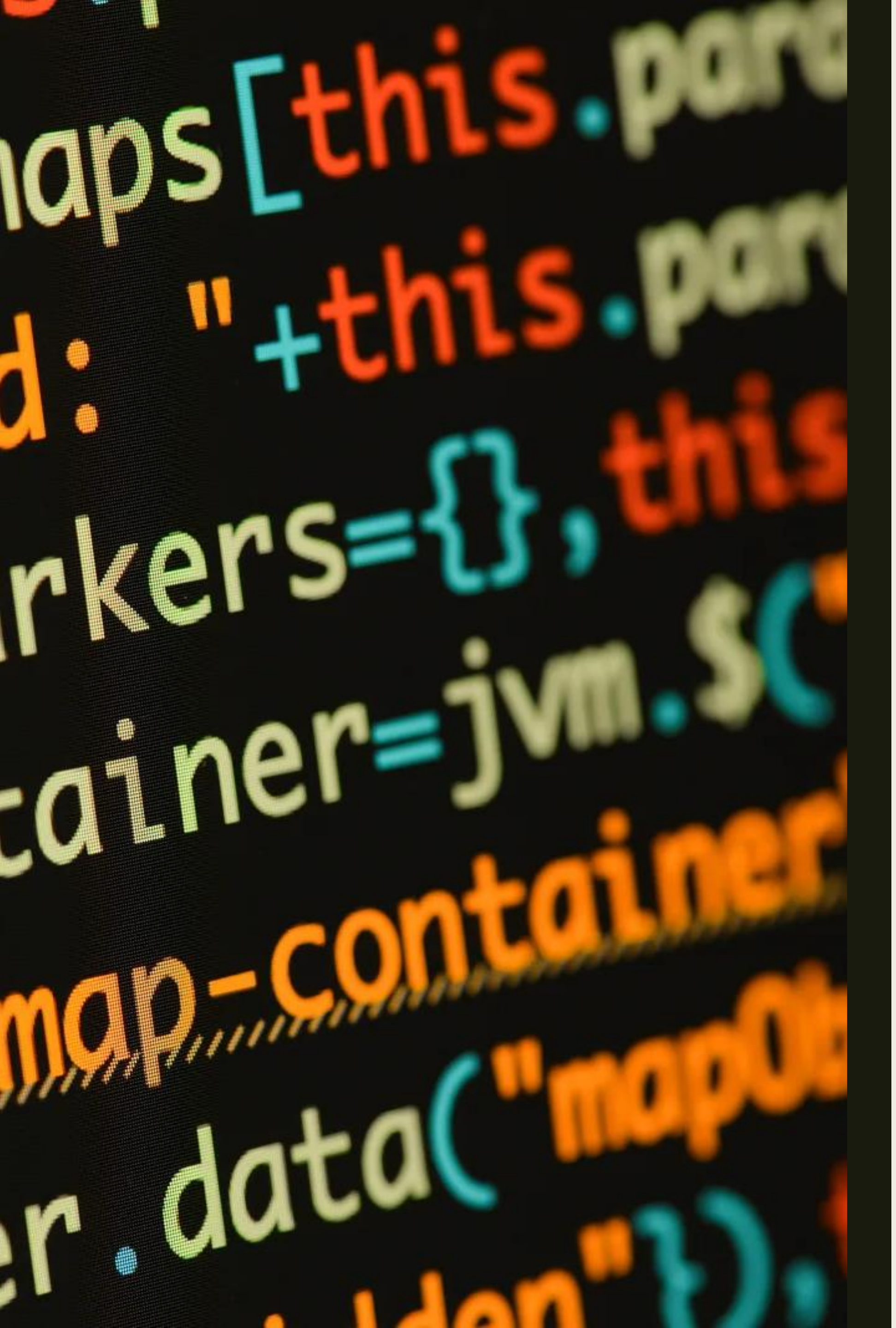
GIS WEB DEV

An oversimplification of GIS development and deployment with HTML, CSS, and JS



oversimplified take aways

Easy to create and maintain templates.

Easy to collaborate, customize, distribute and maintain.

Unlimited potential for data sources. APIs are easy to consume and create.

