

D3 - Data Driven Documents

D3.js (Document-Driven-Data) is a powerful JavaScript library for manipulating documents based on data. "D3 allows you to bind arbitrary data to a Document Object Model (DOM), and then apply data-driven transformations to the document. For example, you can use D3 to generate an HTML table from an array of numbers. Or, use the same data to create an interactive SVG bar chart with smooth transitions and interaction." (d3.js, Mike Bostock)

Your structure for D3 projects might look like the following:

```
project/
  index.html
  css/
    style.css
  js/
    d3.v3.min.js
    main.js
```

Our JS script (main.js) consists actually only of one line of code:

```
d3.select("body").append("p").text("Hello World!");
```

Method chaining

Method or function chaining is a common technique in JS, especially when working with D3. It can be used to simplify code in scenarios that involve calling multiple methods on the same object consecutively.

- The functions are "chained" together with periods.
- The output type of one method has to match the input type expected by the next method in the chain.

Alternative code without method chaining:

```
var body = d3.select("body");
var p = body.append("p");
p.text("Hello World!");
```

D3 Select

The D3 select() method uses CSS selectors as an input to grab page elements. It will return a reference to the first element in the DOM that matches the selector. In our example we have used d3.select("body") to select the first DOM element that matches our CSS selector: body . Once an element is selected - and handed off to the next method in the chain - you can apply operators. These D3 operators allow you to get and set properties, styles and content (and will again return the current selection).

D3 Append

After selecting a specific element we have used an operator to assign content: `.append("p")` The `append()` operator adds a new element as the last child of the current selection. We specified "p" as the input argument, so an empty paragraph has been added to the end of the body. The new paragraph is automatically selected for further operations. At the end we have used the `text()` property to insert a string between the opening and closing tags of the current selection.

```
d3.select("body")
  .append("p")
  .text("Hello World!");
```

Binding Data to DOM Elements

```
var svg = d3.select("div.output svg")

svg.selectAll("rect")
  .data([127, 61, 256])
  .attr("x", 0)
  .attr("y", function(d,i) { return i*90+50 })
  .attr("width", function(d,i) { return d; })
  .attr("height", 20)
  .style("fill", "steelblue")
```

Enter, Update, Exit

credits: https://medium.com/@c_behrens/enter-update-exit-6cafc6014c36

