Airline

Dataset Analysis

Airline Dataset

Shape of Dataset-
Total Rows: 1099444
Total Columns: 110

Null Values Analysis

Upon inspection we found out that there are alot of columns with Nan values or have most of the cells blank. Hence we removed all those columns and rows

Total Flights with respect to Date and Months

Data Timeline Information

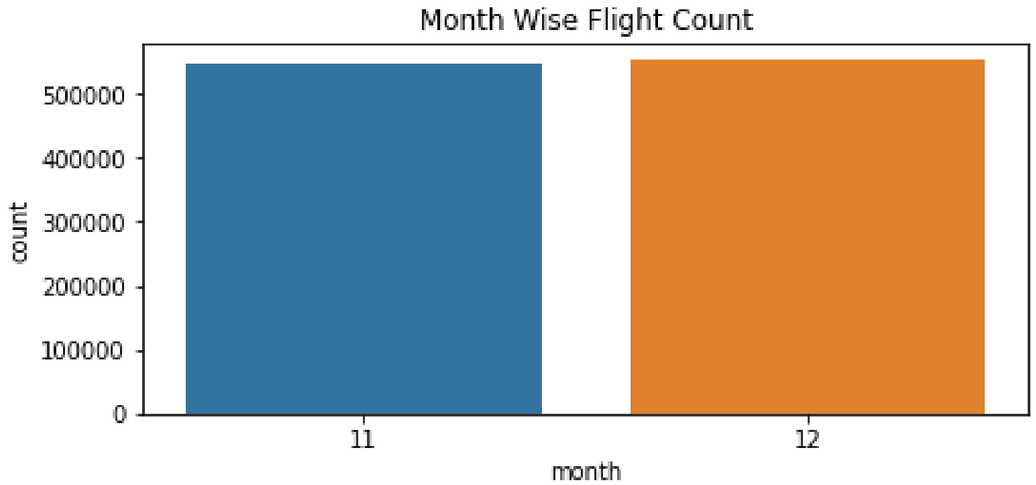
Year: 2021

Total Flights: 1099444

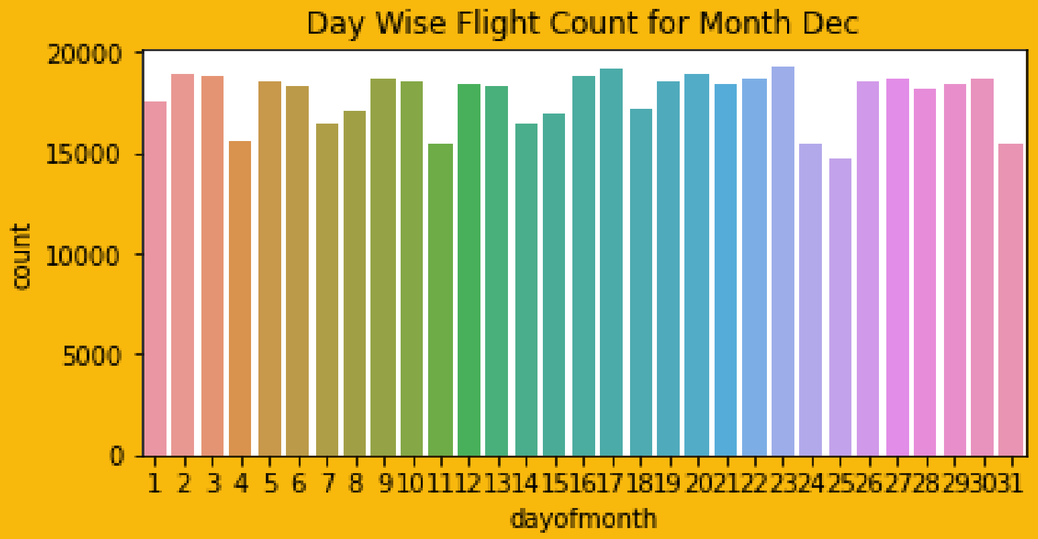
Month vs Total Flights

