List of User Stories and Tasks:

- As a meteorologist I want to **view the distributions of average rain in various cities yearly to learn more about possible trends between which months tend to have higher average rain.**
- As a Farmer of potatoes in North Carolina CLT, I want to **identify which seasons have months with average temperatures around the 50s** in order to know when to plant seeds for a larger yield of crop.
- As a traveler, I want to **find the month with the most rain and lowest temperature in Seattle** in order to avoid visiting during that time because my family plans to go hiking and camping on Mount Rainier.
- As a member of Flood Watch in Houston Texas, I want to **find the month with the largest average precipitation** in order to prepare for possible floods.
- As a Summer Camp Coordinator located in North Carolina CLT, I want to **find which month during the summer season, on average, has the highest temperature and the least chance of rain** in order to make an extra order of water bottles and ice cream for the kids to reduce the risk of heatstroke.

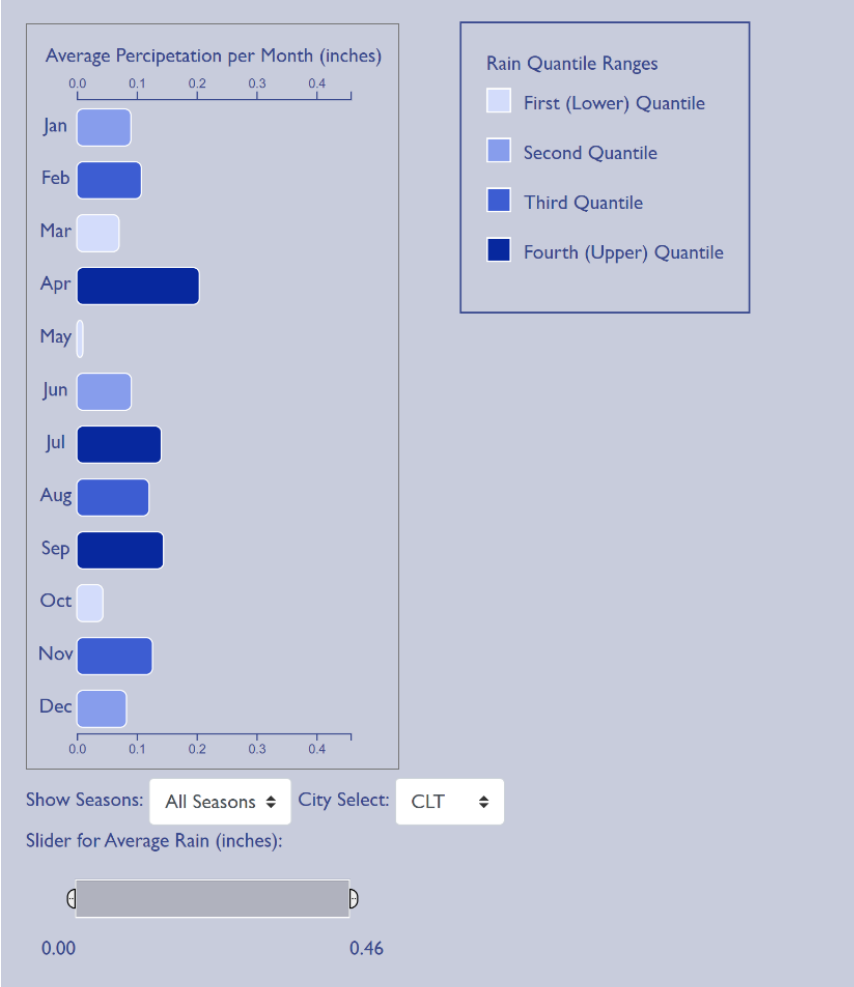
Design Overview:

This data visualization is designed with simplicity and intuitiveness for the user in mind. The data displayed focuses mainly on the average precipitation for each month as well as the average temperature. The average temperature and exact average precipitation values can be viewed from a mouseover tooltip.The data has been cleaned and presented in a manner that helps the user easily understand trends and outliers at a glance. The color encoding is designed to represent the four quartile range of all precipitation values which helps the user easily understand the max and min values. There are two drop down selectors that allow the user to easily filter the data. The first slider is used to filter the set months labeled under seasons and the second slider is used to filter the data based on city. There is also a slider that allows the user to change the set of bars seen on the visualization based on the range of average precipitation.

