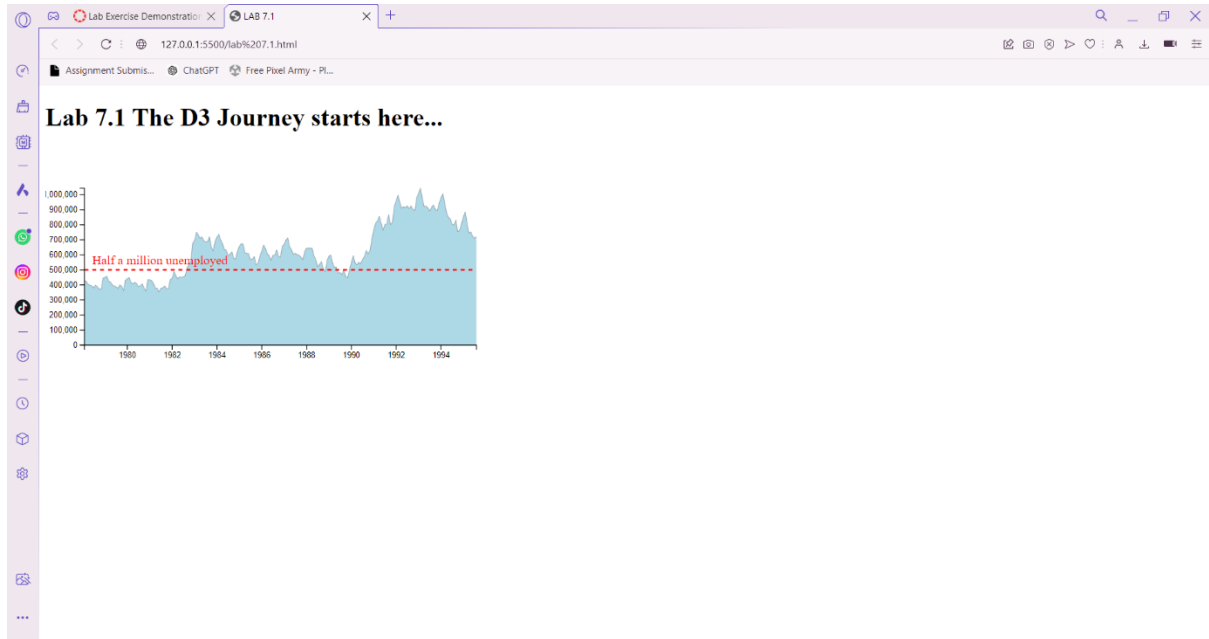


JOSHUA SANJAY KING 105282612

<https://loverboycoding.github.io/30045-Submission-website/>

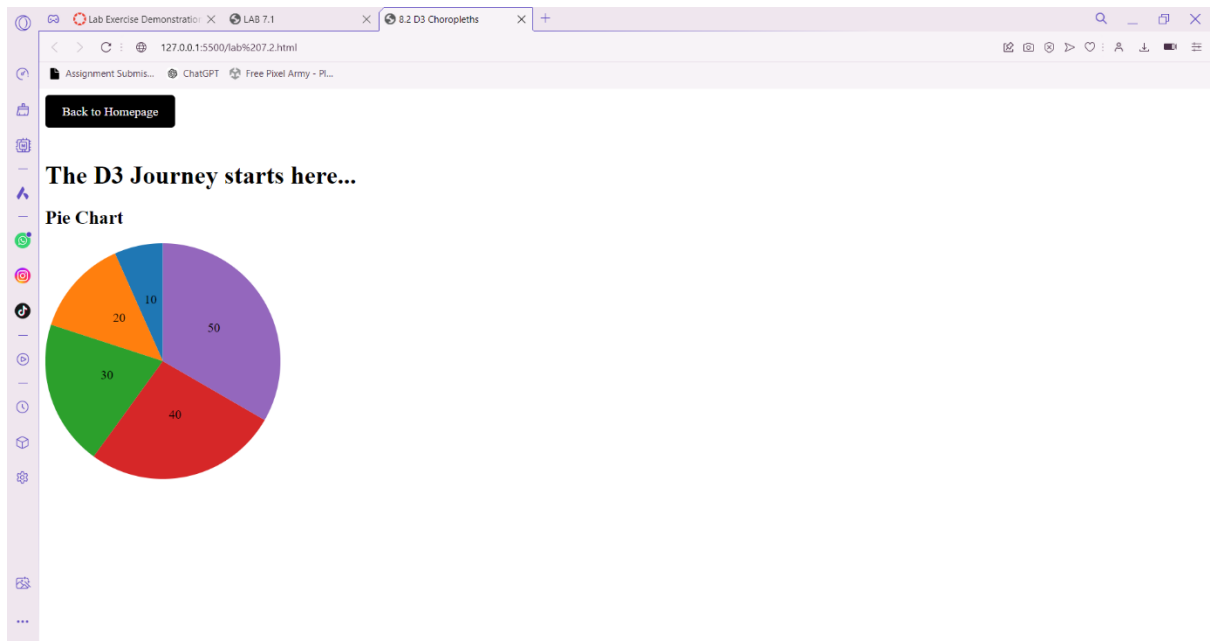
## Lab 7.1



```
File Edit Selection View Go Run Terminal Help
lab 7.1
lab 7.1.html x JS lab 7.1 javascripts Unemployment_78-95.csv
LAB 7.1
lab 7.1 javascripts
lab 7.1.html
Unemployment_78-95.csv
lab 7.1.html > HTML > body > h1
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="utf-8" />
5 <meta name="description" content="Data Visualisation" />
6 <meta name="keywords" content="HTML,CSS,D3" />
7 <meta name="author" content="Joshua Sanjay King" />
8 <title>LAB 7.1</title>
9 <script src="https://d3js.org/d3.v7.min.js"></script>
10 <script defer src="lab 7.1 javascript.js"></script>
11 </head>
12
13 /* Style for the button container */
14 .buttons {
15   margin-bottom: 20px;
16 }
17
18 /* Style for the buttons */
19 .chart-button {
20   margin: 5px;
21   padding: 10px;
22   background-color: #4CAF50;
23   color: white;
24   border: none;
25   cursor: pointer;
26   border-radius: 5px;
27 }
28
29 .chart-button:hover {
30   background-color: #45a049;
31 }
32
33 /* Styling for the chart's line */
34 .line {
35   fill: none;
36   stroke: slategrey;
37   stroke-width: 0.5;
38 }
```

