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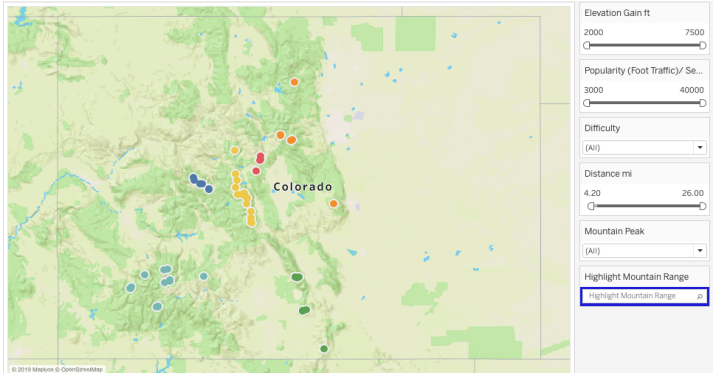
CSPB 4122

Project Revised Design- Find My 14er

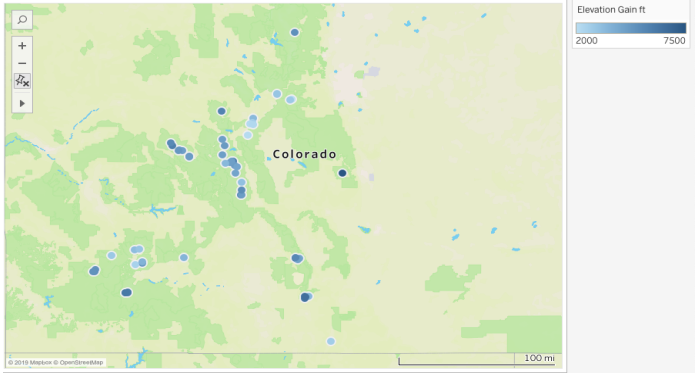
After receiving feedback on my initial project design, I have decided to implement a few changes which I believe will enhance user friendliness of the visualization system and improve overall understanding and provide clarity when interacting with the visualization system. I will discuss the proposed changes which include: changing the main visualization marks for each mountain peak, updating the ability of selection to include freeform shapes rather than a dropdown menu to filter areas of interest by mountain range, adding labels to provide clarity regarding the standard route for each selected peak, transferring the same color saturation marks for elevation gain on the main interface to the bar charts, and updating the weather feature design.

The first area of design which will be changed for my final design includes updating the color marks to reflect the elevation gain rather than filtering by mountain range. In the 'before' design below, each mountain peak's color mark reflected the mountain range in which it was located. After receiving feedback that it would be more useful for the user to be able to easily visually differentiate between the different peaks by elevation gain rather than sorting by specific mountain ranges, I decided the implement the change in my final design. I agree that the change of color marks to include different hues of blue to reflect elevation gain would be more useful for the user as few hikers would likely make a decision on a 14er based solely on which mountain range it is located in. Below you can see this change reflected in the geographic map idiom.

Before



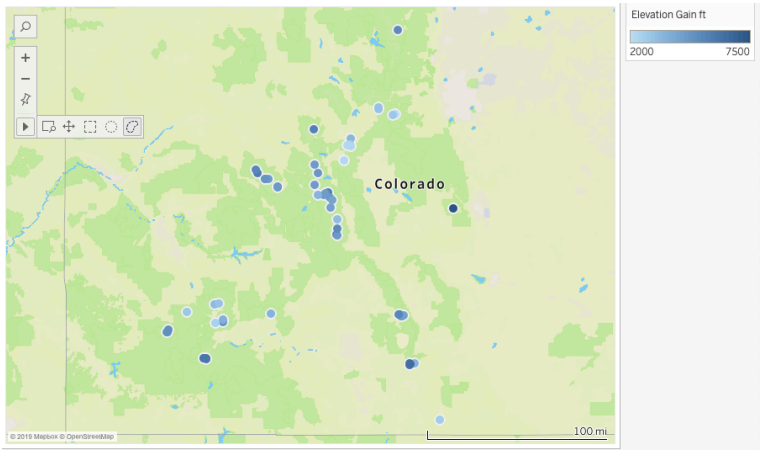
After



The next design choice I will be implementing will be to include freeform selection of a geographic area within the main map idiom. This will replace the selection by dropdown menu, which allowed selection based on checkboxes of which peak the users would like to compare. After receiving feedback, it became

obvious to me that it may not be useful to include compare features based on specific mountain peak names from a dropdown menu, as users likely would not specifically know each peak by name but rather be focusing on a specific area they would like to find a 14er to hike, and compare the results within that specific area or region. The mountain peak name was not as important as where it is located, so incorporating the freeform selection for compare tasks will improve this feature. An example is shown below of how this will be implemented in the final design.

