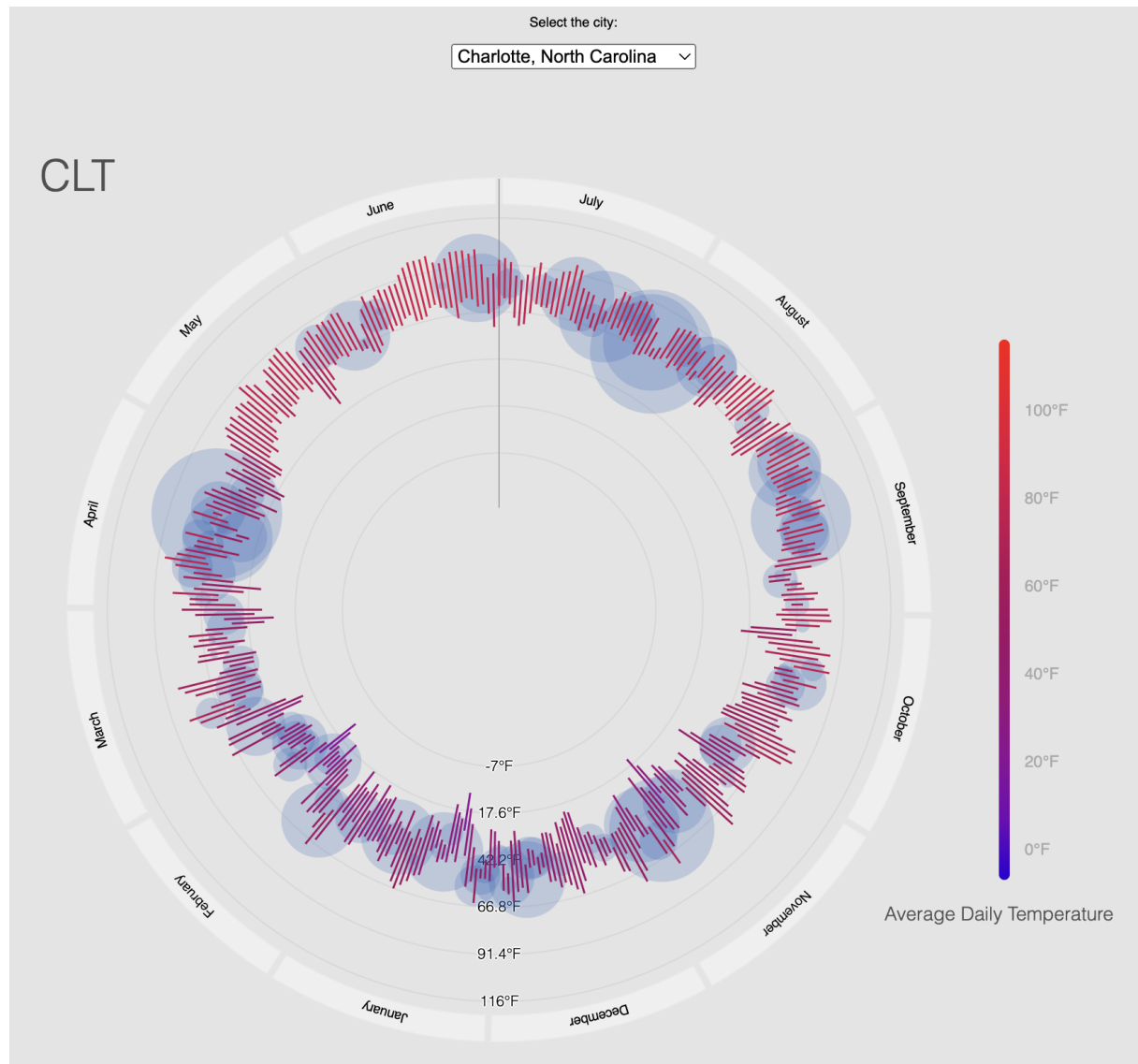


## Design Challenge 3 Project Overview



### User Tasks

- Discover and identify different city's temperature and precipitation trends throughout a 1 year period (7/1/2014 to 6/30/2015).
- Predict temperature and precipitation patterns as well as pinpoint fluctuations or changes in weather.
- Identify temperature and precipitation outliers throughout the year.
- Compare and contrast temperature and precipitation at any time spot and location to find any correlations