```
1 function init() {  
2  
3  
4  
5  
6 // Load the CSV data  
7 d3.csv("Unemployment_78-95.csv", function (d) {  
8   return {  
9     date: new Date(d.year, d.month - 1), // Convert to Date object  
10    number: +d.number // Convert number to integer  
11  });  
12 }).then(function (dataset) {  
13   // Scales  
14   var xScale = d3.scaleTime()  
15     .domain([  
16     d3.min(dataset, function (d) { return d.date; } ),  
17     d3.max(dataset, function (d) { return d.date; } )  
18   ])  
19     .range([padding, w - padding]);  
20  
21   var yScale = d3.scaleLinear()  
22     .domain([0, d3.max(dataset, function (d) { return d.number; } )])  
23     .range([h - padding, padding]);  
24  
25   // Line generator  
26   var line = d3.line()  
27     .x(function (d) { return xScale(d.date); })  
28     .y(function (d) { return yScale(d.number); });  
29  
30   // Append the SVG  
31   var svg = d3.select("mchart")  
32     .append("svg")  
33     .attr("width", w)  
34     .attr("height", h);  
35  
36   // Create the area generator  
37   var area = d3.area()  
38     .x(function (d) { return xScale(d.date); })  
39     .y0(function () { return yScale.range()[0]; }) // Base of the area  
40     .y1(function (d) { return yScale(d.number); });
```

