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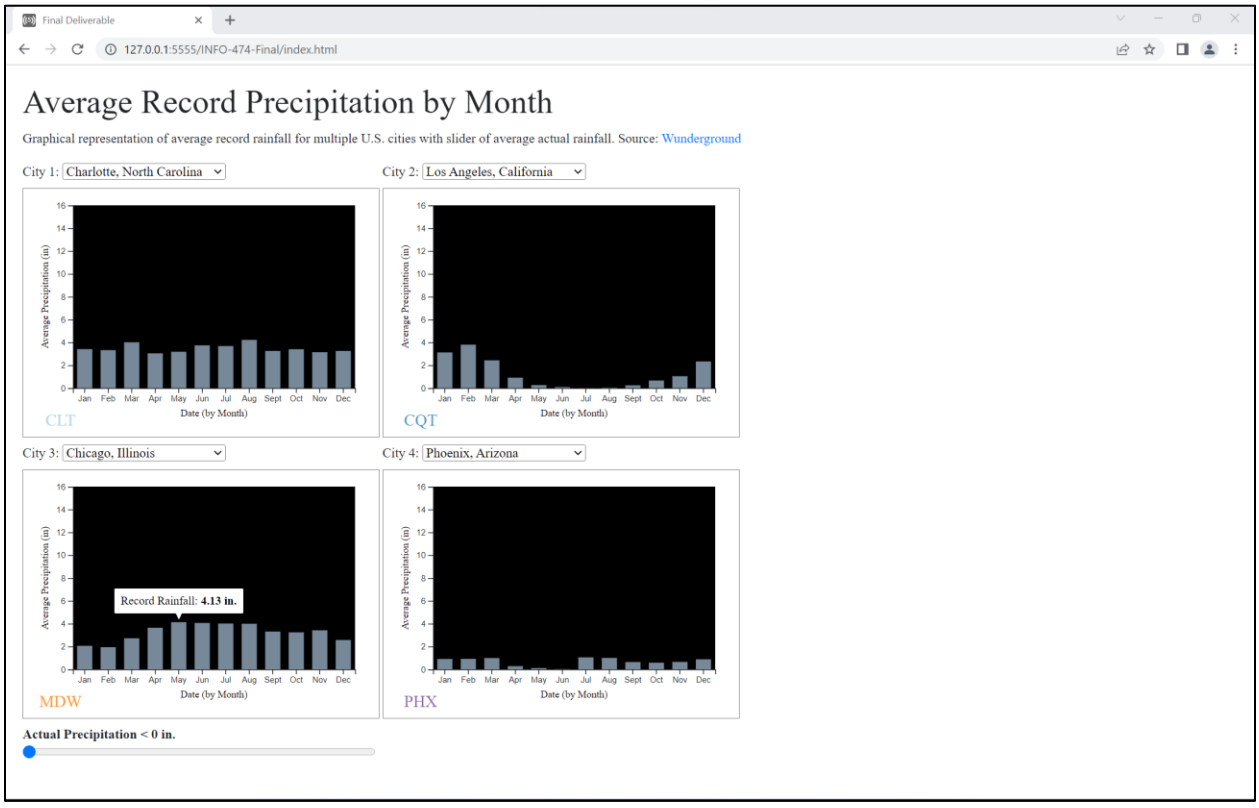
INFO 474 B

