tt()

D3 FTW!

Schedule

1. Why you’re using D3
2. D3 Concepts
3. Let’s get started

Schedule

1. **Why you're using D3**
2. D3 Concepts
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D3

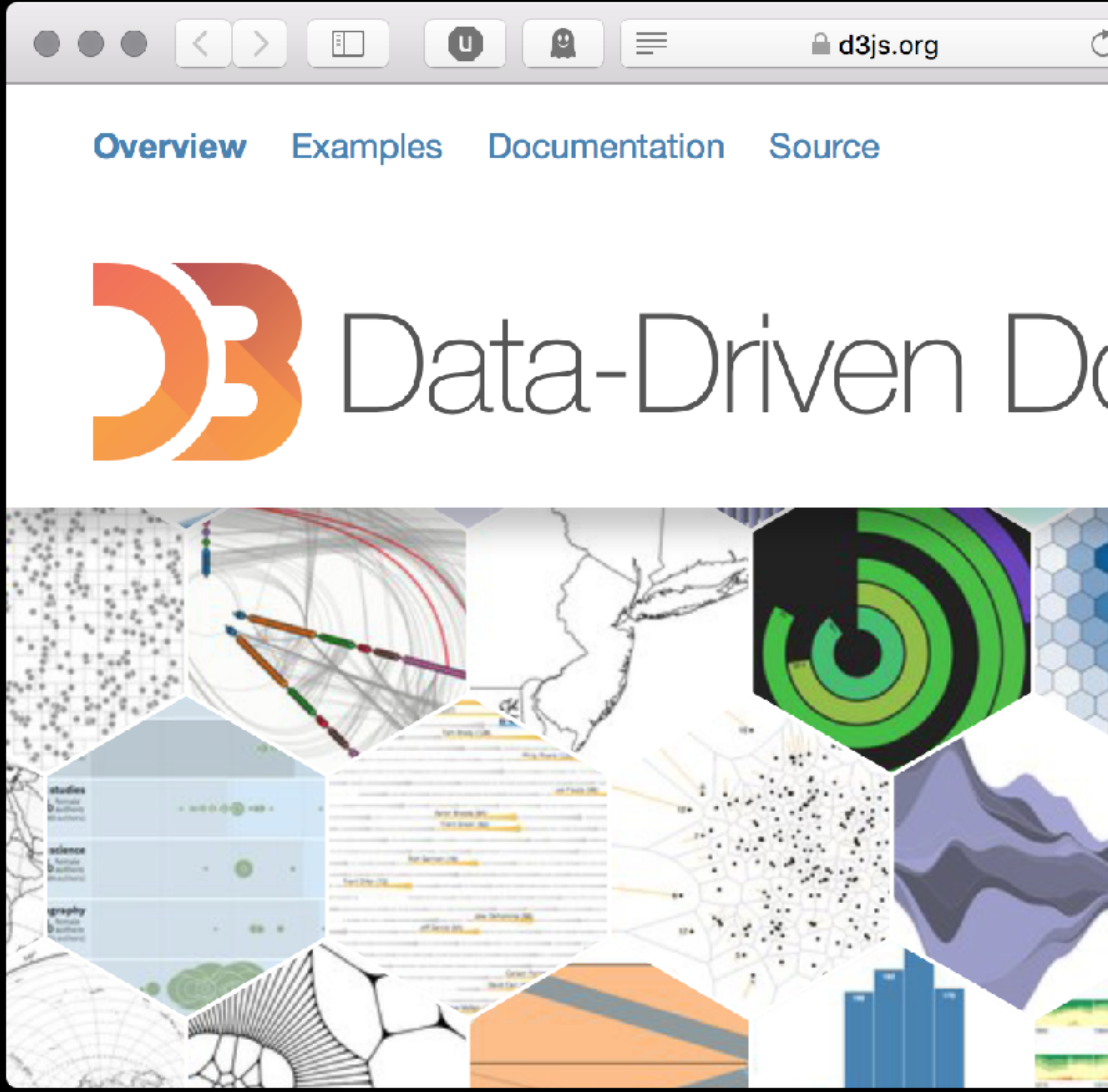
Data **D**riven **D**ocuments

D3 – the purpose

"D3.js is a JavaScript library for **manipulating documents based on data.**

D3 helps you bring data to life using HTML, SVG, and CSS.

