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DLI Accelerated Data Science Teaching Kit

Lecture 9.7 - Dynamic Data and Interaction



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What if the data is changing?

E-U-E Pattern Template

- **function redraw(rawdata) {**
 var group = vis.selectAll("rect")
 .data(rawdata) //rawdata must be an array!
 group.enter().append("svg:rect") //ENTER!
 .attr()
 .attr()
 group //UPDATE!
 .attr()
 .attr()
 group.exit().remove() //EXIT!

• **}**

E-U-E Pattern Template

- **function redraw(rawdata) {**
 var group = vis.selectAll("rect")
 .data(rawdata) //rawdata must be an array!
 group.enter().append("svg:rect") //ENTER!
 .attr()
 .attr()
 group.**transition()** //UPDATE!
 .attr()
 .attr()
 group.exit().remove() //EXIT!
• **}**

Transitions

- CSS3 transitions with D3 are magical!
- D3 interpolates values for you...

Transitions

```
rect.attr("height", 0)
```

```
rect.transition()
```

```
  .delay( 500 ) //can be a function of data
```

```
  .duration(200) //can be a function of data
```

```
  .attr("height", 5) //can be a function of data
```

```
  .style("fill","green") //can be a function of data
```

So transitions allow a vis to be dynamic...

But they're not really interactive...

Interaction

The on() Method

.on()

```
rect.on ("click", function(d) {  
    d.color = "blue";  
    redraw( rawdata )  
})
```

**d is the data point backing
the element clicked on**



HTML Events

- click
- mouseover
- mouseenter
- mouseout
- etc.

Where to Learn More...?

- <http://d3js.org/>
 - Tons of examples and basics at D3 homepage
- <https://github.com/mbostock/d3/wiki/API-Reference>
 - Official D3 documentation. Extremely well done.
- <https://github.com/mbostock/d3/wiki/Tutorials>
 - List of seemingly ALL the tutorials online
- The Google/StackOverflow combination
 - (my personal favorite)



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Thank You

We thank Dr. Chad Stolper for sharing teaching materials for visualization and D3.