## Lab 7.2

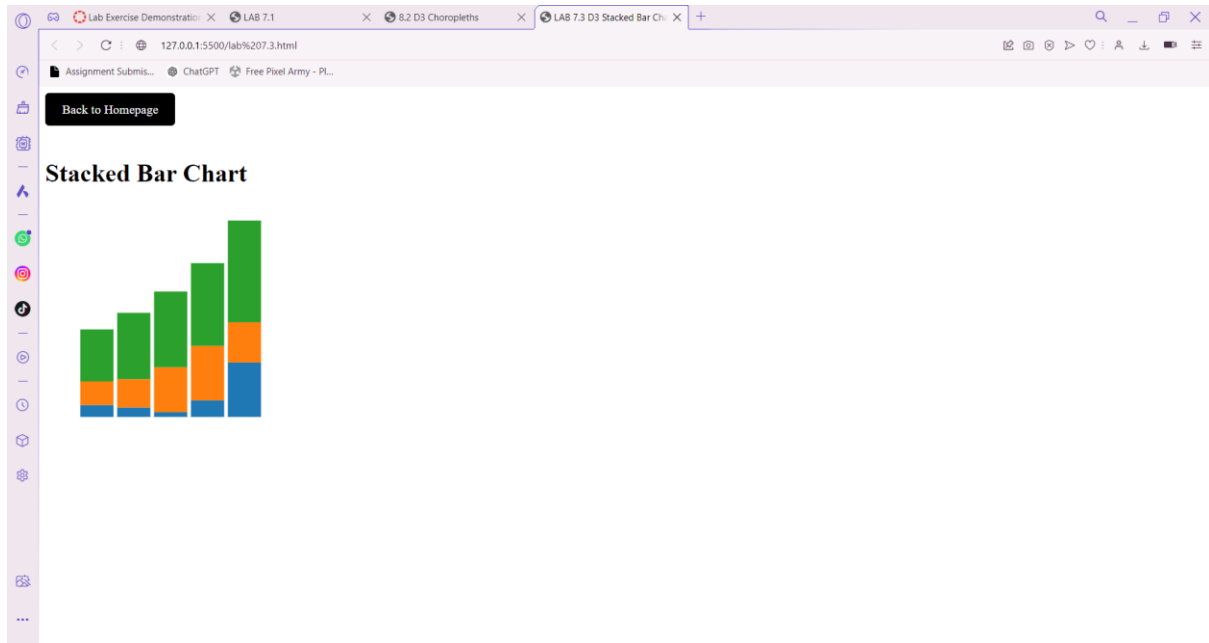


```
lab 7.2.html X JS lab 7.2.javascript.js
lab 7.2.html > html > head > style > .back-button
2 <html lang="en">
3 <head>
4 <script src="lab 7.2.javascript.js" defer></script>
5 <style>
6 /* Back to Homepage Button */
7 .back-button {
8   display: inline-block;
9   margin-bottom: 20px;
10  padding: 10px 20px;
11  background-color: #000;
12  color: #fff;
13  text-decoration: none;
14  border-radius: 5px;
15  border: 2px solid #000;
16  transition: all 0.3s ease;
17 }
18 .back-button:hover {
19   background-color: #fff;
20   color: #000;
21 }
22 </style>
23 </head>
24 <body>
25 <!-- Back to Homepage Button -->
26 <a href="..../homepage.html" class="back-button">Back to Homepage</a>
27 <h1>The D3 Journey starts here...</h1>
28 <h2>Pie Chart</h2>
29 <svg width="300" height="300"></svg>
30 </body>
31 </html>
32
33
34
35
36
37
38
39
40
41
42
```

