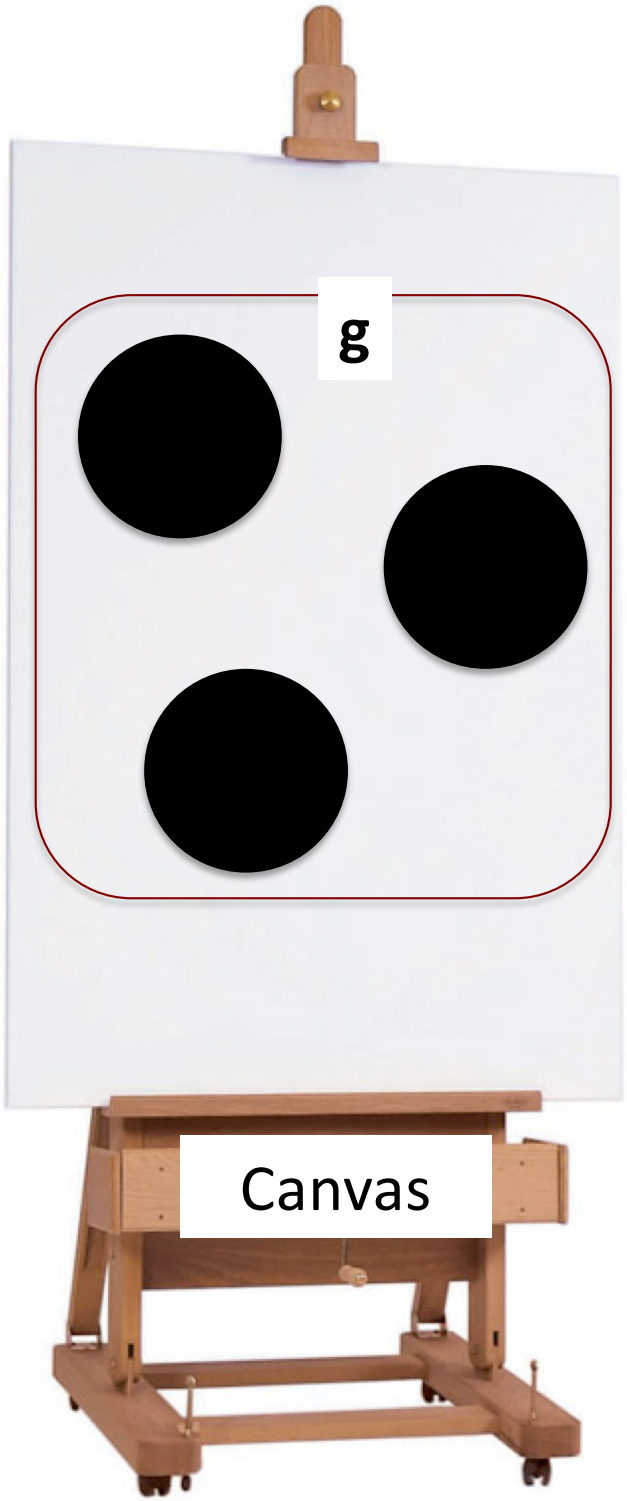
# Groups




```
var Canvas =   d3.select("body”)
                  .append("svg")
                  .attr(“width”,100)
                  .attr(“height”,200)
```

```
var group = Canvas.append(“g”)
```

Create group element under which Canvas elements will be grouped

```
group.append(“circle”)
                    …

group .append(“circle”)
                    …

group .append(“circle”)
                    …
```