(…) D3 is extremely fast, supporting large datasets and dynamic behaviours for interaction and animation."

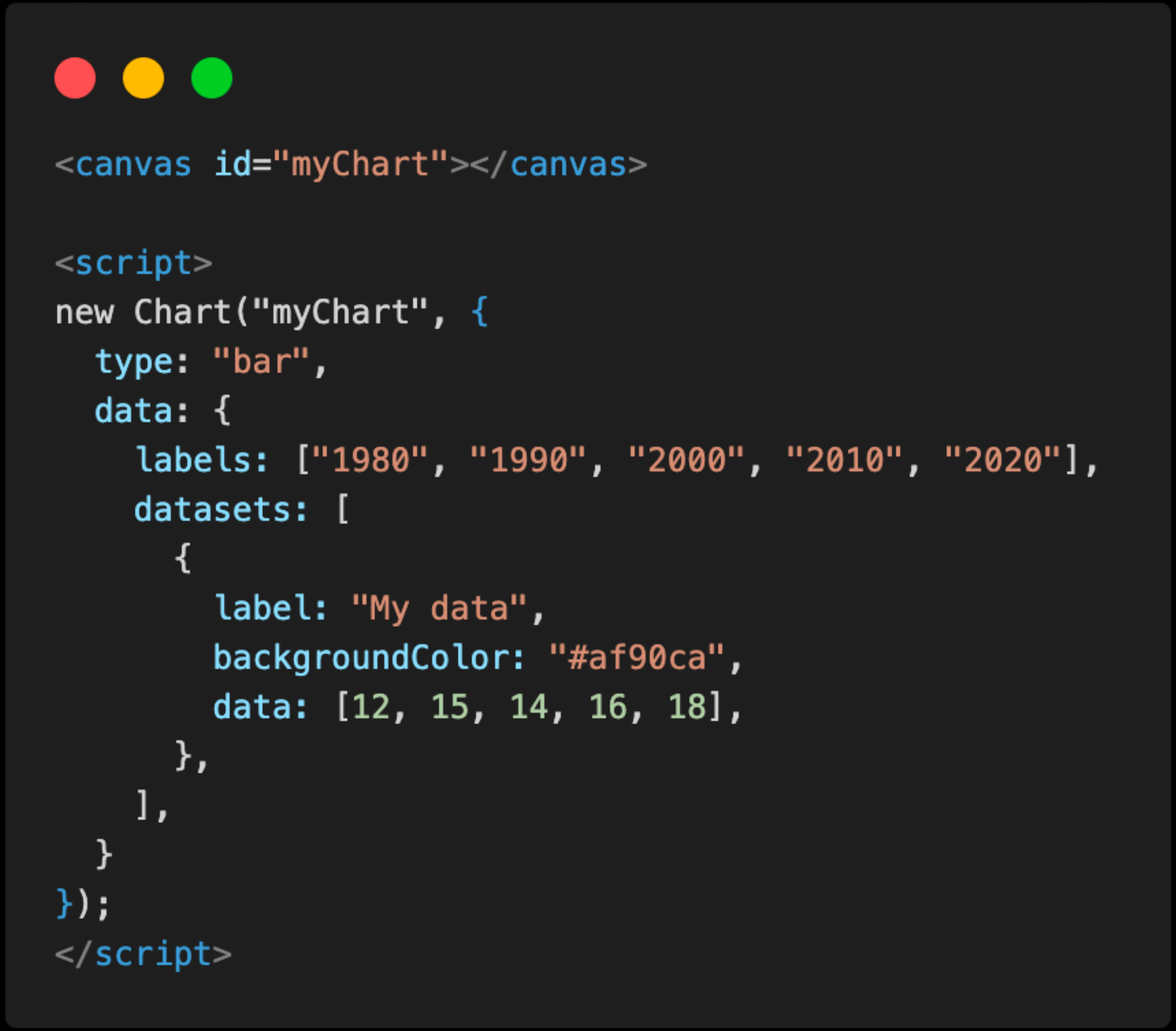


