Week 3 Questions

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

D3 can select parts of a DOM by name, tag, etc. It can change the properties of things within these parts, such as color and value, as well as using these properties as part of functions. 'select' and 'selectAll' return elements which match the string specified within the select-function.

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

'd' refers to the data value that is bound to an element property. 'i' is the index of an element, which for example can be useful to define a sequential property.

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.

```
var body = d3.select("body");
   .append("div")
      .attr("class", "barChart1")
```

```
<svg width="100" height="100">
   <rect class="barChart2" width="50" height="50"/>
</svg>
```

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

- **Append**: append element to another 'container'-element
- **Update**: change the properties of elements that are already present
- **Enter**: prepares a new element for every unmatched data item. This means that afterwards multiple elements can be created at the same time
- **Exit**: select elements that do not correspond to any data

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

SVG uses vector graphics, meaning it is better scalable (no quality loss). SVG is also comprised of multiple graphical elements, rather than a simple canvas.

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?

The appended elements defined the properties of the bars, such as size, color and height. They correspond to the defined bounds of the graph (domain, range etc.).