PREDICTING HOTEL BOOKING CANCELLATION

Goal

- A significant number of hotel bookings are called-off due to cancellations or no-shows.
- The goal of this project is to use classification models to predict the hotel booking cancellation and help in formulating profitable policies for cancellations and refunds.

Dataset

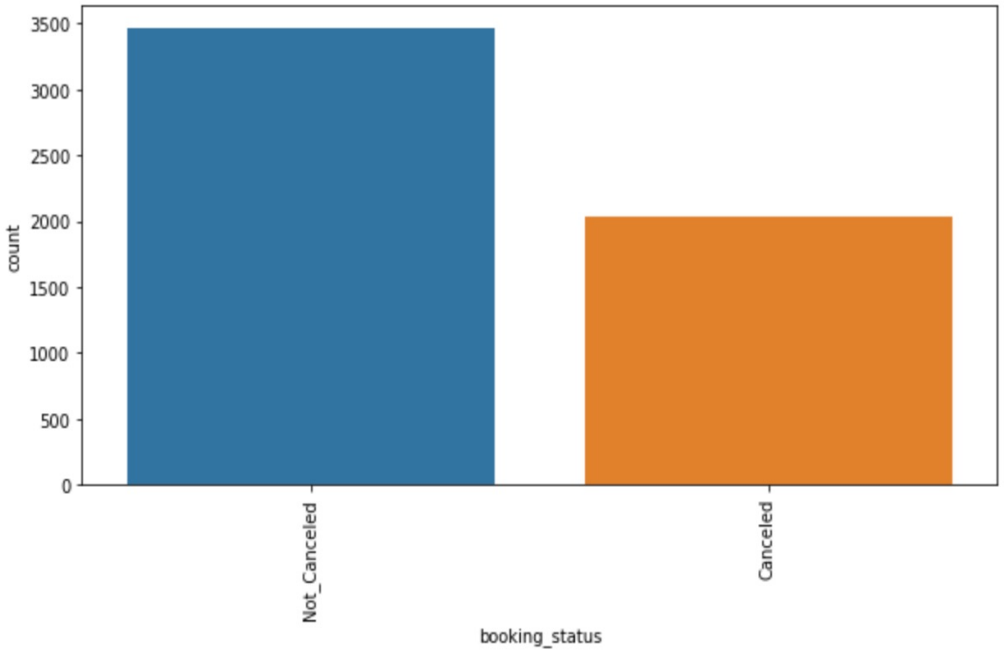
‘Customers Booking Details’ dataset. It used for supervised binary classification tasks.

Total number of features in the dataset is 5499 distributing 18 attributes as some features input to the model and single attribute as output label.