D3 vs Instant Mix

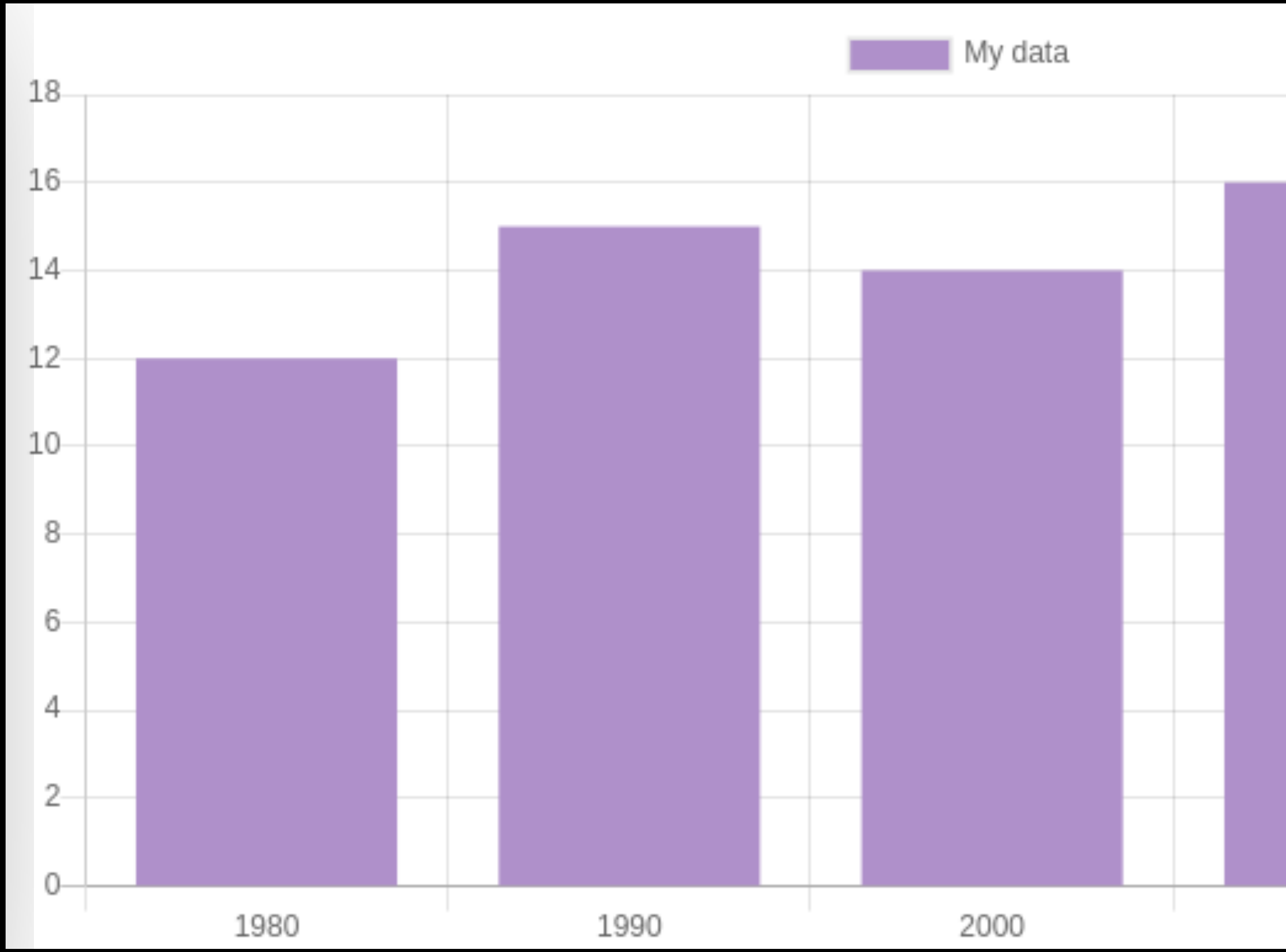
- RawGraphs.io
- LocalFocus.nl
- Flourish.studio

Just add water!

