

Parinita Tyavanagimatt

INFO 474

3/14/23

Design Challenge 3: Final Deliverable

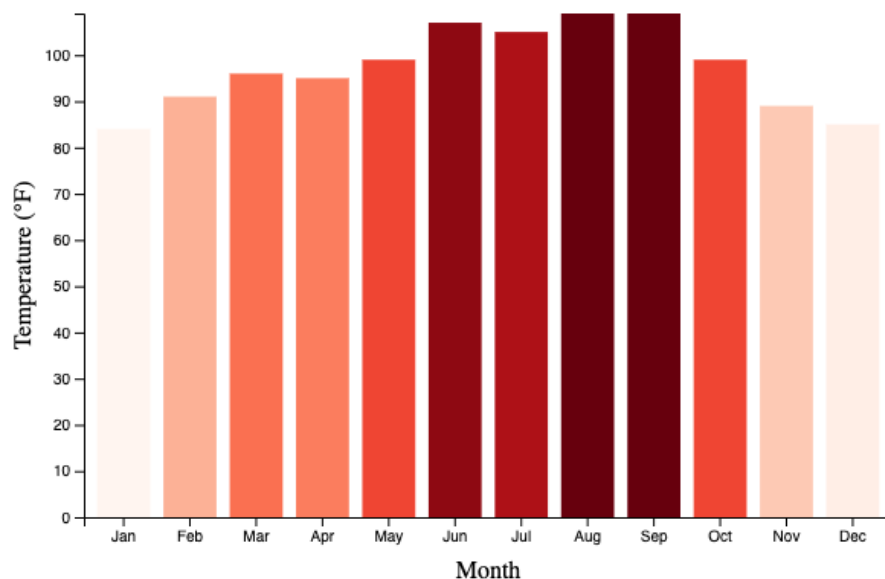
INFO 474 has taught us how to visualize data in several different ways that are pleasant to us as visual learners. When ideating on what to create for this design challenge, I took some time to think about the design techniques and paradigms we have learned thus far. These were looking at how to reduce information overload, giving an overview of the dataset while still providing detail, being able to show interactivity to engage the audience while somehow incorporating multiple views.

When you land on the visualization page, this is what you see:

Monthly Max Record Temperatures for Major Cities Since 1880

Data: Weather History Data Scraped from Wunderground

Select a city:



I created a visualization that shows the monthly max record temperature for major cities in the US. The major cities I used to represent were Houston, New York City, Seattle, Chicago, Philadelphia, and Phoenix. The data used for this D3 data visualization is weather history scraped from Wunderground.

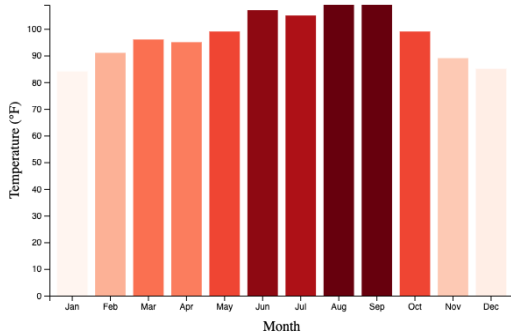
Before I used D3 to create this visualization, I had to do some data transforming and aggregations to get it in the shape I wanted before exporting it. I used python to group all the 6 different city csvs together, and grouped the data by months so that instead of daily data, we could see an overview of monthly data. Next I found the maximum record temperature for each month for each city which is what the bar plot above shows. I created a new dataframe with all of this information and made a new csv which I used for my data visualization. The visualization is set to start off by showing the max temperature records for Houston. The x-axis shows the months from January to December while the y-axis shows the temperature in Fahrenheit.

The main interactivity part for this visualization is allowing the users to select a city to view the high record temperatures that city has seen since 1880. It is easily comparable when the user clicks on another city. Another interactive part that comes with when the user picks the city is seeing how the colors change per bar as it is a sequential gradient. Months that have seen lower max record temperatures in comparison to other months are shown with a lighter red hue while those months with higher max record temperatures are seen with a darker red hue. It is intuitive to think that a specific month was hotter than another month by just observing the hue of the bar, especially since I used colors that align with what we think of when we think of warm, hot, hotter. For example, when looking at Houston monthly record high temperatures, we see that August and September are a pretty similar shade of red meaning they both saw the same high temperature record. However, when we switch over to Seattle, we see that the month that saw a record high temperature was July. Such insights are powerful in telling a story with this dataset.

Monthly Max Record Temperatures for Major Cities Since 1880

Data: Weather History Data Scraped from Wunderground

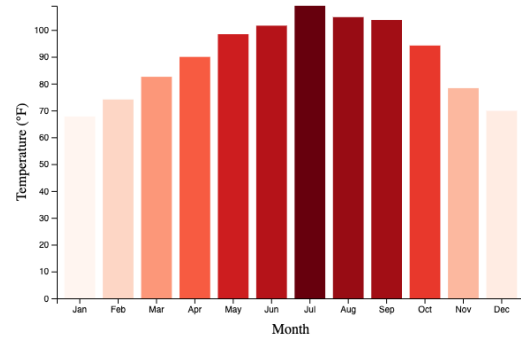
Select a city:



Monthly Max Record Temperatures for Major Cities Since 1880

Data: Weather History Data Scraped from Wunderground

Select a city:



When looking at the dataset itself, it becomes overwhelming with daily data which does not have much use. Being able to see the record high temperature for each month makes the dataset more informational.

I wanted to ensure my visualization was simple to understand and easy to use while still providing relevant information that could tell a story and support several user tasks.

User Tasks:

As a meteorologist, I can see when a city has had a really high record temperature and in what month that existed since 1880 so that I can identify trends in data and to predict what month in the future we would expect another temperature increase.

As a Seattle native who does not have an AC unit, I can see what month usually hits extreme temperatures so that I can buy a fan and be prepared for a heat wave in a location where it typically does not get hot.

As an avid traveler, I want to know what months I should avoid traveling to Phoenix because Arizona is already a pretty warm state and I want to ensure I can visit Phoenix when the weather is in the mid 80s so that I can enjoy my stay.

Overall, my visualization provides users with several user tasks that tell stories and trends without exhibiting too much information overload.