INFO 474
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2024/3/9
Final Deliverable - Project Overview

Visualization Screenshots:

Screenshot 1: Mean Temperature View:

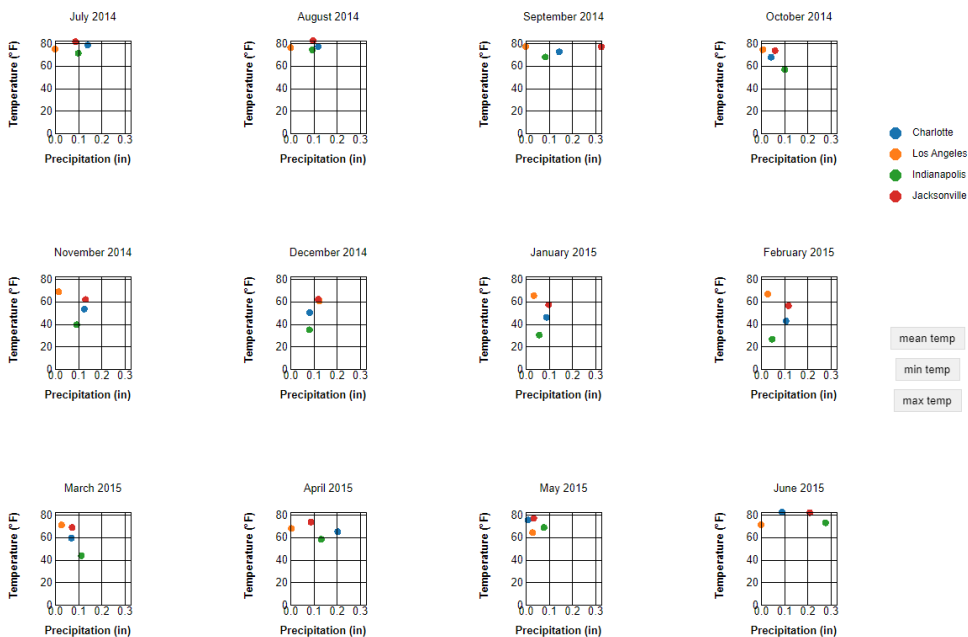Temperature and Precipitation Trends from July 2014 to June 2015
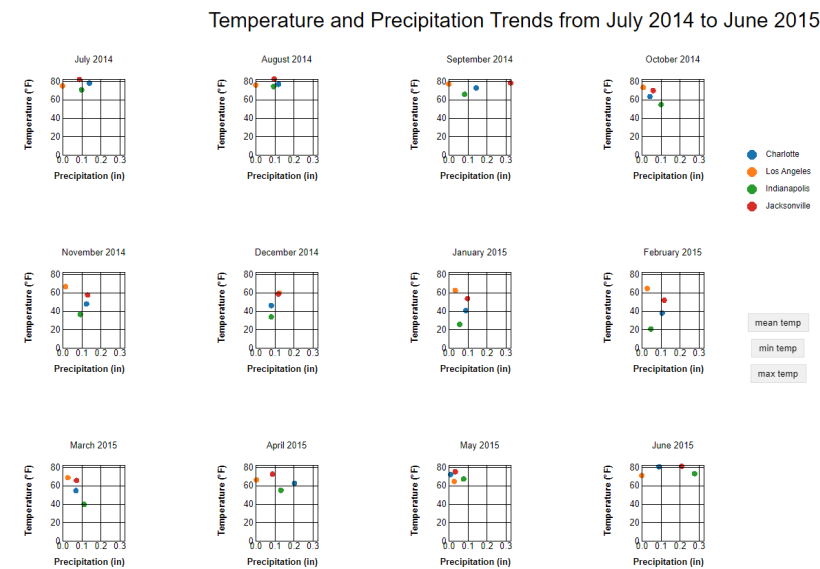
Screenshot 2: Min Temperature View:

Temperature and Precipitation Trends from July 2014 to June 2015
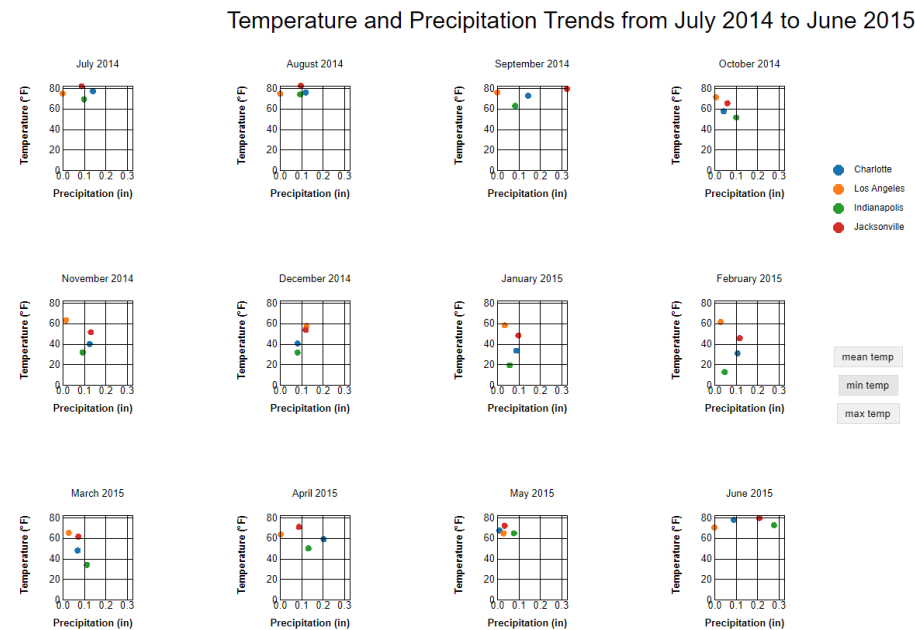
Screenshot 3: Max Temperature View:

Temperature and Precipitation Trends from July 2014 to June 2015

User Tasks Supported

This visualization supports the following user tasks:

Comparative Analysis:
- Users can visually compare the temperature and precipitation data of four major U.S. cities.
- It allows for the side-by-side comparison of weather patterns to discern city-specific climatic behaviors.

Temporal Trend Analysis:
- The visualization offers a month-wise view that facilitates the examination of how weather patterns evolve throughout the year.
- Users can identify and analyze seasonal changes and transitions from one month to another.

Data Detail on Demand:
- By using interactive buttons to toggle between mean, minimum, and maximum temperatures, users can delve into more specific aspects of the temperature data.
- The design supports focused inquiry by allowing users to concentrate on the temperature range they are most interested in at any moment.

Design Overview

The core of the visualization consists of a 4x3 matrix of small multiple charts, each representing a distinct month from July 2014 to June 2015. The design intention behind using small multiples is to minimize cognitive load, as it allows for rapid visual cross-referencing without the need to navigate away or adjust the view.

Analytical Questions:
- How do the monthly average temperatures compare across cities?
- Is there a discernible pattern in precipitation that corresponds with temperature changes?
- Can we see an outlier or an unusual trend in any city during the year?

Communicative Objectives:
- The primary goal is to communicate the nuances of climate variation and make them accessible for analysis to users with varying degrees of expertise in data interpretation.
- To illustrate not only the differences between cities but also the variation within each city as the year progresses.

Interface and Visualization Explanation

In the design of the interactive climate trends visualization, particular attention was paid to the ease of use and the overall user experience. The interface comprises a series of interactive buttons, each corresponding to a different temperature metric—mean, minimum, and maximum. These are strategically placed to be unobtrusive yet easily accessible, allowing users to dynamically toggle the displayed data without distraction from the main visual content. Upon selecting a metric, the charts respond instantly, reflecting the new data across all small multiples, which not only makes comparisons straightforward but also enriches the engagement by inviting further exploration.

The visualization itself presents a cohesive grid of small multiples, where each chart corresponds to a single month's climate data, arranged chronologically. This layout was chosen for its clarity and its facilitation of direct comparison across multiple variables and time points. Each chart, demarcated by subtle grid lines, provides a backdrop for the data points, which are denoted by dots. The use of dots was a deliberate choice to signify discrete data points, respecting the integrity of the individual data measurements.

The overarching title serves as both an anchor and a starting point for the visualization, succinctly conveying the overarching theme and time span of the data. This is complemented by the legends and axes, which are carefully designed to be informative yet non-intrusive. The color scheme, a critical element of the visualization, was selected not only for aesthetic appeal but also to ensure that each city's data is immediately distinguishable from the others. The color choices

also consider users with color vision deficiencies, ensuring the visualization remains accessible to a wider audience.

Typography and labeling within the visualization were approached with meticulous care to ensure legibility across various devices and formats. Axis labels, chart titles, and legends all adhere to a clear and consistent typographic hierarchy, which aids users in quickly assimilating the information presented.

Overall, the interface and visualization are crafted to provide an experience that is as informative as it is engaging. By marrying interactive functionality with a well-considered design, users are equipped to uncover the rich narrative woven within the climate data, fostering both understanding and discovery.