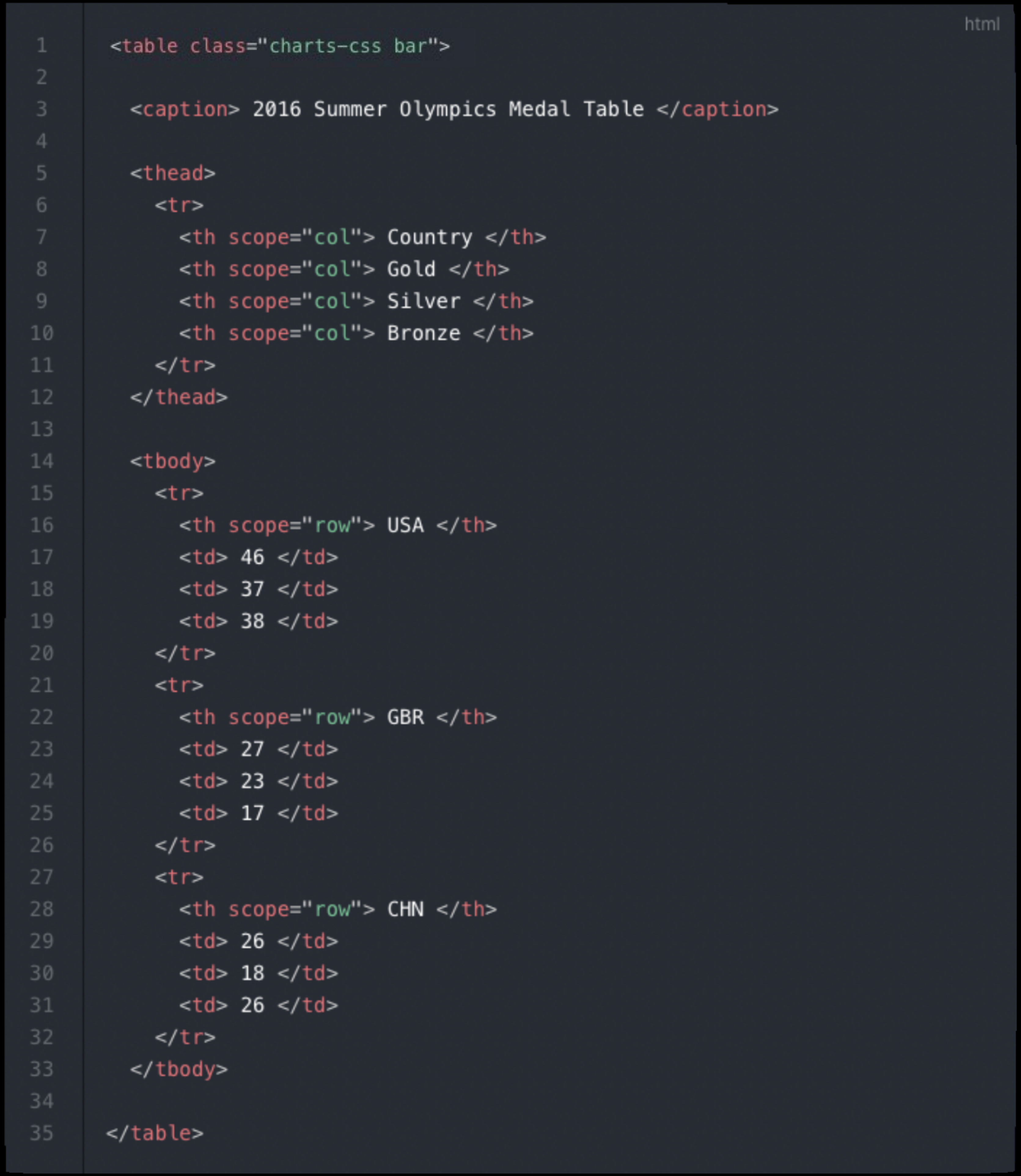
D3 vs Chart.js



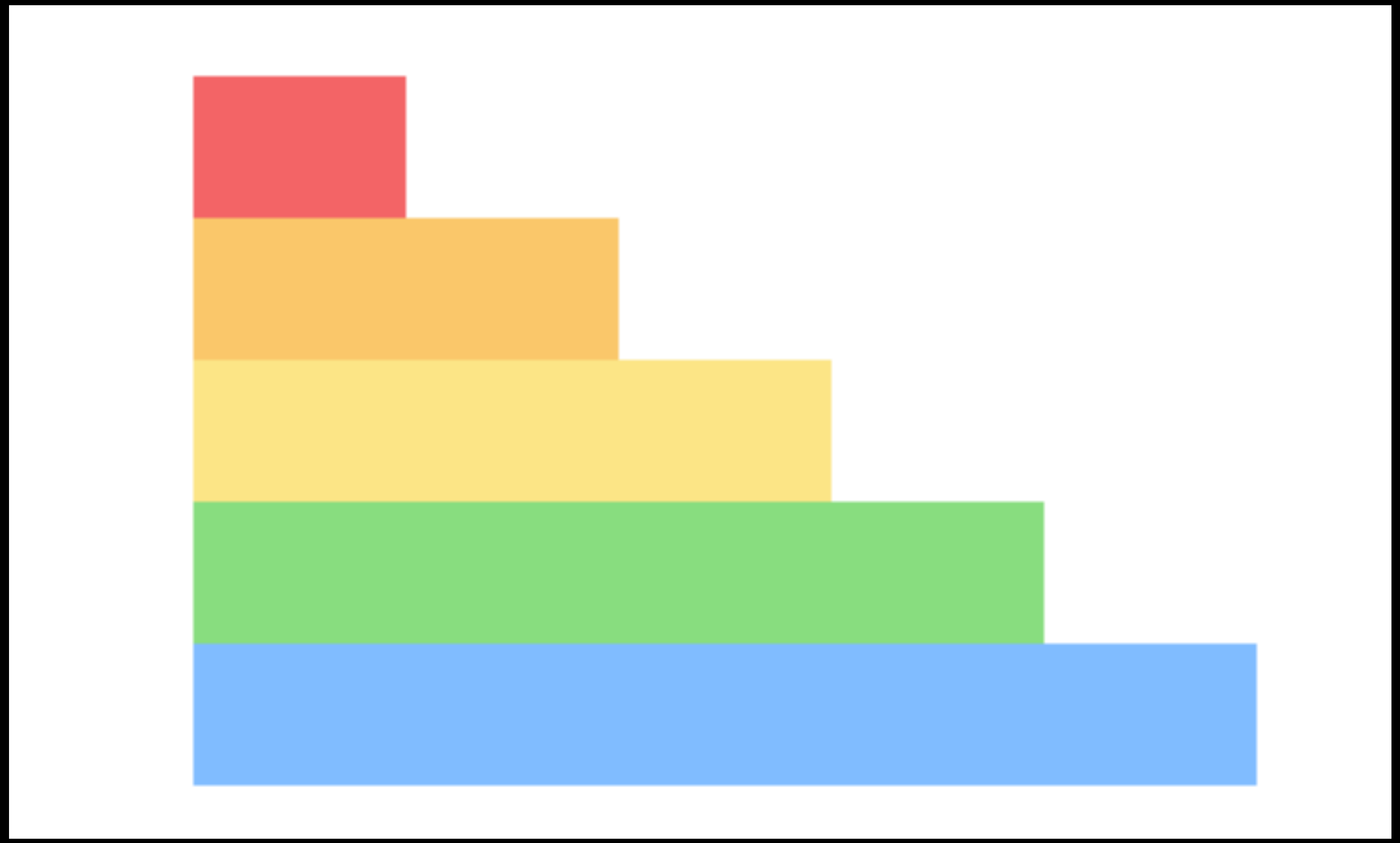
```
<canvas id="myChart"></canvas>

<script>
new Chart("myChart", {
  type: "bar",
  data: {
    labels: ["1980", "1990", "2000", "2010", "2020"],
    datasets: [
      {
        label: "My data",
        backgroundColor: "#af90ca",
        data: [12, 15, 14, 16, 18],
      },
    ],
  }
});
</script>
```