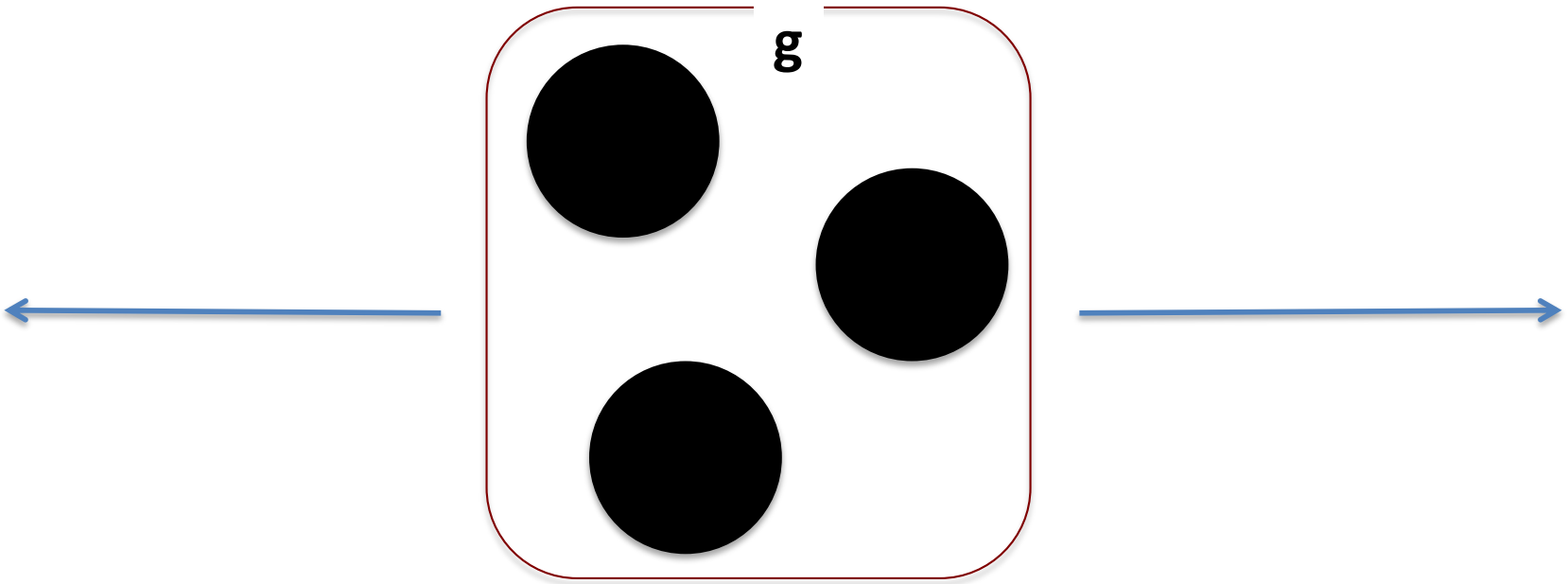
# Transform (translate) “group”

Move group or an element
vertically or horizontally

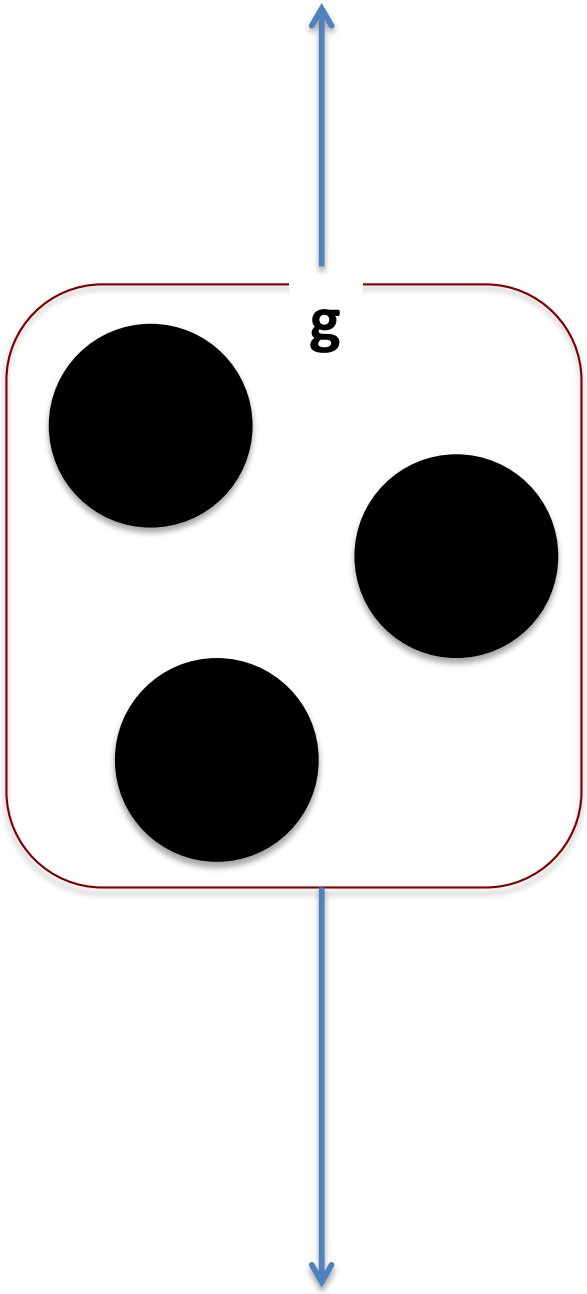
```
group.attr(“transform”, “translate(x,y)”)
```

