

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

D3 can access and change the DOM by using the select method. The select method can select a certain element ( `d3.select("p")` ), or all elements of that type (`d3.selectAll("p")`).

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

**d** is used to refer to bound data. The **i** is used to refer to the index of the element.

### 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.

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

```
d3.select("body")
```

```
    .append("svg")
```

```
        .attr("class","barChart2")
```

```
        .attr("width", 500).attr("height",500)
```

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

**append** adds a specific new element. **Enter** is for incoming elements entering the stage. **Update** are for the elements that stay in the stage and **exit** is for the outgoing elements, the elements that get removed.

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

When drawing with **html** you color pixels, so when you zoom, the image gets pixelated. When drawing with **SVG**, no matter how much you zoom in, your image will be sharp. Also an **SVG** enables event handles like **onClick** or **Hover**, which makes interaction easier.

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

Multiple **div**'s were created and filled with a color. These **div**'s correspond to the bars of the chart.

'append' adds something to the enter method, so it is linked to the data, so if data is added, this automatically appends another element to the data.  
'update' changes for example the data, so even if there is new data added, your code stays fairly the same  
'enter' append links data to the element, update updates the element so the new data fits in, enter changes the things inside the element.  
'exit' makes sure there are no more elements when there is no data left to link the elements to.

"selectAll + data + enter + append" is a special case of data join, often used sequentially so if there are no existing elements, the data is being entered to an empty selection, and all data comes within the enter statement.