

Lab 5_1.html

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="description" content="Data Visualization"/>
6      <meta name="keywords" content="HTML, CSS, D3"/>
7      <meta name="author" content="Dai Vy"/>
8      <title>Task 5.1 D3 Updates</title>
9
10     <script src="https://d3js.org/d3.v7.min.js"></script>
11     <style>
12
13     </style>
14 </head>
15 <body>
16
17     <button id="update">Update Data</button>
18     <h1>LAB 5.1 D3 Updates</h1>
19
20     <script>
21         var w = 500;
22         var h = 100;
23         var maxValue = 25;
24         var dataset = [24, 10, 29, 19, 8, 15, 20, 12, 9, 6, 21, 28];
25
26         // Use scaleBand() to create an ordinal scaleable x-axis based on the range of the
data set.
27         var xScale = d3.scaleBand()
28             .domain(d3.range(dataset.length))
29             .rangeRound([0, w])
30             .paddingInner(0.05);
31
32         // Use scaleLinear() to create a linear scaleable y-axis based on the range of the
data set.
33         var yScale = d3.scaleLinear()
34             .domain([0, d3.max(dataset)])
35             .range([0, h]);
36
37         var svg = d3.select("body")
38             .append("svg")
39             .attr("width", w)
40             .attr("height", h);
41
42         // Draw initial bars
43         svg.selectAll("rect")
44             .data(dataset)
45             .enter()
46             .append("rect")
```

```
47     .attr("x", function(d, i) {
48         return xScale(i);
49     })
50     .attr("y", function(d) {
51         return h - yScale(d);
52     })
53     .attr("width", xScale.bandwidth())
54     .attr("height", function(d) {
55         return yScale(d);
56     })
57     .attr("fill", "steelblue");
58
59 // Draw initial labels
60 svg.selectAll("text")
61     .data(dataset)
62     .enter()
63     .append("text")
64     .text(function(d) {
65         return d; // This displays the number on each bar
66     })
67     .attr("x", function(d, i) {
68         return xScale(i) + xScale.bandwidth() / 2;
69     })
70     .attr("y", function(d) {
71         return h - yScale(d) + 14;
72     })
73     .attr("text-anchor", "middle")
74     .attr("fill", "white")
75     .attr("font-size", "12px");
76
77 // Update function for bars and labels
78 function updateChart() {
79     // Update only the values in the dataset, not the length
80     for (var i = 0; i < dataset.length; i++) {
81         dataset[i] = Math.floor(Math.random() * maxValue);
82     }
83
84     // Update scales
85     xScale.domain(d3.range(dataset.length));
86     yScale.domain([0, d3.max(dataset)]);
87
88     // DATA JOIN for bars
89     var bars = svg.selectAll("rect")
90         .data(dataset);
91
92     // UPDATE existing bars
93     bars
94         .attr("x", function(d, i) { return xScale(i); })
95         .attr("y", function(d) { return h - yScale(d); })
96         .attr("width", xScale.bandwidth());
```

```
97         .attr("height", function(d) { return yScale(d); });
98
99         // DATA JOIN for labels
100         var labels = svg.selectAll("text")
101             .data(dataset);
102
103         // UPDATE existing labels
104         labels
105             .text(function(d) { return d; })
106             .attr("x", function(d, i) { return xScale(i) + xScale.bandwidth() / 2; })
107             .attr("y", function(d) { return h - yScale(d) + 14; });
108     }
109
110     // Button event listener
111     d3.select("#update")
112         .on("click", updateChart);
113
114     </script>
115
116     <br>
117
118     <footer style="color: grey">COS30045 Data Visualization<br>
119         Dai Vy
120     </footer>
121 </body>
122 </html>
```