

Project Design Phase-I
Proposed Solution

Date	14 October 2022
Team ID	PNT2022TMID12801
Project Name	Developing a Flight Delay Prediction Model Using Machine Learning.
Maximum Marks	2 Marks

Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Flight arrival delays can be predicted using a machine learning algorithm. Rows of feature vectors, such as departure date, delay, travel time between the two airports, and scheduled arrival time, provide the input to our algorithm. The decision tree classifier is then used to determine whether or not the flight arrival will be delayed. When there is more than a 15-minute gap between the scheduled and actual arrival timings, a flight is deemed to be delayed. Additionally, for various figures of merit, we contrast the decision tree classifier with logistic regression and a straightforward neural network.
2.	Idea / Solution description	Using ML Algorithms to predict the delay in flight arrival, informing them to the customers using a Mobile Application or a Web Application. We are developing a software that will allow passengers who use aeroplanes to foresee flight delays. They may effectively plan their travel using this application, which will help them save time. The tool will have an intuitive user interface. To estimate delays and execute the most effective and efficient methods in the tool, we will use a variety of machine learning algorithms.
3.	Novelty / Uniqueness	<ol style="list-style-type: none">1. Building a full-fledged application in which the customers can track whether the flights will be delayed or not.2. Combining the results of one or more ML models using the techniques of ensembling

4.	Social Impact / Customer Satisfaction	Flight delays not only anger and disturb air travellers' plans, but they also reduce productivity, raise capital costs, reallocate flight crews and aircraft, and add to crew costs. Higher operating costs for airline firms are unavoidable as flight delays necessitate the consumption of more labour, capital, and other necessary inputs. Flight delays could make the transportation system less effective and have a negative impact on how an airport is planned. Delayed flights subject airlines to penalties, fines, and additional expenses.
5.	Business Model (Revenue Model)	The cost of airline tickets and flight delays are now uncertain. Even for the same airplane and seat class, ticket costs are dynamic and frequently change. To increase their revenue, airline firms use a variety of algorithms to adjust the prices dynamically. These models are not accessible to the general public due to the intense competition among airline operators. Additionally, the flight is delayed due to a number of micro and macro causes. The air route status, the prior flight's delay, airplane capacity, air traffic management, airline properties, etc. are the main elements that have an impact on airlines. To save "Time and Money," it is necessary to forecast airline flight delays and ticket costs.
6.	Scalability of the Solution	The proposed system can be scaled up to take actions – book another flight for passengers or if a particular flight is getting delayed often, the same can be examined by memoising the outputs of this system. This can be scaled up to predict the delay of flights in every airport.