

TGIS 503 Lab 4 – Live Data Feeds

Lab Specification Document

Introduction

In lab 3, you were required to make a map and add static data to it using GeoJSON or another web-data format. This lab takes that concept to the next level and requires you to create maps that pull data from a published web feed. In other words, live data.

Though private sources of live data (such as geotagged Tweets) are increasingly being restricted by paywalls, live data feeds remain available through primarily government sources. This lab will encourage you to find and use live data sources to display data on stylized maps of your choosing. The purpose of this lab is to display a data-source in an appealing way, and therefore design choices are an important component of this lab.

For this lab you will create a single HTML page with **two** maps on the page. Those maps should each take one (or more) **live** data sources and display them for a user to consume. One of these maps **must be earthquake data from USGS** and at least one of the maps **must use Mapbox GL** as the mapping framework. This first map should use data in the GeoJSON format. **The second mapping framework is your choice.** You may choose any data you wish for the second map. You can use data in either the KML/KMZ or GeoJson format, but it must be from a dynamic, updating feed.

Background Details

This lab is an extension of lab 3 and encourages you to use different data sources in your web maps. There are scenarios where you might be tasked with displaying someone else's data rather than creating it yourself. In winter quarter, we will learn more about how to collect and create your own data to display in web maps.

USGS Earthquake data comes in GeoJSON format with a number of properties for each earthquake. For this lab you are required to parse the GeoJSON and display the earthquake **magnitude, location, and a url link to further details** for each earthquake on your map. You may display this data in any way which helps your user understand the map, as a popup, a window, or some other way.

Your second map may be a topic of your choosing, using live data feed(s) from public or private sources. In the Week 7 Reading Response, you were to find examples of these data sources. Revisit that list as a place to begin thinking about what you want to map in your second map.

In lab 3 we used Leaflet Plugins to make our maps more interactive and powerful. In lab 4 & 5 it is expected that you find any applicable plugins or functionality yourself to augment the data you are displaying. For instance, you might use plugins or built-in functionality (depending on

the mapping platform) to cluster point data, to make your layers able to be turned off and on in your legend, or to add a button that zooms the user to their current location.

In class in week 8, we will also cover the basics of how to create and customize your own basemaps. As many live data feeds are available only in the KML or KMZ file formats and data in this format is harder to style than geoJSON data, your basemap style choices will impact the readability of your data.

Learning Outcomes

This lab will teach students to:

- Find and use live data sources such as KML/KMZ provided by official sources
- Create stylized basemaps to better convey the details of 3rd party data sources
- Sift through GeoJSON data to display pertinent details to a user
- Add two maps to a single HTML page
- Utilize a new mapping framework (Mapbox GL)

MVP Requirements

Submit your work as a URL to where your maps exist online. Submit both maps in a single webpage. Style the page appropriately, and keep your code organized, as always.

Earthquake Map

The Earthquake map MUST:

- Include a brief description of the map & details about the dataset being displayed
- Be an interactive map initially zoomed to the entire globe
- Have pan/zoom functionality
- Have a custom styled basemap (use Mapbox Studio)
- Have icons/details/some visual cue of where earthquakes occurred
- Display additional details about an earthquake when the user interacts with a specific earthquake (i.e. popup or hover) to show, at minimum, the magnitude and location of the earthquake
- Open a details link in a new tab when the user clicks an earthquake's details

Other Map

The other map MUST:

- Be an interactive map initially zoomed and centered on an appropriate level for the dataset
- Have pan/zoom functionality
- Have a custom styled basemap (use Mapbox Studio)
- Have icons/details/some other visual cue of the phenomenon being displayed
- Display additional details about your dataset as appropriate

Bonus Requirements

Complete these only after satisfying the MVP requirements.

- Have a button to reset the extent of the map to the original center/zoom
- Add functionality to toggle map layers off and on
- Add functionality to toggle the basemap style

Grading Rubric

I'm going to try to get you used to less detailed rubrics as the program goes on. This is because being able to discern evaluation criteria from qualitative descriptions of expectations is an important professional skill. Further, as you get more accustomed to my grading style, this will become easier and easier for you to do. As we move in that direction, I will still provide a rough breakdown of how I will assign points for labs in this fall quarter.

This lab will be worth 20 points:

- 7 points will be possible for elements related to the first map
- 9 points will be possible for elements related to the second map
- 4 points will be for general matters like code organization, overall page styling and functionality, etc.
- Bonus points will be assigned on a case-by-case basis