lab-2.1\index.html

```
1   <!DOCTYPE html>
2   <html lang="en">
3
4   <head>
5       <meta charset="UTF-8">
6       <meta name="description" content="D3 Bar Chart Exercise">
7       <meta name="keywords" content="HTML, D3, JavaScript, SVG, Bar Chart">
8       <meta name="author" content="Joe Bloggs">
9       <title>Drawing with Data</title>
10      <!-- Step 1: Include the D3.js library -->
11      <script src="https://d3js.org/d3.v7.min.js"></script>
12      <style>
13          /* Optional: Add some basic styling for the chart container */
14          body {
15              font-family: sans-serif;
16              text-align: center;
17          }
18
19          .chart-container {
20              margin: 20px auto;
21              border: 1px solid #ccc;
22              display: inline-block;
23              /* To make the container fit the SVG */
24          }
25
26          h1,
27          footer {
28              color: #333;
29          }
30      </style>
31  </head>
32
33  <body>
34
35      <h1>Drawing with Data</h1>
36
37      <div class="chart-container">
38          <!-- The SVG will be created here by D3 -->
39      </div>
40
41      <script>
42          // --- Configuration Variables ---
43
44          // Define the dimensions of the SVG canvas
45          const w = 500;
46          const h = 150; // Increased height for better visibility
47          const barPadding = 2; // The space between bars
48          const heightMultiplier = 4; // Multiplier to make bars taller
```

```
49
50          // Define the dataset
51          const dataset = [5, 10, 13, 19, 21, 25, 22, 18, 15, 13, 11, 12, 15, 20, 18, 17, 16,
     18, 23, 25];
52
53          // --- D3 Code ---
54
55          // Step 2: Create the SVG element
56          // Select the container div and append an SVG element to it
57          const svg = d3.select(".chart-container")
58              .append("svg")
59              .attr("width", w)
60              .attr("height", h);
61
62          // Step 3 & 4 & 5: Create and position the bars (rectangles)
63          svg.selectAll("rect")
64              .data(dataset)
65              .enter()
66              .append("rect")
67              .attr("x", function (d, i) {
68                  // Calculate the x position for each bar.
69                  // 'i' is the index of the data point.
70                  // We space the bars evenly across the SVG width.
71                  return i * (w / dataset.length);
72              })
73              .attr("y", function (d) {
74                  // Step 6: Adjust the baseline.
75                  // In SVGs, y=0 is the top. To make bars grow from the bottom,
76                  // we set the y-coordinate to the total height minus the bar's height.
77                  return h - (d * heightMultiplier);
78              })
79              .attr("width", w / dataset.length - barPadding)
80              .attr("height", function (d) {
81                  // The height of the bar is the data value multiplied by our constant.
82                  return d * heightMultiplier;
83              })
84              .attr("fill", function (d) {
85                  // Optional: Add a dynamic color based on the data value.
86                  // Taller bars will be a darker blue.
87                  return "rgb(0, 0, " + (d * 10) + ")";
88              });
89
90          // Optional: Add labels on top of the bars
91          svg.selectAll("text")
92              .data(dataset)
93              .enter()
94              .append("text")
95              .text(function (d) {
96                  return d;
97              })
```

```
 98                    .attr("x", function (d, i) {
 99                        // Center the text in the middle of the bar.
100                        return i * (w / dataset.length) + (w / dataset.length - barPadding) / 2;
101                    })
102                    .attr("y", function (d) {
103                        // Position the text just above the bar.
104                        return h - (d * heightMultiplier) + 14;
105                    })
106                    .attr("font-family", "sans-serif")
107                    .attr("font-size", "11px")
108                    .attr("fill", "white")
109                    .attr("text-anchor", "middle"); // This ensures the x-coordinate is the center.
110
111        </script>
112
113        <footer>
114            <p style="color:grey; font-style: italic;">
115                COS30045 Data Visualisation<br>
116                Joe Bloggs
117            </p>
118        </footer>
119
120  </body>
121
122  </html>
```