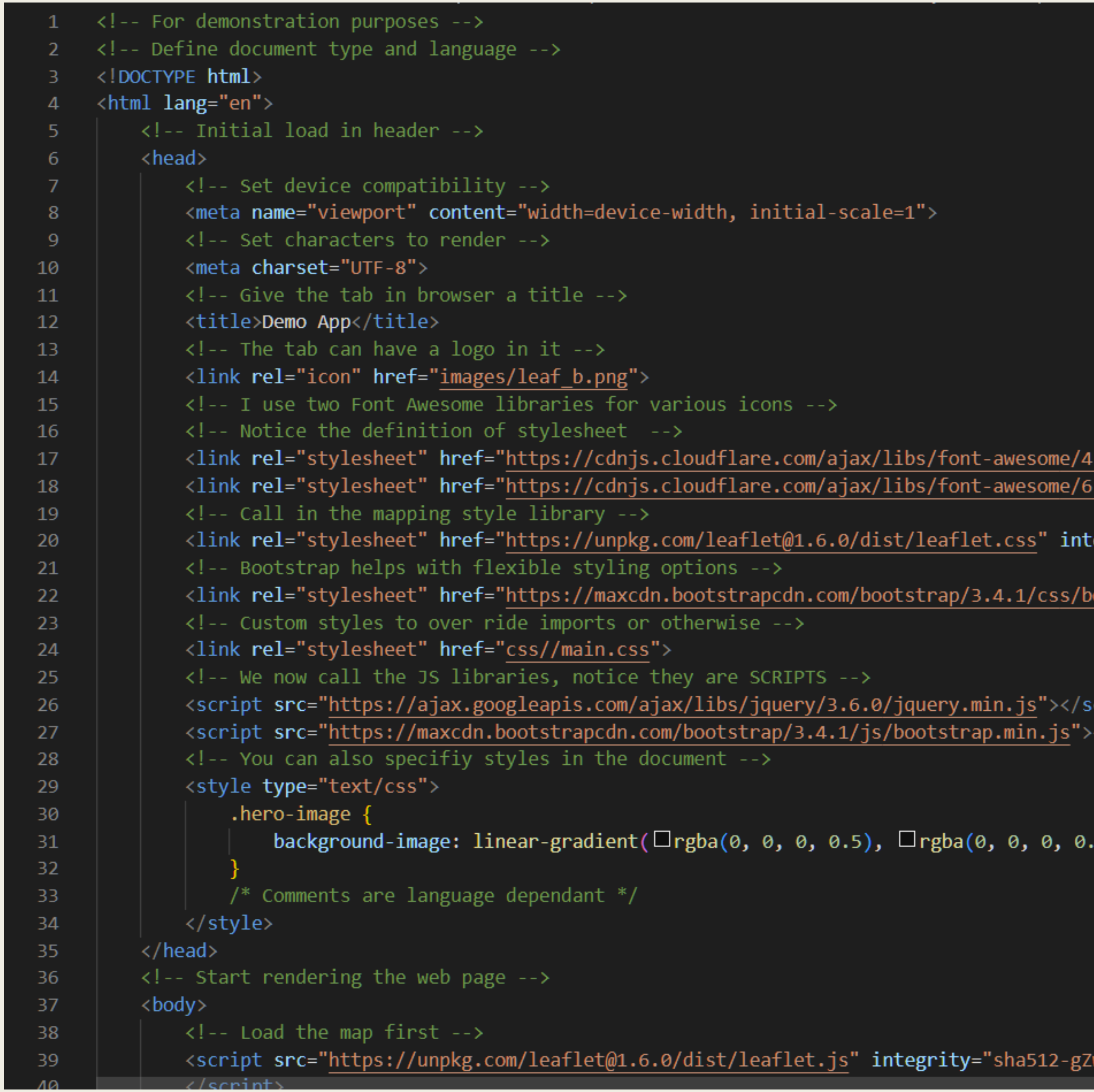
Low overhead, maintenance and data storage costs.

