

AIRLINES DATA ANALYTICS FOR AVIATION INDUSTRY

Problem Statement

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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.

Analysis:

The aviation industry encompasses almost all aspects of air travel and the activities that help to facilitate it. This means it includes the entire airline industry.

The aviation industry generates a huge amount of data daily but most of the data is not in an organized manner. A major challenge faced by various airlines is the integration of the customer information lying in silos.

The purpose of data analytics in aviation is to examine the vast amount of data generated daily and provide useful information to airlines, airports and other aviation stakeholders so that they can improve their operational planning and execution, as well as any related products and services.

By analysing the past travel history of the passengers, airlines can predict future demand. Predictive analytics plays a great role in forecasting future demand. Airlines can increase/decrease the number of aircraft if they know the upcoming demand.

Passengers Problem Analysis:

1. In 2018, approximately 3.9 million flights - or 10,700 a day - were delayed by over 30 minutes or cancelled globally, affecting more than 470 million passenger journeys around the world.
2. More than double (48%) said that they would be most frustrated if their leisure flight was delayed or cancelled compared to the 21% who would be most frustrated if a business flight was cancelled.
3. Over a third of global travellers would be most sympathetic if a flight was disrupted due to bad weather (35%) followed by technical issues with their aircraft (30%). However, only a tiny 5% would be most sympathetic with delays or cancellations due to problems caused by air traffic control.
4. Another prevalent issue faced by many air passengers is related to airline industries' booking and refund conditions. The most-reported complaint under this category is the lack of flexibility in tickets where airline industries usually decline to refund the amount if something unexpected happens, such as illness or accident of a family member. Apart from this, many famous airlines are reported for being very slow in the procedure of a promised refund. Due to this, passengers have to struggle, and sometimes they are not appropriately

compensated. Moreover, in recent times of pandemic the most common consumer complaint was that passengers are not getting refund in spite of the fact that their flights were cancelled by the Airlines due to Covid-19 pandemic.

5. Flight delays and cancellation cost airlines globally US\$30bn a year in lost revenue, in addition to costs borne by their passengers.
6. Lost baggage is one of the most frequently experienced and common issues faced by air passengers. The airline industries have ignored the inconvenience faced by their customers in case of misplaced luggage. For the past few years and indeed, it has left many passengers upset and disappointed. Many customers have claimed that their lost or misplaced luggage carried their valuables, urgent medications etc.
7. The bulk of customers' anger is aimed at low-cost airlines that have additional hidden charges that disturb the trip's budget. Such airlines have complicated ancillary fee rules which customers have to read.
8. In the past few years, many passengers of some highly reputed airlines have shared their experiences where they had to face the rude behaviour of the airline's customer service representatives. Most passengers faced rude behaviour, absent onboard services, and poor language skills from the airline's representatives in these kinds of complaints.
9. Many airline industries of today's time claim to be more aware of the cleanliness of their cabins, but many passengers of these airlines have actively reported their concern about cleanliness and hygiene. Apart from the poor condition of cabins, cleanliness of washrooms and dirty seats are also some of the most common issues faced by these airline industries' passengers.

10. In recent years there is a trend among some customers where they specifically book preferred seats in preferred aircraft but they feel very dissatisfied when they come to know that they have to change the plane and their preferred seats have been changed
11. Aircraft noise is also a one of the problems faced by many passengers, Noise disturbance is a difficult issue to evaluate as it is open to subjective reactions. Its impact is not a lasting one on the actual environment, but it can have significant adverse effects on people living close to an airport, including: interference with communication, sleep disturbance, annoyance responses, learning acquisition, performance effects and cardiovascular and psycho-physiological effects.
12. To increase passenger service perception and a wider price offering in the same flight, for giving high level services to high value customers to keep them satisfied and attract lower rate passengers, by establishing tier-based complimentary on board services.
13. Security is major thing that concerned by the passengers, security awareness in the physical and cyber domain, makes everyone stronger. Aviation safety should be improved by better knowledge about passengers. Ensuring speedy and universal flagging of travel documents reported as lost or stolen could be an example for above.
14. For passengers, safety is something that airline must pay attention all the time. And that is the way that it should be.

Solution Analysis:

The challenges faced by passengers in aviation industry can be resolved by simple measures

1. **Flight Issues and Delays:** Any ad-hoc flight cancellation due to weather disruptions, technical glitches etc. puts tremendous pressure on the ground staff to accommodate passengers on next flights and generate their new PNRs. Convey the reason for the delay of the flight to the passengers in a kind manner.
2. **Improved Passengers Experience and Satisfaction:** Get the reviews from the passengers, it helps to identify immediately and address any challenges faced by your passengers and to resolve these challenges accordingly.
3. **Empowering employees:** Empowering employees is a powerful tool for effective service recovery as the workforce will be able to think for themselves and make decisions on their own for the benefit of the firm's customers. Successful recovery strategies include taking responsibility, a quick reaction and response by a senior employee, a fast response accompanied by a full refund plus some amount of compensation or a large amount of compensation provided by a high-ranking manager.
4. **File support ticket/send an email:** Contact airlines through their official website by going to their contact us section and by sending them an email.
5. **Noise levels:** To reach an understanding of average noise levels, noise is usually modelled using computer programmes that simulate aircraft "virtually" following an airports operating procedure, but with suitable variability such as track dispersion to make it more realistic. These models, such as the widely used "International Noise Model", produce aircraft noise footprints for the number of and type of aircraft using an airport in order to calculate the extent of particular noise levels around the airport. This will assume average weather conditions.

Conclusion:

The passengers who are travelling through flights need a way to address their challenges that they are facing and to resolve those challenges accordingly, so that the passengers travel comfortably from one point to another point on time. In case of cancellation and refund passengers may get benefited directly. By this, passengers can receive better Airline and Airport services.