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Leaflet homework

1. **Briefly explain the logic for generating the base map.**

In the logic.js for step 1, the base map is created in lines 4 through 24. The first step is to include a working apiKey required to access mapbox data. The second is to create a variable called graymap. Within the variable, the code pulls the map data via the L.tileLayer function and adds the copyright attribution, defines the tileSize, maxzoom, the zoomOffset, and the apiKey.

In line 16, the code creates a variable called map. Using the L.map function, it assigns the map to the “mapid” contained in the index.html file and centers the map at the geographic center of the United States with a Zoom of 3, which ensures the map will show the whole east-west of the world.

Finally, in line 24, the code uses the addTo function to add the graymap variable to the map variable.

1. **Describe how the JSON was loaded and how was the data traversed. Explain how was the information from the JSON used to render data on the map.**

In line 27, the JSON is loaded and added to a variable name data. Because the d3 cdn is included in index.html, the logic file is able to access the geojson available at usgs.gov. The results are added to variable named “data” as part of the function command.

The contents of data are added to the map in several functions:

* In the styleInfo function (lines 32 to 42), the magnitude of the earthquakes is called from feature.properties. The magnitude is used again in the getColor function (lines 44-60) and the getRadius function (lines 64 to 70).
* In the L.geoJson function (lines 73 to 84), the latlng called to place the circles on the map.

1. **Explain the logic for generating the circles and amending the size of them. What does this communicate?**

The circles are created, sized, and styled across three functions.

In the styleInfo(feature) function, the magnitude is called (as noted above) and assigned to a color through “fill.color.” The placeholder color is black. The size of the circle is also determined by the magnitude of the earthquake through the radius:

In the getColor(magnitude) function, colors are assigned to individual records based on the magnitude on the Richter scale. Using the switch/case loop, different colors are given at for earthquakes starting at 5 or larger on the Richter scale and dropping by 1 level on the scale, ending at zero. Each category is assigned its own color.

To make the circles larger, the getRadius(magnitude) function, multiplies the magnitude of each earthquake by 4. Without this function, the circles would have been too small for the fewer to interpret.

The final result offers two visual clues – color and size – for the user to see the magnitude of the earthquakes at each location in the data set.

1. **Describe how the layer for the Tectonic plates was generated.**

In the logic.js file for “Step 2,” the Tectonic plates are added through two variables.

The first “tectonicplates” at line 51 is identified as a new L.LayerGroup and that variable is added to the variable “overlays” at line 64. Later, at line 174, the function(plateData) calls the boundaries for the tectonic plates from github. At line 174 the L.geoJson(plateData) assign the color orange and the weight of 2 to the lines.

Finally, at line 182, “add.To(tectonicplates)” places the plates on the map itself.

1. **What are the components in the layer control? How were they generated?**

The layer control has five elements: 3 maps and two data layers.

The three maps were called from Leaflet in variables: “graymap” (line 9), “satellitemap” (line 18), and “streetmap” (line 27). Note that all of the variables have the same tileSize, maxZoom, and zoomOffset.

All three were combined into “baseMaps” at line 56.

The layers for Tectonic plates and earthquakes we created through individual variables that were combined into the “overlays” variables.

Through L.control, all of the variables for the maps and the data layers were added to the map with “.layers(baseMaps, overlays).”

1. **Explain the difference between the base map (tile layer) and the data layer(s).**

The main differences are:

* The base maps are standard data that are used across websites. The earthquake data layer is unique to this website, while the tectonic plate layer is one that requires a map for the user to understand.
* Functionally, the users choose one baselayer at a time, but can view both layers simultaneously.

1. **Walk through the logic of how the legend was generated and rendered on the page.**

The legend was created as a variable on line 142. Through “L.control,” it was placed at the bottom right of the map.

The Legend.onAdd function created three variables for the contents:

* The div called “info-legend” that was created to hold the legend on the website.
* The magnitude levels assigned to each circle.
* The colors assigned to each magnitude.

Within the function, a “for” loop starting at line 163 synchs the colors to the magnitudes and assigns them to individual divs for display.

The legend is formally placed on the map on line 171 with “legend.addTo(map).

Note: when inspected on Google Chrome, the legend has a div was identified as “info legend leaflet-control.”