**x, y** – any number

group.attr(“transform”, “translate(**x** , y )”)

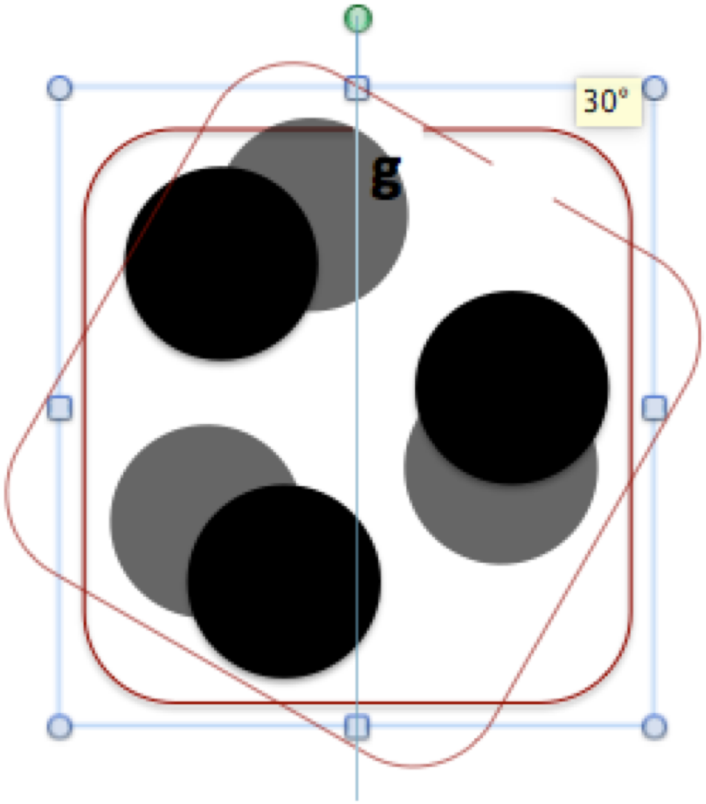


**x, y** – any number




group.attr(“transform”, “translate(x , **y** )”)

# Transform (Rotate)

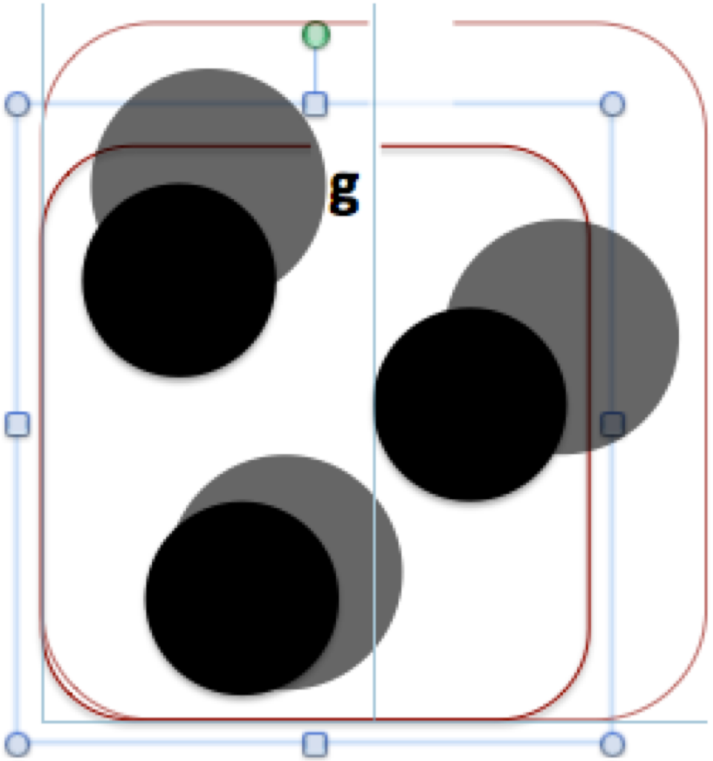



rotate group by specified degree

group.attr(“transform”, “**rotate(degree)**”)

