D3.js

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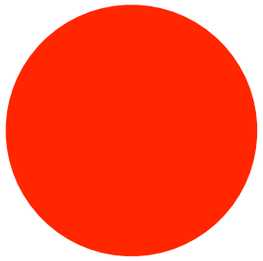
First understand SVG

<svg>

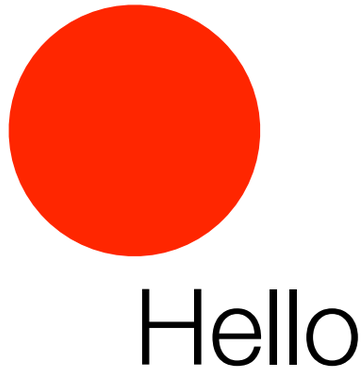
</svg>

First understand SVG



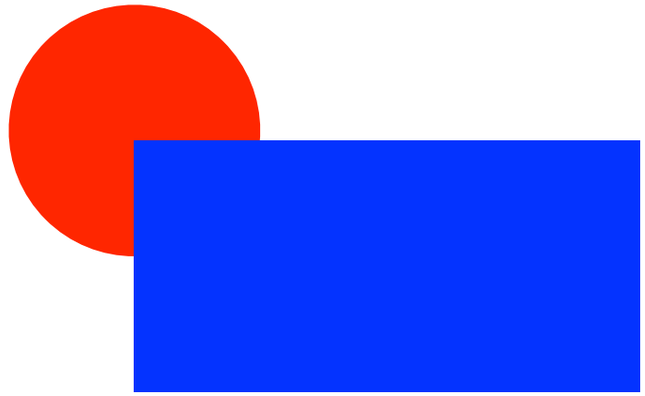
```
<svg>

 <circle cx="0" cy="0" r="10" fill="red"></circle>


</svg>
```

First understand SVG




```
<svg>

 <circle cx="0" cy="0" r="10" fill="red"></circle>
 <text x="0" y="10">Hello</text>

</svg>
```

First understand SVG



```
<svg>

 <circle cx="0" cy="0" r="10" fill="red"></circle>
 <text x="0" y="10">Hello</text>
 <rect width="30" height="10" style="fill:blue"></rect>
</svg>
```

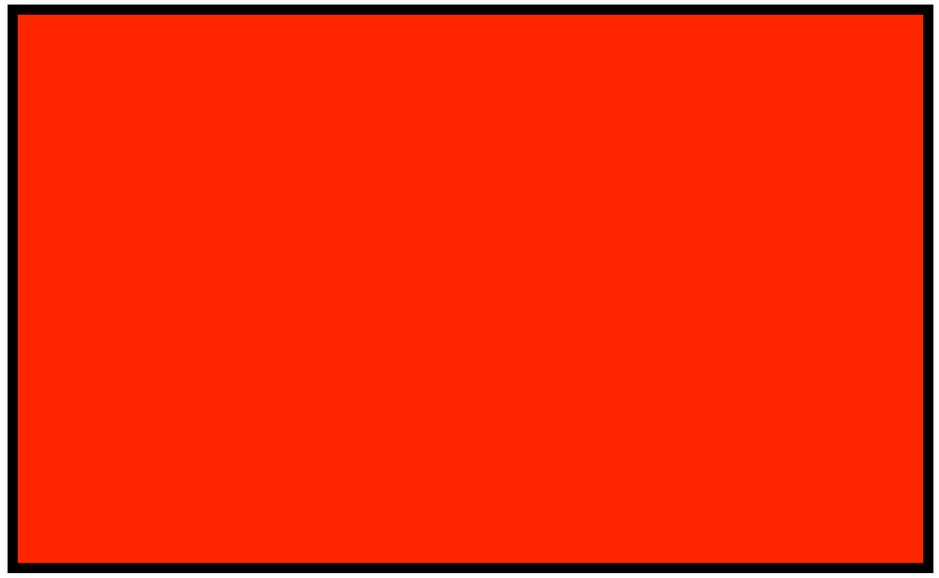
A few things about SVG

- The default starting registration point is in the upper left-hand corner of the <svg> box.
- There are some new CSS properties like "fill" and "stroke-width".
-

