lab-2.3\index.html

```html
1   <!DOCTYPE html>
2   <html lang="en">
3
4   <head>
5       <meta charset="UTF-8">
6       <meta name="description" content="D3 Scatter Plot Exercise">
7       <meta name="keywords" content="HTML, D3, JavaScript, SVG, Scatter Plot">
8       <meta name="author" content="Joe Bloggs">
9       <title>Drawing with Data - Scatter Plot</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 - Scatter Plot</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 = 100;
47          const padding = 20; // Add padding to prevent circles from being cut off
48
```

```
49          // Step 2: Define the new dataset for the scatter plot
50          // Each inner array: [x_coordinate, y_coordinate, radius_size (optional)]
51          const dataset = [
52              [50, 20, 5], [480, 90, 8], [250, 50, 10], [100, 33, 4], [330, 95, 9],
53              [410, 12, 6], [475, 44, 7], [25, 67, 5], [85, 21, 8], [220, 88, 12]
54          ];
55
56          // --- D3 Code ---
57
58          // Create the SVG element
59          const svg = d3.select(".chart-container")
60              .append("svg")
61              .attr("width", w)
62              .attr("height", h);
63
64          // Step 3: Create and position the circles
65          svg.selectAll("circle")
66              .data(dataset)
67              .enter()
68              .append("circle")
69              .attr("cx", function (d) {
70                  // The first value of the inner array (d[0]) is the x-coordinate.
71                  return d[0];
72              })
73              .attr("cy", function (d) {
74                  // The second value (d[1]) is the y-coordinate.
75                  // We subtract from 'h' to flip the y-axis (0 is at the top in SVG).
76                  return h - d[1];
77              })
78              .attr("r", function (d) {
79                  // Optional: The third value (d[2]) is used for the radius.
80                  return d[2];
81              })
82              .attr("fill", function (d) {
83                  // Style important data points in red (e.g., where y > 80).
84                  if (d[1] > 80) {
85                      return "red";
86                  }
87                  return "slategrey"; // Default color
88              });
89
90          // Step 4: Add labels to the scatter plot
91          svg.selectAll("text")
92              .data(dataset)
93              .enter()
94              .append("text")
95              .text(function (d) {
96                  // The label text shows the coordinates.
97                  return d[0] + "," + d[1];
98              })
```

```
 99                  .attr("x", function (d) {
100                      // Position the label slightly to the right of the circle.
101                      return d[0] + d[2] + 2; // Offset by radius + a little extra
102                  })
103                  .attr("y", function (d) {
104                      // Position the label vertically aligned with the circle's center.
105                      return h - d[1];
106                  })
107                  .attr("font-family", "sans-serif")
108                  .attr("font-size", "11px")
109                  .attr("fill", "black");
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>
```