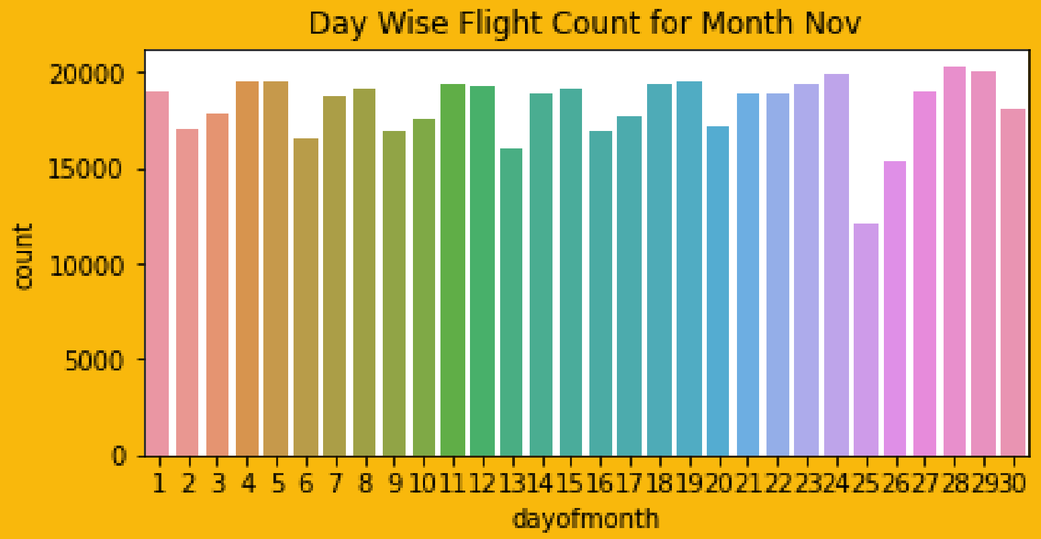
Dec: 551885

Nov: 547559

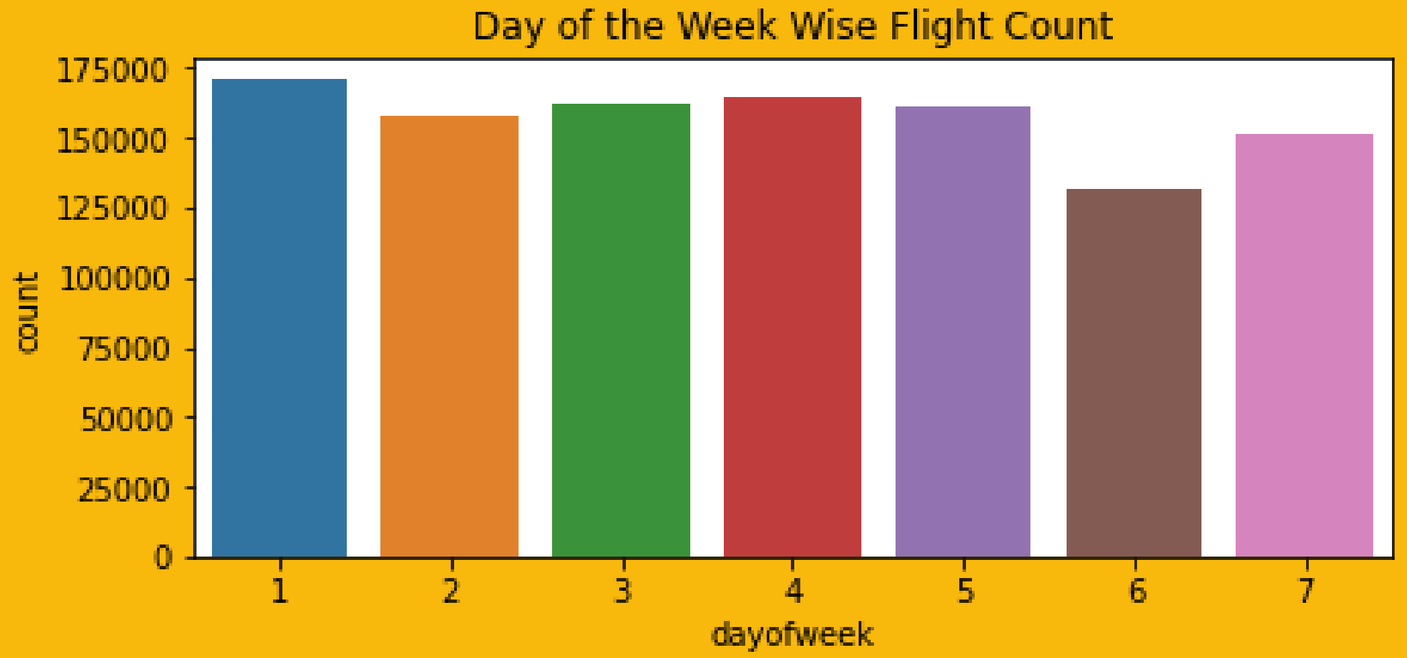


Total Flights with respect to Date and Months





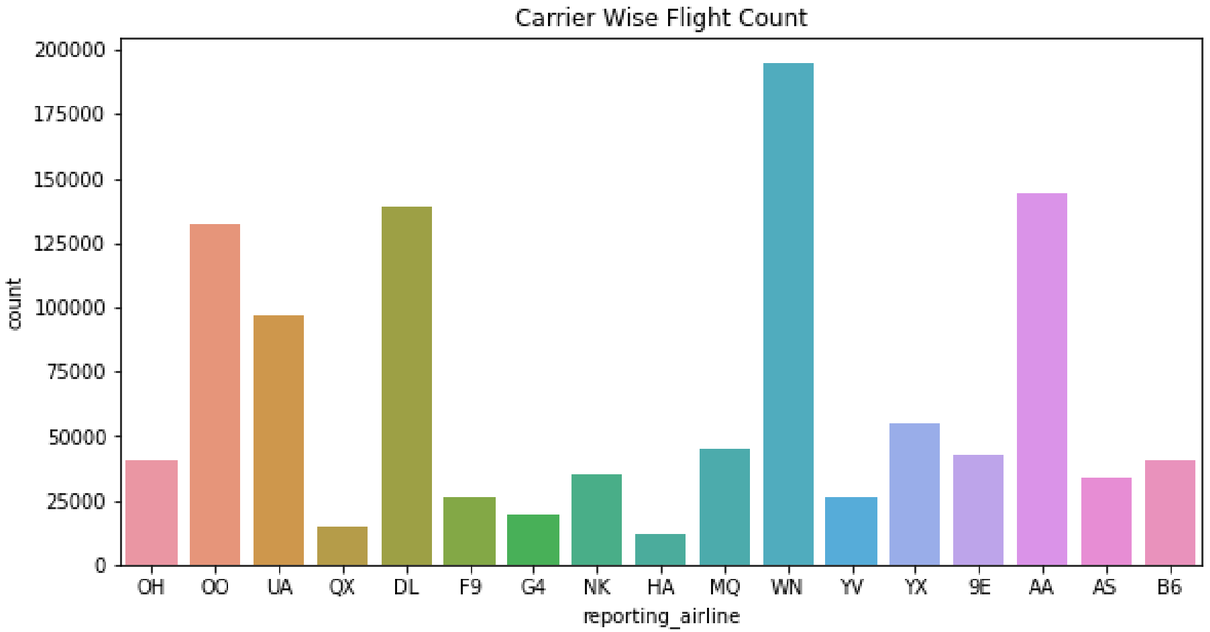
Total Flights with respect to Date and Months



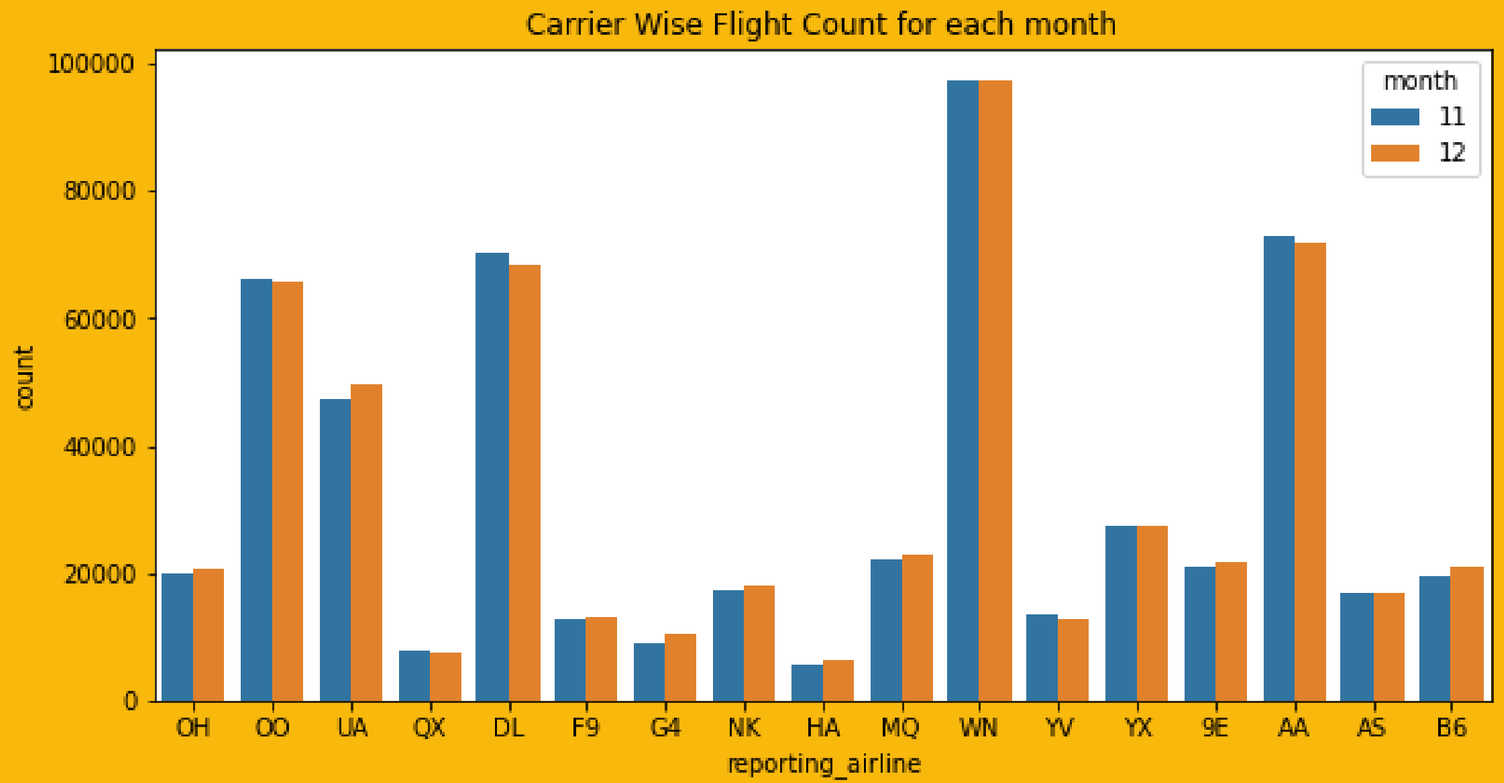
Total Flights with respect to Date and Months for Different Reporting Airline

Here we analyzed the total flights for different airlines.

We found that the WN airline had the most flights and HA Arline had the least flights.