*group.attr(“transform”, “rotate(30)”)*

**x** – any positive decimal number




Increases/decreases size of the object

group.attr(“transform”, “scale(x)”)

*group.attr(“transform”, “scale(1.5)”)*

# Transform (skew)

Increases/decreases size of the object

group.attr(“transform”, “skewX(x)”)

group.attr(“transform”, “skewY(y)”)

*group.attr(“transform”, “*skewX*(20)”)*

*group.attr(“transform”, “*skewY*(20)”)*

# Combining transformations

group.attr(“transform”, “**ALL DESIRABLE TRANSFORMATIONS**”)

group.attr(“transform”, “translate(0,100) rotate(30) scale(4)”)

# Transform resources

https://www.tutorialspoint.com/d3js/d3js_svg_transformation.htm

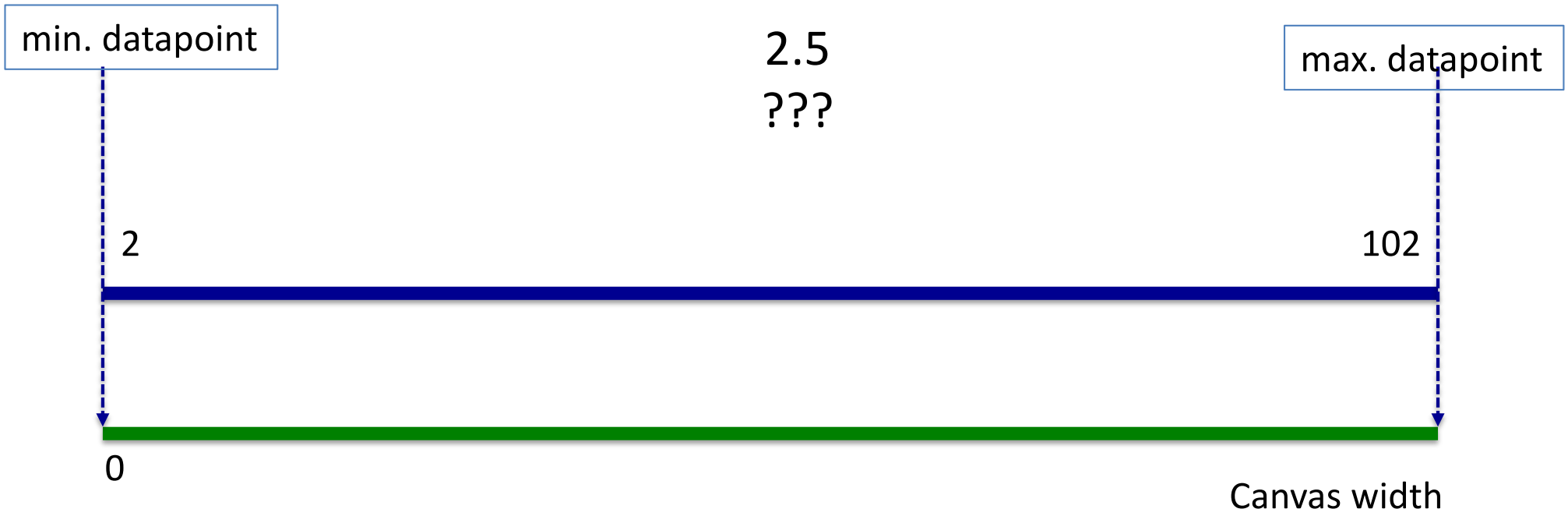
# Scales

```
var scale = d3.scaleLinear()
                .domain([min datapoint, max datapoint])
                .range([0, width]);
```