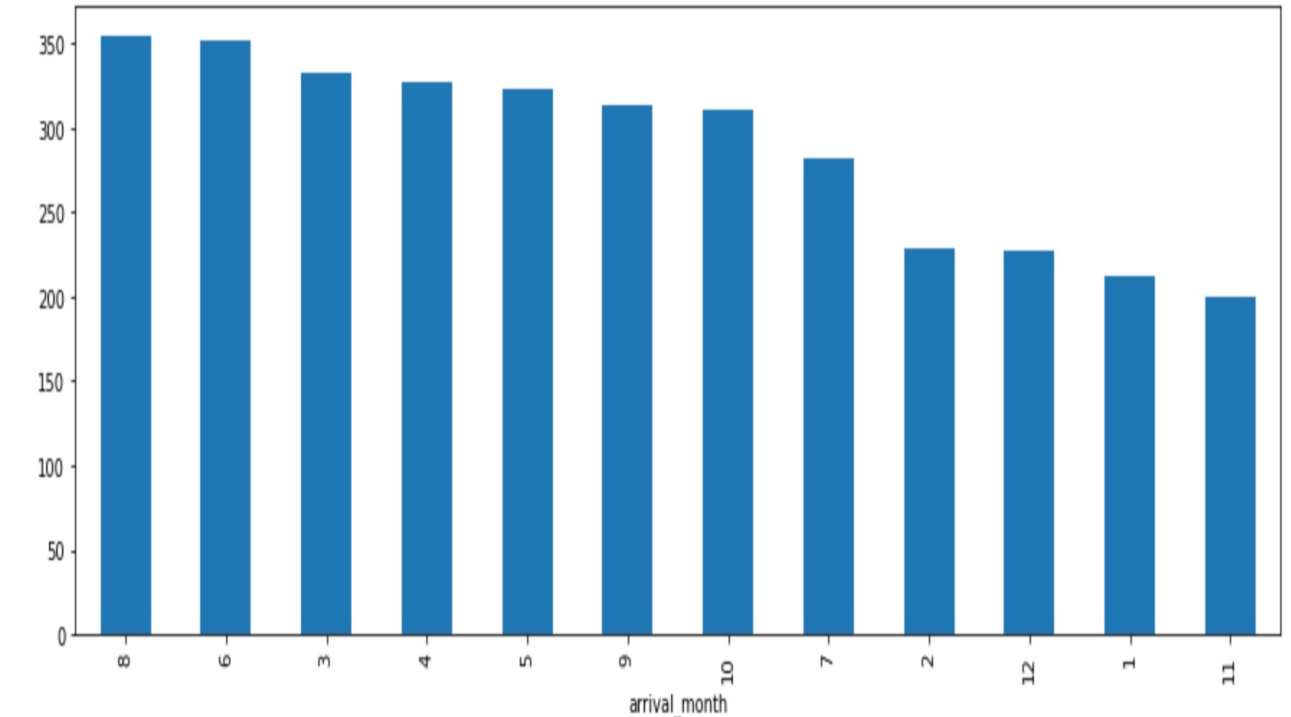
EDA

BOOKING STATUS DISTRIBUTION

	booking_status	count	percentage
0	Not_Canceled	3460	0.629205
1	Canceled	2039	0.370795

