FLIGHT FARE PREDICTION HLD

Contents

Abstract

Since the advent of Airways, travelling through it has become a new normal for everyone these days since its faster, reliable and comfortable. These all factors affect the prices of air travel for everyone depending upon time of travel , date of travel, location and so on. So here, in this Flight Fare prediction project we have various factors like Source, Destination, Airlines, Time and other factors, where based upon all these we are predicting the prices of flights.

1 Introduction

1.1 Why this High-Level Design Document?

The main purpose of this HLD documentation is to feature the required details of the project and supply the outline of the machine learning model and also the written code. This additionally provides a careful description on how the complete project has been designed end-to-end.

1.2 Description

The problem statement here is that that data set is provided with approximately 10000 records in which it contains features like Source, Destination, Time, Airline and so on. Using all these factors we build a ML model that predicts the future prices upon the factors.

1.3 Problem Statement

The problem statement is to predict the future prices of flights depending upon the factors user provides. Looking at the dataset, we can easily tell that it's a Regression problem statement and not a classification.

1.4 Project Solution

The solution or the approach we use to solve this problem statement is use classical Data Science methodology of EDA, feature engineering and model building using various ML algorithms and come up with selecting the best algo that suits the problem.

1.5 Technical enhancements

On the technical front, we can augment the user experience by giving some more information to shortlist the airlines by Business class or economy class and so on along with including which offers extra Baggage cost cheaper. The main enhancement can be done by giving price comparisons between different airlines too.
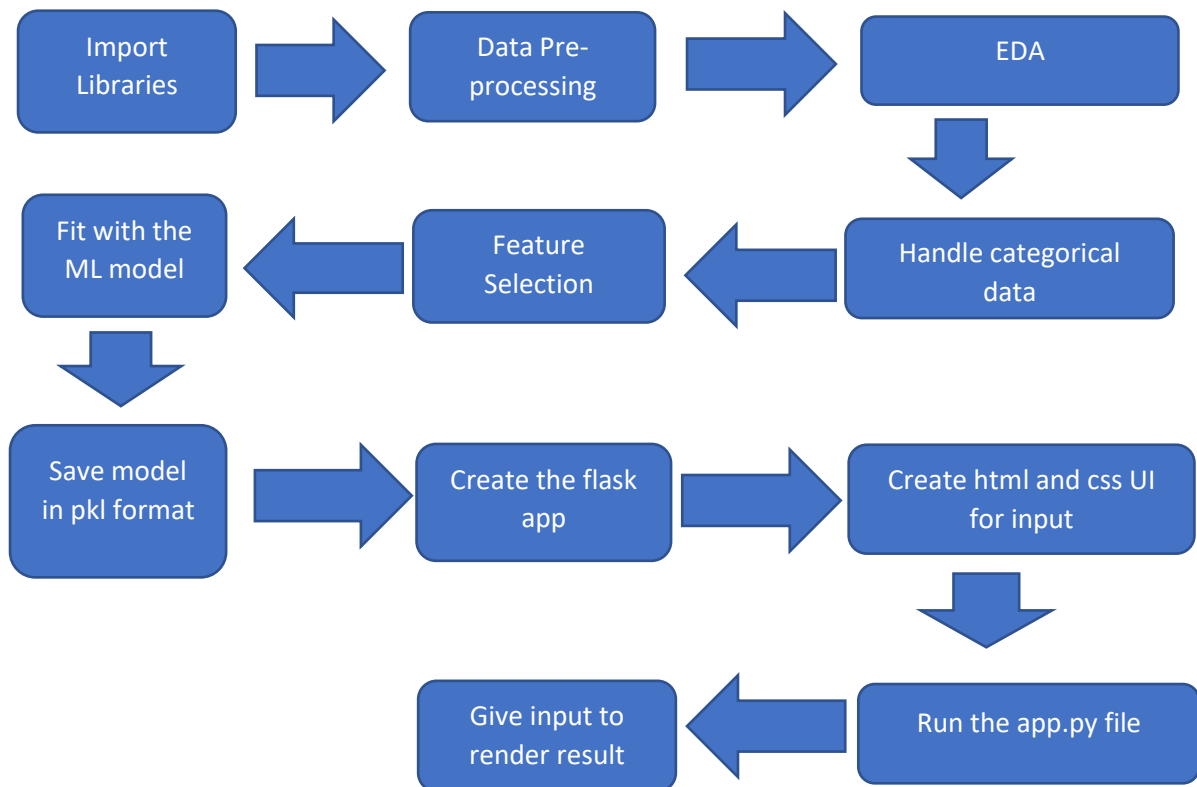
1.6 Data Requirements

The data for this project is collected from Kaggle which basically has 2 Excel files namely Data train and test data. This is available in .xlsx format.

1.8 Tools Used

● Python 3.9.12 is employed because of the programming language

● VSCode as IDE.

● For visualizations seaborn and components of matplotlib.

● For information assortment prophetess info is getting used.

● Front end development is completed using HTML/CSS.

● Flask is employed for each information and backend rendering .

● GitHub is employed for version management.

2.1 Modelling and Deployment

```
Import          →    Data Pre-         →    EDA
Libraries            processing                │
                                               ↓
Fit with the    ←    Feature           ←    Handle categorical
ML model             Selection              data
    │
    ↓
Save model      →    Create the flask  →    Create html and css UI
in pkl format        app                    for input
                                               │
                                               ↓
Give input to   ←    Run the app.py file
render result
```

2.3 Logging

With every file that's programmed the events are logged in two separate files. We have used the python logging module to log the activity happening on file.

We have only given the INFO functionality of the logging module, apart from that other functionalities too can be provided.

2.4 Error Handling

No error handling functionality is used in the project since every operation is checked twice before deployment.

3. Performance Evaluation

3.1 Reusability

The code is written in such a way that it can be reused to run the project or for further augmentation of the code base.

3.2 Resource Utilization

The computer system uses minimal resources for this proposed model since the dataset is seemingly small without hampering any other process in the background.

3.3 Deployment

The current project is deployed on a cloud platform called render.com, for which the deployment link is provided https://flightfare.onrender.com/

Conclusion

This Flight Fare prediction project can be used by any person to get a vague idea of outgoing flight to check with the prices which will be handy for anyone who's got plans to travel.