Project Design Phase-I
Solution Architecture

Date	1 October 2022
Team ID	PNT2022TMID15779
Project Name	DEVELOPING A FLIGHT DELAY PREDICTION MODEL USING MACHINE LEARNING
Maximum Marks	4 Marks

SOLUTION ARCHITECTURE

The below diagram illustrates the architecture of the solution proposed. The programming language that'll be used to analyse data and build the machine language is Python as it is easier to work on and has several built-in functions that is user friendly and fast enough to give the results.

The application will be built using Flask as it is a simple Python framework that can be used to build web applications. It easily encapsulates the trained machine learning model. The user interface will be built using HTML, CSS and JavaScript.

The attributes mentioned are the actual attributes that'll be taken into account for prediction in case of input data. The percentage of train and test data split will depend on the performanceof the model during testing.

Solution Architecture Diagram:

DATA
Year
Quarter
Month
Day_of_Month
Day_of_Week
Unique_Carrier
Tail_Num
Fl_Num
Origin_Airport_ID
Origin
Dest_Airport_ID
Dest
CRS_Dep_Time
Dep_Time
Dep_Delay
CRS_Arr_Time
Arr_Time
Arr_Delay
Cancelled
Diverted
Distance

DATA PREPROCESSING

TRAIN DATA
80% of data is split for training purpose

ML ALGORITHM

EVALUATION OF MODEL

TEST DATA
20% of data is split for testing and validation purpose

APPLICATION

UI

TRAINED ML MODEL

INPUT
Year
Quarter
Month
Day_of_Week
Origin
Dest
Dep_Delay
Arr_Delay
Distance

USER
User_ID
Name

OUTPUT
Arr_Delay
Cancelled
Diverted