6.859: D3 Basics

Concepts Overview

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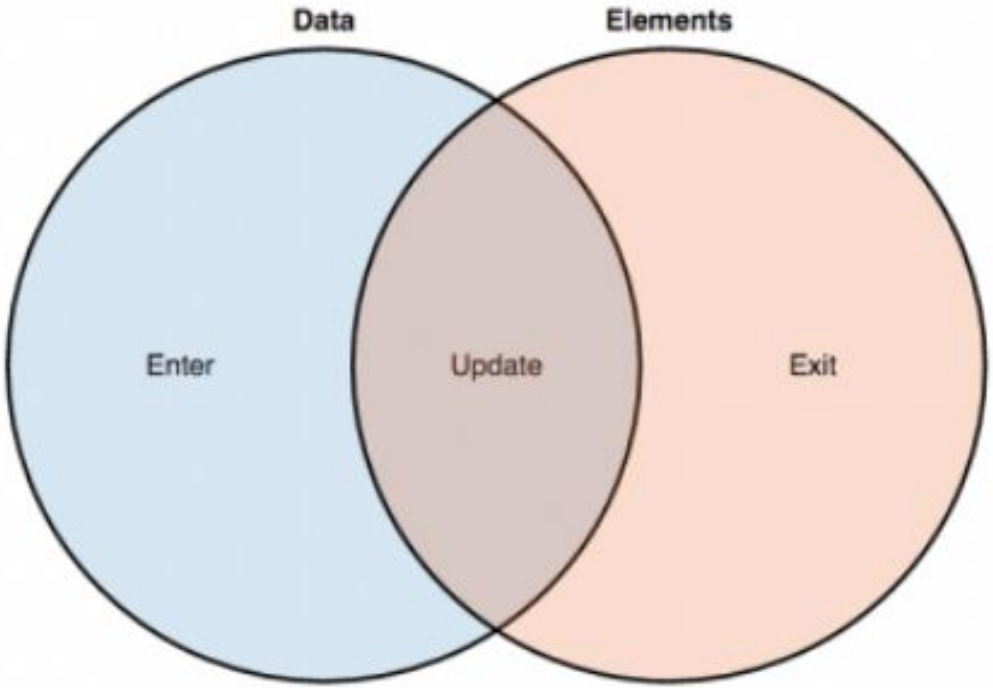
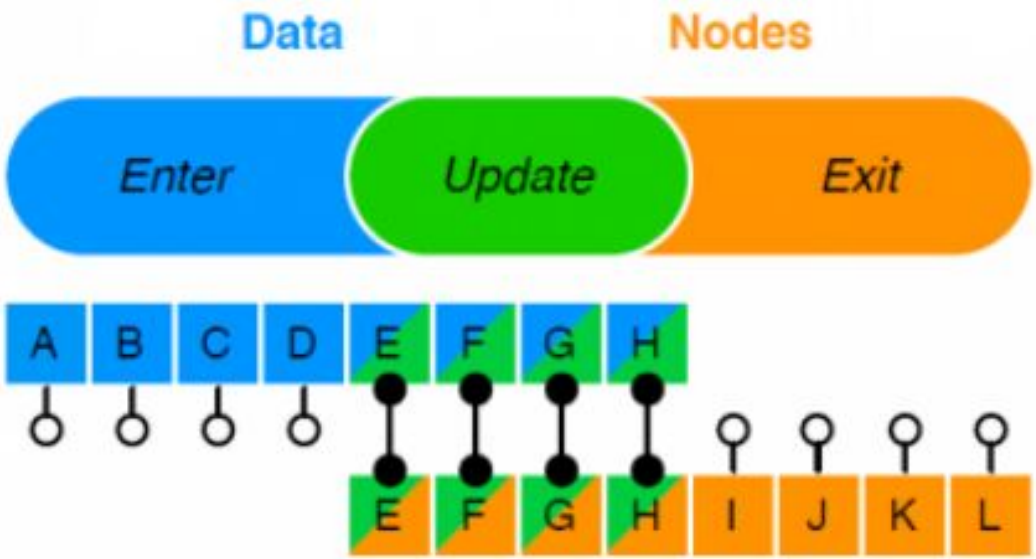
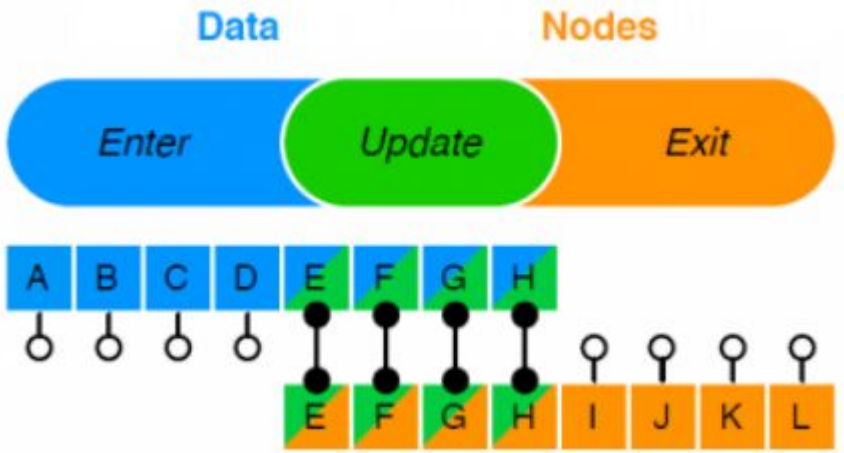
Data Binding

How do our elements and data connect?

