Exercise 7A Report: Republican Primary Schedule

Motivation

The provided visualization for the Republican Primary schedule attempts to show calendar events with a bar chart approach. The idiom is confusing and simply not suitable for the task it tries to complete. If one visualizes the raw data, he or she will immediately notice that the schedule includes time periods when travel is very intense; not only do multiple events take place on the same day, but same day events frequently take place in different states. Thus the purpose of the new visualization is to better encode the variety and logistical challenges related to the schedule.

Problem Statement / Task Description

The dataset provided consists of a simple spreadsheet with states to be visited, month and day of visit. The author used the provided features to first extract new geographic information, and then arrange/group by in different ways to provide insights that could not be easily derived by the original idiom. The task accomplished by this idiom is to provide a comprehensive dashboard that can be used to plan ahead based on future travel itineraries. The goal of this visualization is to easily summarize all travel information and highlight time periods when travel itineraries become more burdensome, thus permitting to plan ahead and evaluate schedule changes if needed.

Visualization

The visualization consists of three elements: an interactive schedule table (main component, left), an interactive map (top right), and a summary bar chart (bottom right).

The schedule table is a representation of the full time series of events on the x-axis (day and month) and states visited on the y-axis. Each event is shown by a small shape placed on the table thus mainly defined as combination of time and state values. Additionally, each data point's shape is characterized by the timezone for the state to be visited. This allows to easily pinpoint time periods requiring significant travel efforts i.e. days sequences with different shapes arranged all on the same vertical line or within short distance from one another. The key takeaway from this idiom is the variety of timezones crossed in March, although a significant portion of events take place within the Eastern and Central timezones.

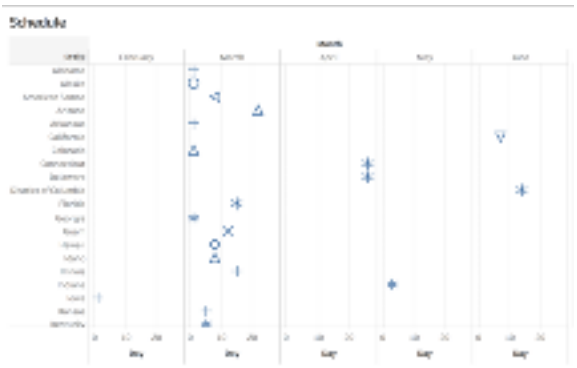

Figure 1: Schedule

The interactive map allows to perform spatiotemporal analysis of all events. Each event is plotted on the map while each time point (day) is displayed as a map frame. The toolbar on the right side allows the viewer to select between frames (days) to be displayed. By clicking the arrows one can thus sequentially visualize all locations visited as time progresses. Additionally, the time dimension is encoded with color as shown by the legend next to the map. Earlier time points are colored in lighter shades of blue and as time progresses the circles become darker and darker. By iterating through the days, the viewer will notice that the candidate paid particular attention to certain key areas of the country (in particular, the Northeast, the Southeast, and swing states) while taking a lot less trips to the West, especially California.

Figure 2: Travel Sequence

Finally, the bar chart located at the bottom right of the dashboard displays key travel statistics by month. For each month, the metrics shown are average states visited per day in blue; number of days traveled in yellow; number of states visited in red and timezones crossed. First and foremost, the chart shows the intensity of travel related to the month of March, where all statistics are significantly higher than other months. Furthermore, the idiom demonstrates that the candidate frequently travels across multiple states on the same day (especially in March) but at the same time travels on very few days of the month and hardly ever travels on more than 5 days in the same month.

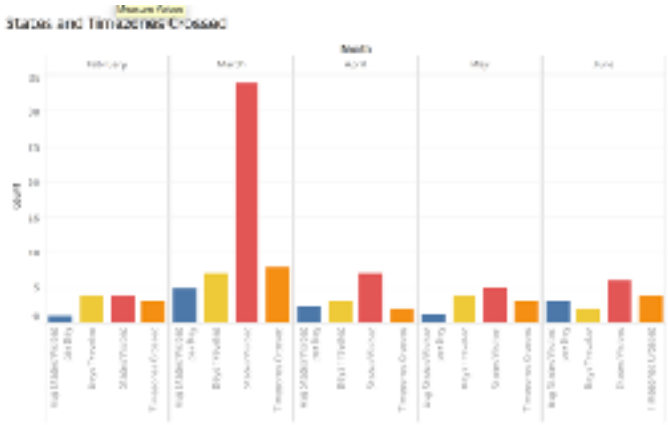

Figure 3: States and Timezones Crossed

The dashboard as a whole is expressive as it includes all interaction features represented by the augmented dataset. The interactivity enables the viewer to slice events by time while making selections on the different idioms, thus simultaneously capturing different insights encoded by means of different channels. For example, a viewer might notice the peculiar travel needs for the month of March by noticing its statistics on the bottom right panel, then scroll to the corresponding events in the schedule visualization and configure the map frames to show the corresponding days to obtain a deeper level of detail for travel needs across time. The viewer can also hover over each data point to discover more information such as state, time, or key statistic in each idiom.

The dashboard is also effective. Important insights such as travel intensity are encoded by a combination of variables represented by channel dimension, intensity, and color. Ordinal variables are represented on a common scale in order to highlight differences across time. Using a combination of idioms makes each feature easily separable from others, thus highlighting the dashboard's key takeaway points. The schedule encodes event timezones with different shapes, thus making it easy to notice clusters of events happening in close locations vs. events taking place in far away locations within close time frames. The month of march is characterized by outliers and these are shown with significant degree of popout. In particular, the variety of states visited in the month of March is shown in red, a color capturing the attention of the human eye more easily than others. Finally, event groups are shown by location on the map and on the schedule table.

Conclusion

The visualization accomplishes the task of synthesizing the travel schedule for the Republican Primary Presidential Campaign while at the same time pinpointing related travel challenges and allowing for planning. The visualization used is a dashboard composed by three idioms: a schedule table, a map, and bar chart plot. The combination of these three elements shows that the month of March is particularly challenging as events occur across multiple states, timezones, while frequently taking place on the same days.