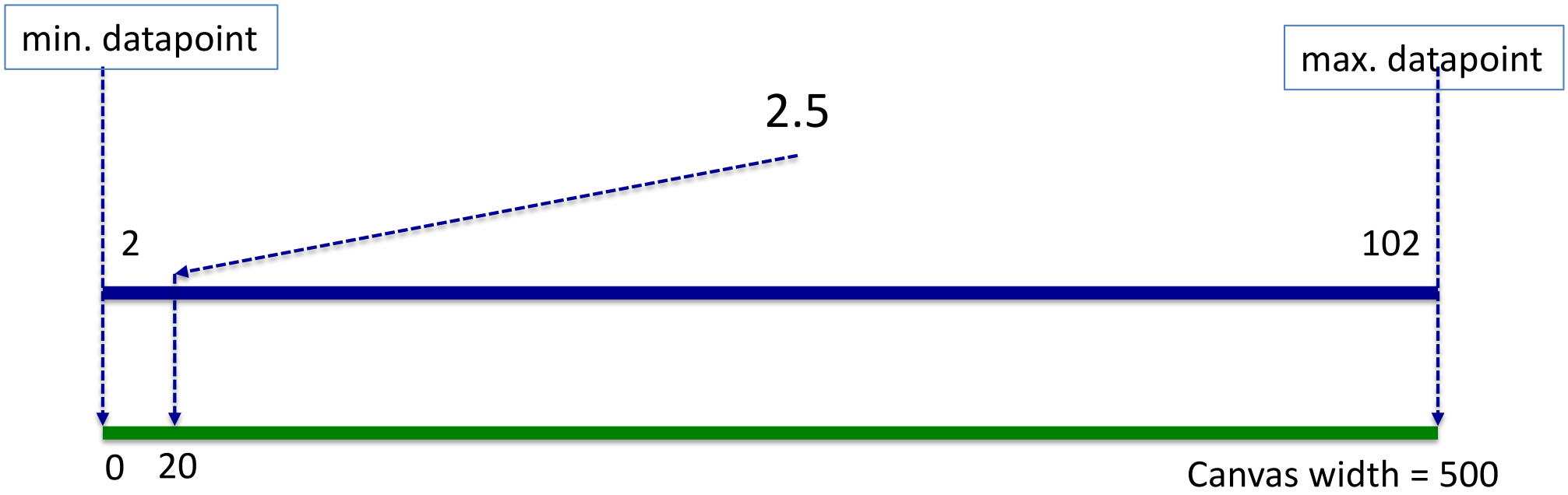
## Functions to transform data points

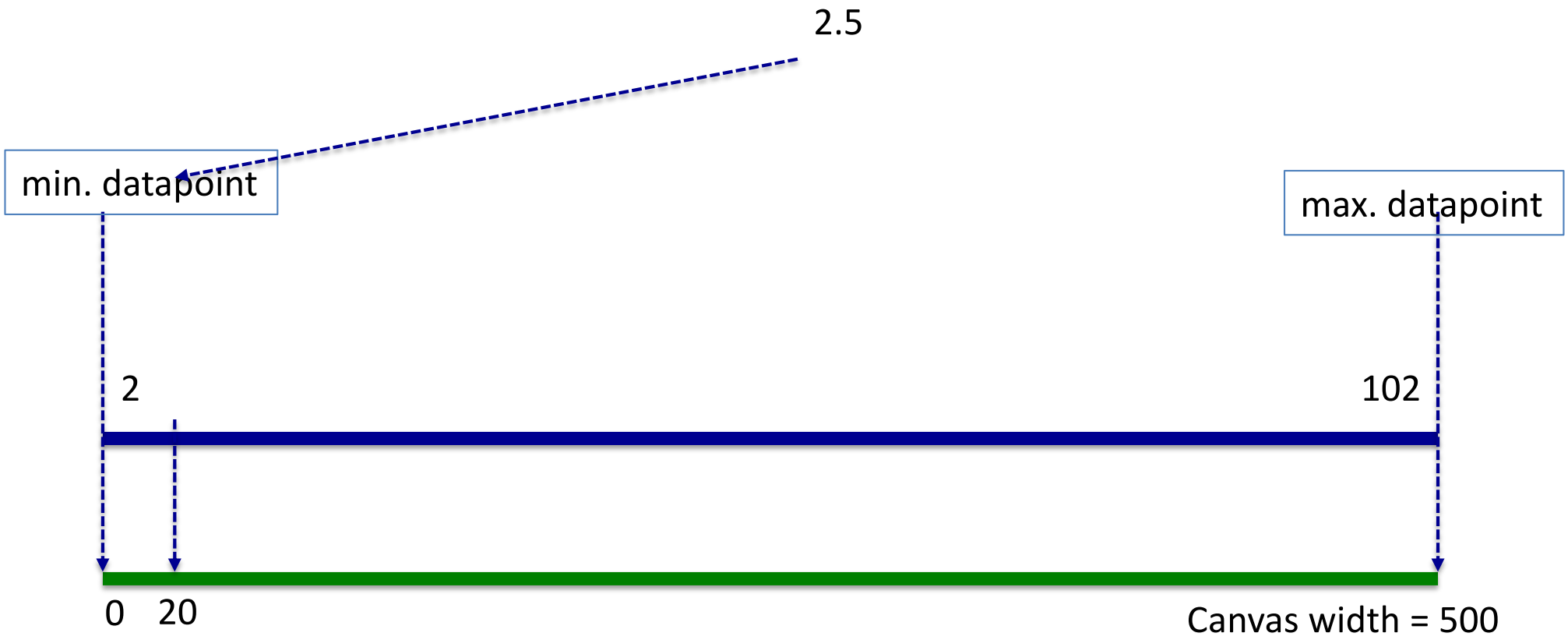
If we have data point 2.5 where will we place it on X axis

