

Lab 5.1 – 6.2 demo

Joshua Sanjay King

J23039507 / 105282612

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

Lab 5.1



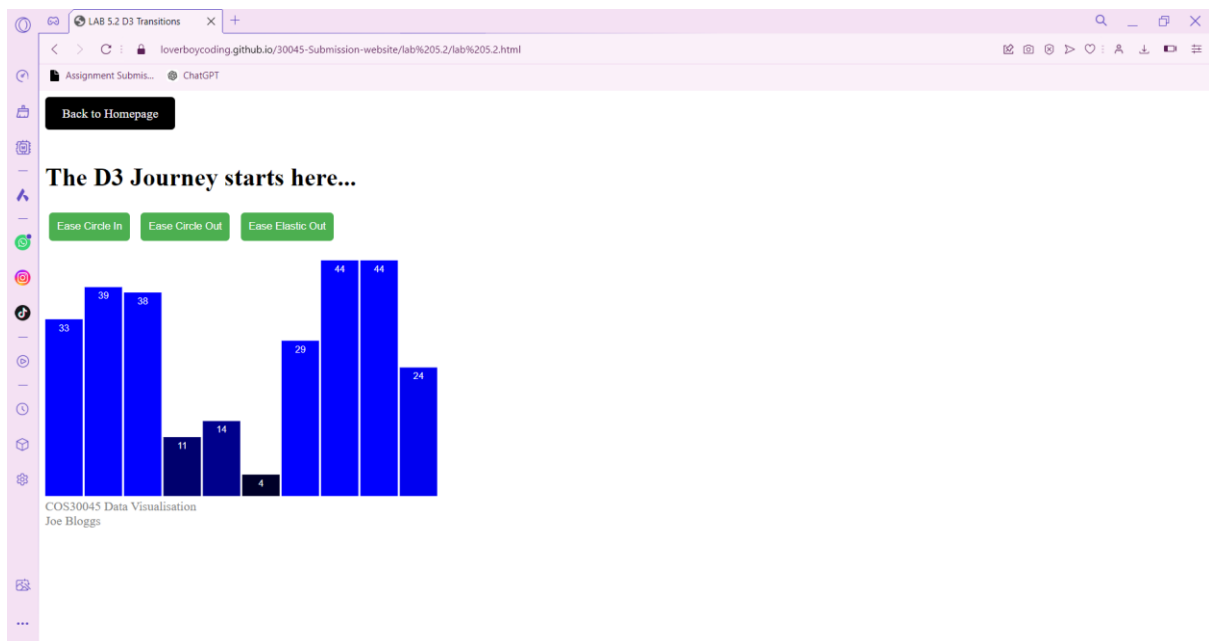
```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="utf-8" />
5   <meta name="description" content="Data Visualisation" />
6   <meta name="keywords" content="HTML, CSS, D3" />
7   <meta name="author" content="Joshua Sanjay King" />
8   <title>LAB 5.1 D3 Updates</title>
9   <script src="https://d3js.org/d3.v7.min.js"></script>
10 </head>
11 <body>
12   <!-- Back to Homepage Button -->
13   <a href=".." class="back-button" style="display: inline-block; margin-bottom: 20px; padding: 10px 20px; background-color: #000; color: #fff; text-decoration: none; border-rad
14     onmouseover="this.style.backgroundColor='#fff'; this.style.color='#000';"
15     onmouseout="this.style.backgroundColor='#000'; this.style.color='#fff';">
16     Back to Homepage
17   </a>
18   <h1>The D3 Journey starts here...</h1>
19
20   <div>
21     <button class="chart-button" onClick="showChart()">Refresh Bar Chart</button>
22   </div>
23
24   <svg id="chart" width="500" height="300"></svg>
25   <script src="lab 5.1 javascript.js"></script>
26
27   <br />
28   <footer style="color: grey;">COS30045 Data Visualisation<br /> Joe Bloggs</footer>
29
30 </body>
31 </html>
```

```

13 var xScale = d3.scaleBand()
14   .range([0, w])
15   .paddingInner(0.05);
16
17 var yScale = d3.scaleLinear()
18   .range([0, h]);
19
20 // Create SVG container
21 var svg = d3.select("#chart");
22
23 // Function to generate a random dataset
24 function generateDataset() {
25   dataset = [];
26   for (var i = 0; i < numValues; i++) {
27     var newNumber = Math.floor(Math.random() * maxValue);
28     dataset.push(newNumber);
29   }
30 }
31
32 // Function to update the bar chart
33 function updateChart() {
34   // Update the scales with the new dataset
35   xScale.domain(d3.range(dataset.length));
36   yScale.domain([0, d3.max(dataset)]);
37
38   // Select bars, bind new data
39   var bars = svg.selectAll("rect")
40     .data(dataset);
41
42   // Remove old bars (exit)
43   bars.exit().remove();
44
45   // Append new bars (enter) and update existing ones
46   bars.enter()
47     .append("rect")
48     .merge(bars)
49     .attr("x", function(d, i) {
50       return xScale(i);
51     });