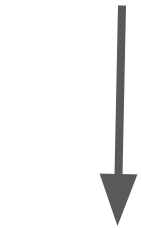

Data
Elements
Enter
Update
Exit


Data
Nodes
Enter
Update
Exit
A
B
C
D
E
F
G
H
E
F
G
H
I
J
K
L

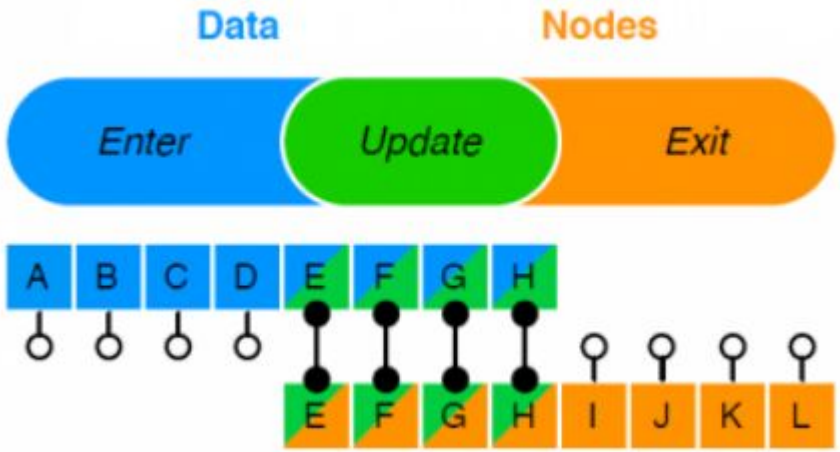
```
.join(
    enter  => enter.append('li'),
    update => update,
    exit => exit.remove()
  )
```



```
.join(
    enter  => enter.append('li'),
    update => update,
    exit => exit.remove()
  )
```

