Faculty of Science, Engineering and Technology

COS30045 Data Visualisation

Task 8.2 D3 Stacked Bar Chart

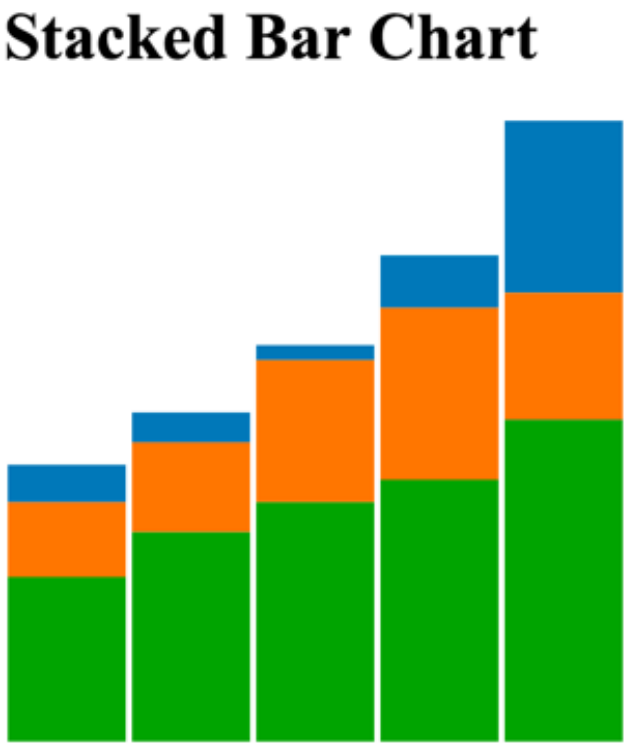
ILO	Create web-based interactive visualisations using real-world data sets.
Aim:	Generate a Stacked Bar Chart using D3
Resources:	*Textbook:* Murray Ch 13 Murray on ProQuest Murray on Safari (Make sure you use v2 of Murray as per links above)
To be marked as Complete your submission must:	Submit working 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 • code that demonstrates a stacked bar chart Bring code to class to demonstrate to tutor

Note: The functions handling scale have changed between D3 v3 and D3 v4. This is something to be aware of if you are doing your on research into this topic. Make sure you use Murray Ed 2. Code examples from Ed 1 will not work.

Code in this Task based on Murray Ch 13

Overview

In this exercise we will use D3 to draw a stacked bar chart.



Step 1: Set up the data

First we need some data to display. We will be using the fruit data set from Murray. We will also be displaying this chart on a SVG with a width and height of 300.

```
var dataset = [
        { apples: 5, oranges: 10, grapes: 22 },
        { apples: 4, oranges: 12, grapes: 28 },
        { apples: 2, oranges: 19, grapes: 32 },
        { apples: 7, oranges: 23, grapes: 35 },
        { apples: 23, oranges: 17, grapes: 43 }
        ];
```

Step 2: Set up the stack

The data set above is arranged in columns. But to generate our stacked chart we need to organise them by categories. We can use `d3.stack()` to generate our stacks, and specify the categories of interest using `keys()`.

```
var stack = d3.stack()
              .keys(["apples", "oranges", "grapes"]);

var series = stack(dataset);
```

We can then generate a series which holds the array in a format that adds each category to the next.

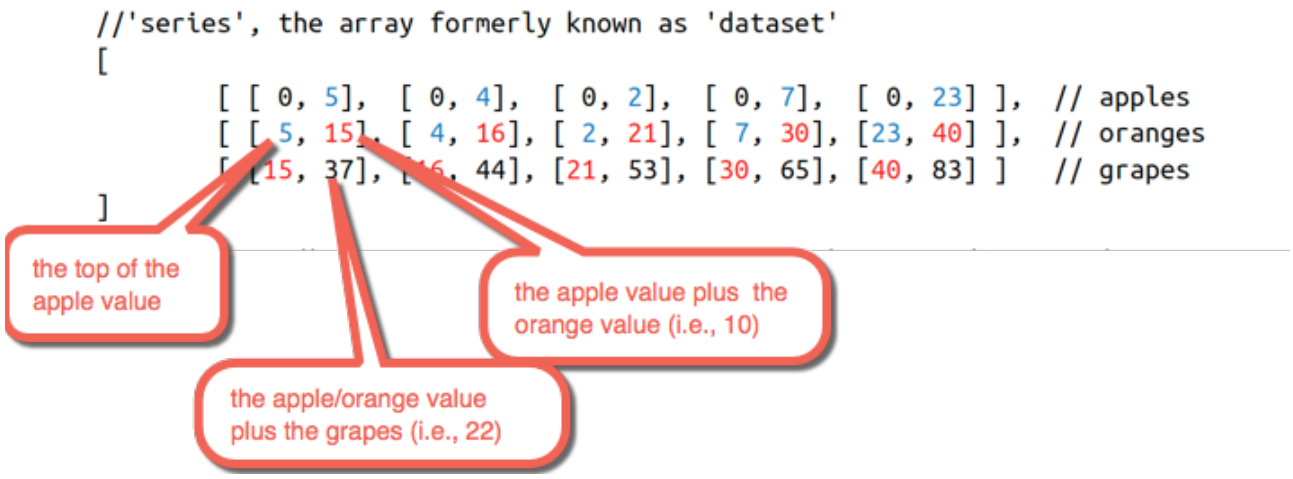


Fig 1: Series array from Murray

Step 3: Set up the SVG and set up the arcs

As per usual set up the SVG canvas and bind the data to a group set.

```
var svg = d3.select("body")
            .append("svg")
            .attr("width", w)
            .attr("height", h);

var groups = svg.selectAll("g")
                .data(series)
                .enter()
                .append("g")
                .style("fill", function(d, i) {
                    return color(i);
                });
```

Note that the data being read into the SVG is the series not the dataset. Also it uses a colour method as per Task 8.1.

Step 4: Draw the rectangles

Bind rectangles to the group data. Note, as per earlier tasks you will need to add in an xScale and yScale. The main complication with this data set is that you need to access the values from an array so you will need to use the index to reference them.

```
var rects = groups.selectAll("rect")
                  .data(function(d) { return d;})
                  .enter()
                  .append("rect")
                  .attr("x", function(d, i) {
                      return xScale(i);
                  })
                  .attr("y", function(d, i) {
                      return yScale(d[1]);
                  })
                  .attr("height", function(d) {
                      return yScale(d[0]) - yScale(d[1]);
                  })
                  .attr("width", xScale.bandwidth());
```

```
var yScale = d3.scaleLinear()
               .domain([0, d3.max(dataset2, function(d) {
                   return d.apples + d.oranges + d.grapes;
                   })
               ])
               .range([h, 0]);
```