

FLIGHT DELAY PREDICTION FOR AVIATION INDUSTRY

USING MACHINE LEARNING

OBJECTIVE:

predicting flight delays can improve airline operations and passenger satisfaction, which will result in a positive impact on the economy. In this study, the main goal is to compare the performance of machine learning classification algorithms when predicting flight delays.

Growth in aviation industries has resulted in air-traffic jamming causing flight delays. Flight delays not only have economic impact but also injurious environmental properties. Air-traffic supervision is becoming increasingly challenging. Airlines delays make immense loss for business field as well as in budget loss for a country, there are so many reasons for impede in flights some of them are, some of them are due to security issues, mechanical problems, due to weather conditions, Airport congestion etc. we are proposing machine learning algorithms like Random Forest, Decision Tree, MLP Classifier, Naive Bayes, KNN, Gradient Boosting Classifier, Voting Classifier, SVM, Logistic Regression, Ridge Regression and Neural Network Techniques. The aim of this research work is to predict Flight Delay, Which is highest economy producing field for many countries and among many transportation this one is fastest and comfort, so to identify and reduce flight delays, can dramatically reduce the flight delays to saves huge amount of turnovers, using machine learning algorithms.

PURPOSE:

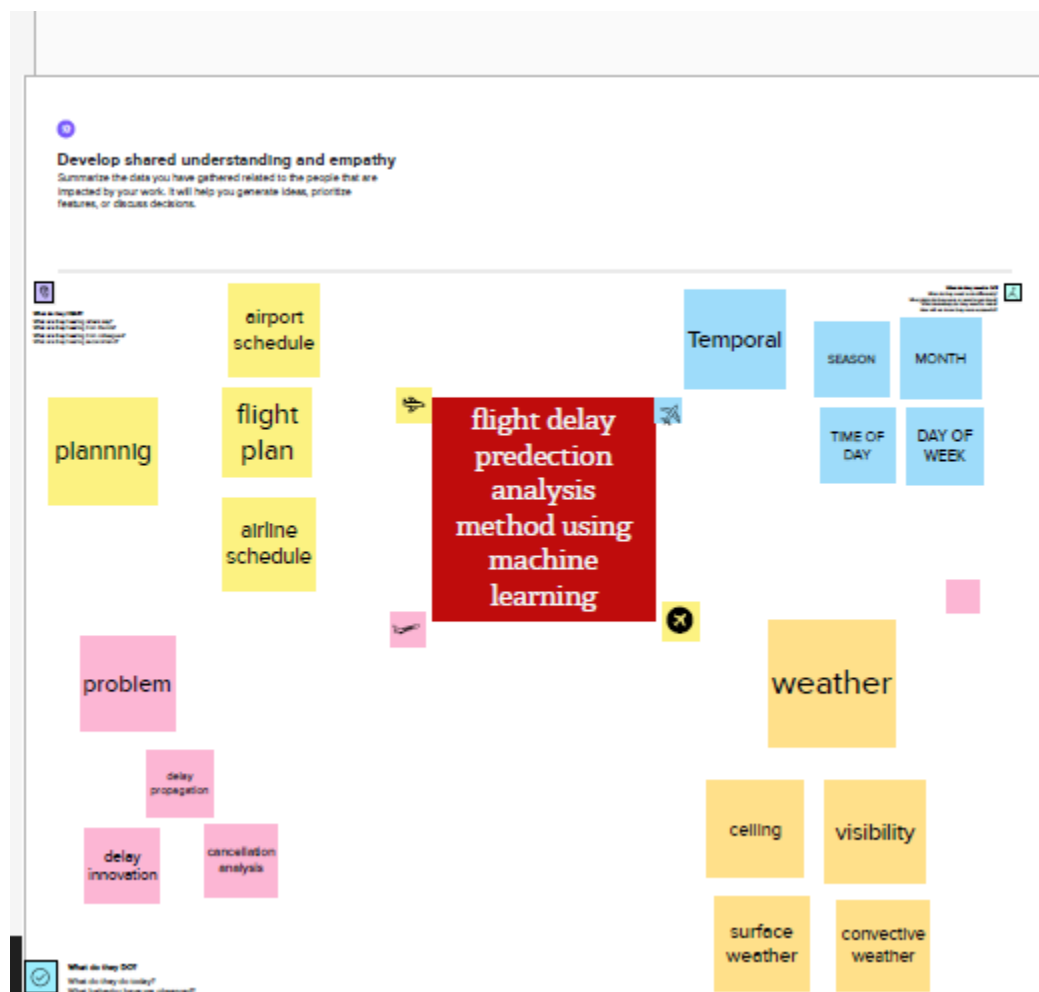
Air transportation system is one of the crucial modes of modern versatility. With increasing congestion in air traffic and passenger-traffic, it is important to maintain persistence and resilience. Availability of land and resources contribute to the infrastructure of airports. The norms of improving technology and procedure are to maintain safety, efficiency, capacity, etc., Therefore, the National Airspace System

(NAS) focuses on minimizing the environmental effects as a result of improvisation. With the current technology in hand, passengers can visualize their flight path, altitude, heading and other related parameters during their journey. However, air-traffic authorities continuously try to depreciate the delay in departure and arrival of flights. Though their efforts were in phase, the outcome is undesirable as the delays are in terms of hours sometimes causing chaos. Some important parameters that cause delay include weather, maintenance, security, and carrier. Corporate travel and tourism are the two major contributors to flight transportation system which is expected to be doubled by 2030. As a result of this increase, the airtraffic is also expected to increase in the same multiple. To minimize the air-traffic congestion new airports can be constructed. But, the complexity still grows exponentially. Hence, the only possible way of minimizing the

delay is to improvise the existing airports.

Considering the limited availability of land resources, the latter is more of a logical solution. Delay basically represents the period by which the aircraft is late or cancelled.

EMPATHY MAP:



BRAIN STORM:

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Logeshwaran.R

Develop historical data on flight delays and cancellations to identify patterns and trends that can help predict future delays.

Look at factors such as the time of day, month, season, weather conditions, and airport congestion.

Use MLP techniques to extract insights from data, such as historical weather-based delay trends.

Dwarakesh.R

Collect weather data for the airports and actual delays to identify weather patterns that are associated with flight delays.

This can help predict potential weather-related delays.

Develop flight delay or cancellation models using weather data to predict delays or cancellations based on weather conditions.

Balaji.J

Develop regression or other models to predict flight delays or cancellations based on historical data.

Develop neural networks to predict flight delays or cancellations based on historical data.

Use real-time flight tracking data to monitor the progress of flights and identify potential delays or cancellations.

Velmurugan.S

Use machine learning techniques to predict flight delays or cancellations based on historical data.

Collaboration: Working in a collaborative environment with team members to identify flight delays or cancellations for a specific flight.

This approach identifies potential delays or cancellations based on historical data and the factors that caused delays or cancellations.

Deepak.R

Develop real-time flight delay prediction models using machine learning techniques.

Real-time weather-based delay prediction models using machine learning techniques.

Real-time scheduling-based delay prediction models using machine learning techniques.