If we have data point 2.5 where will we place it on X axis?
and If our data ranges from 2 to 102?



If we have data point 2.5 where will we place it on X axis?
and If our data ranges from 2 to 102?
If we know ranges what positions on the screen datapoint will receive?





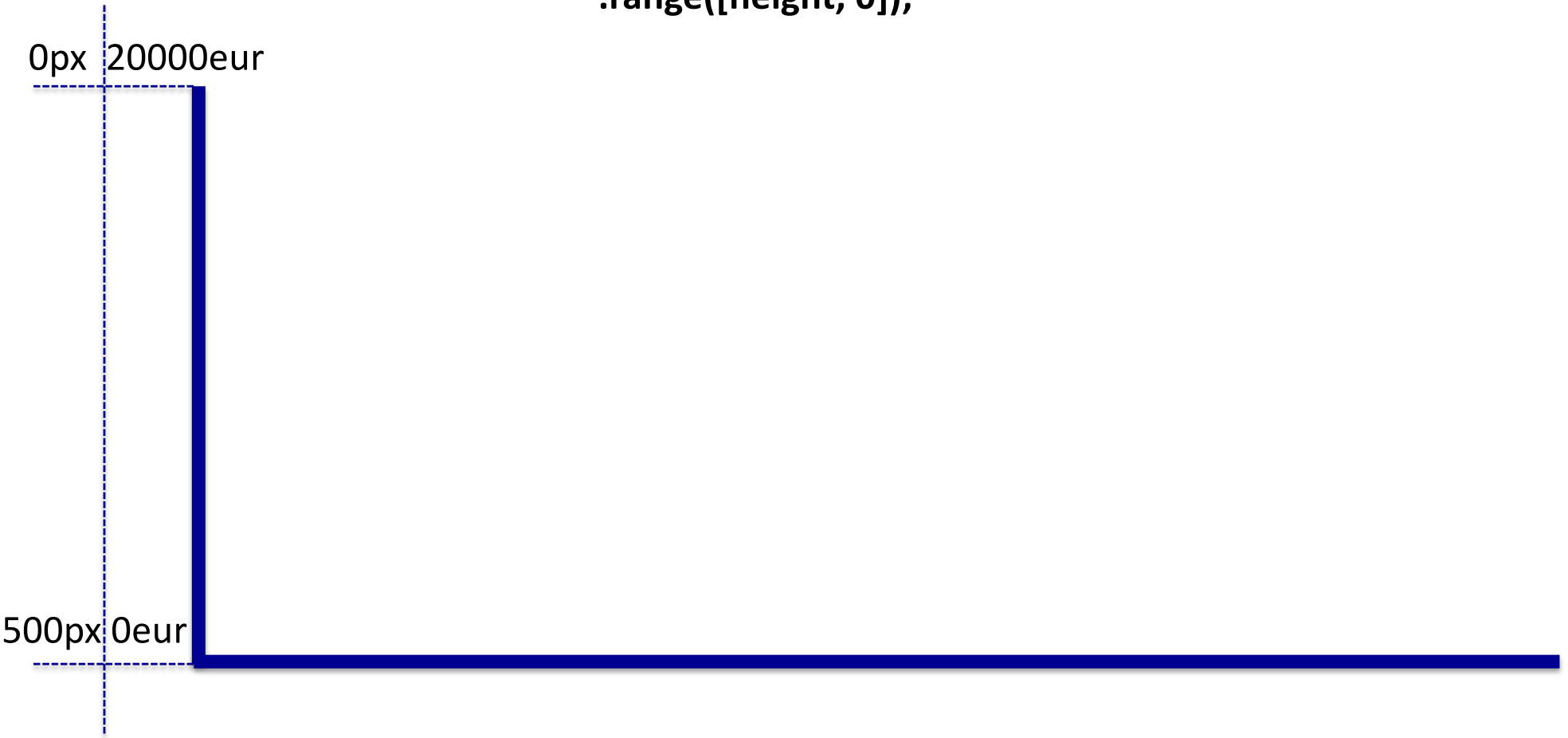

```
var scale = d3.scaleLinear()
                .domain([min datapoint, max datapoint])
                .range([0, width]);

scale(2.5)
var numb = scale(2.5);
console.log(scale(2.5));
```