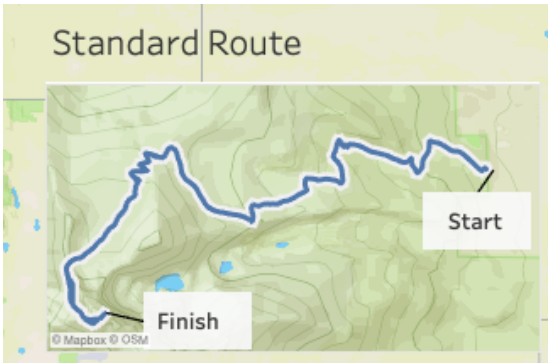
The user will now be able to perform selection tasks using a freeform shape drawn by the user.



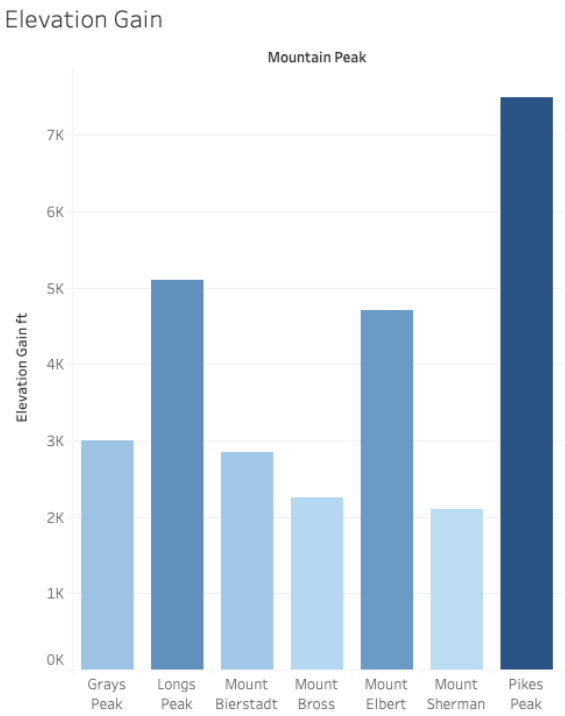
Another update to my design will include adding a title and start/finish marks to each standard route view. When selecting a specific mountain peak, the standard route will appear. As the initial design was submitted, it did not include any titles or marks to indicate the start and end of the route on the map view. After receiving feedback, I realized that this view can be very confusing and did not provide enough information for the user to understand what this view was trying to display. I have updated the initial view below to reflect these changes to include labels for the start and end of the route, along with a title for the standard route view. You can see this displayed below.

Before

After



The compare feature of the visualization will also get a small design update. In my initial design, I did not include any sort of correlation between color channels of the initial visualization and the compare bar charts. After receiving feedback that it may be useful for the user to view the color hue channels to compare attributes, I decided to implement this feature. Below you can see this feature implemented with the elevation gain attribute, which is also found within the main geographic map idiom. This proves to be useful because the user will not only be able to visually compare using the bar chart, but also through the color channels within the bar chart that will then translate to the map idiom for specific mountain peaks.



The user will also be able to choose within the main geographic idiom the attribute in which the mountain peaks are selected. In this paper, I have solely focused on the elevation gain attribute, though this will translate to any other attribute as well. For example, a user will be able to visualize different color hues based on difficulty of hike, distance of hike, etc. Whatever attribute is chosen will translate to the compare feature in terms of color channels. The rest of the bar charts will also include color hue channels, but the color will correspond to each individual attribute (blue for elevation gain, red for distance, etc.).

The last design change I would like to discuss is the weather feature. As included in my initial design proposal, it was simply included as an output of python code. In my actual visualization this will not be the case, as I would like for it to look more visually appealing than simply just plain text. The initial design is shown below. I would like to incorporate some sort of visual display image reflecting the current weather. I am unsure of the direction to go with this particular design choice and will likely need to incorporate a JavaScript API to connect with a python script that reads the current weather based on latitude and longitude. This will then be displayed in a weather widget such as with DarkSky API. Below

you can see the intial python code to display the current weather, with an updated design idea utilizing a weather widget from a source such as DarkSky API.

```
Current Weather for Longs Peak
   Temperature:  28.1 F
   Wind Speed:  9.4 mph
   Weather Summary:  Clear
   Precipitation Probability:  0.02
   Precipitation Intensity:  0.0004
```

This feature may remove a few fields of weather data such as precipitation probability and possibly wind speed, though I still plan to explore these options further to implement this weather feature fully. I think the weather feature will be the most challenging of all of them, as I will need to incorporate some sort of JavaScript code to integrate the system with the weather widget. I will also be looking into weather features with Tableau, but am uncertain of how to do this at this point.

As a whole, the Find my 14er interactive visualization will be staying close the same as the initial design proposal, with a few design changes implemented to improve functionality and user friendliness of the system. Each design change will improve upon the initial visualization design, and will better connect each view to the main geographic map visualization idiom.