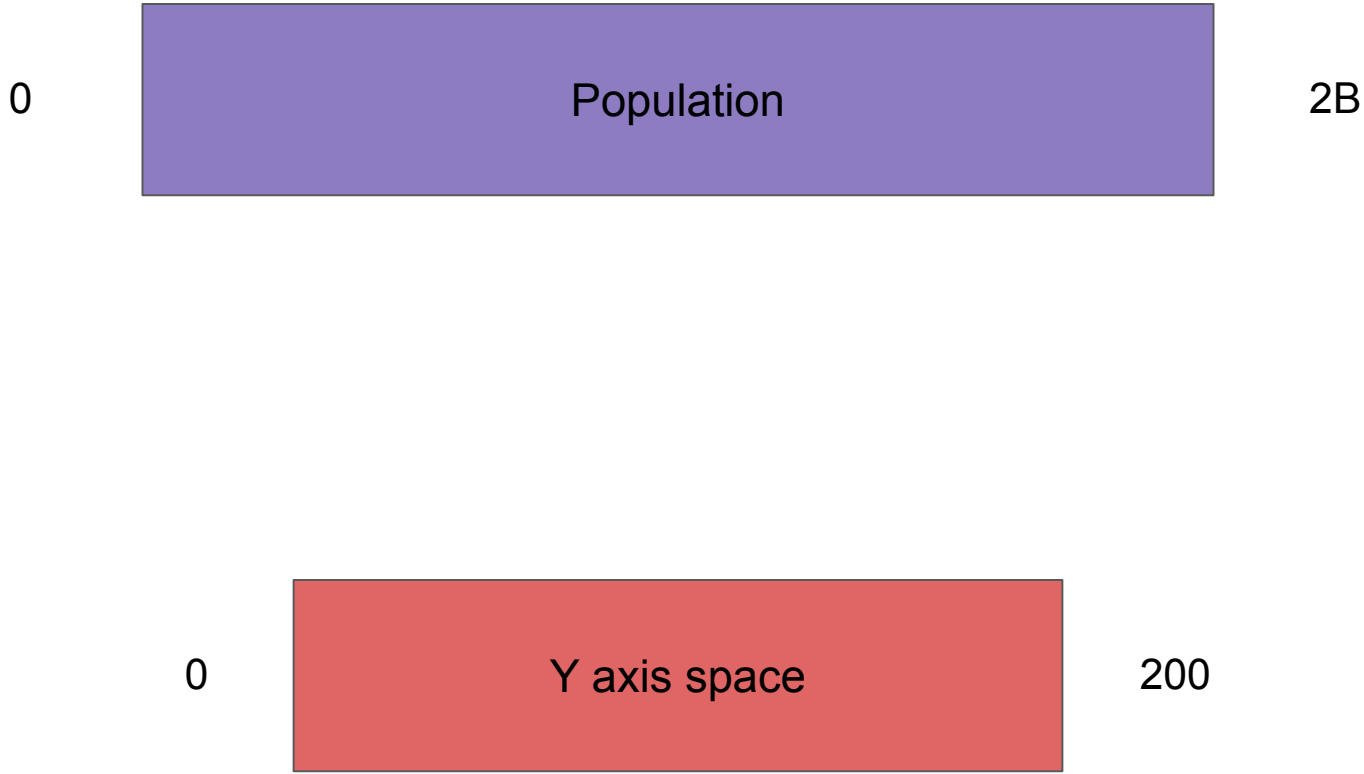


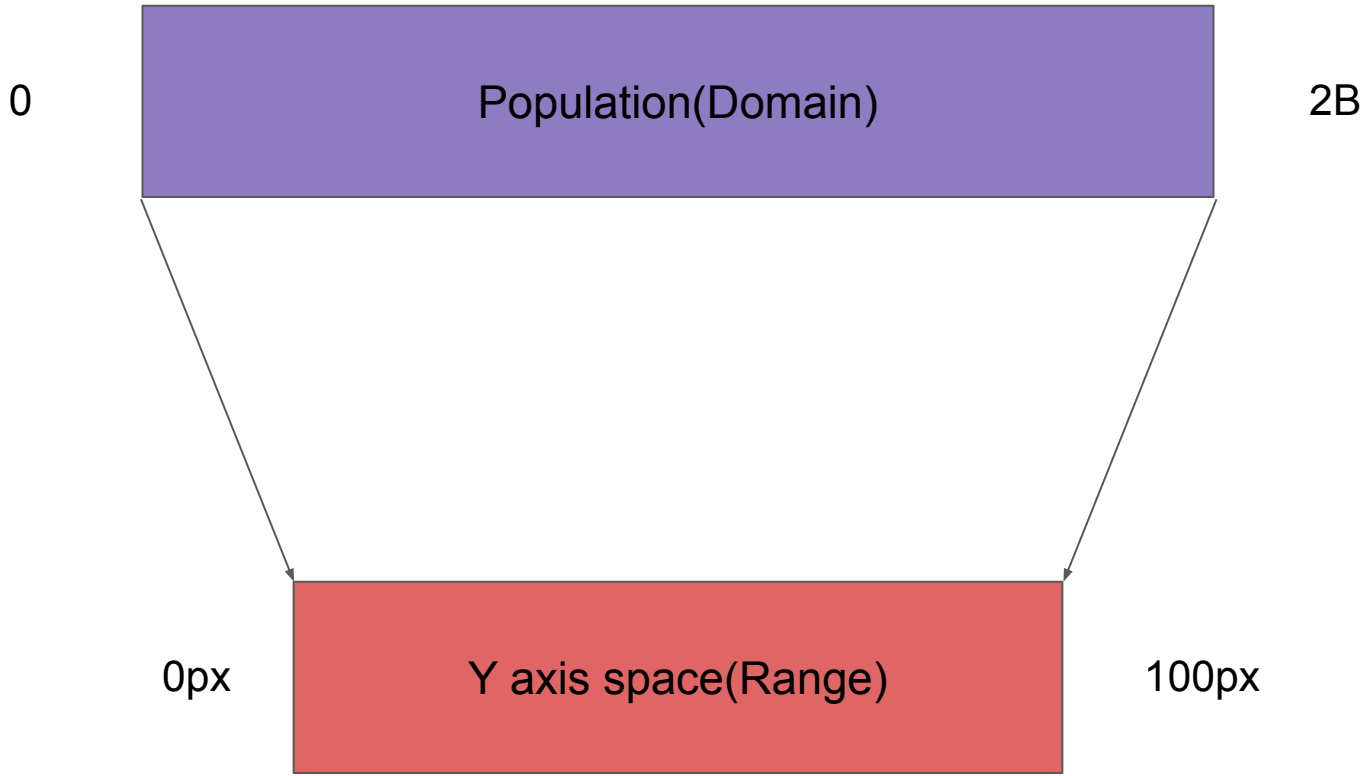
.join(“li”)