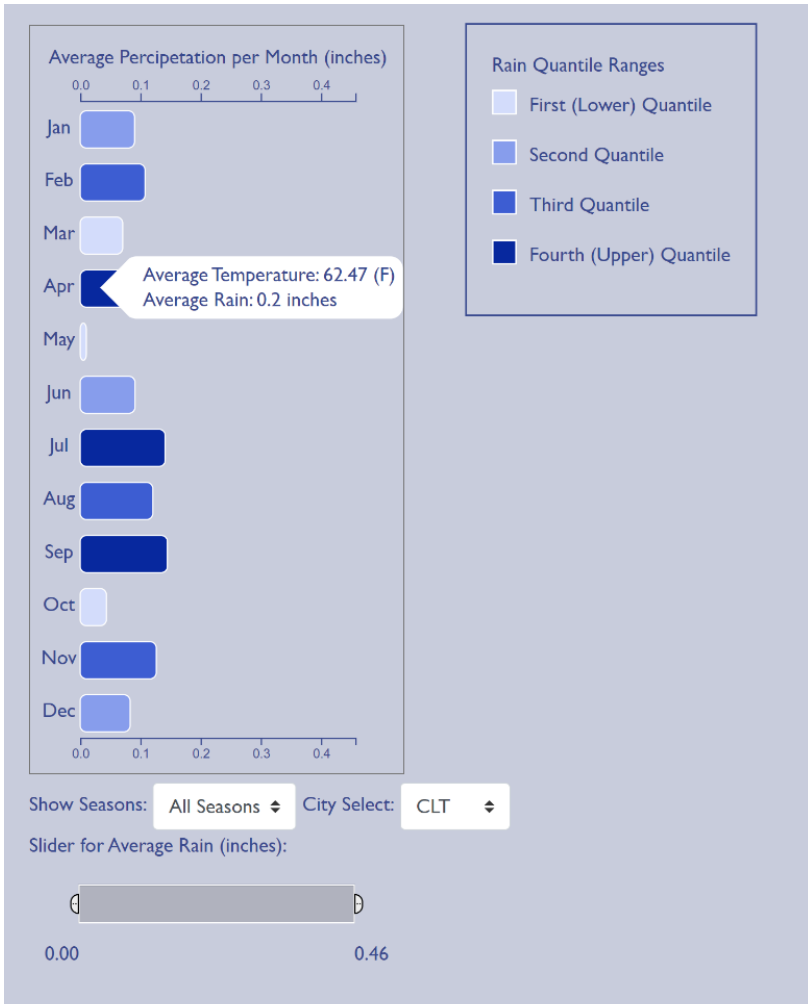
A user can use the features of the data visualization to answer questions about which months fall under which quartile range. Furthermore, the seasons tab can be used to find out which months within each season have the highest chance of rain or the highest temperature. Users can also filter the data for select cities in the visual in order to view differences in rain values between two different cities in the same month. Another analysis users can perform is filtering the data based on the range slider to find

which months of average rainfall fall under their specified ranges. This visualization is not designed for finding specific date values and precipitation values of certain days because it mainly focuses on providing a monthly summary of the data for users who may not be familiar with research terms or interested in specifics.

Screen Shot(s) of the User Interface:



Here we can see the two drop downs, the slider, and the legend.



Demonstration of the mouseover feature.

Additional Feature Descriptions:

A large chunk of the functionality that might not be apparent from the screenshots are the calculations and implementation of the quantile ranges. The quantile colors for each month change depending on the filtered data and available average precipitation values.