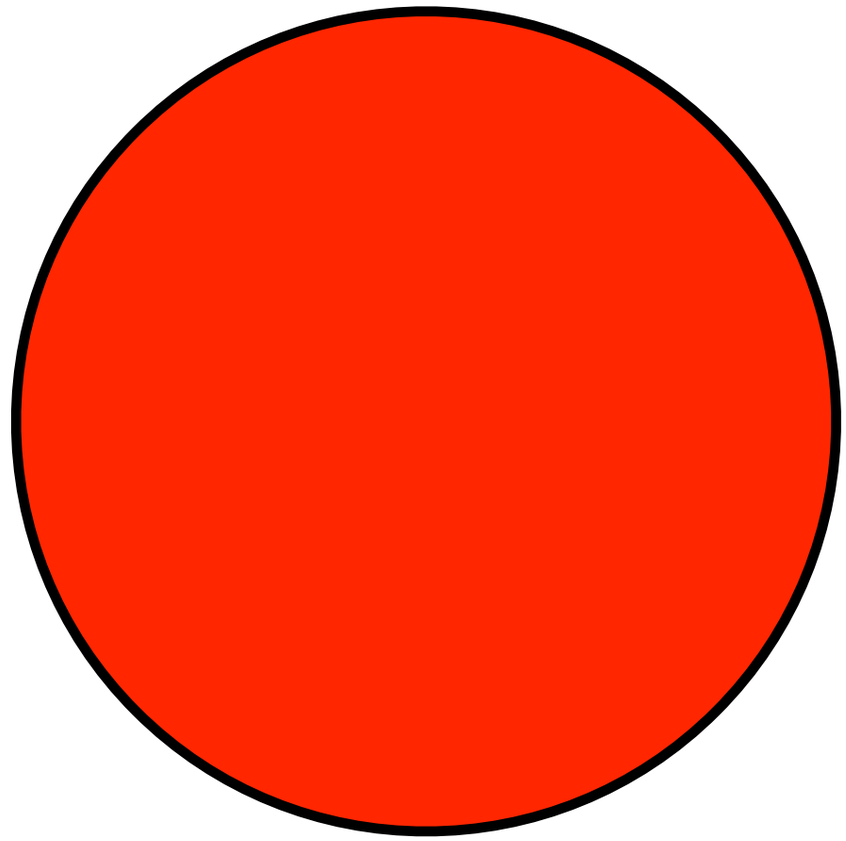
Standard Attributes

```
<tagname

  stroke="black"
  stroke-width="2"
  fill="blue"

  transform="translate(10,10)"

  style="fill:purple;stroke:red;"

></tagname>
```

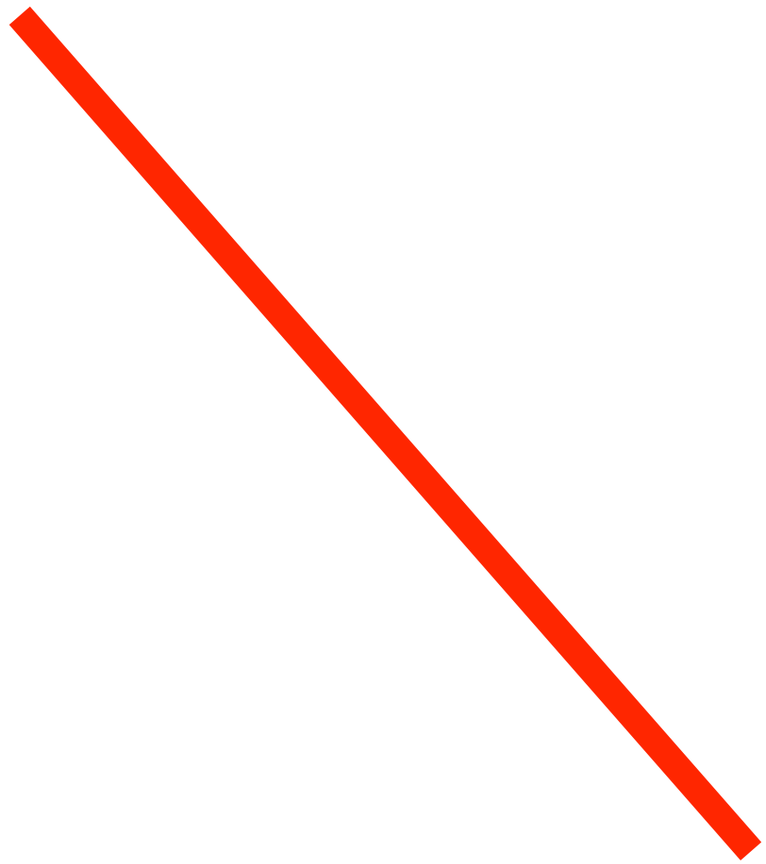
```
<rect
 width="30"
 height="10"
  x="10"
  y="10">
</rect>
```



