# Data Visualization D3: Why our flights get cancelled?

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## Project Overview

For this project, I used the U.S. Department of Transportation's (DOT) data to show the causes of flight cancelation. The data is provided for different years but I chose the most recent one, the 2008 data. I focused only on cancelled flights although the data has information on delayed flights as well.

## Summary

In flight cancellations, regardless of the airline or the airport, we mostly hear and blame the weather. My questions are:

* Is weather responsible for most flight cancellations?
  + The results show weather in fact is the main reason for cancellations
* What about the other causes?
  + Carrier cancellations are the next causes of cancellation followed by national air system. Security reasons were responsible for a very few cancellations.
* Is the causes of cancellations different based on airlines and airports?
  + It is different for different airports or airlines. But it looks both of them are mostly affected by weather and carrier compared to other two causes.

## Design:

First Draft: I started with a bubble chart to show the flight cancelation reasons for each airline. Next, I made a map to which airports has the highest number of flight cancelation.

The map on the left represents the geographic distribution of the airports with the number of cancelled flights. I chose the map because it communicates well with viewers who are not familiar with the airport names. However, for the ones who like to see the names, I provided the right side chart with the slide filter. I chose the bar chart to make it easier for viewers to see the difference.

Second dashboard: The chart on the left shows the number of cancelled flight based on 4 reasons for each airline. I added the right side table so viewers can compare the percent of cancelled flight for each cause instead of numbers, since number of flights for each airline is different.

Second dashboard: Like the second dashboard, the bar chart on the left shows the number of cancelled flight based on 4 reasons but for the airports instead of the airlines. . The right side shows the percent of cancelled flight for each cause for each airport.

## Feedback on the First Draft:

## First Draft Link:

[**https://public.tableau.com/profile/haleh.dolati#!/vizhome/Flight\_P6\_first/Story1?publish=yes**](https://public.tableau.com/profile/haleh.dolati#!/vizhome/Flight_P6_first/Story1?publish=yes)

First Feedback, from a forum mentor:

* On the first slide, for the graph on the left, since there're many airports to show, the circles get quite crowded, and also it's not clear to judge by color how many cancellations there are. One alternative is to add a filter and default the filter to include only top 20 (or something similar) most delayed airports, also you can double encode with size of the circles to make it easier to identify difference.
* On the second slide, consider changing the left graph to bar chart. You can put cancellation reasons on x-axis, put cancellation count on y-axis, then split carriers on y-axis as well.
* For the last graph, a different graph type may add more variation.

Second Feedback, from a friend:

* The first page map is a good idea. Bu it is too crowded, doesn’t tell us a good story.
* On the second page, the left chart with those circles is a little distracting, a bar chart maybe?
* Combine the 4 graphs in the last dashboard

## Changes:

Based on the feedbacks for the map, I decided to use size instead of color to show the cancelation for airports. This way the effect of geography on cancellation became clearer.

The next change that I made was for the left chart on the second dasboard. Both reviewers suggested using a bar chart instead of circles. The reason I chose the circle was to add diversity to the visualization but at the end, the readability and meaningless of the chart is the priority and for the purpose of this chart, bar chart is the best choice.

Both reviewers suggested combining the 4 graphs on the last dashboard. It is absolutely necessary and helps the viewer to understand and get the message of this dashboard in a glance.

## Final Draft:

## <https://public.tableau.com/profile/haleh.dolati#!/vizhome/Flight_P6/Story1>