Olin College, November 11th 2014

A Quick Introduction to d3.js & Reusable Charts

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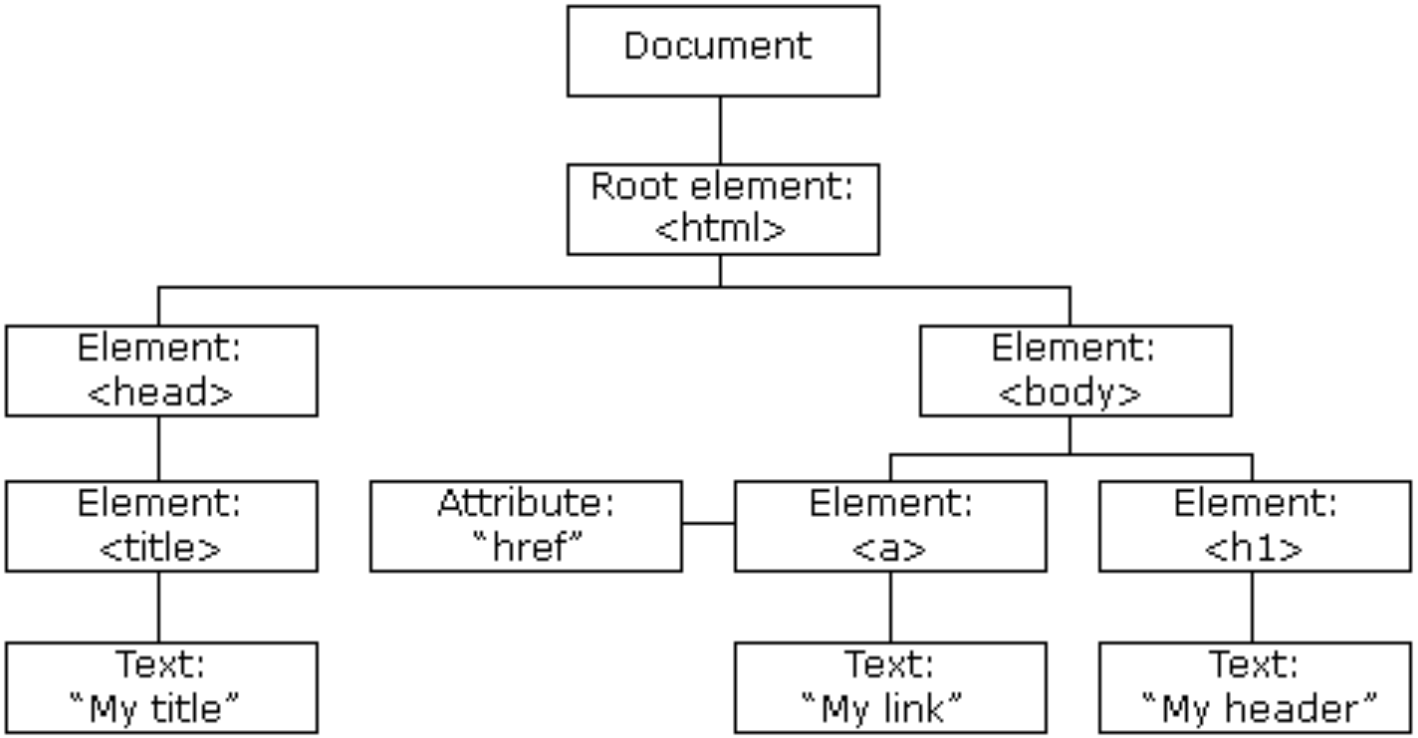
Outline

- DOM & SVG ...so many acronyms
- D3
  - Adding Elements & Chaining Functions
  - Binding Data
  - Data Events
- Reusable Charts
- Assignment

Dom – What is it?



Document **O**bject **M**odel – a tree of HTML elements

SVG – What is that??

Scalable **V**ector **G**raphics – A vector based image format

d3.js

A JavaScript Library for manipulating documents based on data.

Examples

d3.js: Chaining & Addition

```
d3.select("body").append("p").text("New paragraph!");
```

1. Making a **selection**
2. **Appending** a new element
3. **Changing a property** of that element

link

d3.js: SVG & Transitions

```
s =  d3.select('body')
                .append('svg')
                .attr('width', 600)
                .attr('height', 500)
                .style('background-color', '#dcebe9');
```

1. Making a **selection**
2. **Appending** a new element
3. **Changing a property** of that element

link

d3.js: SVG & Transitions

```
c = s.append('circle')
        .attr('cx', 50)
        .attr('cy', 200)
        .attr('r', 50)
        .attr('fill', 'black')
```

1. Making a **selection**
2. **Appending** a new element
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link

d3.js: SVG & Transitions

```
c = s.append('circle')
        .attr('cx', 50)
        .attr('cy', 200)
        .attr('r', 50)
        .attr('fill', 'black')
```

1. Making a **selection**
2. **Appending** a new element
3. **Changing a property** of that element

d3.js: Binding Data

```
var dataset = [ 45, 80, 95, 135, 200, 250, 360 ];

elem = s.selectAll('circle').data(dataset);
```

1. Making a **selection**

link

d3.js: Binding Data

```
elem.enter().append('circle')
                .attr('cx', 0)
                .attr('cy', 200)
                .attr('r', 10)
                .attr('fill', 'black');
```

2. **Appending** a new element
3. **Changing a property** of that element

link

d3.js: Binding Data

```
elem.transition()
    .duration(1000)
    .attr('cx', function(d,i){ return d; });
```

3. **Changing a property** of that element

link

d3.js: Data Events

```
dataset.pop();
elem = s.selectAll('circle').data(dataset);
elem.exit().transition().duration(1000)
           .attr('cy', -100)
           .remove();
```

1. Making a **selection**
2. **Changing a property** of that element
3. **Removing** that element

link

d3.charts.js

A JavaScript Library that allows you to define d3 chart objects and easily instantiate multiple instances of that chart.

Examples

d3.charts.js – Using a Chart

```
var height = 200;
var width = 425;
var margin = {
    'top': 10,
    'right': 10,
    'left': 10,
    'bottom': 20
};

//Drawing my Dinner Bar Chart
var chart1 = d3.select("#bar-container-1")
  .append("svg").attr('class', 'bar-chart').attr('display', 'inline-block')
  .chart("StandardBar", {
    parentID : "#bar-container-1",
    id: "bar-chart-1",
    width: width,
    height: height,
    colors: ["#e89795", "#9b9b9b", "#d8d8d8", "#f5f5f5"],
    rowSpacing: 3,
    extraSpacing: 6,
    suggestedMax: 300,
    margin: {
      'top': 0,
      'right': 10,
      'left': 10,
      'bottom': 30
    }
  });
chart1.draw(myData['dinner']);
```

```
var myData = {
    "dinner": [
        {
            "name" : "Turkey Breast",
            "number" : 54
        },
        {
            "name" : "Cranberry Sauce",
            "number" : 86
        },
        {
            "name" : "Sweet Potato Casserole",
            "number" : 236
        }
```

Assignment

Using d3.js & d3.chart.js, you are going to build a simple horizontal bar chart.

Instructions:
Instructions.html

References

1. DOM Tree: http://www.w3schools.com/js/js_htmldom.asp
2. SVG: https://s3.amazonaws.com/mixture-mixed/161/6113/assets/images/posts/front-end-dev/im-down-with-svg/gio-difeterici.svg
3. D3.js http://d3js.org/
4. D3.chart.js http://misoproject.com/d3-chart/
5. D3 O'Reily http://alignedleft.com/work/d3-book