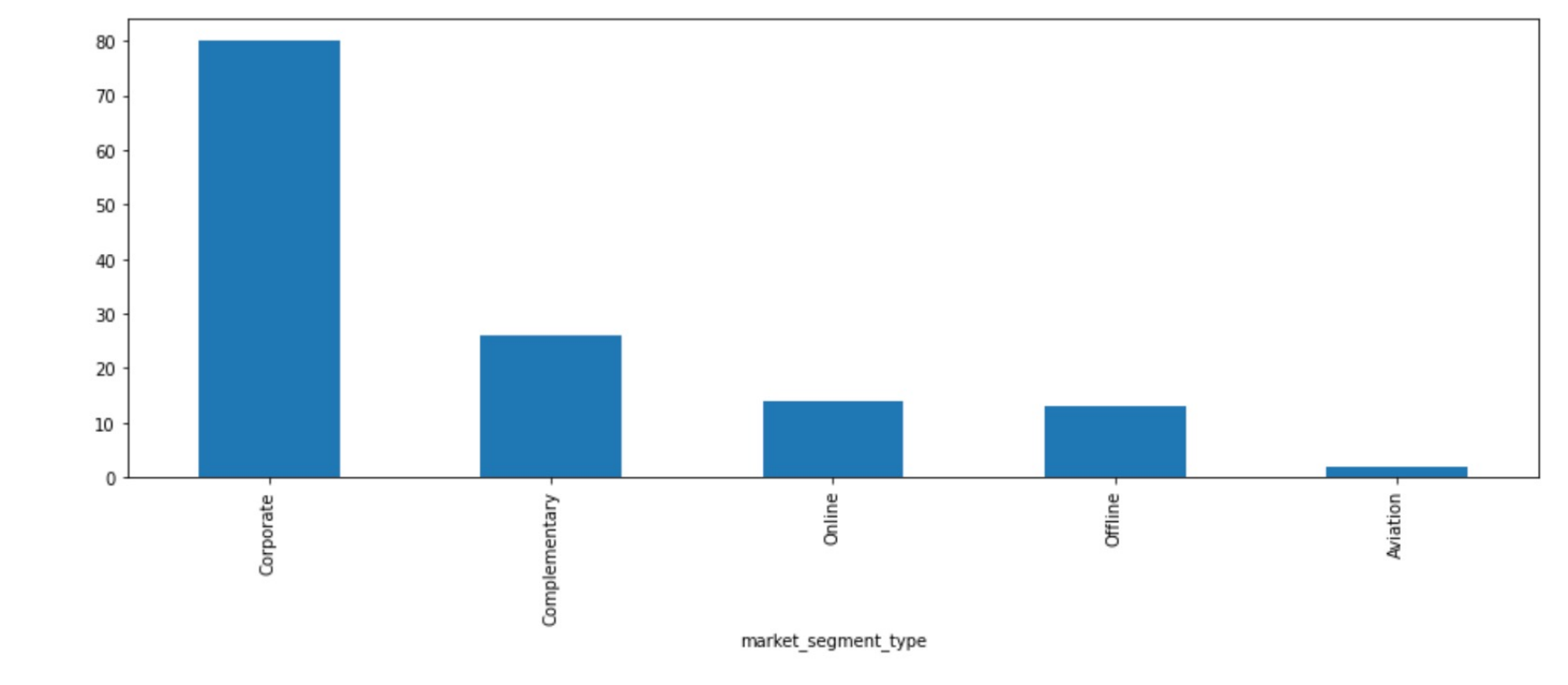


BUSIEST MONTHS IN THE HOTEL



EDA

MARKET SEGMENT MOST OF THE GUESTS COME FROM



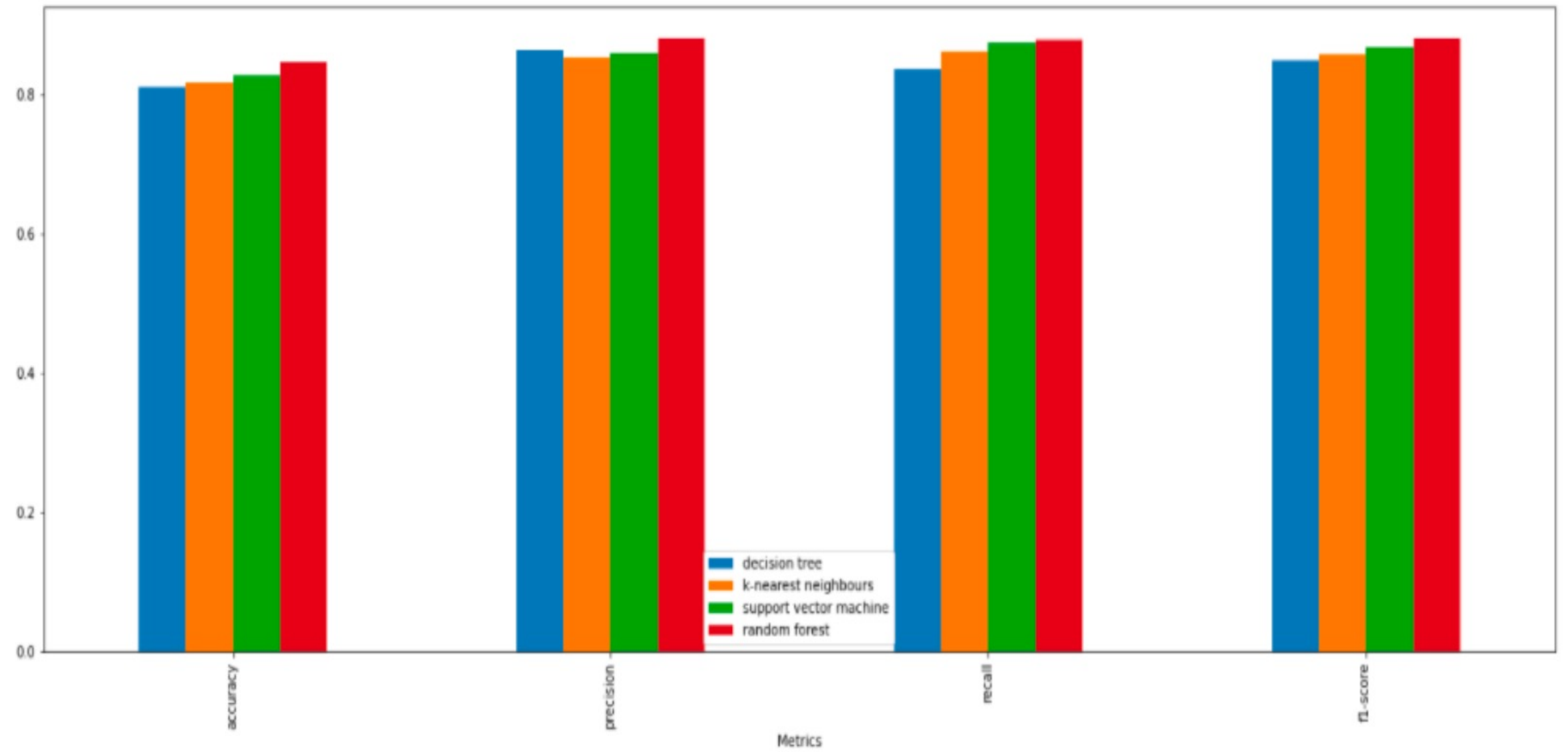
MODELS AND EVALUATION

- After I checked the insgihts of dataset by perform the Exploratory Data Analysis (EDA).
- I performed the preprocessing to get the most relevant features for prediction.
- Then, I checked the prediction through four different classification models:
- **Random Forest, Decision Tree, Support Vector Machine (SVC) and k-nearest neighbors(KNN).**
- Then compare all the models through different performance metrics : **accuracy, precision, recall and f1-score.**

RESULTS

This table shows the performance of the four machine learning models we used on our dataset.

Metrics	decision tree	k-nearest neighbours	support vector machine	random forest
accuracy	0.81	0.817273	0.828182	0.847273
precision	0.863235	0.853521	0.858939	0.881598
recall	0.834993	0.86202	0.874822	0.87909
f1-score	0.848879	0.857749	0.866808	0.880342


0.0
0.2
0.4
0.6
0.8
decision tree
k-nearest neighbours
support vector machine
random forest
accuracy
precision
recall
f1-score
Metrics

CONCLUSION

It shows that **Random Forest** attains the highest Accuracy with 0.84% on testing data and high other metrics as compared to other Models. For this reason, we will use Random Forest model as our predictive model.

THANK YOU

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