```

Lab 5.2



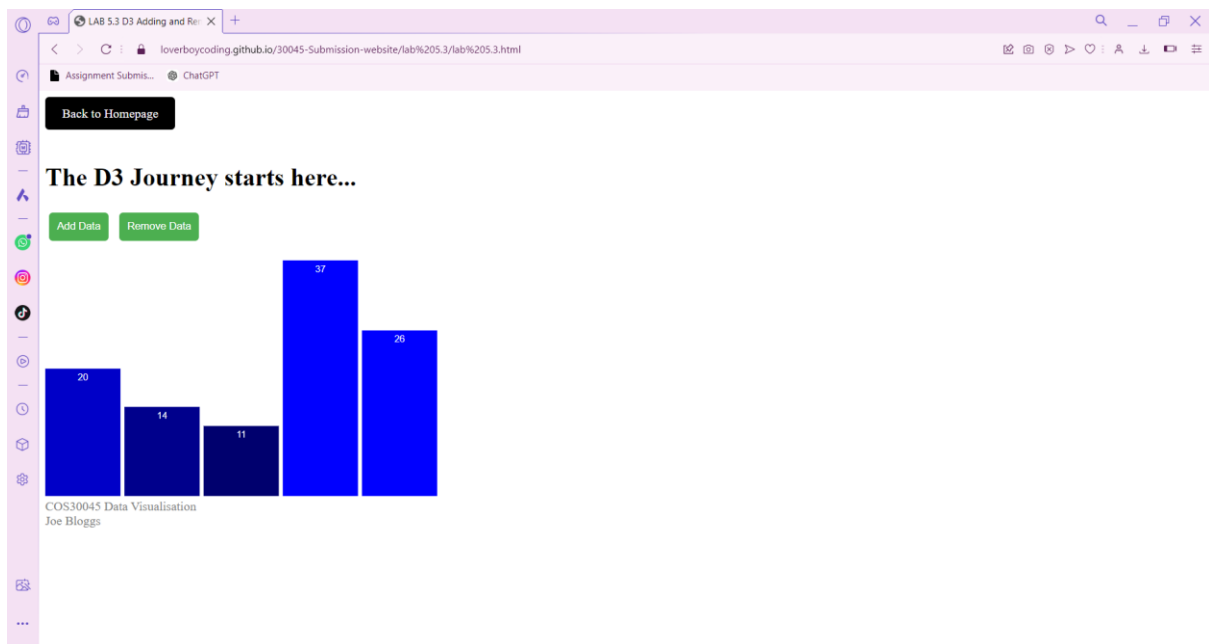
```

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, JavaScript, D3" />
7   <meta name="author" content="Joshua Sanjay King" />
8   <title>LAB 5.2 D3 Transitions</title>
9   <script src="https://d3js.org/d3.v7.min.js"></script>
10  <script defer src="Lab 5.2 javascript.js"></script>
11 </head>
12 <body>
13   <!-- Back to Homepage Button -->
14   <a href="#" class="button" style="display: inline-block; margin-bottom: 20px; padding: 10px 20px; background-color: #000; color: #fff; text-decoration: none; border-radius: 5px; border: 2px solid #000; text-align: center; width: 150px; height: 30px; line-height: 30px; vertical-align: middle;">Back to Homepage</a>
15
16   <h1>The D3 Journey starts here...</h1>
17
18   <div style="margin-bottom: 20px;">
19     <button style="margin: 5px; padding: 10px; background-color: #4CAF50; color: white; border: none; cursor: pointer; border-radius: 5px;">Ease Circle In</button>
20     <button style="margin: 5px; padding: 10px; background-color: #4CAF50; color: white; border: none; cursor: pointer; border-radius: 5px;">Ease Circle Out</button>
21     <button style="margin: 5px; padding: 10px; background-color: #4CAF50; color: white; border: none; cursor: pointer; border-radius: 5px;">Ease Elastic Out</button>
22   </div>
23
24   <svg id="chart" width="500" height="300"></svg>
25
26   <br />
27   <div style="color: grey; font-size: 0.8em; text-align: center;">
28     COS30045 Data Visualisation<br />
29     Joe Bloggs
30   </div>
31 </body>