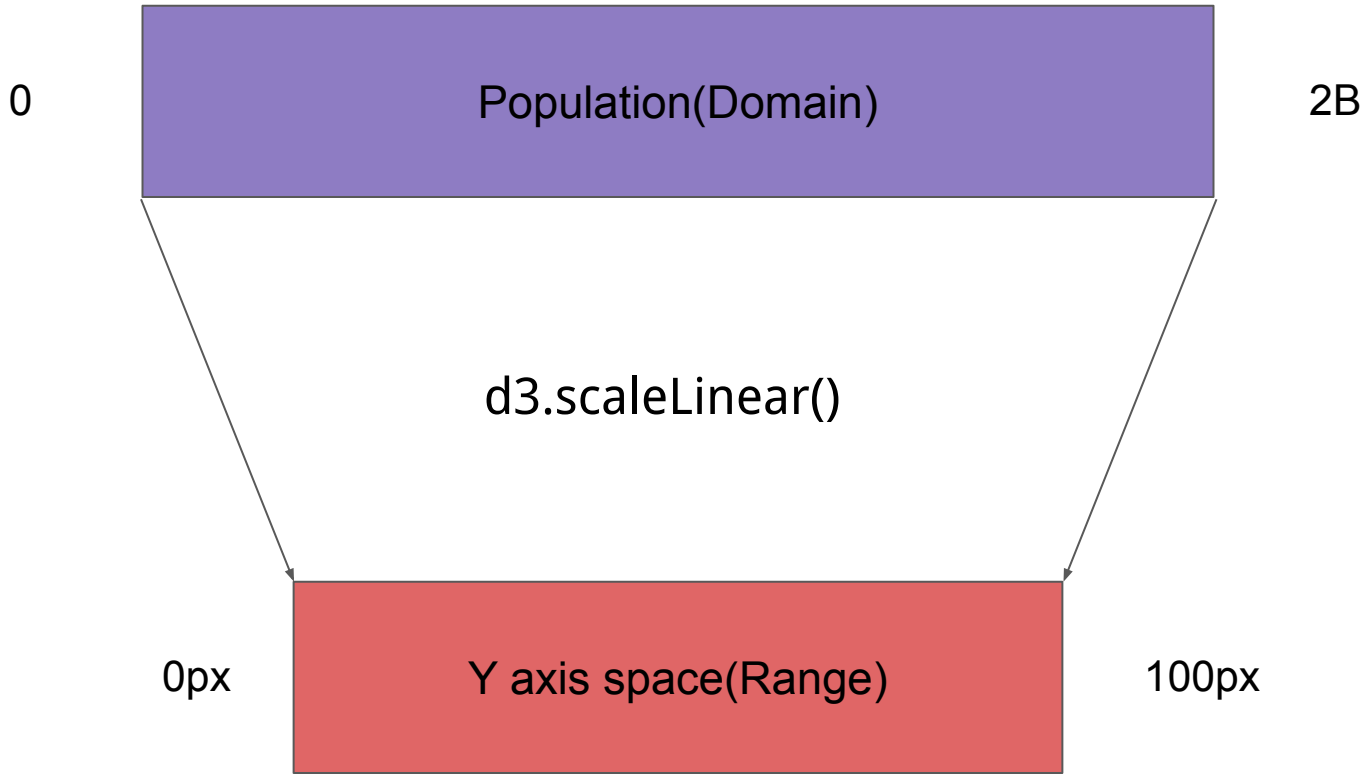


Scales

eg: How do I go from population numbers to pixels?

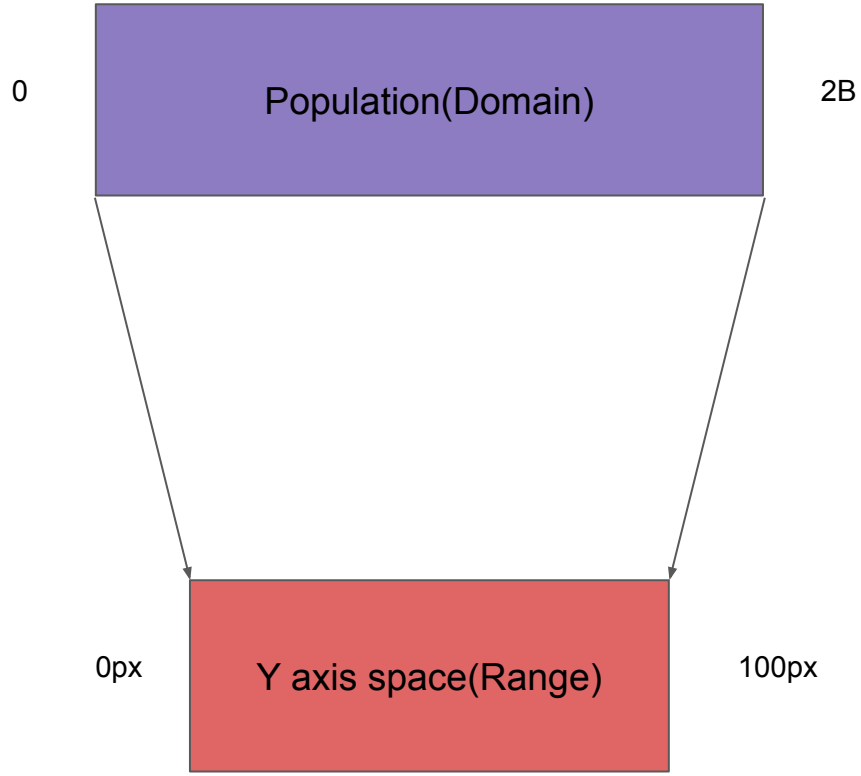

0
Population
2B
0
Y axis space
200


0
Population(Domain)
2B
0px
Y axis space(Range)
100px


0
Population(Domain)
2B
d3.scaleLinear()
0px
Y axis space(Range)
100px

```
let scaleFn = d3.scaleLinear()
  .domain([ 0 , 2*Math.pow(10,9) ])
  .range([ 0 , 100 ])


scaleFn(20000000)  ⟶  1
```