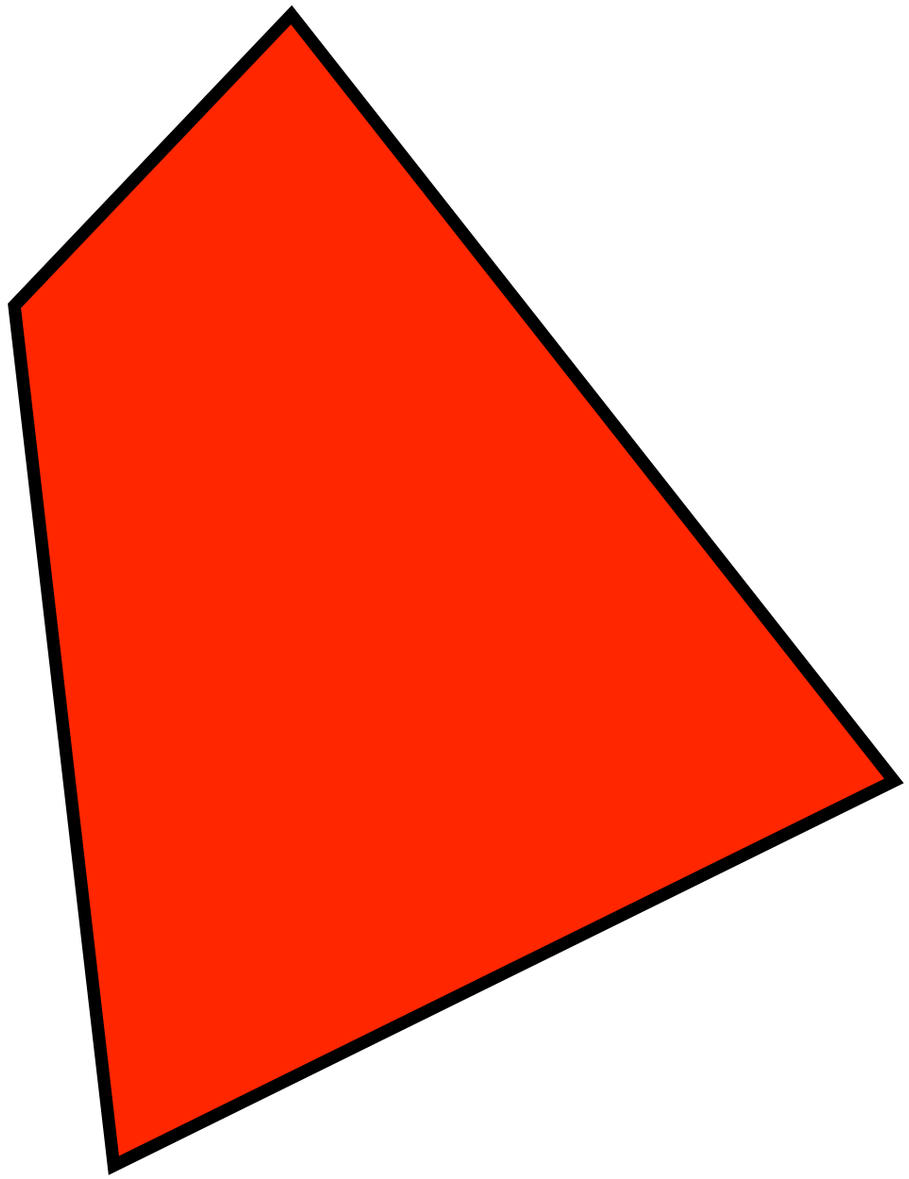
```
<circle
  cx="0"
  cy="0"
  r="10">
</circle>
```