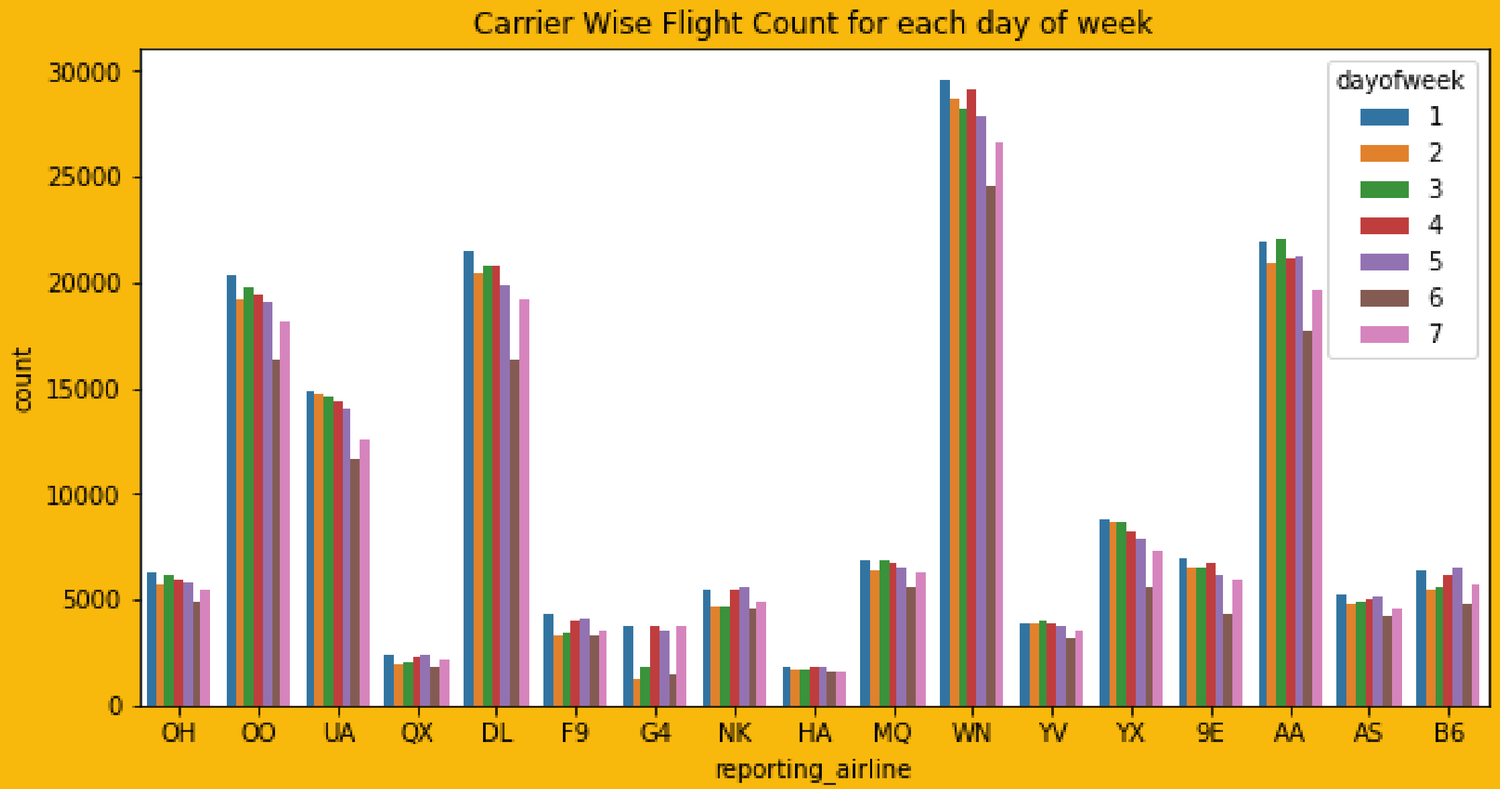


Total Flights with respect to Date and Months for Different Reporting Airline



Airline 'WH' has got the highest fligh counts among all, followed by 'AA', 'DL', and 'OO'.

Total Flights with respect to Date and Months for Different Reporting Airline

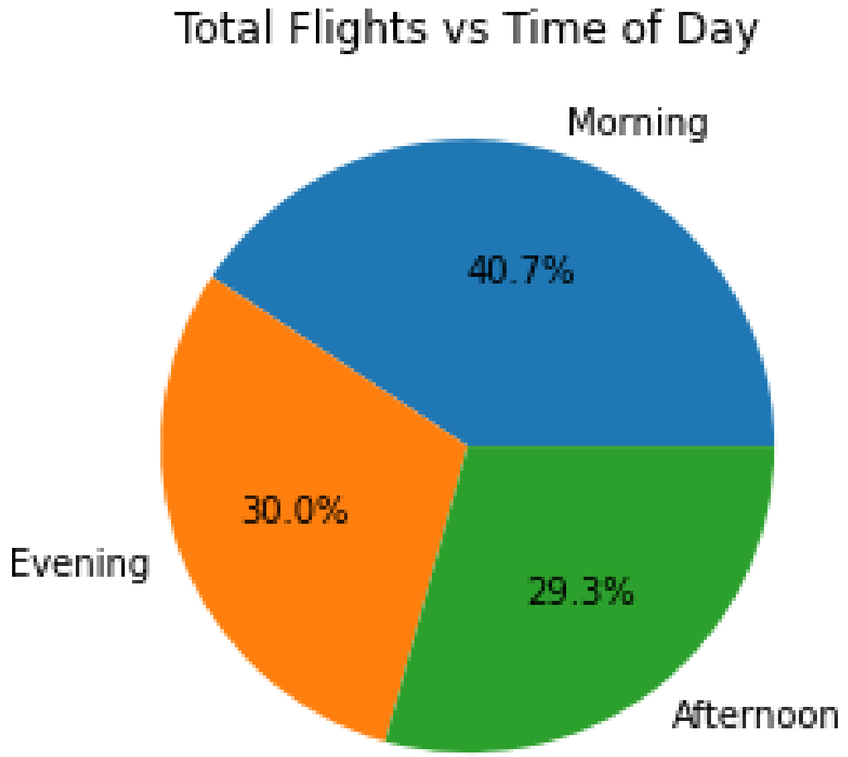


For all Airlines, Monday stays on top when it comes to flight count on weekdays.

Total Flights vs Time of Day

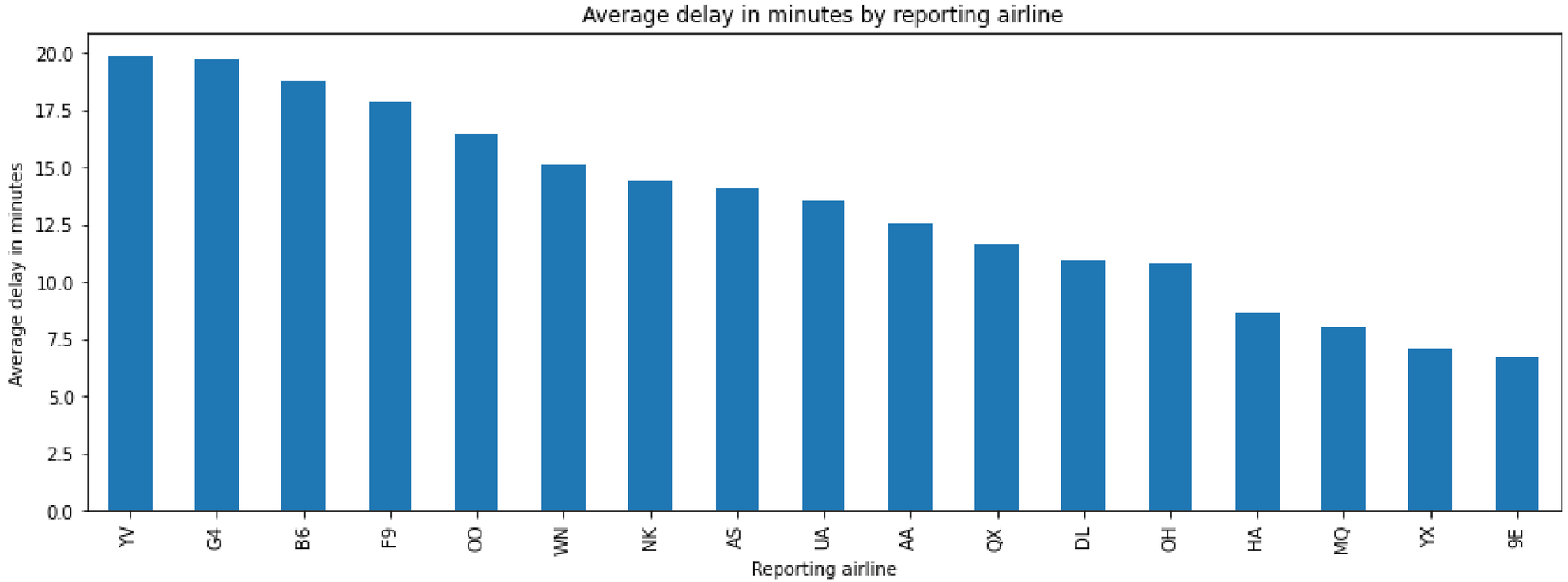
Here we analyzed the total flights at each part of day i.e. Morning, Afternoon and Evening.