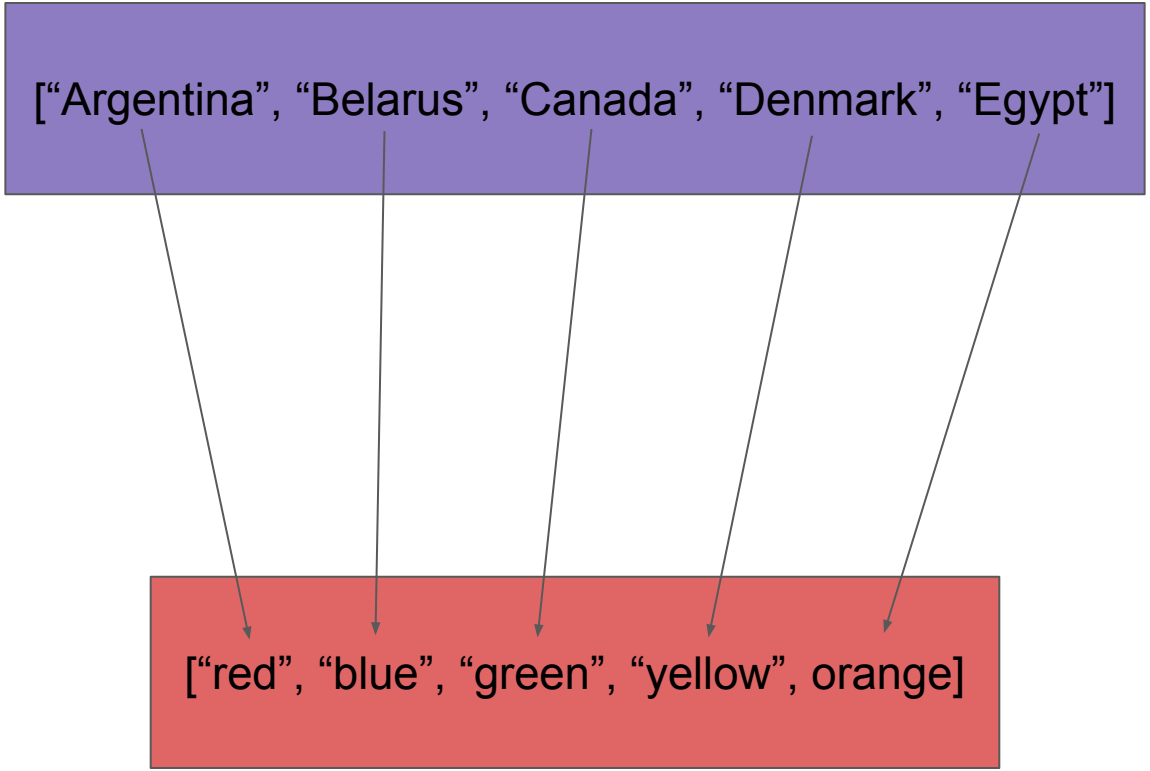


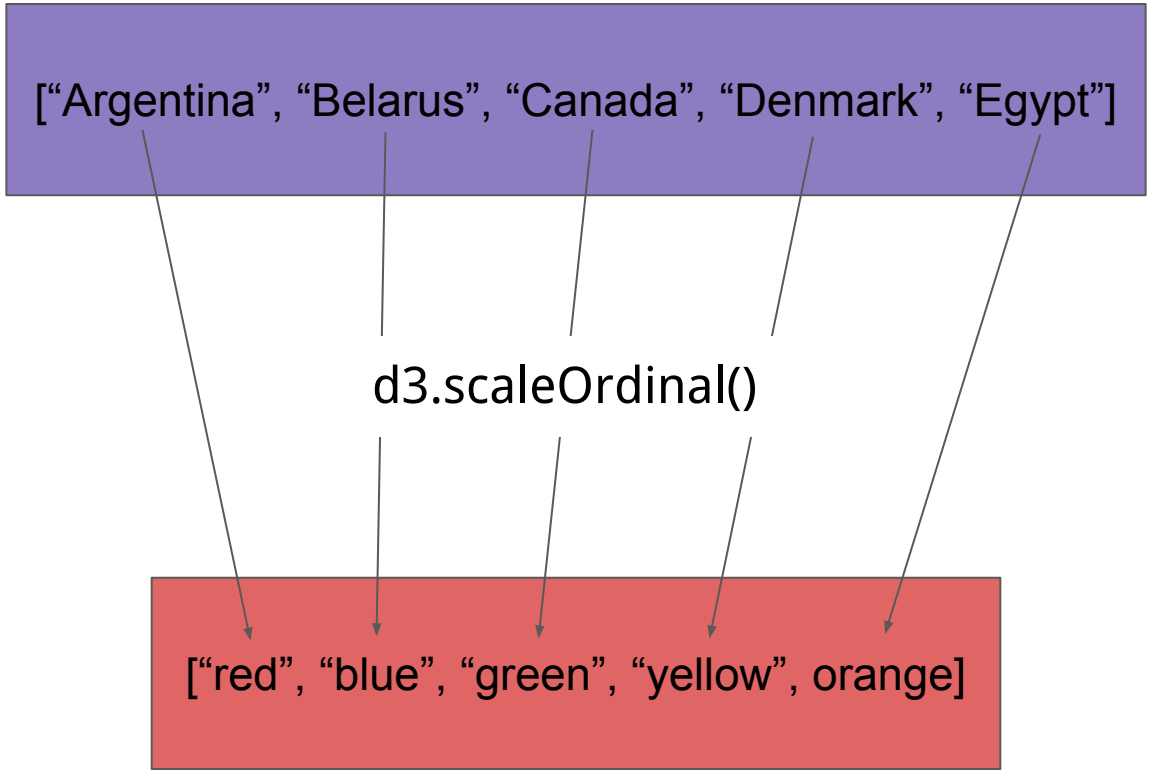
Scales

eg: How do I assign country names to colors?

