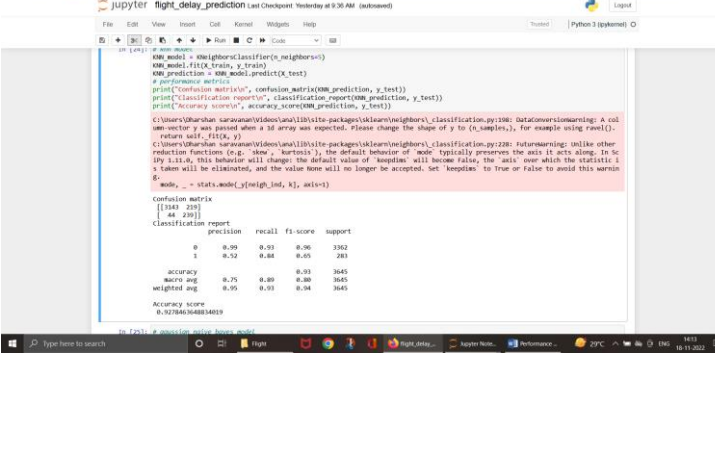
S.No.	Parameter	Values	Screenshot
1.	Metrics	<p>Gaussian naive bayes Model: Classification Model:</p> <ul style="list-style-type: none"> Confusion Matrix – <pre>[[3006 1111] [181 347]]</pre> Accuracy Score – 0.9198902606310013 Recall Score – 0.96 ROC Score – 0.92 <p>Classification Report :</p> <pre>precision - 0.92 recall - 0.92 f1-score - 0.92 support - 3645</pre>	 <p>The screenshot shows a Jupyter Notebook interface with the following code and output:</p> <pre>from sklearn.naive_bayes import GaussianNB GMB_model = GaussianNB() GMB_model.fit(X_train, y_train) GMB_prediction = GMB_model.predict(X_test) # performance metrics print("Confusion matrix:\n", confusion_matrix(GMB_prediction, y_test)) print("Classification report:\n", classification_report(GMB_prediction, y_test)) print("Accuracy score:\n", accuracy_score(GMB_prediction, y_test))</pre> <p>Confusion matrix</p> <pre>[[3006 1111] [181 347]]</pre> <p>Classification report</p> <pre>precision recall f1-score support 0 0.94 0.96 0.95 3117 1 0.76 0.66 0.70 528 accuracy 0.95 0.91 0.93 3645 weighted avg 0.92 0.92 0.92 3645</pre> <p>Accuracy score</p> <pre>0.9198902606310013</pre> <p>A warning message is visible at the bottom: "DataConversionWarning: A column-vector y was passed when a 1d array was expected. Please change the shape of y to (n_samples, 1), for example using ravel()."</p>

2. Tune The Model

KNN Model:
Classification Model:

- Confusion Matrix –
[[3143 219]
[44 239]]
- Accuracy Score –
0.9278463648834019
- Recall Score –
0.943
- ROC Score –
49.333333
- Classification Report
:
precision – 0.95
recall – 0.93
f1-score – 0.94
support – 3645



<p>2. Tune The Model</p>	<p>KNN Model:</p> <p>Classification Model:</p> <ul style="list-style-type: none"> Confusion Matrix – <pre>[[3143 219] [44 239]]</pre> Accuracy Score – 0.9278463648834019 Recall Score – 0.943 ROC Score – 49.333333 Classification Report <pre>precision - 0.95 recall - 0.93 f1-score - 0.94 support - 3645</pre> 	 <p>The screenshot shows a Jupyter Notebook titled 'flight_delay_prediction'. The code defines a KNN model and evaluates its performance. The output includes a confusion matrix, accuracy score, recall score, and a classification report.</p> <pre> KNN model > neighbors.classifier(k=neighbors) KNN model.fit(X_train, y_train) KNN prediction = KNN model.predict(X_test) # performance metrics print("Confusion matrix", confusion_matrix(KNN_prediction, y_test)) print("Classification report", classification_report(KNN_prediction, y_test)) print("Accuracy score", accuracy_score(KNN_prediction, y_test)) C:\Users\Uthman>python C:\Users\Uthman\lib\site-packages\sklearn\neighbors\classification.py:128: DataConversionWarning: A column-vector y was passed when a 2d array was expected. Please change the shape of y to (n_samples,), for example using ravel(). return self._fit(X, y) C:\Users\Uthman>python C:\Users\Uthman\lib\site-packages\sklearn\neighbors\classification.py:128: FutureWarning: Unlike other reduction functions (e.g. 'sum', 'mean'), the default behavior of 'mean' typically preserves the axis it acts along. In SciPy 1.11.0, this behavior will change: the default value of 'keepdims' will become False, the axis' over which the statistic is taken will be eliminated, and the value None will no longer be accepted. Set 'keepdims' to True or False to avoid this warning 0. Confusion matrix [[3143 219] [44 239]] Classification report precision recall f1-score support 0 0.95 0.93 0.94 3362 1 0.93 0.88 0.91 283 accuracy 0.94 macro avg 0.94 0.91 0.93 3645 weighted avg 0.94 0.93 0.94 3645 Accuracy score 0.9278463648834019 </pre>
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