We found that most flights were scheduled in the morning i.e 40.7%



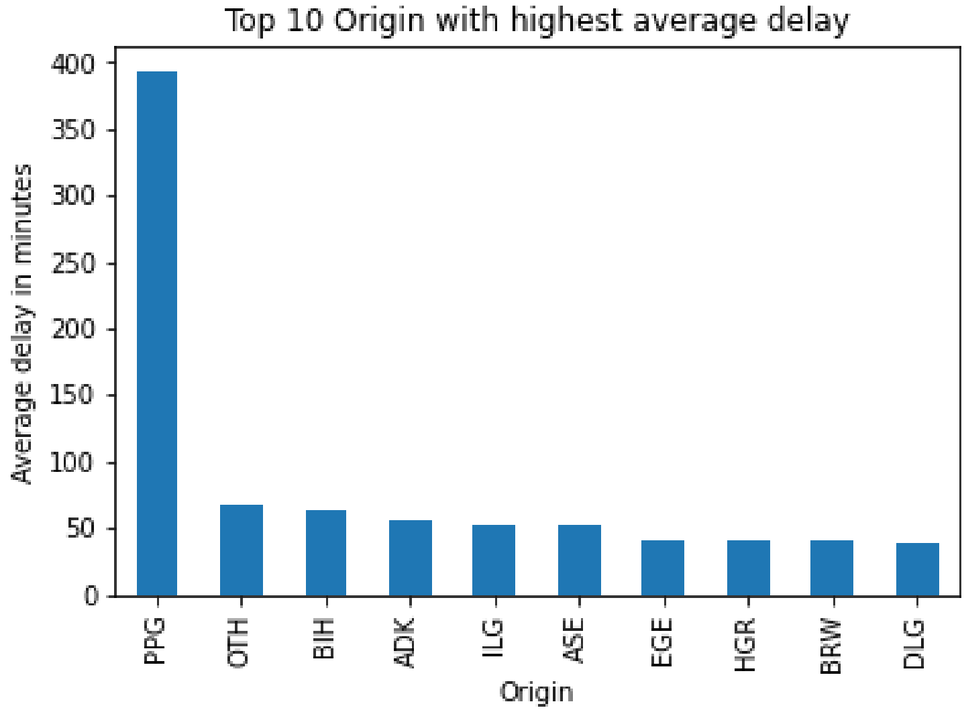
Average Delay of Different Airlines

We analyzed the average delay for different airlines and found that YV airlines had most delays with average of nearly 20 minutes



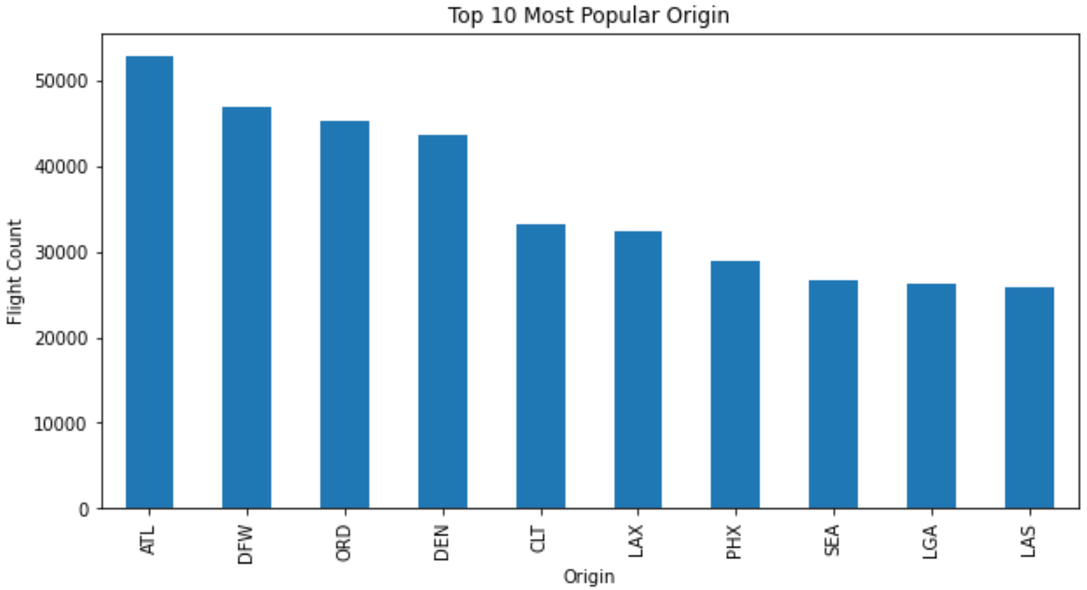
Origin which has most delays

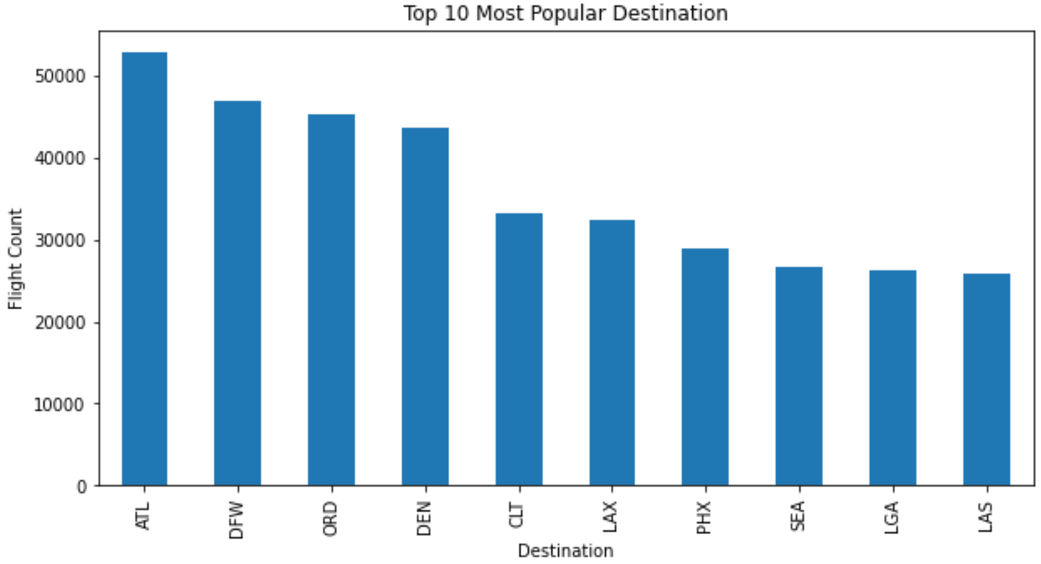
We analyzed the Origin which had most delays and found that flights from PPG airport had the most delays with average delay nearly 400 minutes