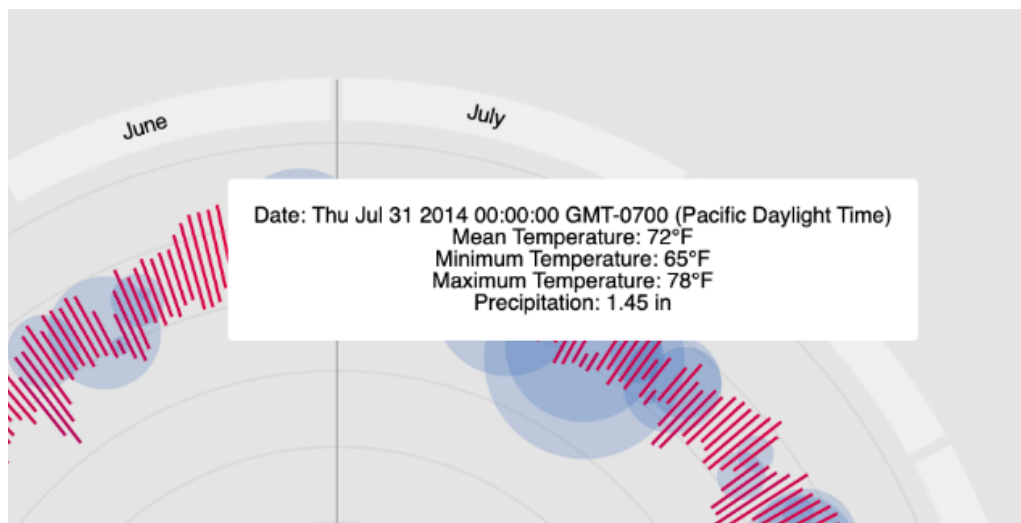
## Design Overview

This design is a radial map (sunburst chart) that shows different city's temperature and precipitation throughout a 1 year period from 7/1/2014 to 6/30/2015. It utilizes the weather history for multiple US cities dataset scrapped from Wunderground. The visualization utilizes and encodes various mediums and principles, such as bars, circles, color, and size to present the different data attributes.

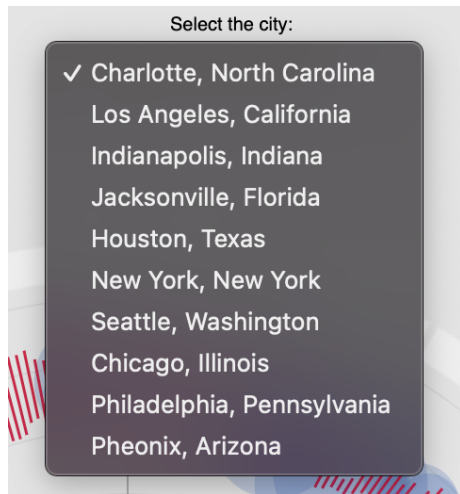
Bar "charts" are used to display the actual measured minimum and maximum temperature for a specific day, where colder temperatures are closer to the center of the chart. Thus, the length of the bars represent that range of temperature that occurred on that day. Moreover, the color of the bars depict the actual measured average temperature for a specific day. Additionally, overlaid on top of the bars are blue circles that resemble that amount of rain or snow (precipitation) for a specific day, with the radius of the circles being in proportion to the quantity.

From this, this visualization addresses the aforementioned user tasks, such as seeing how temperature or precipitation changes over time in different cities. The design also allows users to visually compare the relationship between temperature and precipitation for each city, thereby highlighting any correlations. Overall, it provides an effective overview of the typical weather pattern of a city.

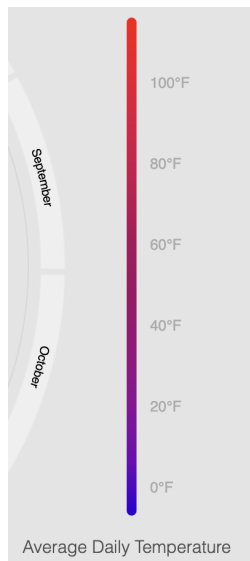
## User Interface



Users can interact with the visualization by hovering their mouse over the bars. When done, a tooltip box will appear that provides detailed information and numbers regarding the date, mean temperature, minimum temperature, maximum temperature, and precipitation of that particular day.



A dropdown menu allows users to change to the city that they want to be shown. This dynamic query allows users to display multiple views of weather patterns of different cities.



A color scale legend of the average daily temperature is displayed besides the visualization for users to refer to.