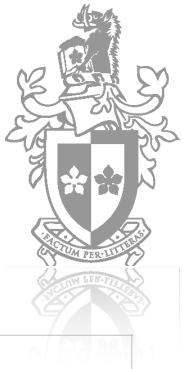
Faculty of Science, Engineering and Technology

COS30045 Data Visualisation

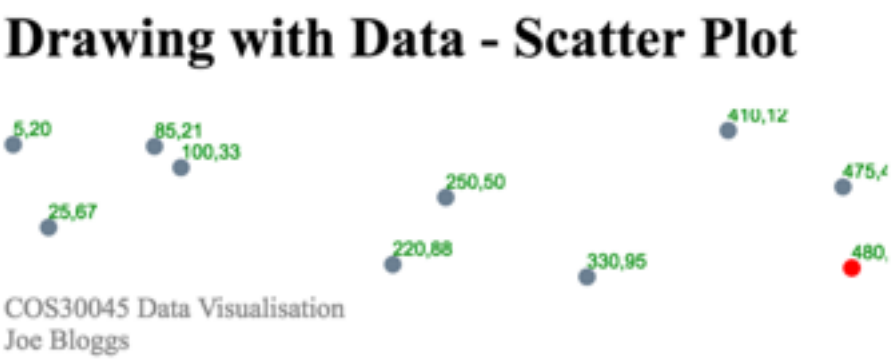
Task 2.3 D3 Drawing with Data - Scatter Pot



ILO	Create web-based interactive visualisations using real-world data sets.
Aim:	Use D3 to generate elements on a webpage to create a scatter plot from a data set.
Resources:	*Textbook:* Murray Ch 6 Murray on ProQuest Murray on Safari *Web Resources:* *Videos:*
To be marked as Complete your submission must:	Submit working code that meets the requirements specified in document below. Demonstrate appropriate use of HTML, CSS and D3. Properly formatted code Well commented code with references to code sourced from web, stack overflow etc. where appropriate. Demonstrate and explain code to tutor in class.
Submission	Submit to Doubtfire • screenshot of final webpage and annotated DOM • code Bring code to class to demonstrate to tutor

Overview

In this tutorial we will start using D3 to draw a scatter plot. At the end of this Task you should end up with a scatter plot drawn using D3 generated SVGs that looks something like this:



Feel free to choose your own data and styling at the end.

Note: This Task Guide is not meant to be fully explanatory. You may also need to work through the matching example in the text book *Interactive Data Visualisation* for the Web by Murray.

Step 1: Start with the code from Task 2.2

We will start with the code from the previous bar chart task.

Step 2 Change the data set

A scatter plot is a representation of two sets of data plotted against each other. We will use an array to represent the data for the scatter plot. We will have a primary array (between the first set of square brackets) containing a secondary array. The secondary array consists two numbers representing the scatter plot data points. Feel free to make up your own data set or use this one from Murray:

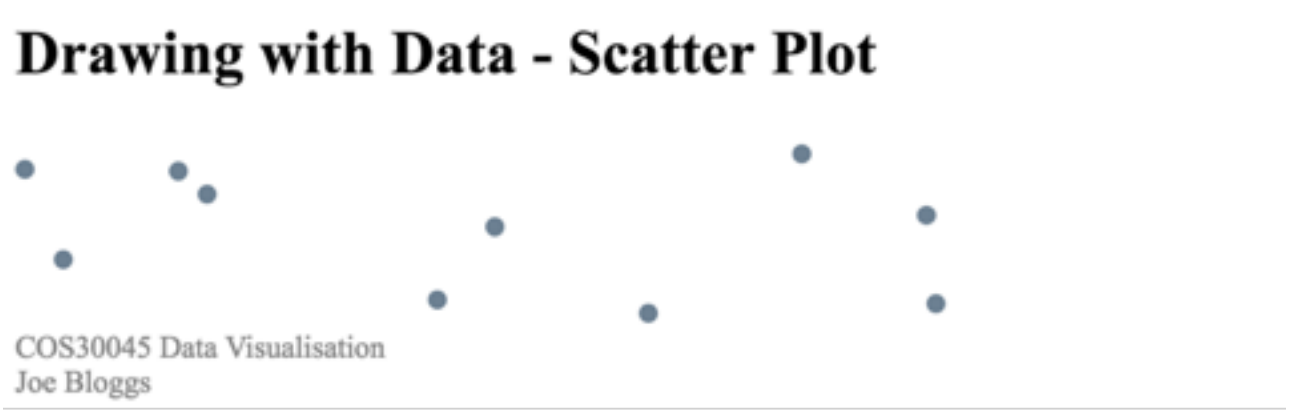
```
var dataset = [
                [5, 20],
                [480, 90],
                [250, 50],
                [100, 33],
                [330, 95],
                [410, 12],
                [475, 44],
                [25, 67],
                [85, 21],
                [220, 88]
               ];
```

Step 3 Change from rectangles to circles

Scatter plots points are circles, so change the reference to rectangles from your Task 2.2 code to circles. You may also remember from Task 1.3 that the position and size of circles and rectangles are specified differently. Change the x and y coordinates for your circle objects to read in values from the data set and use a radius of 5.

```
//Worked example from Murray
    svg.selectAll("circle")
        .data(dataset)
        .enter()
        .append("circle")
        .attr("cx", function(d, i) {
            return d[0];
        })
        .attr("cy", function(d) {
            return d[1];
        })
        .attr("r", 5)
        .attr("fill", "slategrey");
```

Refer to data in the array - d[0] will give you the first value and d[1] the second value



Optional: Imagine one of the data points is very important. Style a data point so that appears red.

Step 4 Add labels to the Scatter Plot

To add labels you first need to create and add all the text labels. To add the labels to the SVG start by attaching text to the data set:

```
svg.selectAll("text")
    .data(dataset)
    .enter()
    .append("text");
```

If you like you can check the DOM and see that there is a set of empty text labels waiting to go. Next we need to write out the label:

```
svg.selectAll("text")
    .data(dataset)
    .enter()
    .append("text")
    .text(function(d) {
        return d[0] + "," +d[1];
    });
```

Again, if you run this you won't see any text labels, but you will see the data attached to the text in the DOM. To make our labels appear we need to give them coordinates. Obviously we want them near our data points. Use the same type of method we used to position the circles above.

Finally you add some styling to the text to make it all look nice!