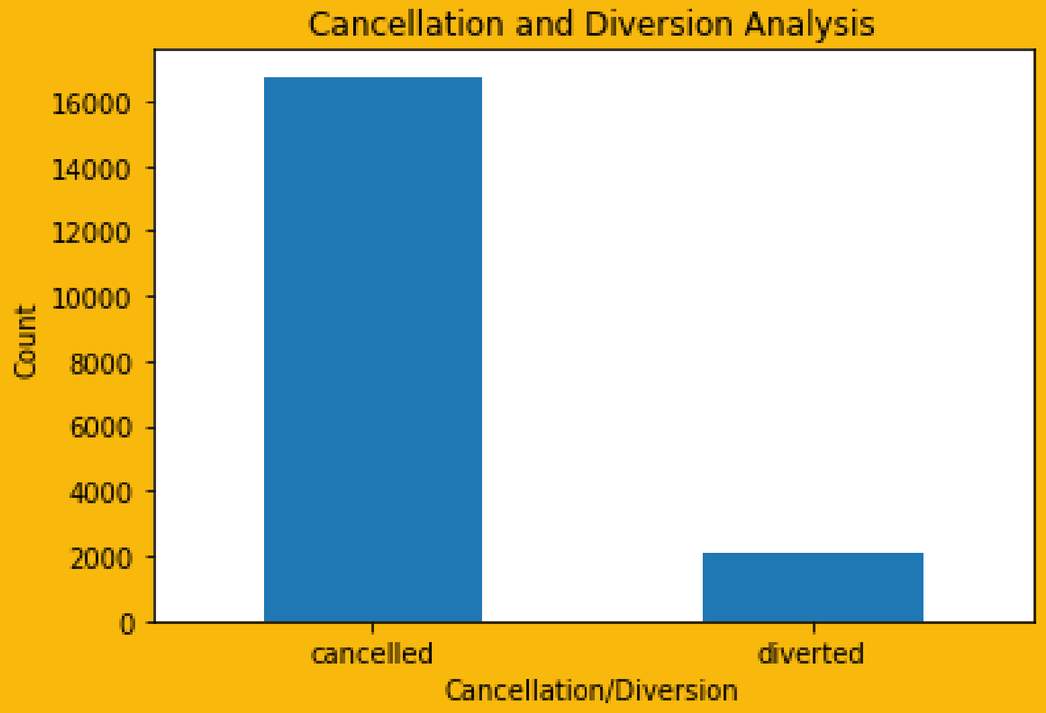
Origins and Destinations

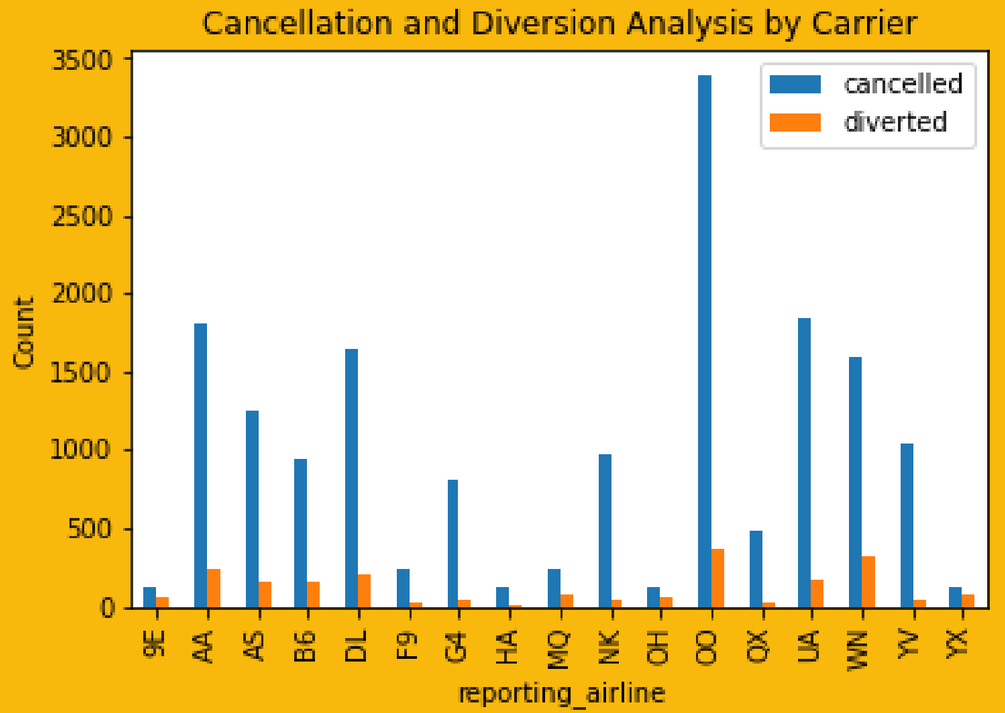
- In terms of flight origin 'ATL' has the highest number of flights, followed by 'DFW', 'ORD', and 'DEN'.
- 'SEA', 'LGA', and 'LAS' have least number of flights taking off with count staying even lower than 30000 flights.
- Above points stay same when it comes about fligh destination.