["Argentina", "Belarus", "Canada", "Denmark", "Egypt"]

["red", "blue", "green", "yellow"]

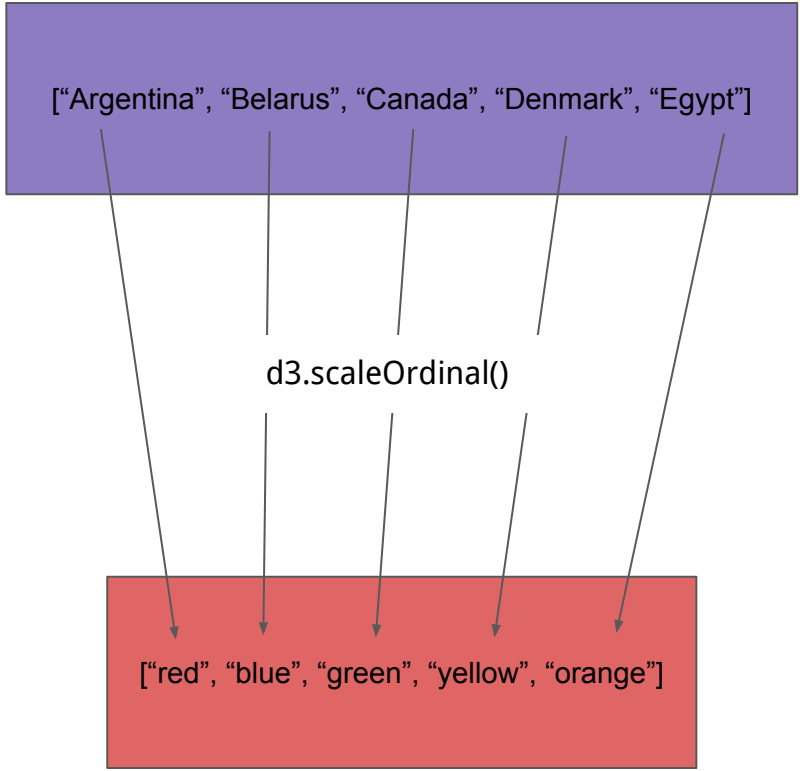

[“Argentina”, “Belarus”, “Canada”, “Denmark”, “Egypt”]
[“red”, “blue”, “green”, “yellow”, orange]


[“Argentina”, “Belarus”, “Canada”, “Denmark”, “Egypt”]
d3.scaleOrdinal()
[“red”, “blue”, “green”, “yellow”, orange]

```
let scaleFn = d3.scaleOrdinal()
  .domain(["Argentina", "Belarus",
        "Canada", "Denmark", "Egypt"])

  .range(["red", "blue", "green", "yellow",
        "orange"])
```

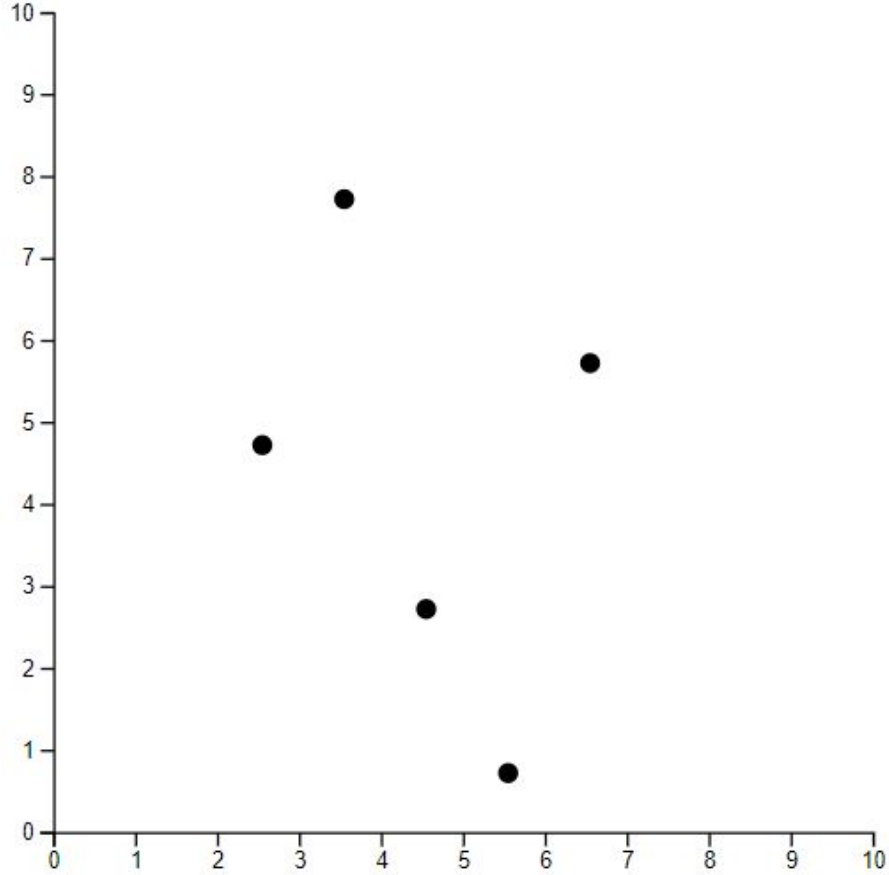
scaleFn("Denmark") → "yellow"