```

```
1 // JavaScript source code
2 // SVG dimensions
3 var w = 500;
4 var h = 300;
5
6 // Initialize dataset variables
7 var numValues = 10; // Number of bars
8 var maxValue = 50; // Max value for the bars
9 var dataset = []; // Dataset array
10
11 // Create xScale and yScale
12 var xScale = d3.scaleBand().range([0, w]).paddingInner(0.05);
13 var yScale = d3.scaleLinear().range([0, h]);
14
15 // Create SVG container
16 var svg = d3.select("#chart");
17
18 // Function to generate a random dataset
19 function generateDataset() {
20   dataset = [];
21   for (var i = 0; i < numValues; i++) {
22     var newNumber = Math.floor(Math.random() * maxValue);
23     dataset.push(newNumber);
24   }
25 }
26
27 // Function to update the bar chart with animations
28 function updateChart(easeType) {
29   xScale.domain(d3.range(dataset.length));
30   yScale.domain([0, d3.max(dataset)]);
31
32   var bars = svg.selectAll("rect").data(dataset);
33
34   bars.exit().remove();
35
36   bars.enter()
37     .append("rect")
38     .merge(bars)
39     .transition()
40     .duration(2000)
41 }
42
43 // Initial data generation and chart update
44 generateDataset();
45 updateChart("ease-in-out");
```

Lab 5.3



```
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help Search Solution
lab 5.3.html lab 5.2 javascript.js
25 }
29
30 /* Buttons container */
31 .buttons {
32   margin-bottom: 20px;
33 }
34
35 .chart-button {
36   margin: 5px;
37   padding: 10px;
38   background-color: #4CAF50;
39   color: white;
40   border: none;
41   cursor: pointer;
42   border-radius: 5px;
43 }
44
45 .chart-button:hover {
46   background-color: #45a049;
47 }
48 </style>
49 </head>
50 <body>
51 <!-- Back to Homepage Button -->
52 <a href="/homepage.html" class="back-button">Back to Homepage</a>
53 <h1>The D3 Journey starts here...</h1>
54
55 <div class="buttons">
56   <button class="chart-button" onClick="addData()">Add Data</button>
57   <button class="chart-button" onClick="removeData()">Remove Data</button>
58 </div>
59
60 <!-- SVG Container for the chart -->
61 <svg id="chart" width="500" height="300"></svg>
62
63 <br />
64 <footer style="color:grey">CS330045 Data Visualisation<br /> Joe Bloggs</footer>
65 </body>
66 </html>
67
95 % No issues found Lrn: 48 Ch: 13 SPC CRLF
Ready Select Repository
```

```
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help Search Solution
lab 5.3 javascript.js lab 5.2.html Miscellaneous <global> document.addEventListener("DOMContentLoaded") callback
14
15 var yScale = d3.scaleLinear()
16   .range([0, h]);
17
18 // Create SVG container
19 var svg = d3.select("#chart");
20
21 // Function to generate a random dataset
22
23 function generateDataset() {
24   var newNumber = Math.floor(Math.random() * maxValue); // Random new data point
25   dataset.push(newNumber);
26 }
27
28 // Function to update the bar chart with animations
29 function updateChart() {
30   // Update the scales with the new dataset
31   xScale.domain(d3.range(dataset.length));
32   yScale.domain([0, d3.max(dataset)]);
33
34   // Select bars, bind new data
35   var bars = svg.selectAll("rect")
36     .data(dataset);
37
38   // Remove old bars (exit)
39   bars.exit()
40     .transition()
41     .duration(500)
42     .attr("x", w)
43     .remove();
44
45   // Append new bars (enter) and update existing ones
46   bars.enter()
47     .append("rect")
48     .attr("x", w)
49     .attr("y", function(d) {
50       return h - yScale(d);
51     })
52     .attr("width", xScale.bandwidth());
53
95 % No issues found Lrn: 1 Ch: 1 SPC CRLF
Ready Select Repository
```