the bones

HTML AND CSS DEFINE THE STRUCTURE AND STYLE

ONE TEMPLATE FOR MANY WEB SERVICES

EASY TO SYNCHRONIZE EFFORTS TOWARDS A COMMON GOAL



```html
<!-- For demonstration purposes -->
<!-- Define document type and language -->
<!DOCTYPE html>
<html lang="en">
    <!-- Initial load in header -->
    <head>
        <!-- Set device compatibility -->
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <!-- Set characters to render -->
        <meta charset="UTF-8">
        <!-- Give the tab in browser a title -->
        <title>Demo App</title>
        <!-- The tab can have a logo in it -->
        <link rel="icon" href="images/leaf_b.png">
        <!-- I use two Font Awesome libraries for various icons -->
        <!-- Notice the definition of stylesheet  -->
        <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4
        <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6
        <!-- Call in the mapping style library -->
        <link rel="stylesheet" href="https://unpkg.com/leaflet@1.6.0/dist/leaflet.css" int
        <!-- Bootstrap helps with flexible styling options -->
        <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/b
        <!-- Custom styles to over ride imports or otherwise -->
        <link rel="stylesheet" href="css//main.css">
        <!-- We now call the JS libraries, notice they are SCRIPTS -->
        <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></s
        <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js">
        <!-- You can also specifiy styles in the document -->
        <style type="text/css">
            .hero-image {
                background-image: linear-gradient(□rgba(0, 0, 0, 0.5), □rgba(0, 0, 0, 0.
            }
            /* Comments are language dependant */
        </style>
    </head>
    <!-- Start rendering the web page -->
    <body>
        <!-- Load the map first -->
        <script src="https://unpkg.com/leaflet@1.6.0/dist/leaflet.js" integrity="sha512-gZ
        </script>
```

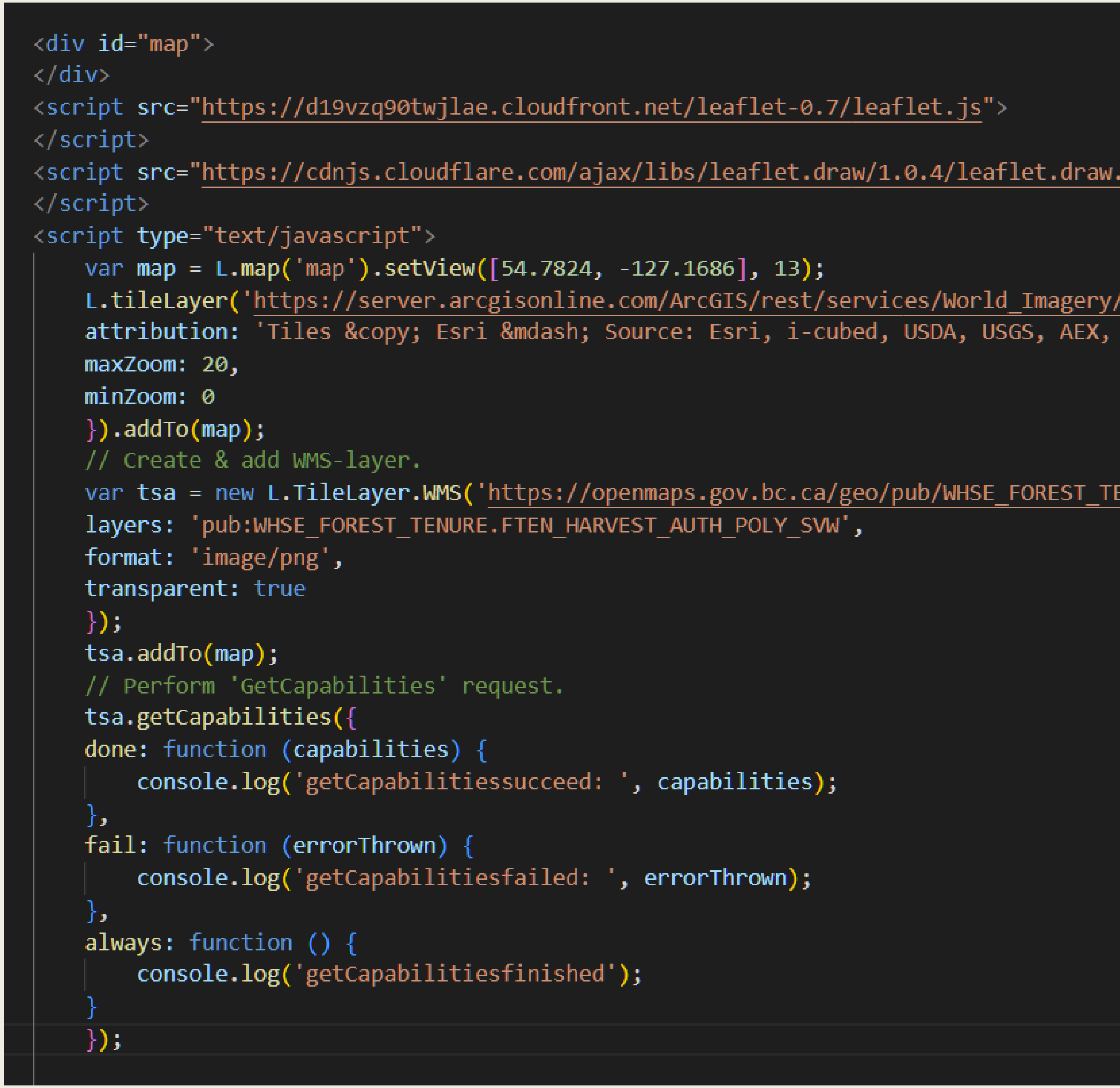
github.com/James-Burton/presentations/regionalPresentation_09272022/regionalPresentation0.html