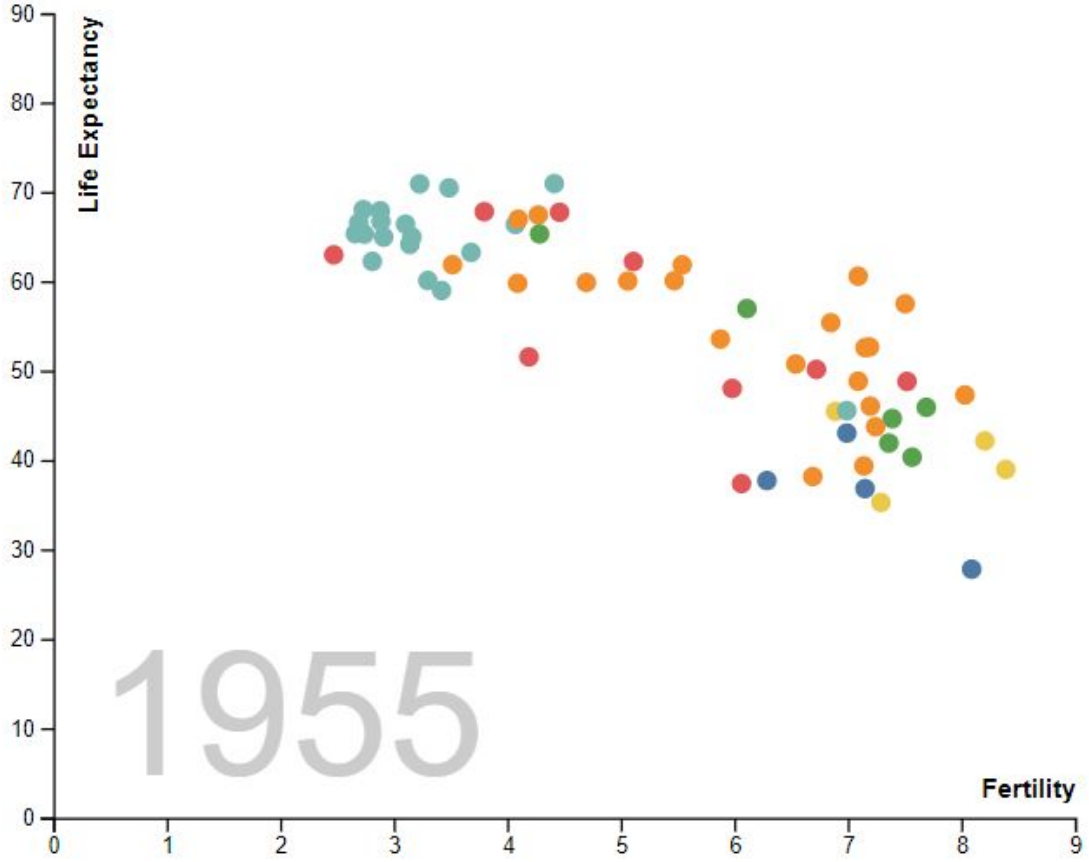


Explore the other scales especially d3.scaleBand for bars.