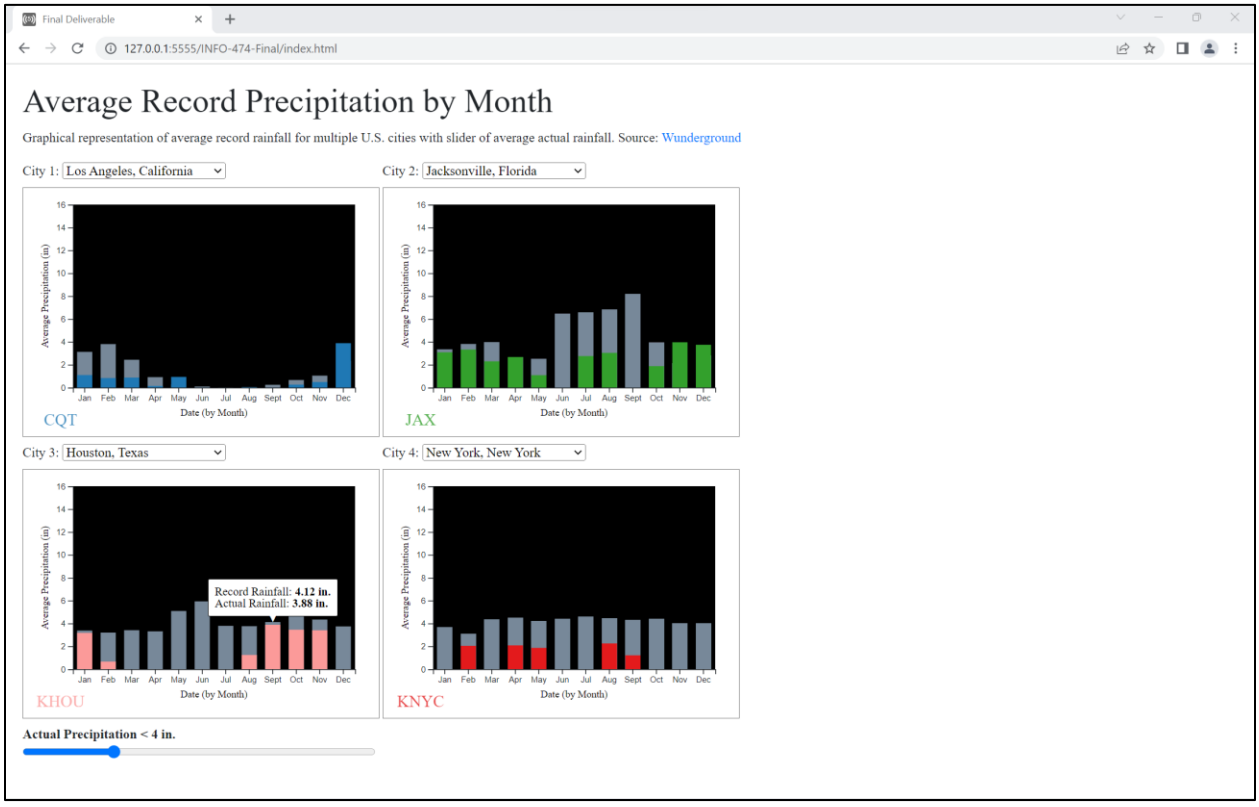
Project Overview



For my final deliverable, I have created and designed a visualization of the "Average Record Precipitation by Month." The rationale for this design was to do a comparison between different cities of their average rainfall levels per month. I thought of the user stories we had to come up with for the *Task Analysis and Critique* assignment and tried to think of a design that was multi-variate and could help users with their tasks. For example, one user task was, "As a commuter who takes the bus to work every day, I want to know when I should bring a rain jacket with me so that I won't get wet on my way to the bus stop." The abstract task was to discover rain patterns, so I decided to highlight rainfall instead of temperature. Another user task was, "As a business owner, I want to track how weather affects customer behavior and sales so that I can adjust my marketing strategy accordingly." The abstract task was to identify correlations and discover trends. For this user, my visualization could aid various business owners' decision-making for their marketing based on historical weather data and adjust their strategies for future marketing purposes. While these user stories and tasks are some reasons why someone might need to look at my visualization, I tried to create a design that would help tourists to study the average record precipitation by month to plan their trips to a particular city. For example, if you are planning a beach vacation, you might want to visit a city during a month with low precipitation to enjoy sunny weather. Similarly, if you are planning to engage in outdoor activities, you might want to know what the actual vs. the average precipitation is to plan your activities accordingly. For someone

