Intro D3: questions

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

D3 van access the DOM by selecting elements (for example by class or id) and then appending or changing elements of it. Select matches the first element that matches the clause, SelectAll gets all of the elements that match.

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

D is just a convention used in D3, you use it when adding data to elements. 'i' is the order of elements in the selection.

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.**

// creating div element 'barChart1"

d3.select("body").append("div").attr("class", "barChart1")

// adding an svg element to page with class barChart2

```
d3.select("body").append("div").attr("class", "barChart2")
var svg = d3.select(".barChart2").
        append("svg:svg").
        attr("width", 350).
        attr("height", 350);

svg.append("svg:rect").
        attr("x", 100).
        attr("y", 100).
        attr("height", 200).
        attr("width", 200);
```

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

We can use this to add as many elements as we have data for. SelectAll selects all elements on the page (even if this is 0). Adding the data to this and using enter() prepares a new element for every unmatched element. When using append after this it will create as many elements are created by enter.
Exit is used when there are more elements than there is data, it will select the elements that aren't matched with data in the dataset. You can then use that to remove them, for example.

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

You can create the bare structure for a barchart easily in HTML, but you are restricted. You can't really create gridlines to assist understanding the values, and drawing the axes in HTML is also difficult. In an SVG you have more freedom to draw different shapes, gridlines and other elements for a visualization.

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?

"g" elements, "rects" and "text" are appended. The rects are the different bars of the barchart and the text is (obviously) the text.