the meat

JAVASCRIPT (JS) CARRIES A LOT OF WEIGHT

LEAFLET JS: IS IT JS LIBRARY OR IS IT AN API?

COMBINE THE TWO ABOVE FOR A SIMPLE WEB MAP.



```
<div id="map">
</div>
<script src="https://d19vzq90twjlae.cloudfront.net/leaflet-0.7/leaflet.js">
</script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/leaflet.draw/1.0.4/leaflet.draw.
</script>
<script type="text/javascript">
    var map = L.map('map').setView([54.7824, -127.1686], 13);
    L.tileLayer('https://server.arcgisonline.com/ArcGIS/rest/services/World_Imagery/
    attribution: 'Tiles &copy; Esri &mdash; Source: Esri, i-cubed, USDA, USGS, AEX,
    maxZoom: 20,
    minZoom: 0
    }).addTo(map);
    // Create & add WMS-layer.
    var tsa = new L.TileLayer.WMS('https://openmaps.gov.bc.ca/geo/pub/WHSE_FOREST_TE
    layers: 'pub:WHSE_FOREST_TENURE.FTEN_HARVEST_AUTH_POLY_SVW',
    format: 'image/png',
    transparent: true
    });
    tsa.addTo(map);
    // Perform 'GetCapabilities' request.
    tsa.getCapabilities({
    done: function (capabilities) {
        console.log('getCapabilitiessucceed: ', capabilities);
    },
    fail: function (errorThrown) {
        console.log('getCapabilitiesfailed: ', errorThrown);
    },
    always: function () {
        console.log('getCapabilitiesfinished');
    }
    });
```

github.com/James-Burton/presentations/regionalPresentation_09272022/regionalPresentation1.html

