DEVELOPING A FLIGHT DELAY PREDICTION MODEL USING MACHINE LEARNING

SUBMITTED BY

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S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Flight delays cause significant financial and other losses to airlines, airports, and passengers. Their prediction is crucial during the decision-making process for all players of Aviation industry. Therefore, predicting the likelihood of delay based on flights features bridges an Important information between airlines and passengers.
2.	Idea description	The dataset is collected and identify the main Factors influencing the delays. These factors will then be combined in different ways and with different methods and will describe how to implement these data efficiently for Prediction. Finally, different methods are introduced to measure the performances of the models. These methods will be first used to optimize the models, in order to get the best possible predictions, and then will be evaluated using different use cases.
3.	Uniqueness	To solve the flight delay problems, a long short-term memory network of delay prediction with an attention mechanism is established. At present, some airport only stores their detailed indirect factors, so it is difficult to obtain information of all airports in network. At the same time, to ensure a good prediction accuracy, this model needs to be updated according to the latest data. In order to facilitate the acquisition of data and ensure the speed of training, this model predicts the flight delay by the historical information of a single airport. The direct and indirect factors are considered in this prediction software.
4.	Social Impact	Flight delays are economic, social, and environmental problems that cause inconvenience for both airline companies and passengers. Flight delays not only irritate air passengers and disrupt their schedules but also cause a decrease in efficiency, an increase in capital costs, reallocation of flight crews and aircraft, and additional crew expenses. As flight delays require the consumption of extra labour, capital, and other inputs necessary in the process, higher operating costs are inevitable for airline companies. Consumers may consider the potential for the delay before choosing to make a booking. As a result,an airline's record of flight delays may have a negative impact on passenger demand.

5.	Business Model (Revenue Model)	As far as delay is concerned there is no application that specifies the flight delay. The one that we going to develop will have a features that analyse the data given by the passengers (flight details) to predict the delay. The delay can be predicted with respect to the climatic condition, take off time and many more inputted data sets. By using this application, the passenger can able to known the delay before he/she arrives at the airport. So this may help in various situation like avoiding last minute surprises, waiting for a long time etc.
6.	Scalability of the Solution	The algorithms used here is efficient enough in terms of speed, this improves the data for further analysis which leads to high accurate results