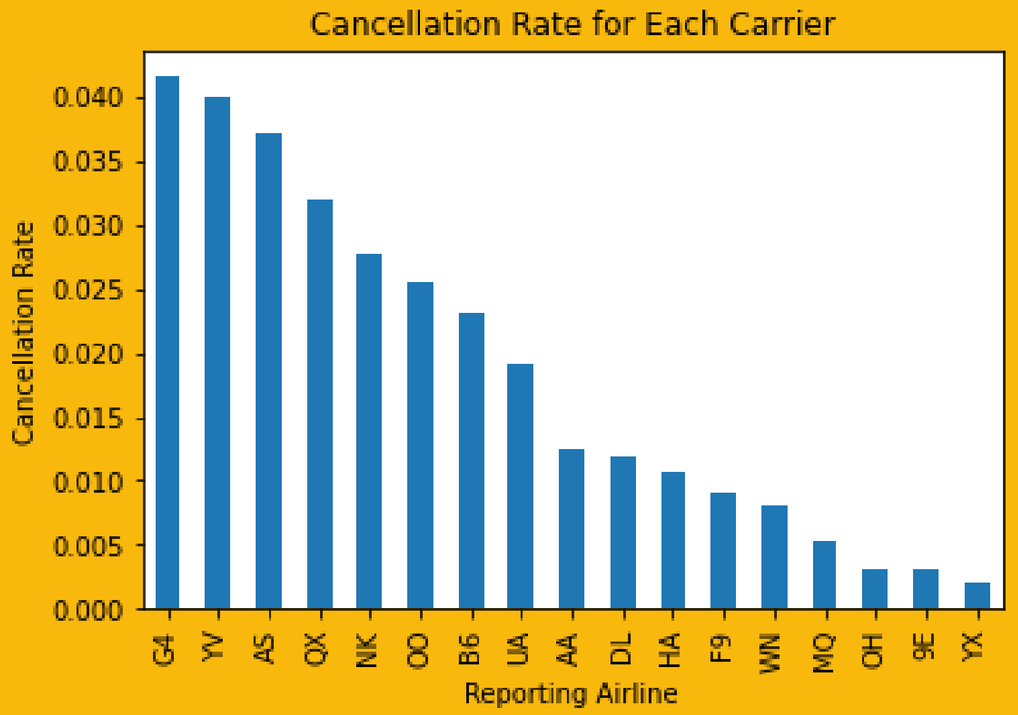


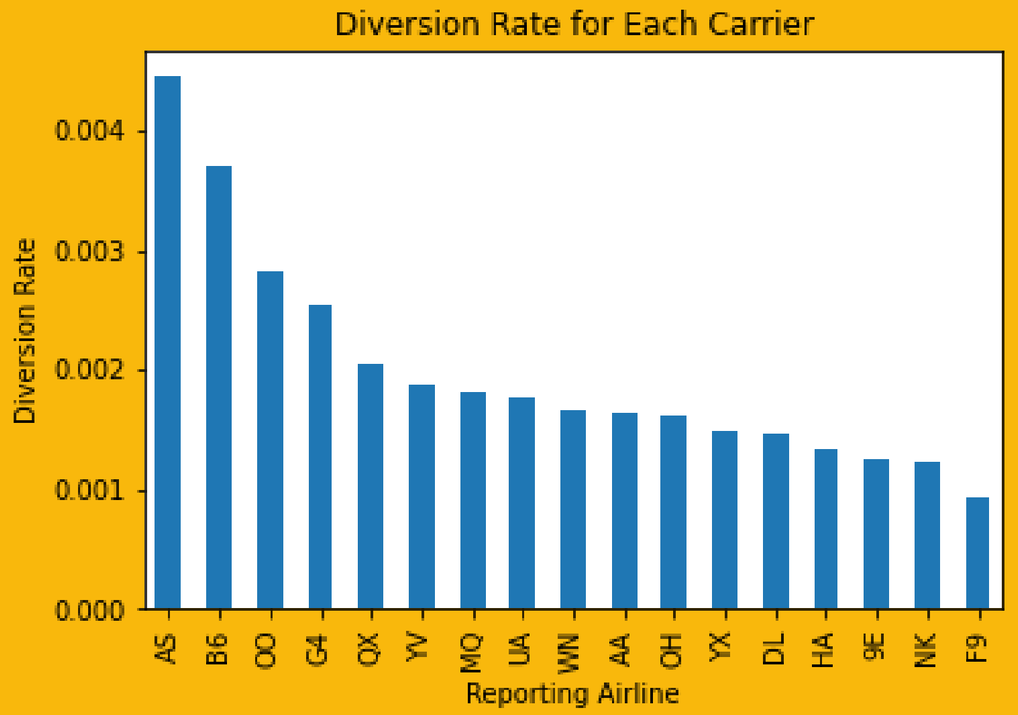
Cancellation and Diversion Analysis





Cancellation and Diversion Analysis





Cancellation and Diversion Analysis

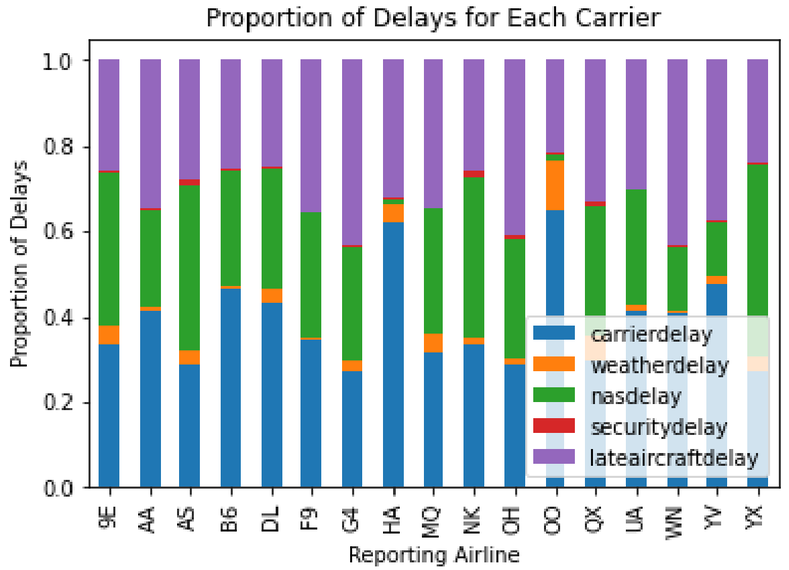
These plots give following insights:

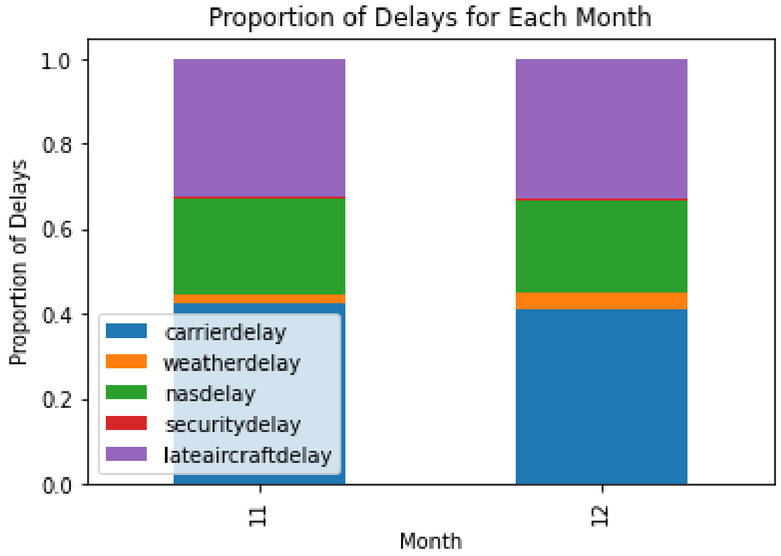
- Cancellation of flight seems to be the common options taken upon facing any anomaly.
- This stays the same across all airlines we have in record.
- Flight 'OO' has the highest number of cancellation reported.
- Rate to which flights usually cancel is highest for flight 'G4' and lowest for flight 'YX'. Surprisingly flight 'OO' is at 6th position.
- In terms of diversion rates, flight 'AS' is on top; Flight 'F9' comes last in this category.
- Flights 'YX', and '9E' have least rates in both cancellation and diversion.

Delay Reason Analysis

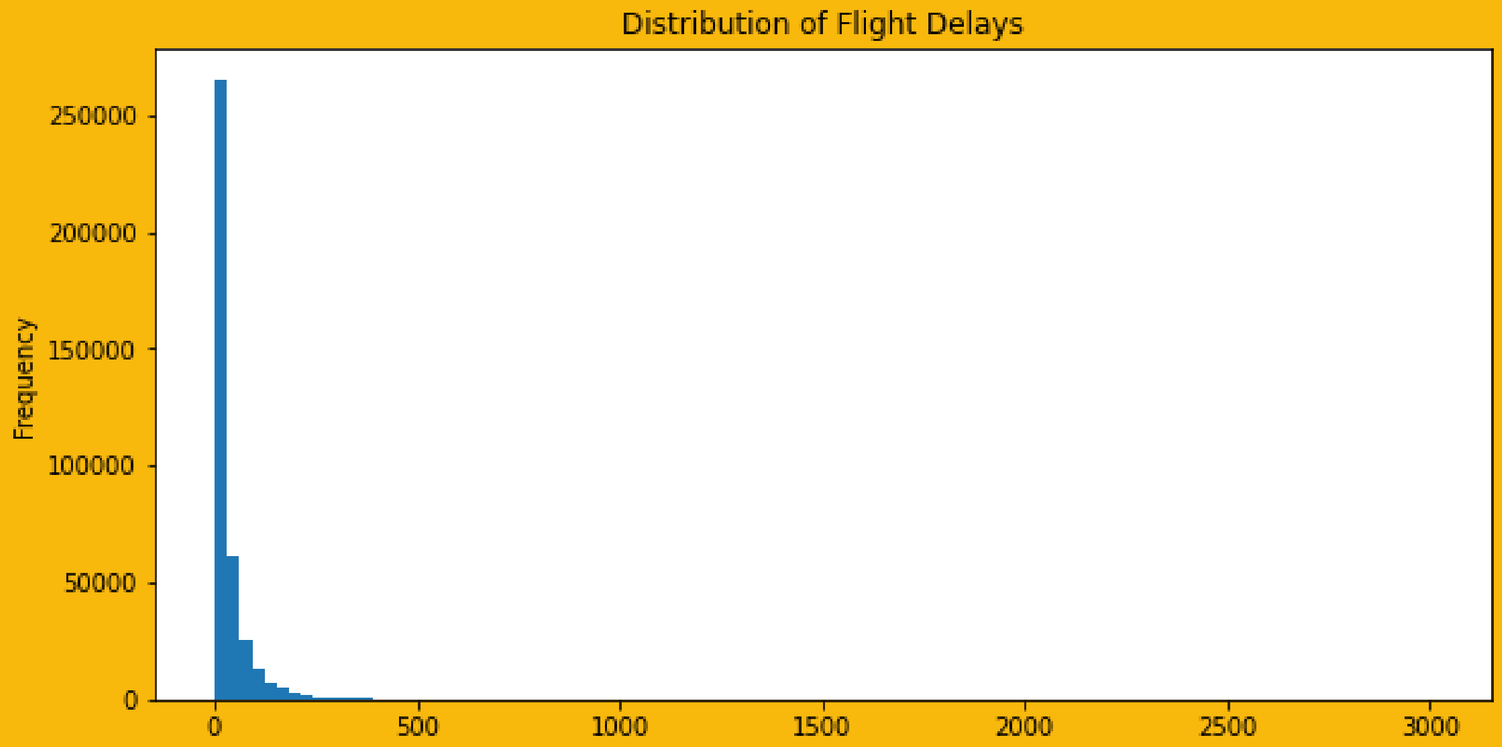
Points to note:

- 'Security' and 'Weather' don't have much impact in the proportion of delays occurred.
- Across most of flights, delays incurred are due to Late arrival of aircraft, carrier delay, or nas delay.