the heat

JAVASCRIPT PROVIDES ENDLESS POSSIBILITIES

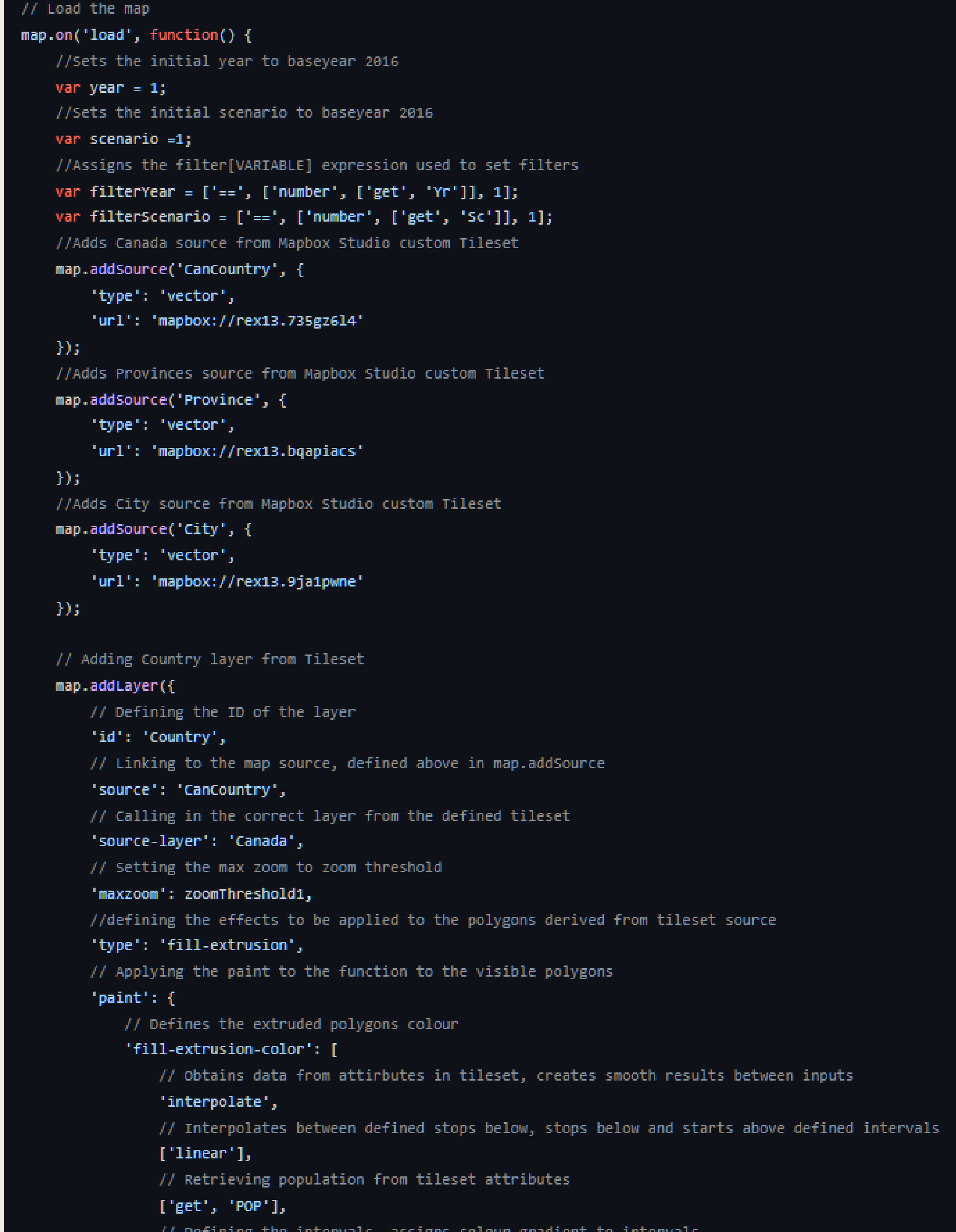
(STOP ME IF I SPEND MORE THAN 30 SECONDS DISCUSSING APIS)

WEB DEPLOYMENT OF GEOSPATIAL DATA IS THE FUTURE.

WE CAN DO IT EASIER THAN YOU THINK.

(AND FOR LESS.)

