Project Design Phase-I
Proposed Solution

Date	24 September 2022
Team ID	PNT2022TMID16204
Project Name	Developing a flight delay prediction model using Machine learning
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	**Problem Statement (Problem to be solved)**	• Flight delays have been the most challenging area for airlines to improve. • They have been affecting the air industry directly and indirectly causing unforeseen expenses thereby reducing the reputation of the industry and the airlines. • Thus, knowing if a flight would be delayed beforehand can let passengers and airlines be prepared for the circumstances. • This solution aims at making it possible by predicting arrival and departure delays using Machine learning.
2.	**Idea / Solution description**	• Building an application interface for customers(passengers and airlines) to know if a flight is delayed by implementing a machine learning based model to predict departure and arrival delays of an aircraft considering spatial, temporal and other dependencies causing the delay.
3.	**Novelty / Uniqueness**	• The solution takes into account all possible reasons for delay(crew delys, weather, air traffic, aircraft type) to provide an accurate prediction. • Apart from predicting arrival delays, departure delays are also predicted in order for the passengers to prepare accordingly and for the airline to make arrangements suitably.
4.	**Social Impact / Customer Satisfaction**	• A lot of time and money can be saved for the customers and the loyalty and trust of customers towards the company increases.

		● Improves airline operations by letting the company prepare in advance to adversaries (like crew illness, timeouts, rescheduling) leading to passenger satisfaction which will result positively on the economy and brand value.
5.	**Business Model (Revenue Model)**	● Business to Consumer model ● The solution is a low-cost airline model planned to be created as an application with which the consumers can interact directly to know the details of their flight. ● It follows a non-monetary revenue model where the consumers aren't charged for what they get but are asked to provide their flight details and ratings which can be used to improve the model and shared with the airline in return for the airline's flight data.
6.	**Scalability of the Solution**	● The present solution is drafted with the aim of experimenting with airlines based out of the United States of America. ● If there is a possibility to acquire data of a broader region (say North America, other continents), then the solution can be developed to benefit a wider range of people. ● International flight dependencies in both temporal and spatial focus can be derived from that data to provide more accurate predictions. ● Presence of ADS-B data can further increase the efficiency of the system making it reach a global audience and live time tracking of flights.