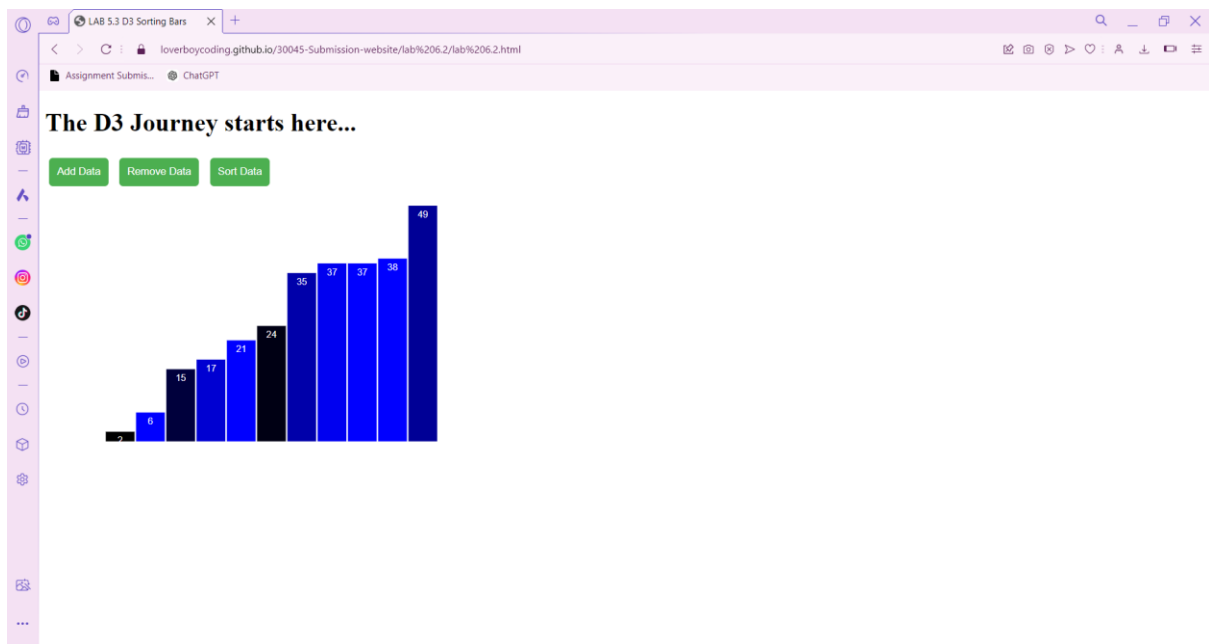
Lab 6.1



```
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help Search Solution1
lab 6.1.html lab 5.3 javascripts lab 5.2.html
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
No issues found
Ln: 1 Cln: 1 SPC CRLF
Ready Select Repository
```

```
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help Search Solution
lab 6.1 javascript.js lab 6.1.html lab 5.3 javascript.js lab 5.2.html
Miscellaneous <global>
62 // Append text for the tooltip
63 svg.append('text')
64 .attr('id', 'tooltip')
65 .attr('x', parseFloat(d3.select(this).attr('x')) + xScale.bandwidth() / 2)
66 .attr('y', parseFloat(d3.select(this).attr('y')) - 5)
67 .attr('text-anchor', 'middle')
68 .attr('fill', 'black')
69 .style('font-size', '12px')
70 .text(d); // Display the data value
71
72 // References
73 d3.select(this)
74 .on('mouseout', function () {
75   d3.select(this)
76   .attr('fill', function (d) {
77     return "rgb(0, 0, " + (d * 10) + ")"; // Restore original color
78   });
79   // Remove the tooltip when the mouse is out
80   d3.select('#tooltip').remove();
81 }
82 .merge(bars)
83 .transition()
84 .duration(200)
85 .ease(d3.easeCircleIn)
86 .attr("x", function (d, i) {
87   return xScale(i);
88 })
89 .attr("y", function (d) {
90   return h - yScale(d);
91 })
92 .attr("width", xScale.bandwidth())
93 .attr("height", function (d) {
94   return yScale(d);
95 });
96 // Select text, bind new data
97
```

Lab 6.2



```
10 <script defer src="Lab 6.2 javascript.js"></script>
11
12 <style>
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 </style>
33 </head>
34 <body>
35   <h1>The D3 Journey starts here...</h1>
36
37   <!-- Buttons Section -->
38   <div class="buttons">
39     <button class="chart-button" onclick="addData()">Add Data</button>
40     <button class="chart-button" onclick="removeData()">Remove Data</button>
41     <button class="chart-button" id="sort">Sort Data</button> <!-- Sort Button -->
42   </div>
43
44   <!-- SVG Container for Chart -->
45   <svg id="chart" width="500" height="300"></svg>
46 </body>
47 </html>
48
```

```
52   return yScale(d);
53 }
54 // references
55 .attr("fill", function (d) {
56   return "rgb(0, 0, " + (d * 10) + ")";
57 })
58 .merge(bars)
59 .transition()
60 .duration(500)
61 // references
62 .attr("x", function (d, i) {
63   return xScale(i);
64 })
65 // references
66 .attr("y", function (d) {
67   return h - yScale(d);
68 })
69 // references
70 .attr("width", xScale.bandwidth())
71 // references
72 .attr("height", function (d) {
73   return yScale(d);
74 });
75
76 // Labels for the bars
77 var labels = svg.selectAll("text")
78   .data(dataset);
79
80 // Exit phase - Remove old labels
81 labels.exit().remove();
82
83 // Enter phase - Add new Labels
84 labels.enter()
85   .append("text")
86   .merge(labels)
87   .transition()
88   .duration(1000)
89 // references
90 .text(function (d) {
91   return d;
92 })
93
```