LITERATURE SURVEY

1.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 is to predict the revenue for future months of ODs is done using fare and passenger data. The revenue is derived by the number of passengers and fares they pay which vary for each flight. 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 are going to design and develop the best fit model to forecast flight OD level passenger demand based on the historical data.

2. 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.

3. PREDICTIVE MAINTENANCE AND PERFORMANCE OPTIMISATION IN AIRCRAFTS USING DATA ANALYTICS:

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.

4.LIFE DATA ANALYSIS WITH APPLICATIONS FOR THE AIRLINE INDUSTRY:

When selecting a probability distribution function, it is important to consider how the data fits a given distribution as well as the physics of failure associated with the failure modes found during testing or operation. Understanding the context in how data is collected, and the failure mechanism is critical in the selection of the function. Reliability loading needs to replicate the environment as well as the duty cycle associated with the operation of the component in the field after a year of product release. When having early failure related to operations the data can have potential failure modes related to early failure mechanism of the component. The mix Weibull allows for a closer representation of the field data behaviour were early failure mechanisms with actual component wear out can be simulated and a better definition of field failures can be modelled.To improve the accuracy of the results it is recommended to collect the historical inspection measurements after product release to demonstrate product utilization. The challenge relates to failure modes that show after the warranty period of the part. A Design for Reliability (DFR) or Design Based Asset Management (RBAM) programs should account for ways to collect data after warranty programs. This could be a challenging

activity but necessary to demonstrate or model potential long term failure modes. Therefore, the better the function selected the closer preventive maintenance activities, and root cause analysis of early field failure can be performed to better manage operations. The effect of better modelling early failures allows for better part management as well as operational control leading to a reduction in unwanted early failure.

5. Airline Member Customer Value Analysis: Data Visualization

In recent years, the vigorous development of the transportation industry has attracted a large number of customers, especially those in the aviation industry. However, for airlines, the pressure of competition has increased year by year; on the other hand, there are also competing relationships among different airlines. Therefore, for airlines, how to retain customers has become the key to the problem. In fact, using the various customer factors provided by the existing churn customer information data set can use the data visualization means of data analysis to analyse the behaviour of churn customers. In addition, relevant marketing strategies can be proposed to improve the business level as much as possible.

6. DATA SCIENCE AND ANALYTICS IN AVIATION

Data science and analytics are attracting more and more attention from researchers and practitioners in recent years. Due to the rapid development of advanced technologies nowadays, a massive amount of real time data regarding flight information, flight performance, airport conditions, air traffic conditions, weather, ticket prices, passenger's comments, crew comments, etc., are all available in different flight performance monitoring systems, operational systems of airlines and airports, and social media platforms. Development of data analytics in aviation and related applications are also growing rapidly. This paper concisely examines data science and analytics in aviation studies in several critical areas, namely big data analysis, air transport network management, forecasting, and machine learning. The papers featured in this special issue are also introduced and reviewed, and future directions for data science and analytics in aviation are discussed.