

Literature Survey

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Predictive Analytics Platform for Airline Industry

The research is to develop accurate demand forecasting model to control the availability in Airline industry. The primary outcome of the model is that the Airline organization can maximize the revenue by controlling the availability. The product in airline industry is the seat, which is an expensive, unstock able product. The demand for the seats is almost uncertain, the capacity is constraint and difficult to increase and the variable costs are very high. Hence the priority of the expected demand forecast is very high for airline industry. An accurate mechanism to predict the revenue for future months of ODs (Origin destinations) is done using fare and passenger data. The revenue is derived by the number of passengers and the fares they pay which vary for each flight. Airline travel is very susceptible to the social, political and economic changes. Therefore, passenger buying patterns change quite dynamically. Hence, it is challenging to develop an accurate method to project the revenue for each route. To overcome this, we are going to use semi-supervised learning mechanism. They have the current ticketed revenue plus we have the current booked passengers. They also have the ticketed passenger details of previous flights. Hence most of the information is available, however changing market conditions is an unknown variable which can have a significant impact on passenger travel patterns. Through this research they have designed and developed the best fit model to forecast flight OD level passenger demand based on the historical data.

Applying Machine Learning to Aviation Big Data for Flight Delay Prediction

Flight delay has been a serious and widespread problem that needs to be solved. One promising solution is the flight delay prediction. Although big data analytics and machine learning have been applied successfully in many domains, their applications in aviation are limited. This paper presents a comprehensive study of flight delay spanning data pre-processing, data visualization and data mining, in which we develop several machine learning models to predict flight arrival delays. Two data sets were used, namely Airline OnTime Performance (AOTP) Data and Quality Controlled Local Climatological Data (QCLCD). This paper aims to recognize useful patterns of the flight delay from aviation data and perform accurate delay prediction. The best result for flight delay prediction (five classes) using machine learning models is 89.07% (Multilayer Perceptron). A Convolution neural network model is also built which is enlightened by the idea of pattern recognition and success of neural network method, showing a slightly better result with 89.32% prediction accuracy.

Predictive Maintenance and Performance Optimisation in Aircrafts using Data Analytics

Abstract—Airline industry has provided a significantly conventional, faster and reliable mode of transportation for passengers and freight over the decades in which the industry has been in service despite the pressure being applied especially in maintaining operational affordability. The study critically reviews the techniques and tools, infrastructure and general application architecture for discussing the applicability of data analytics based on both batch processing and real time stream data in general aviation for health monitoring and predictive analysis in order to predict maintenance and optimize the performance of

aircrafts. In this respect, the study further evaluates the significant capability in addressing contemporary problems which are uniquely addressed by data analytics system.

Life Data Analysis with Applications for the Airline Industry

The paper presents an application for a brake design where the technique was used in determining the right failure mode based on failure mechanisms.

Exploratory Data Analysis on Aviation Dataset

The usage of big data analytics is booming today, with its ability to be used to draw useful insights from past data research. Its uses in the aviation industry have a wide array of applications ranging from predicting flight delays to detecting faults in airplane parts. In this paper, we conducted exploratory data analysis on flight dataset to draw inferences on arrival and departure delays and to identify relationships between flight timings and delays. Using the flight delay data, we identified which flight is mostly prone to delays. The arrived upon conclusions are useful for selecting flights in the future.

Project Description

The airport codes may refer to either the IATA airport code, a three-letter code that is used in passenger reservation, ticketing and baggage-handling systems, or the ICAO airport code which is a four-letter code used by ATC systems and for airports that do not have an IATA airport code.

Goal of the Project

To provide better Airline and AirPort services and to avoid delays in Air Travel across different locations at Municipality level. The aim is to provide airports, airlines, and the travelling public with a neutral, third-party view of which airlines are delivering on their promise to get passengers from Point A to Point B on-time

Technical Architecture