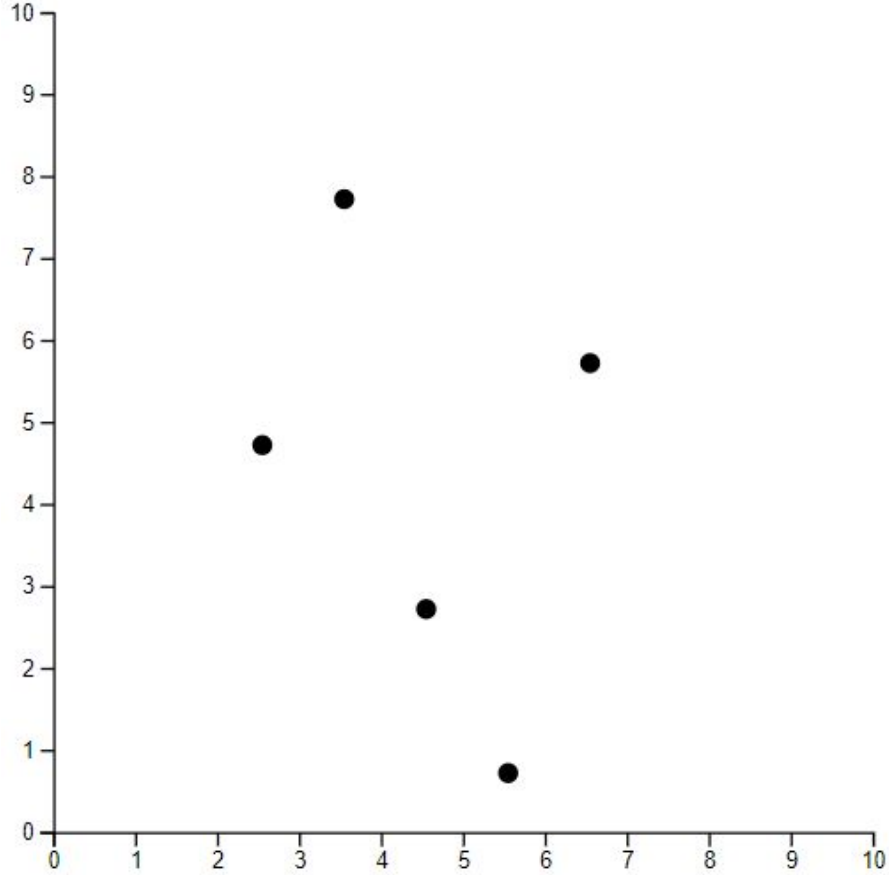
SVG

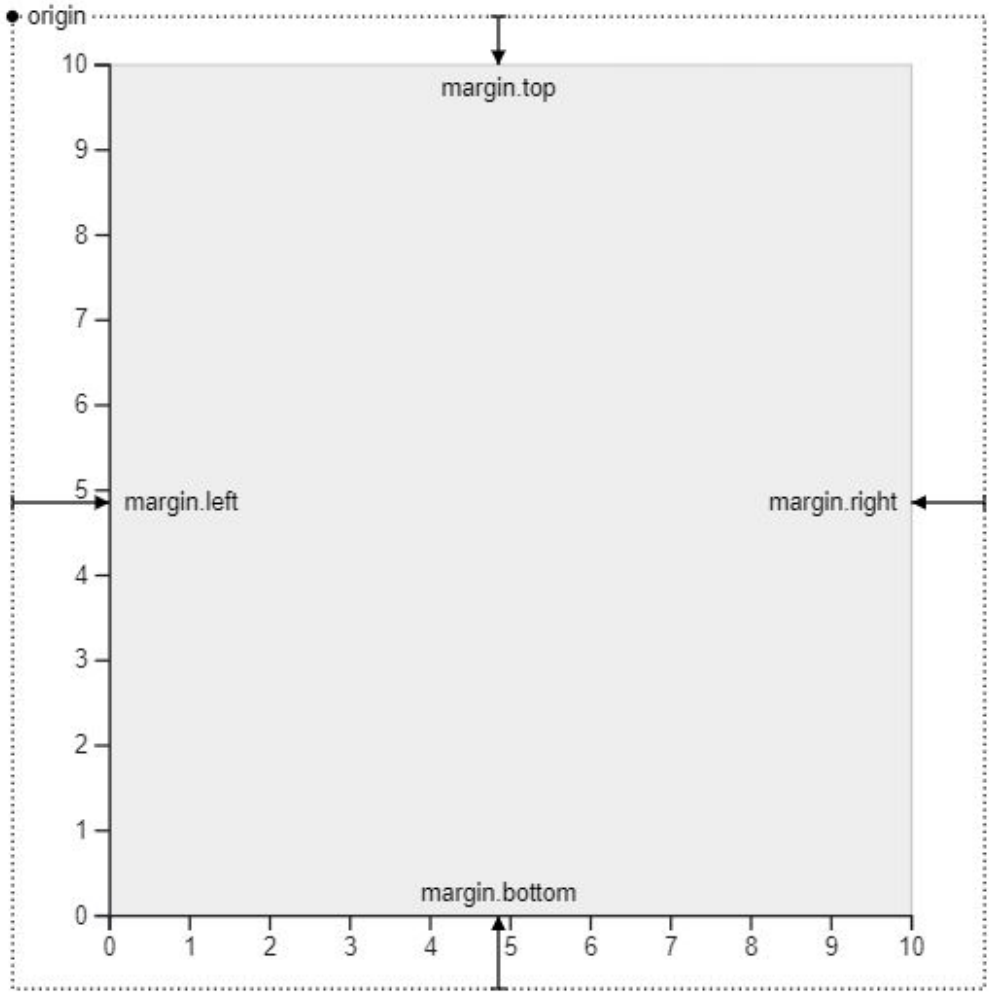
How do I create shapes on my page?


10
9
8
7
6
5
4
3
2
1
0
0
1
2
3
4
5
6
7
8
9
10


Life Expectancy
90
80
70
60
50
40
30
20
10
0
1955
Fertility
0
1
2
3
4
5
6
7
8
9

Margins for axes


10
9
8
7
6
5
4
3
2
1
0
0
1
2
3
4
5
6
7
8
9
10


origin
margin.top
margin.left
margin.right
margin.bottom
0
1
2
3
4
5
6
7
8
9
10

Code...

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array = [1,3,2]

width = 450

```
var scale = d3.scaleBand().range([0, 450]).domain([1,3,2]);
console.log(scale(1)); // x = 0
console.log(scale(3)); // x = 150
console.log(scale(2)); // x = 300
console.log(scale.bandwidth()); // rect width = 150
```