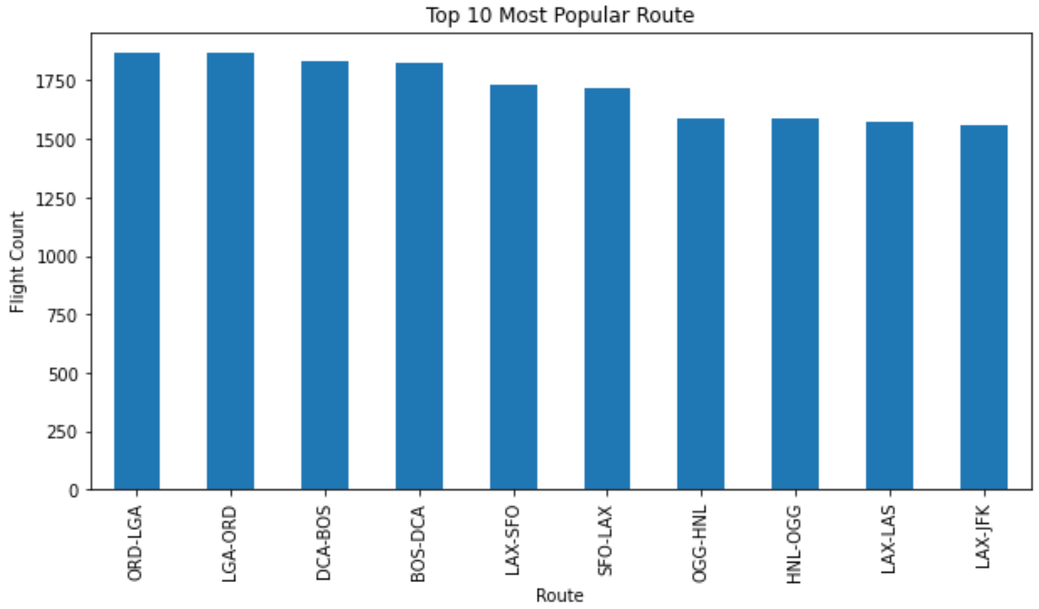
Delay Distribution

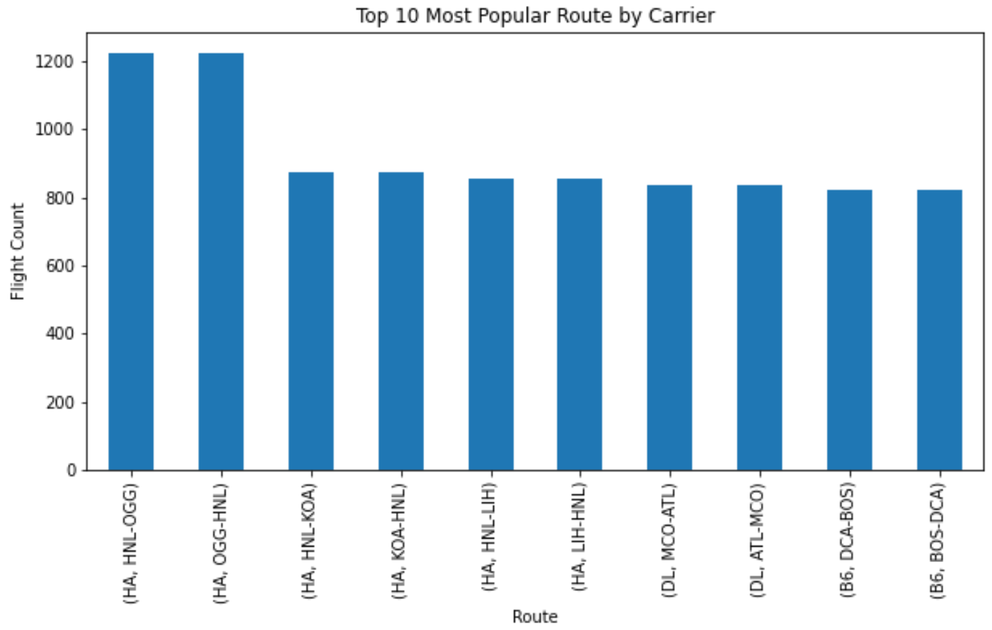


Most Popular Routes

Points to note:

- ORD-LGA is the most popular route with over 1750 flights scheduled
- Of Individual airlines HA Airlines has most of its flights scheduled in route HNL-OGG

