**Executive Summary GBUS738 Data Analysis Project**

**Introduction**

**Problem Statement**

Delay in airlines is one of the common problems which make the routine of the airport authorities quite hectic sometimes. In many cases it has been found out that airport authorities are held responsible for mismanagement of the work and failing to take due actions which costs the airlines heftily.

To solve this problem of flight delays, there is a need to analyze the root cause of the delays, to depict which time of the year/month becomes hectic and which airlines cause the greater number of delays in a year. There are certain questions like “***Which airlines cause a delay of more than 1 hour?”*** give an insight to the authorities to take responsible action and prepare for the same.

**Key Findings**

In the year 2016, 33,433 flights flew from Dulles International airport, out of which 20,653 airlines were of United Airlines. And since United airlines has the highest amount of fleet, it is also observed that 3006 flights of United were delayed during 2016.

It has also been observed that flights from cities like Minneapolis-St. Paul, Dallas-Fort Worth and Detroit have more arrival delays than other cities. These delays from these cities can be caused due to factors like certain late-arriving aircrafts, maintenance or crew problems, baggage loading and fueling etc., Also, there are fewer flights that have an arrival delay of less than 200 mins.

From the insights, it is defined that a greater number of flights are flown during weekdays in the summer season (June, July, August). Interestingly, during the same time many numbers of flights took off from the airport before 5AM.

From the given data, it was analyzed that Frontier airlines had arrival delay of more than 1 hour when compared to other airlines. During the month of June and July there are a greater number of arrival delays of almost all the airlines. In conclusion, the start of the summer season is considered as critical.

**Recommendations**

It is recommended that since United Airlines have the highest number of delays caused, the authorities should focus more on such airlines since it can be quite hectic for passengers and flights of other airlines due to such delays.

It may be a good idea to increase the workforce during the months of June, July, August (Summer season) to avoid any bottlenecks at the last moment.

Flights from cities like Minneapolis-St. Paul, Dallas-Fort Worth and Detroit should be prioritized more to reduce the delay of flights from other cities caused due to these flights.

Since Frontier airlines had the delays of more than 1 hour in 2016 than any other airlines, the authorities must take necessary actions to know the main cause of such delays and should follow up regarding the same with the airline authorities.

By solving the above problems using the key findings and recommended solutions, the airport can function smoothly without any bottlenecks and there are also chances that delays by airlines be reduced.

Since ferrying the passengers and smooth functioning of flights is necessary for any airport, additional information like the airtime of a flight, weather forecast, temperature, passenger count and certain other criteria are very important to gain accurate insights and provide absolute recommendations.