James-Burton.github.io/js/1925B.js



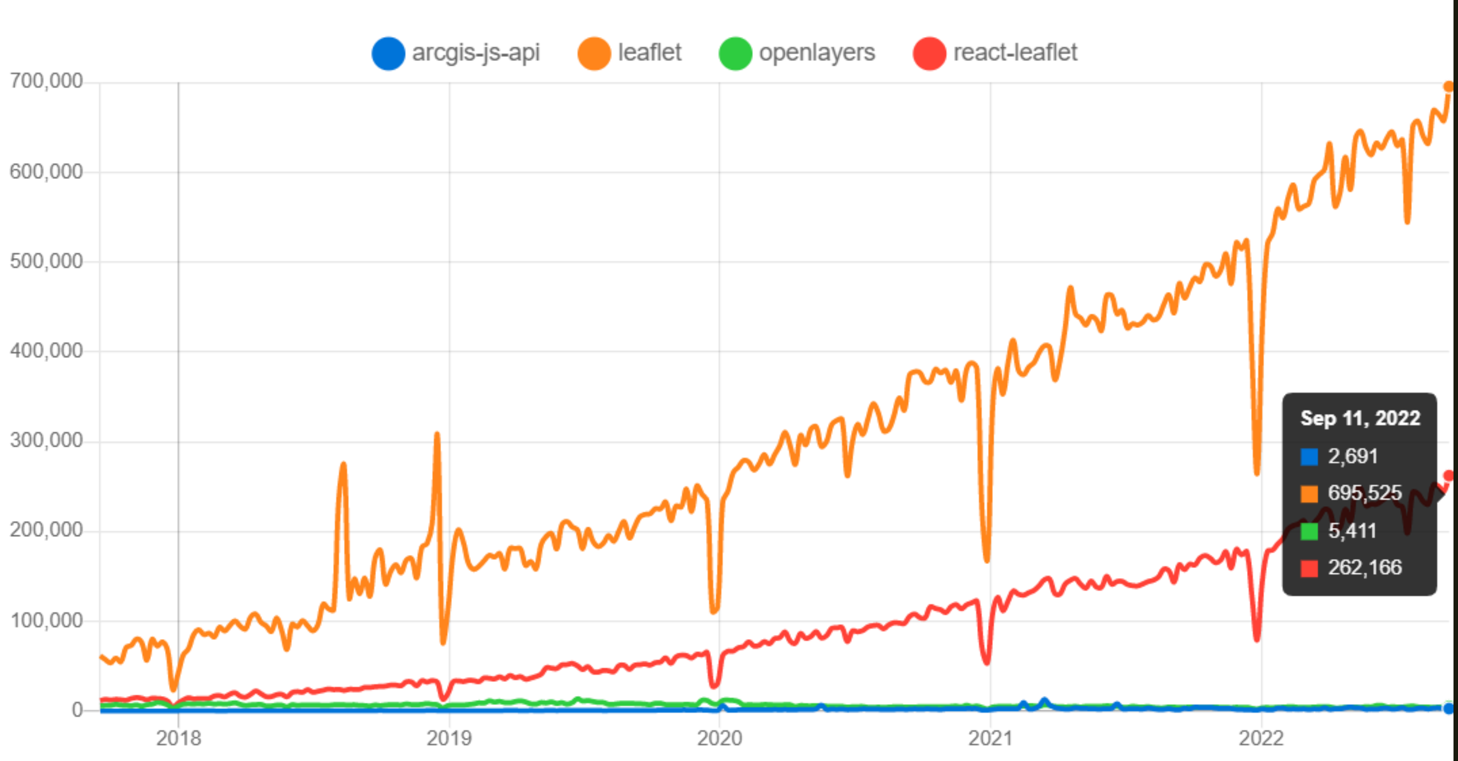
```
// Load the map
map.on('load', function() {
    //Sets the initial year to baseyear 2016
    var year = 1;
    //Sets the initial scenario to baseyear 2016
    var scenario =1;
    //Assigns the filter[VARIABLE] expression used to set filters
    var filterYear = ['==', ['number', ['get', 'Yr']], 1];
    var filterScenario = ['==', ['number', ['get', 'Sc']], 1];
    //Adds Canada source from Mapbox Studio custom Tileset
    map.addSource('CanCountry', {
        'type': 'vector',
        'url': 'mapbox://rex13.735gz6l4'
    });
    //Adds Provinces source from Mapbox Studio custom Tileset
    map.addSource('Province', {
        'type': 'vector',
        'url': 'mapbox://rex13.bqapiacs'
    });
    //Adds City source from Mapbox Studio custom Tileset
    map.addSource('City', {
        'type': 'vector',
        'url': 'mapbox://rex13.9ja1pwne'
    });

    // Adding Country layer from Tileset
    map.addLayer({
        // Defining the ID of the layer
        'id': 'Country',
        // Linking to the map source, defined above in map.addSource
        'source': 'CanCountry',
        // Calling in the correct layer from the defined tileset
        'source-layer': 'Canada',
        // Setting the max zoom to zoom threshold
        'maxzoom': zoomThreshold1,
        //defining the effects to be applied to the polygons derived from tileset source
        'type': 'fill-extrusion',
        // Applying the paint to the function to the visible polygons
        'paint': {
            // Defines the extruded polygons colour
            'fill-extrusion-color': [
                // Obtains data from attirbutes in tileset, creates smooth results between inputs
                'interpolate',
                // Interpolates between defined stops below, stops below and starts above defined intervals
                ['linear'],
                // Retrieving population from tileset attributes
                ['get', 'POP'],
                // Defining the intervals, assigns colour gradient to intervals
```

LET’S TAKE A LOOK.

A very brief real-world examination.

API Trends



Closing Notes

Web deployments driven with open source libraries are:

- Faster
- Easier
- Durable
- Cheaper
- Transparent
- Collaborative

The oversimplified take aways

1

Easy to create, maintain and customize!

2

Easy to incorporate open-source Government data.

3

Exceed client expectations with FOSS4G!

All the while saving money, time and effort!!

THINK FUTURE COMPATIBLE

Think cost effective