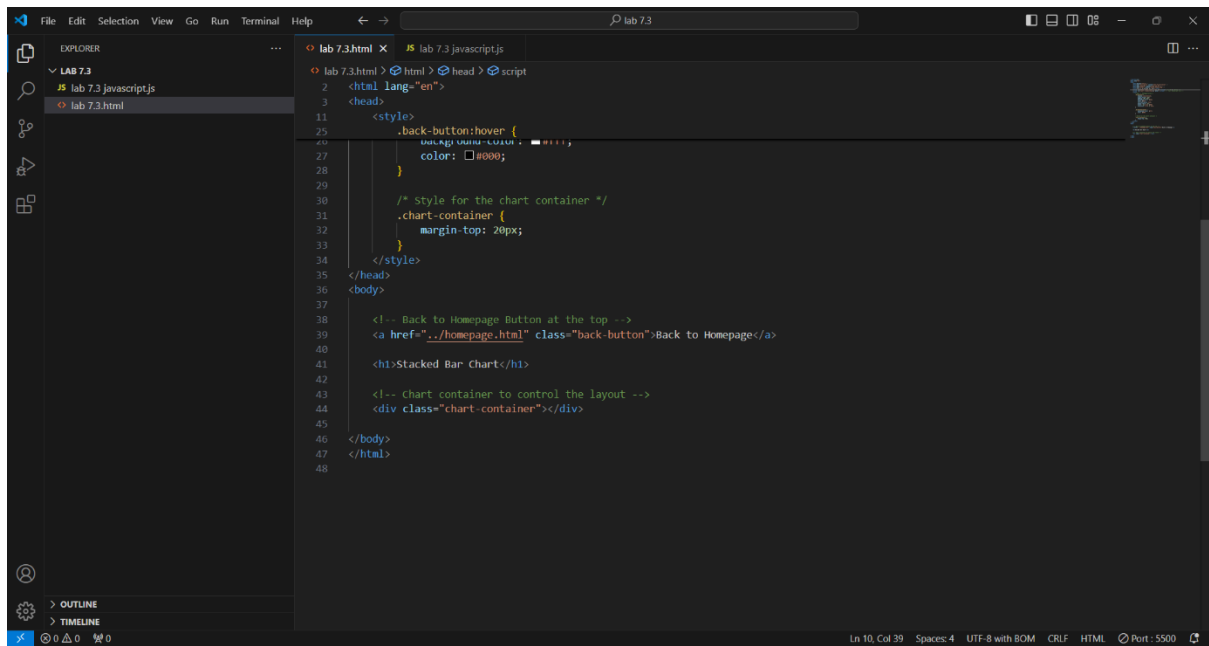
Server is Started at port : 5500  
Source: Live Server  
Don't show again

```
lab 7.2.javascript.js X
lab 7.2.javascript.js > ...
4 // Select the SVG canvas
5 const width = 300, height = 300;
6 const svg = d3.select(svg)
7 .attr("width", width)
8 .attr("height", height)
9 .append("g")
10 .attr("transform", `translate(${width / 2}, ${height / 2})`);
11
12 // Step 2: Define pie and arc generators
13 const pie = d3.pie();
14 const outerRadius = width / 2;
15 const arc = d3.arc()
16   .outerRadius(outerRadius)
17   .innerRadius(0); // Set to a value > 0 for donut chart
18
19 // Generate pie angles from data
20 const pieData = pie(data);
21
22 // Step 3: Create arcs and position them
23 const arcs = svg.selectAll("arc")
24   .data(pieData)
25   .enter()
26   .append("g")
27   .attr("class", "arc");
28
29 // Draw the paths for the arcs
30 arcs.append("path")
31   .attr("d", arc)
32   .attr("fill", (d, i) => d3.schemeCategory10[i]);
33
34 // Step 5: Add text labels
35 arcs.append("text")
36   .attr("transform", d => `translate(${arc.centroid(d)})`)
37   .attr("text-anchor", "middle")
38   .text(d => d.data);
39
```