# Create a Scatterplot

| Data Points | X | Y |
|---|---|---|
| | 2 | 0 |
| | 2 | 4 |
| | 5 | 1 |
| | 1 | 4 |

```
var scale = d3.scaleLinear()
                .domain([min datapoint, max datapoint])
                .range([height, 0]);
```



# We can also define color with scales

```
var colorScale= d3.scaleLinear()
    .domain([-1, 1])
    .range([’red’,’blue']);
```

```
var colorScale= d3.scaleLinear()
    .domain([-1, 0, 1])
    .range(['tomato','white','steelblue']);
```

# Scales resources

https://www.tutorialspoint.com/d3js/d3js_scales_api.htm

https://github.com/d3/d3-scale

# Axis

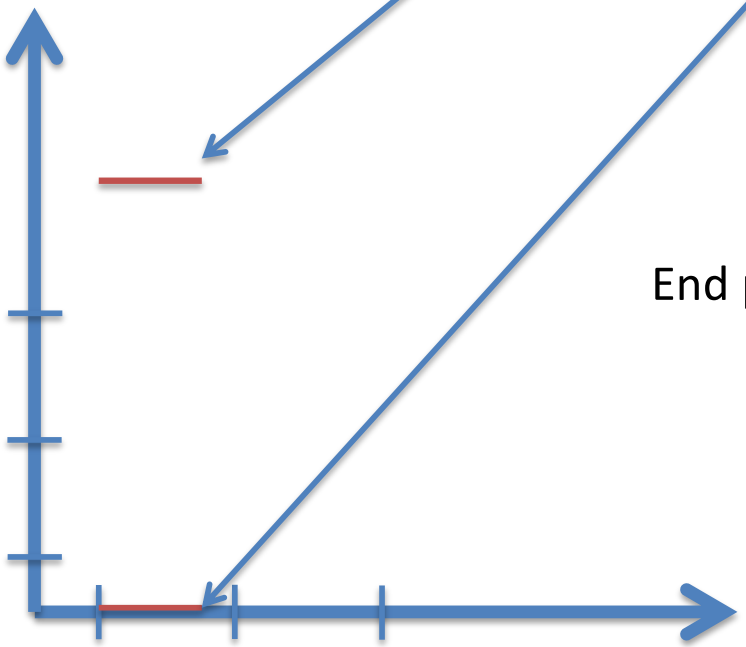
# Axis Resources

- https://github.com/d3/d3-axis

# Drawing Bar Charts

```
var group = canvas1.append("g");

group .append("rect")
   .attr("x", xScale(20))
   .attr("y",  yScale(8))
   .attr("width", 20)
   .attr("height", yScale(0) - yScale(8))
.attr("fill", "white")
   .attr("stroke", "red")
```

We create beginning point at the end of the bar

End point at the bottom of the bar