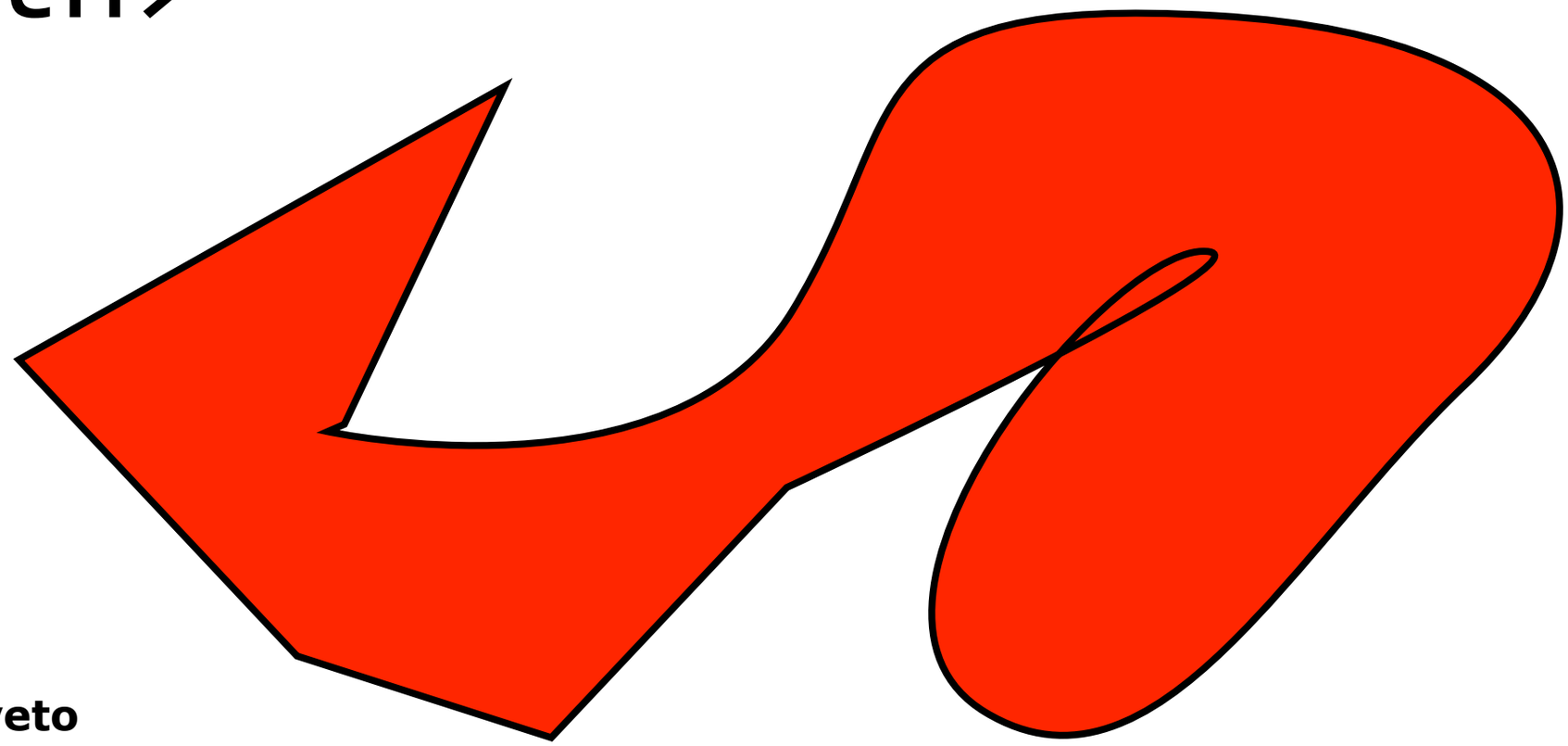
```
<line
  x1="0"
  y1="0"
  x2="10"
  y2="10">
</line>
```



```
<polygon
 points="
 10,10 20,20
 30,30 40,40
 ">
</polygon>
```



```
<path
 d="M150 0 L75 200 L225 200 Z">
</path>
```



- **M = moveto**
- **L = lineto**
- **H = horizontal lineto**
- **V = vertical lineto**
- **C = curveto**
- **S = smooth curveto**
- **Q = quadratic Bézier curve**
- **T = smooth quadratic Bézier curveto**
- **A = elliptical Arc**
- **Z = closepath**

```
<text
  x="10"
  y="10"
  dx="10"
  dy="10">
  some text here
</text>
```

some text here

```
<g
 x="10"
 y="10"
 transform="translate(10,10)"
 transform="rotate(45)">
</g>
```

D3

`select`	Selects the first existing element via css selector.
`selectAll`	Selects all elements via css selector.
`append`	Append a new element to a selection
`attr`	Set an attribute.
`data`	Load in some data.
`enter`	Must only come after data method. Runs later code after based on number of items in data.