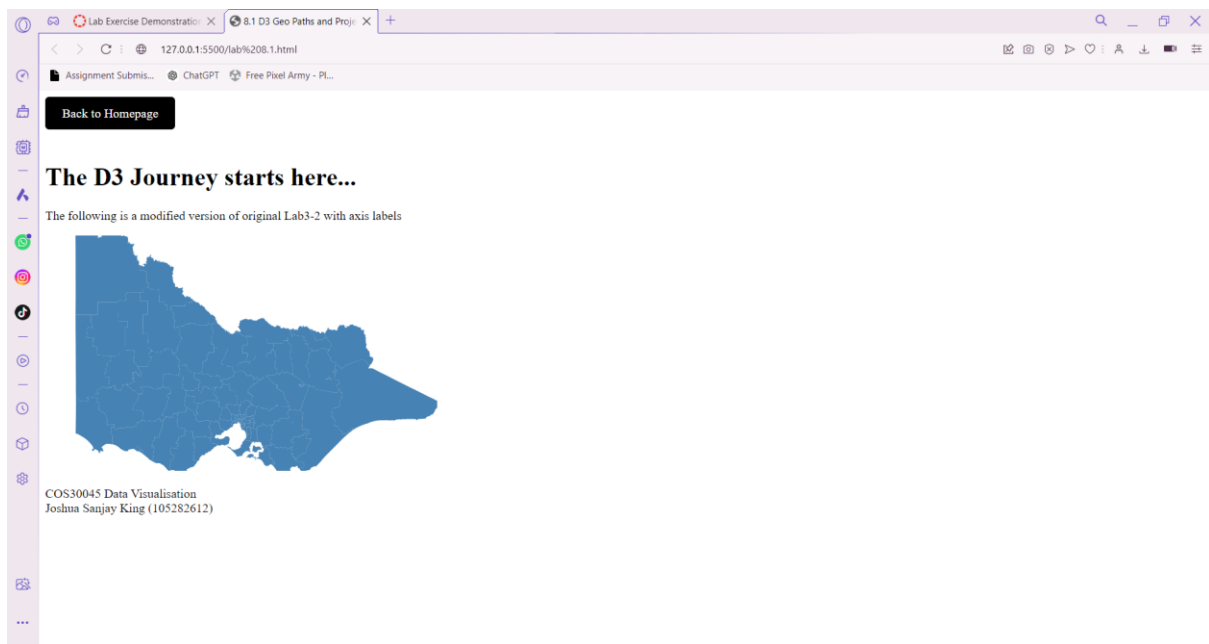
## Lab 7.3

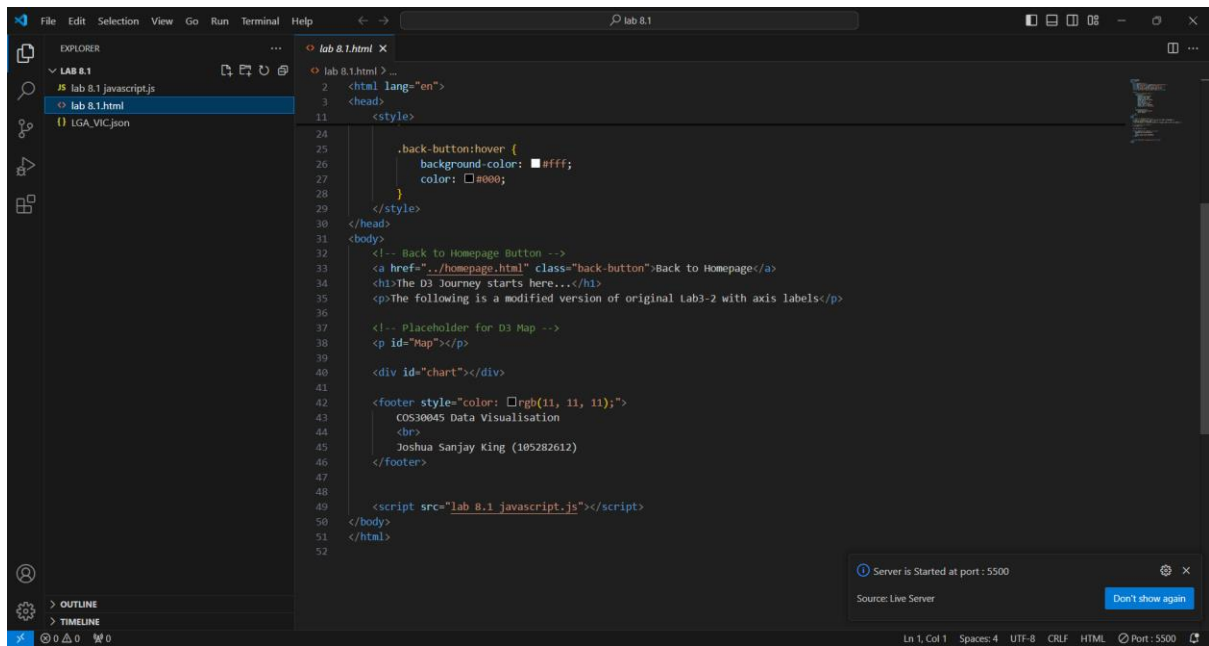


```
File Edit Selection View Go Run Terminal Help
lab 7.3
lab 7.3 javascript.js > ...
1 // Dataset
2 var dataset = [
3   { apples: 5, oranges: 10, grapes: 22 },
4   { apples: 4, oranges: 12, grapes: 28 },
5   { apples: 2, oranges: 19, grapes: 32 },
6   { apples: 7, oranges: 23, grapes: 35 },
7   { apples: 23, oranges: 17, grapes: 43 }
8 ];
9
10 // Create stack layout
11 var stack = d3.stack()
12   .keys(['apples', 'oranges', 'grapes']);
13
14 var series = stack(dataset);
15
16 // Define chart dimensions
17 var width = 300;
18 var height = 300;
19 var margin = { top: 20, right: 20, bottom: 30, left: 40 };
20
21 // Append SVG to the chart container
22 var svg = d3.select(".chart-container").append("svg")
23   .attr("width", width)
24   .attr("height", height)
25   .append("g")
26   .attr("transform", "translate(" + margin.left + "," + margin.top + ")");
27
28 // Set up x and y scales
29 var xScale = d3.scaleBand()
30   .domain(d3.range(dataset.length)) // Create an x-scale for the number of data points
31   .range([0, width - margin.left - margin.right])
32   .padding(0.1);
33
34 var yScale = d3.scaleLinear()
35   .domain([0, d3.max(dataset, d => d.apples + d.oranges + d.grapes)]) // Maximum sum for stacking
36   .range([height - margin.top - margin.bottom, 0]);
37
```



