Architecture

FLIGHT FARE PREDICTION

Revision Number: 1.0

Last Date of Revision: 01/06/2023

Document Version Control

Date Issued	Version	Description	Author
1/06/2023	1.0	Architecture document	Debasish Bhagawati

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Abstract

There are numerous variables that determine the overall cost of airline tickets, such as the airline, the date of travel, the source and destination, the route, the length of the trip, and so forth. Each service provider appears to have its own particular set of rules and procedures for establishing prices. Recent developments in machine learning (ML) and artificial intelligence (AI) make it possible to derive such principles and model price volatility.

1. Introduction

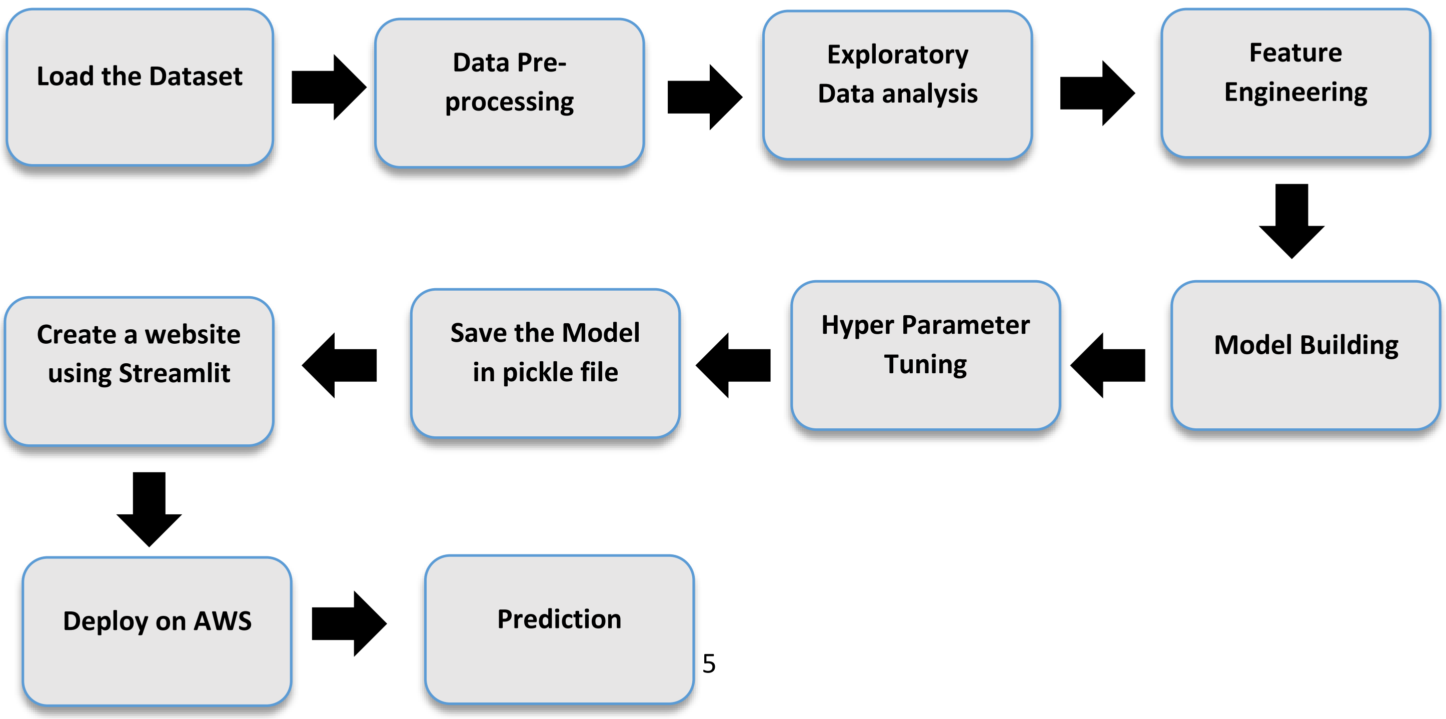
1.1 What is Low Level Design Document?

The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code for Flight Fare Prediction. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

1.2. Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

2. Architecture



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3. Architecture Description

3.1. Data Collection

The data is collected from the kaggle website. link : Dataset

3.2. Data Description

We have two dataset one for training and other one is for testing. Training dataset consist of 10683 rows and 11 columns. 11 columns are –

- **airline** – Airline companies name.
- **Date_of_Journey** – This column will inform us of the date the passenger's travel will begin.
- **Source -** This column indicates the names of the location from which the passenger's journey will begin.
- **Destination** – Destination city of the passenger.
- **Route -** names of the location from where the customer's journey would begin.
- **Dep_Time -** The time when the plane leaves the gate of the airport (departure time)
- **Arrival_Time -** the time the airplane arrives at its gate
- **Duration -** The flight's endurance in hours..
- **Total_Stops -** The total number of breaks in the voyage.
- **Additional_Info -** It will indicate whether a meal is included with the journey or not.
- **Price –** Fare of that journey.

The test dataset consist of 2671 rows with 10 columns exactly same as the training data excluding the Price column.

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3.3 Data Pre-processing and Feature Engineering

steps :

- Univariate Analysis of each columns.
- Handling the missing value.
- Convert all the desired column into the date-time format.
- Handling the categorical columns.

3.4 Model Building

We then split the training dataset into two parts using sklearn’s train_test_split function and build regression model using the training data and test it on the test data. Whichever model gives higher accuracy we will do hyperparameter tuning to enhance the performance of the model.

3.5 Data from User

Here we collect user data from an HTML web page that has been created.

3.6. Data Validation

The data provided by the user is then being processed by app.py file and validated. The validated data is then sent for the prediction.

3.7 Prediction

The data sent for the prediction is then rendered to the web page.

3.8 Deployment

We will be deploying the model to AWS so that anyone can access.