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

select the body tag

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
   .append("svg")
   .append("circle")
   .attr("r", "50")
   .attr("cx", "150")
   .attr("cy", "150")
   .attr("fill", "red")
```

create and add svg tag

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

create and add circle tag

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

set radius attribute

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

set center x attribute

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

set center y attribute

D3

```
<svg>
  <circle r="50" cx="150" cy="150" fill="red"></circle>
</svg>
```

```
d3.select("body")
    .append("svg")
    .append("circle")
    .attr("r", "50")
    .attr("cx", "150")
    .attr("cy", "150")
    .attr("fill", "red")
```

set fill attribute

Chaining

```
d3.something().something().something()
```

method.
(returns some data)

Chaining

next method is performed
on data returned from previous method

```
d3.something().something().something()
```

method.
(returns some data)

Chaining

```
d3.select("#container")
  .append("svg")
  .append("rect")
```

Chaining

```
d3.select("#container")
  .append("svg")
  .append("rect")
```

◂···· returns #container

Chaining

```
d3.select("#container")
  .append("svg")
  .append("rect")
```

returns #container

appends an <svg> element to #container

Chaining

```
d3.select("#container")
  .append("svg")
  .append("rect")
```

returns #container

appends an <svg> element to #container

appends <rect> to the inside of <svg>

Chaining

```
var group = d3.select("#container")
                .append("svg")
                .append("g");

group.append("circle");
```

```
<div id="contai
  <svg>
    <g>
      <circle></
      <rect></re
    </g>
  </svg>
</div>
```

Chaining

```
var group = d3.select("#container")
              .append("svg")
              .append("g");

group.append("circle");
```

```
<div id="contai
  <svg>
    <g>
      <circle></
      <rect></re
    </g>
  </svg>
</div>
```

Pop Quiz

```
<rect
 width="30"
 height="10"
 x="10"
 y="10"
 fill="red">
</rect>
```

Pop Quiz

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

```
<rect
 width="30"
 height="10"
 x="10"
 y="10"
 fill="red">
</rect>
```

Pop Quiz

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

```
<rect
 width="30"
 height="10"
 x="10"
 y="10"
 fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
  .attr("width", "30")
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
  .attr("width", "30")
  .attr("height", "10")
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
  .attr("width", "30")
  .attr("height", "10")
  .attr("x", "10")
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
  .attr("width", "30")
  .attr("height", "10")
  .attr("x", "10")
  .attr("y", "10")
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

Pop Quiz

```
d3.select("body")
  .append("svg")
  .append("rect")
  .attr("width", "30")
  .attr("height", "10")
  .attr("x", "10")
  .attr("y", "10")
  .attr("fill", "red");
```

```
<rect
 width="30"
 height="10"
  x="10"
  y="10"
  fill="red">
</rect>
```

data

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");
```

```
svg.selectAll("circle")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");

svg.selectAll("circle")
   .data(thedata)
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");

svg.selectAll("circle")
   .data(thedata)
   .enter()
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");

svg.selectAll("circle")
   .data(thedata)
   .enter()
   .append("circle")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


var svg  = d3.select("body")
             .append("svg");
```

```
svg.selectAll("circle")
    .data(thedata)
    .enter() ◀·····Magic!
    .append("circle")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];

svg.selectAll("div")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
    .enter()
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
    .enter()
    .append("div")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
    .enter()
    .append("div")
    .text("some text in each div")
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
    .enter()
    .append("div")

    .text(function(d){ return d; })
```

Adding data with d3

```
var thedata = [3, 2, 4, 6, 0, 3];


svg.selectAll("div")
    .data(["one", "two"])
    .enter()
    .append("div")

    .text(function(d){ return d; })
```

d will be data element each time it's run