**Data Description**

Flight delays are obviously frustrating to air travellers and costly to airlines. Airline companies are the most important customers of the airport. A well-known phrase ‘the airplane earns only when flying’ holds true. On-time performance of airlines schedule is a key factor in maintaining current customer satisfaction and attracting new ones. Flight schedule of the airport is the key to planning and executing airlines’ operation. With each schedule, the airline defines its daily operations and commits its resources to satisfy its customers’ air travel needs.

The U.S. Department of Transportation’s (DOT) Bureau of Transportation Statistics tracks the on-time performance of domestic flights operated by large air carriers. Studies have identified the stages of flight in which delays occur and the causal factors that result in delays.

This Data Set describes Delta Airlines Inc (DL) on-Time Statistics Report of Departures from Dallas Fort Worth and New York. and the different stages where the delay occurs has been captured.

**Problem Statement**

The company is keen to **understand the key factors** through visualisationthat cause the delay and p**redict the possibility of delay in the future**.

There are two datasets :

1. Train Dataset - January 2016 through January 2017
2. Test Dataset - January 2018

**Data Dictionary:**

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| **Column Name** | **Description** |
| **Carrier Code** | **Code of the Carrier** |
| **Date (MM/DD/YYYY)** | **Date of the flight** |
| **Flight Number** | **Flight number** |
| **Tail Number** | **An aircraft registration number** |
| **Destination Airport** | **Code of Destination Airport** |
| **Scheduled departure time** | **Departure time as per the Schedule** |
| **Actual departure time** | **Actual departure time** |
| **Scheduled elapsed time (Minutes)** | **Elapsed time is the time the aircraft is airborne** |
| **Actual elapsed time (Minutes)** | **Actual time is the time the aircraft is airborne** |
| **Departure delay (Minutes)** | **Total Delay in departure** |
| **Wheels-off time** | **Time when the wheels were off the ground** |
| **Taxi-Out time (Minutes)** | **Time taken for the aircraft to push back / vacate the parking position to the actual take off** |
| **Delay Carrier (Minutes)** | **Carrier delay is within the control of the air carrier. Examples of occurrences that may determine carrier delay are: aircraft cleaning, aircraft damage, awaiting the arrival of connecting passengers or crew, baggage, bird strike, cargo loading, catering, computer, outage-carrier equipment, crew legality (pilot or attendant rest), damage by hazardous goods, engineering inspection, fueling, handling disabled passengers, late crew, lavatory servicing, maintenance, oversales, potable water servicing, removal of unruly passenger, slow boarding or seating, stowing carry-on baggage, weight and balance delays.** |
| **Delay Weather (Minutes)** | **Weather delay is caused by extreme or hazardous weather conditions that are forecasted or manifest themselves on point of departure.** |
| **Delay National Aviation System (Minutes)** | **Delay that is within the control of the National Airspace System (NAS) may include: non-extreme weather conditions, airport operations, heavy traffic volume, air traffic control, etc.** |
| **Delay Security (Minutes)** | **Security delay is caused by evacuation of a terminal or concourse, re-boarding of aircraft because of security breach, inoperative screening equipment and/or long lines in excess of 29 minutes at screening areas** |
| **Delay Late Aircraft Arrival (Minutes)** | **Arrival delay at an airport due to the late arrival of the same aircraft at a previous airport. This causes a ripple effect** |
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