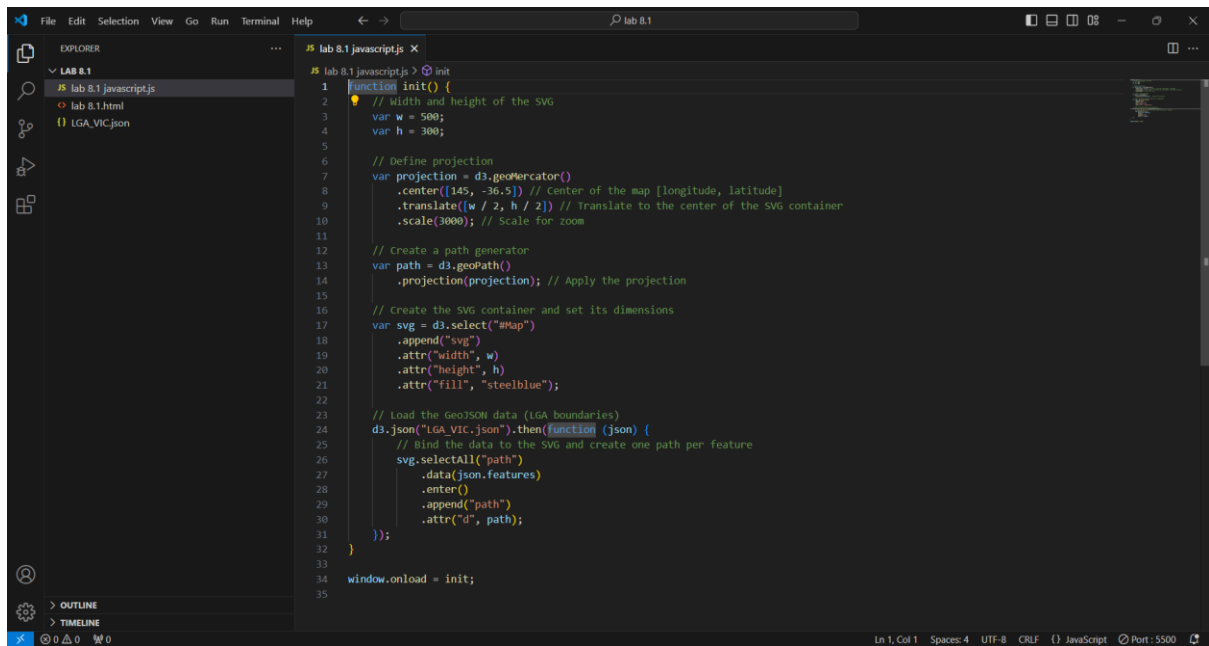
## Lab 8.1





This screenshot shows the Visual Studio Code editor with the file `lab 8.1.html` open. The Explorer sidebar on the left shows the project structure with `LAB 8.1` containing `lab 8.1 javascript.js`, `lab 8.1.html`, and `LGA_VIC.json`. The main editor area displays the HTML code for `lab 8.1.html`, which includes a header, a style for a back button, a body with a back button and a map placeholder, and a footer with course information. A status bar at the bottom indicates the current line and column (Ln 1, Col 1), the number of spaces (4), the encoding (UTF-8), the line ending (CRLF), the file type (HTML), and the port (5500). A notification in the bottom right corner states "Server is Started at port : 5500" with a "Don't show again" button.

```
1 <html lang="en">
2 <head>
3
11 <style>
12
24 .back-button:hover {
25   background-color: #ffff;
26   color: #0000;
27 }
28 </style>
29 </head>
30 </head>
31 <body>
32 <!-- Back to Homepage Button -->
33 <a href=".." /homepage.html" class="back-button">Back to Homepage</a>
34 <h1>The D3 Journey starts here...</h1>
35 <p>The following is a modified version of original Lab3-2 with axis labels</p>
36
37 <!-- Placeholder for D3 Map -->
38 <p id="Map"></p>
39
40 <div id="chart"></div>
41
42 <footer style="color: #000000;">
43   COS30045 Data Visualisation
44   <br>
45   Joshua Sanjay King (105282612)
46 </footer>
47
48
49 <script src="lab 8.1 javascript.js"></script>
50 </body>
51 </html>
52
```



This screenshot shows the Visual Studio Code editor with the file `lab 8.1 javascript.js` open. The Explorer sidebar on the left shows the project structure with `LAB 8.1` containing `lab 8.1 javascript.js`, `lab 8.1.html`, and `LGA_VIC.json`. The main editor area displays the JavaScript code for `lab 8.1 javascript.js`, which defines an `init` function to set up a D3.js map. The code includes comments for each step, such as defining the projection, creating a path generator, and loading the GeoJSON data. A `window.onload = init;` line is at the bottom. The status bar at the bottom indicates the current line and column (Ln 1, Col 1), the number of spaces (4), the encoding (UTF-8), the line ending (CRLF), the file type (JavaScript), and the port (5500).

