

1. How can D3 access and change the DOM? What do `select` and `selectAll` do?

`select` selects a specific element whilst `selectAll` selects all elements that match the criteria

2. What are the `d` and `i` in `function(d){}` and `function(d, i){}`?

`d` represents the data associated with a given selection whilst `i` will correspond with the index

3. Write sample lines of JavaScript to add a `div` element with class “`barChart1`” and to add an `svg` element with class “`barChart2`” with square dimensions.

Adds a `<div>` element and a separate `<svg>` element if body isn't reselected it'll place the `svg` element inside the `div` element.

```
var data = [1];
var body = d3.select('body')
    .append('div')
    .attr('class', 'barChart1')
var body = d3.select('body')
    .append('svg')
    .attr('class', 'barChart2')
    .attr("width", 50)
    .attr("height", 50)
    .append('rect')
    .attr('x', 25)
    .attr('y', 25)
    .attr('width', 30)
    .attr('height', 30)
```

Proof:

```
▼ <body> == $0
  <p>Hello!</p>
  <div class="barChart1"></div>
  ▼ <svg class="barChart2" width="50" height="50">
    <rect x="25" y="25" width="30" height="30"></rect>
  </svg>
</body>
```

4. Describe `append`, `update`, `enter`, and `exit` at a high level. What does “`selectAll + data + enter + append`” refer to?

`Append`: appends attributes to an element such as the x,y axis position or orientation

`Update`: updates a given dataset

`Enter`: `enter` allows you to dynamically insert new data to the DOM which otherwise would not be displayed

`Exit`: `exit` allows you to dynamically remove data from the DOM

5. What are the main differences between drawing a bar chart with HTML and SVG?

HTML is largely limited to rectangular shapes whilst SVG supports drawing primitives like bézier curvers, gradients, clipping and masks

6. In drawing the simple bar chart with D3 and SVG, what elements were appended, and what parts of the graph did these elements correspond to?

A div which is the x,y data for the graph in the SVG canvas

Style for width/height

Text for any text associated with it i.e. numbers