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DLI Accelerated Data Science Teaching Kit

# Lecture 9.3 - D3 Overview



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# **Mike Bostock and Jeff Heer**

## 2009 - Protovis

## 2011- D3.js

New York Times

Univ. of Washington

# **Mike Bostock and Jeff Heer**

2009 - Protovis

2011- D3.js

# D3

- Grand Reductionist Statements
- Loading Data
- Enter-Update-Exit Paradigm
- Scales
- Axes
- Layouts
- Transitions and Interaction
- Where to go from here

# D3.js in a Nutshell

- D3 is a really powerful for-loop
- with a ton of useful helper functions

# D3

Declarative, domain-specific specification  
language for manipulating the DOM

# Importing D3

```
<html >
  <head>
    <script src='lib/d3.js'
    charset='utf-8'></script>
    <script src='js/project.js'></script>
  </head>
  <body>
    <div id="vis"></div>
  </body>
</html>
```



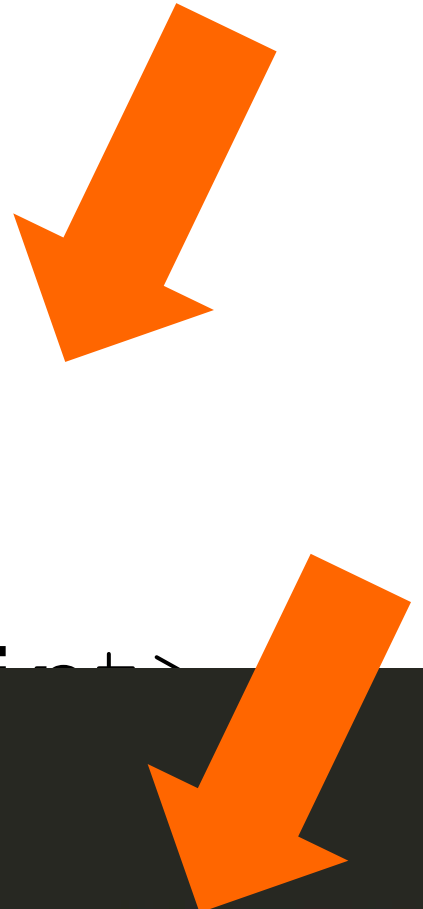
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# Importing D3

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    <div>
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```



```
    }) : [];
  };
  var ε = 1e-6, ε2 = ε * ε, π = Math.PI, τ =
  function d3_sgn(x) {
    return x > 0 ? 1 : x < 0 ? -1 : 0;
  }
  function d3_cross2d(a, b, c) {
    return (b[0] - a[0]) * (c[1] - a[1])
```

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```

# Assigning the Canvas to a Variable

```
var vis = d3.select("#vis")  
    .append("svg")
```

```
<body>  
    <div id="vis"><svg></svg></div>  
</body>
```

# Loading Data

- `d3.csv(fileloc, callback)`
- `d3.tsv(fileloc, callback)`
- `d3.json(fileloc, callback)`
  
- **fileloc:** string file location
  - “data/datafile.csv”
- **callback:** `function(rawdata) { }`

# Rawdata from a CSV file

```
[  
  {  
    'name': 'Adam',  
    'school': 'GT',  
    'age': '18'  
  },  
  {  
    'name': 'Barbara',  
    'school': 'Emory',  
    'age': '22'  
  },  
  {  
    'name': 'Calvin',  
    'school': 'GSU',  
    'age': '30'  
  }  
]
```

name	school	age
Adam	GT	18
Barbara	Emory	22
Calvin	GSU	30

# Problem

```
[
  {
    'name': 'Adam',
    'school': 'GT',
    'age': '18'
  },
  {
    'name': 'Barbara',
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  },
  {
    'name': 'Calvin',
    'school': 'GSU',
    'age': '30'
  }
]
```

- Ages are Strings!
- They should be ints!
- We can fix that:

```
for (var d: data) {
    d = data[d]
    d.age = +d.age
}
```

# Problem

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  {
    'name': 'Adam',
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Ok, so let's map  
this data to visual  
elements!

# D3

Declarative, domain-specific specification  
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Define a **template** for each element  
D3 draws one element for each data point



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# Thank You

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