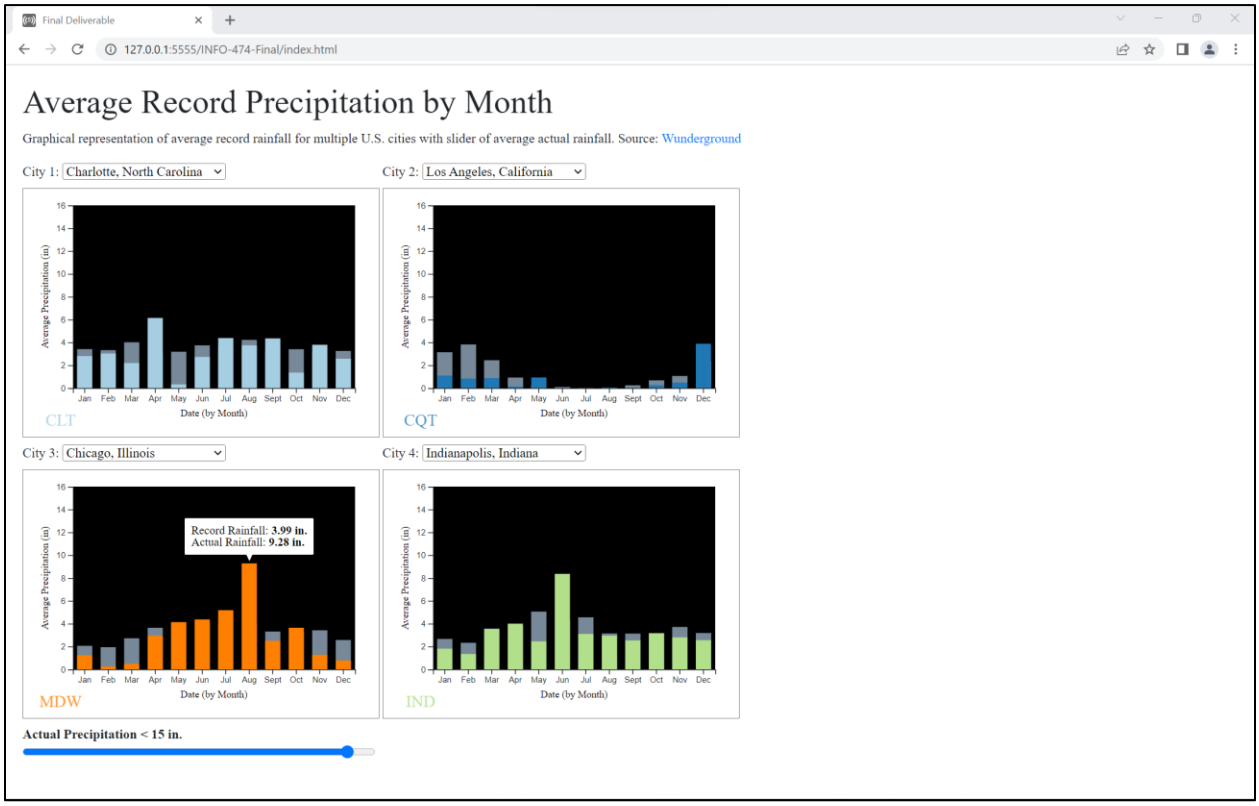
who is planning a trip to a city with high precipitation in a certain month, then they might want to plan indoor activities for that time. In addition, if someone wanted to travel somewhere but they have not decided on which city to go to, then they could use my visualization to compare precipitation levels for up to 4 cities at a time.

Thus, choosing one of the designs from the *Design Draft* assignment, I chose to code in D3 my first design. I chose to present the data as multiple bar charts to avoid confusion when interpreting the data. I chose time (in months) for the x-axis and average precipitation (in inches) for the y-axis. By representing the data by averages and by month, it helps with readability in contrast to displaying the data for each day of the year. When initially viewing the visualization, I purposefully chose the color grey to represent the average record precipitation where the slider starts at 0. Once the user utilizes the slider, colors start to appear to represent the average actual precipitation. This variable changes the view of each graph and allows the user to know which months had rainfall that was less than the slider value (in inches). While coding this project, I also decided to include a tooltip interactive feature that allows users to hover over each bar and display the precise rainfall (in inches) for each chart below.



Moreover, I thought that the multiple bar charts and the addition of a slider could address two tasks that could help avid travelers decide when and where they should take a vacation. As mentioned before, users can select from a drop-down menu for each graph to compare four different cities at a time. This way users know what the average record rainfall is for each city out of the 10 cities in the dataset and plan accordingly. In addition to the drop-down menu, I included a slider bar feature to

visually represent what the average actual rainfall for each month was compared to the average record rainfall. In some cases, the average actual rainfall was higher than the average record rainfall, thus the grey bar for that month is hidden. It tells the user that we cannot base our decisions solely on average record rainfall from data since 1880 because we cannot tell what the total rainfall is ahead of time. However, in this instance, we can still view the average record rainfall using the tooltip.



Lastly, I should mention that I took the datasets that were given, combined them into one CSV file encoding them with each city code, and took the sum of each precipitation column (i.e., 'actual_precipitation', 'average_precipitation,' etc.) to get the dataset I used for this visualization. Now, going back to the design and overview of my visualization, some analytical questions would include: What is the average record precipitation in January in Seattle, Washington? How does precipitation vary across different cities and months? Are there any noticeable patterns or trends in precipitation data? Overall, the communicative objectives of the visualization would be to help users quickly identify the cities with the highest and lowest rainfall and the months with the most and least rainfall.