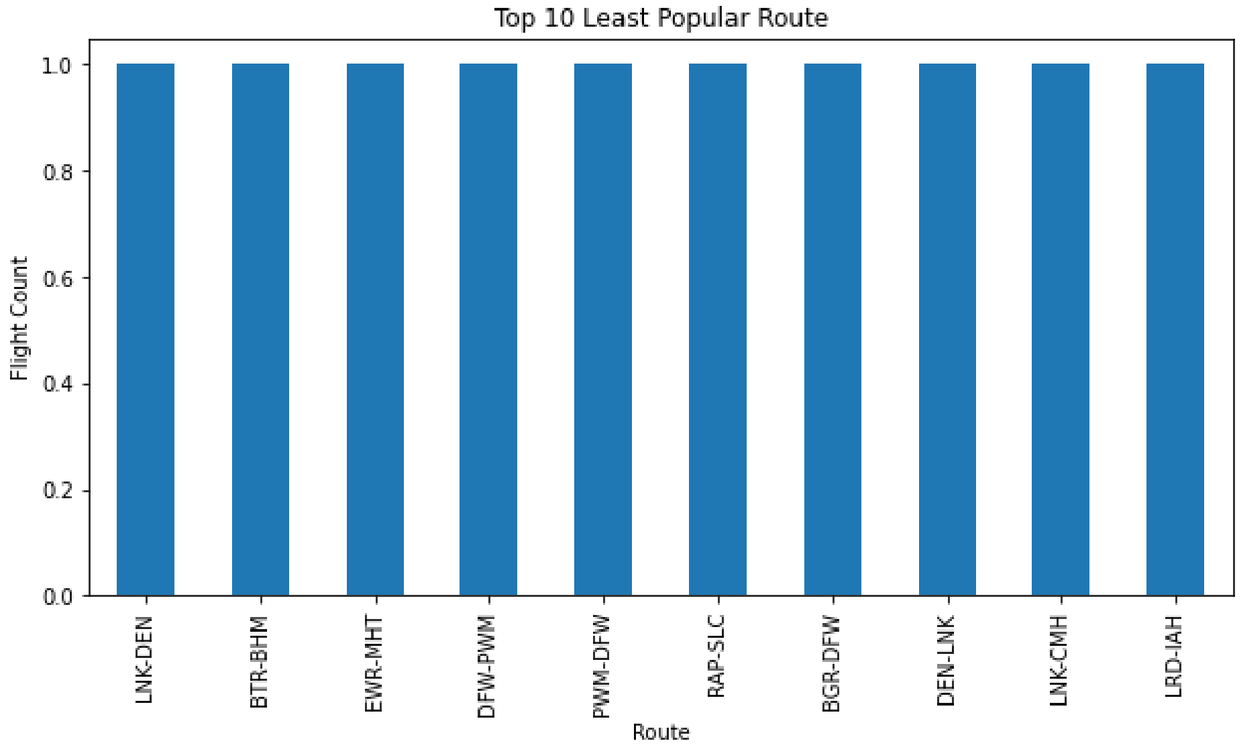




Least Popular Routes

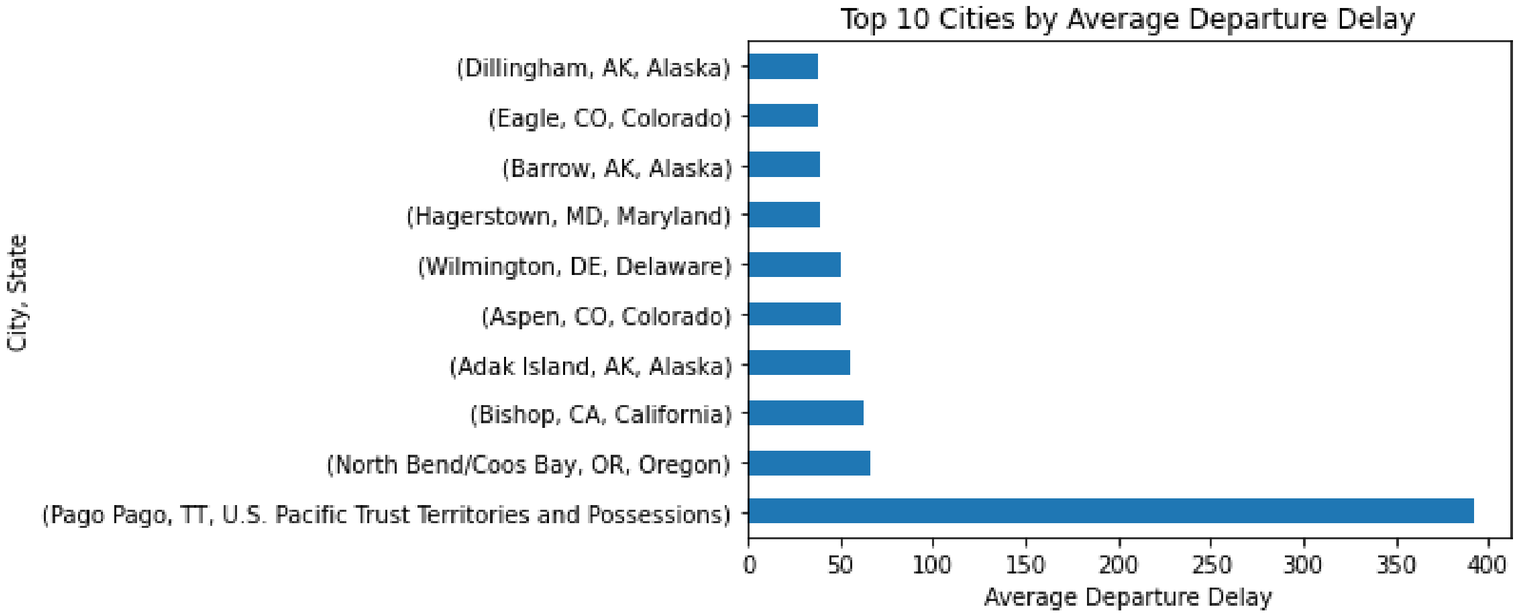
Points to note:

- All the routes shown in plots have only one flight scheduled between the cities.



City and State Delay Analysis

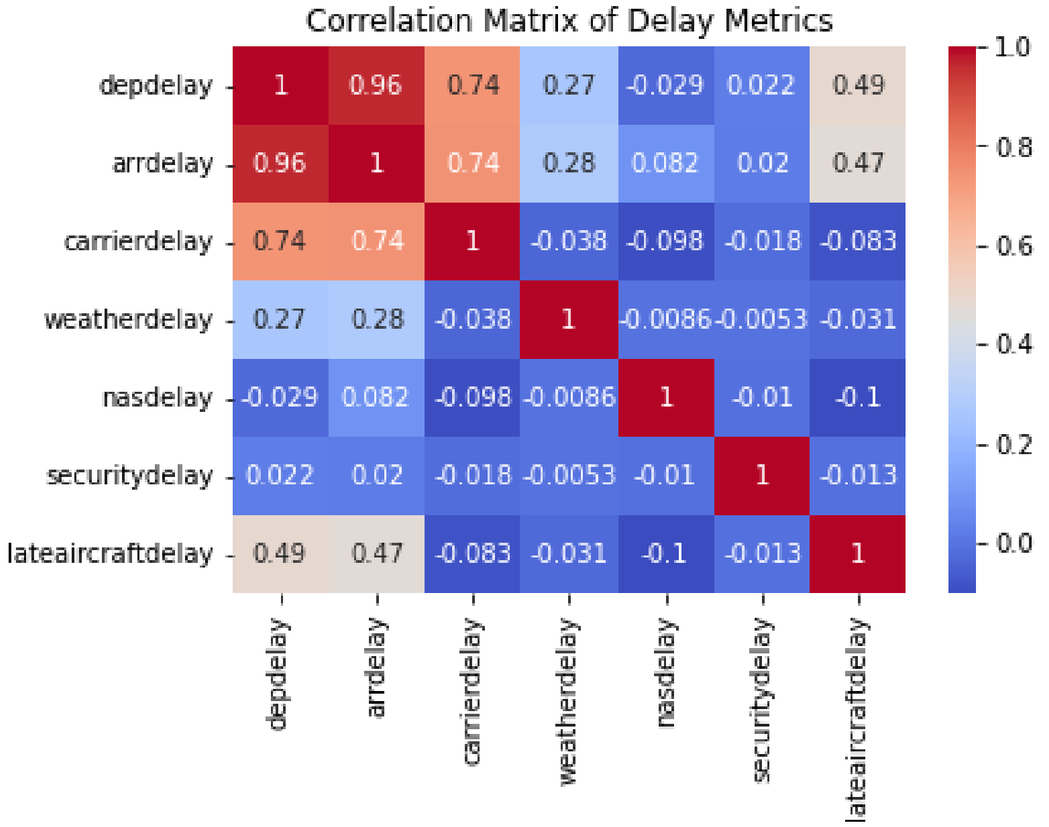
'Pago Pago, TT' has the highest number of delays in departure. For other states count is still comparable.



Correlation of Delay with various delay reasons

It is obvious to state that arrival of the flight is to be late when it departed late, this is supported in the graph above.

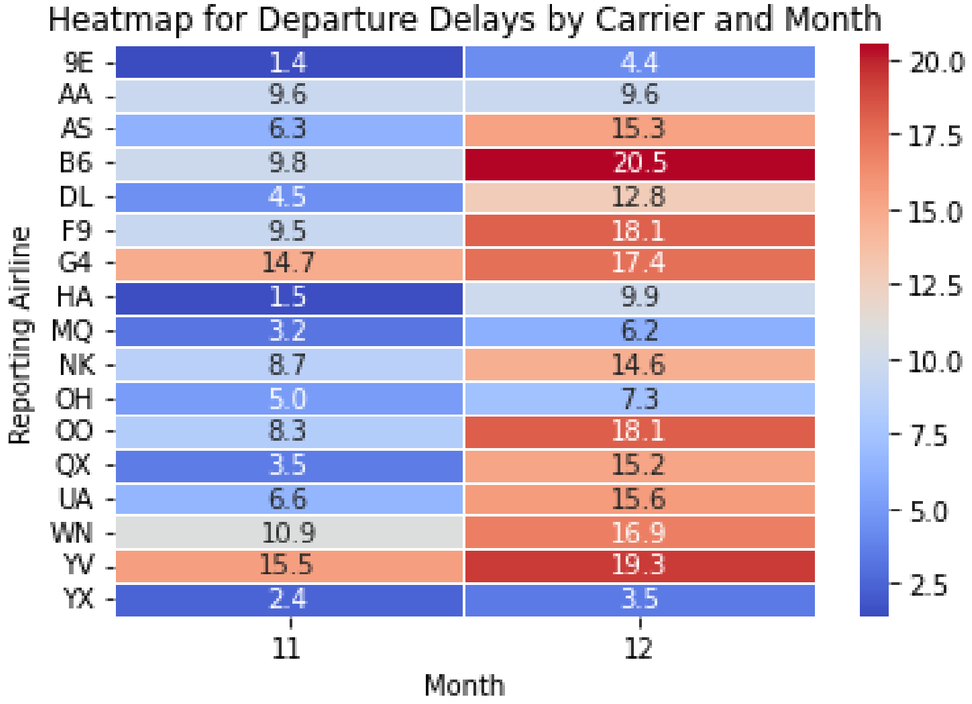
Also, If carrier has faced delay, it can affect the timings of the departure ultimately delaying the arrival times.



Departure Delays by Carrier and Month

The heatmap for departure delays by carrier and month visualizes the average departure delays for each combination of reporting airline and month. Here's a breakdown of what this plot shows:

- X-Axis (Horizontal): Months
- Y-Axis (Vertical): Reporting Airlines
- Color Intensity: Represents the average departure delay for a specific combination of reporting airline and month.



THANK YOU