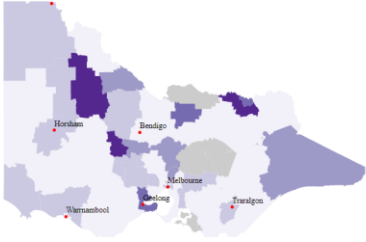
```
1 function init() {
2   // Width and height of the SVG
3   var w = 500;
4   var h = 300;
5
6   // Define projection
7   var projection = d3.geoMercator()
8     .center([145, -36.5]) // Center of the map [longitude, latitude]
9     .translate([w / 2, h / 2]) // Translate to the center of the SVG container
10    .scale(3000); // Scale for zoom
11
12   // Create a path generator
13   var path = d3.geoPath()
14     .projection(projection); // Apply the projection
15
16   // Create the SVG container and set its dimensions
17   var svg = d3.select("#Map")
18     .append("svg")
19     .attr("width", w)
20     .attr("height", h)
21     .attr("fill", "steelblue");
22
23   // Load the GeoJSON data (LGA boundaries)
24   d3.json("LGA_VIC.json").then(function (json) {
25     // Bind the data to the SVG and create one path per feature
26     svg.selectAll("path")
27       .data(json.features)
28       .enter()
29       .append("path")
30       .attr("d", path);
31   });
32 }
33
34 window.onload = init;
35
```

## Lab 8.2

Back to Homepage

### The D3 Journey starts here...

The following is a modified version of original Lab 3-2 with axis labels



COS30045 Data Visualisation  
Joshua Sanjay King (105282612)

```
File Edit Selection View Go Run Terminal Help
lab 8.2
lab 8.2 javascript.js
lab 8.2.html
LGA_VIC.json
VIC_city.csv
VIC_LGA_unemployment.csv
lab 8.2.html
2 <html lang="en">
3 <head>
11 <style>
13 .back-button {
23 }
24
25 .back-button:hover {
26 background-color: #ffff;
27 color: #000;
28 }
29 </style>
30 </head>
31 <body>
32 <!-- Back to Homepage Button -->
33 <a href="../../../homepage.html" class="back-button">Back to Homepage</a>
34 <h1>The D3 Journey starts here...</h1>
35 <p>The following is a modified version of original Lab 3-2 with axis labels</p>
36
37 <br><br>
38
39 <p id="Map"></p>
40
41
42 <footer style="color: rgb(11, 11, 11);">
43 COS30045 Data Visualisation
44 <br>
45 Joshua Sanjay King (105282612)
46 </footer>
47 </body>
48 </html>
49
```

```
1 function init() {
2   d3.csv("VIC_LGA_unemployment.csv", function (d) {
3     unemployed: +d.unemployed
4   });
5   d3.json("LGA_VIC.json").then(function (json) {
6     // Merge CSV data with JSON
7     for (var i = 0; i < data.length; i++) {
8       var dataState = data[i].LGA;
9       var dataValue = parseFloat(data[i].unemployed);
10
11       for (var j = 0; j < json.features.length; j++) {
12         var jsonState = json.features[j].properties.LGA_name;
13
14         if (dataState == jsonState) {
15           json.features[j].properties.unemployed = dataValue;
16           break;
17         }
18       }
19     }
20
21     // Set the domain for color scale
22     color.domain([d3.min(json.features, function (d) { return d.properties.unemployed; }),
23                  d3.max(json.features, function (d) { return d.properties.unemployed; })]);
24
25     // Draw the map and color the regions
26     svg.selectAll("path")
27       .data(json.features)
28       .enter()
29       .append("path")
30       .attr("d", path)
31       .style("fill", function (d) {
32         var value = d.properties.unemployed;
33         return value ? color(value) : "#ccc"; // Color regions or default grey
34       });
35   });
36 }
37
38 // Lab 8.2 javascript.js
```