D3 vs Chart.css

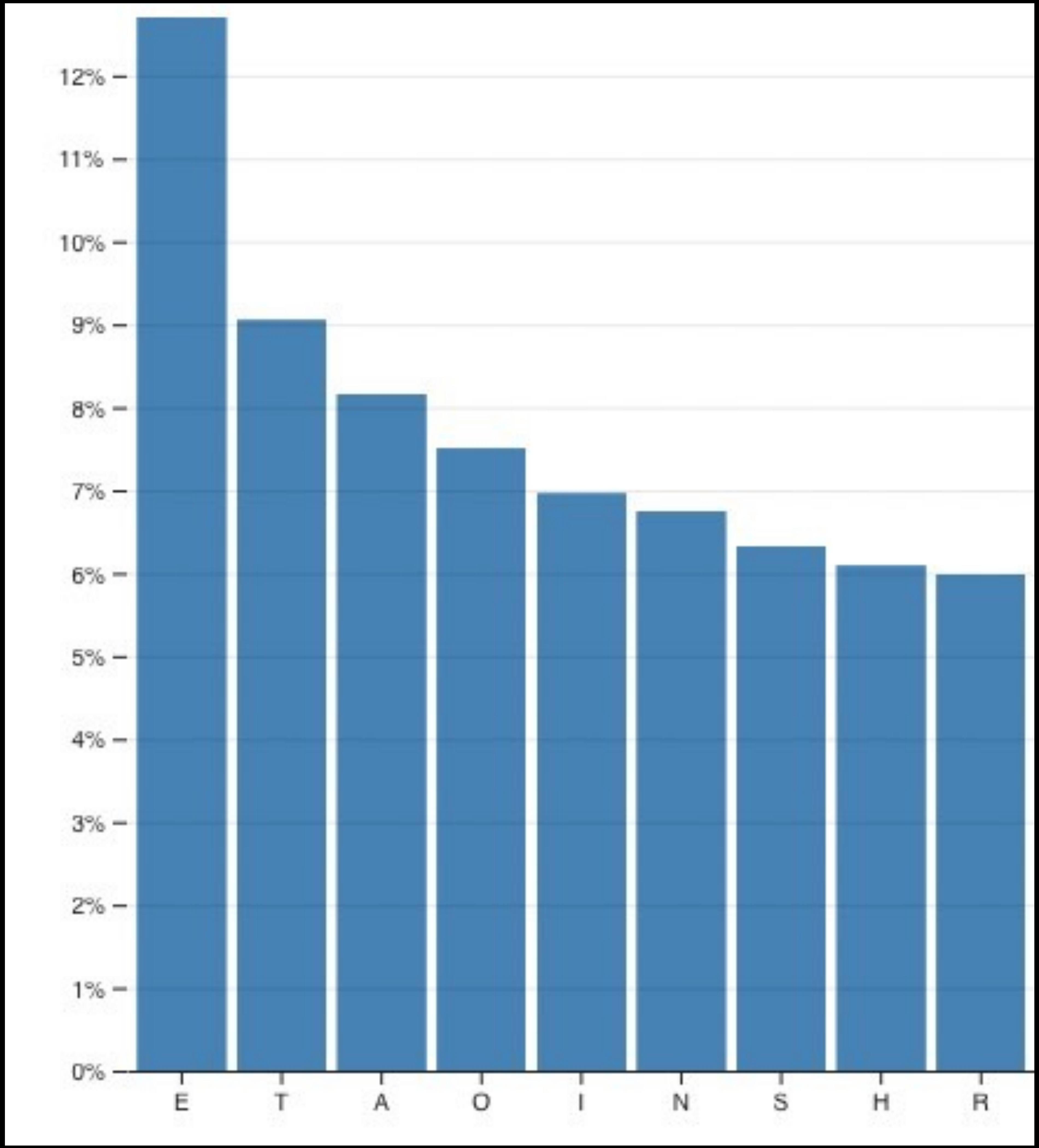


```html
<table class="charts-css bar">

  <caption> 2016 Summer Olympics Medal Table </caption>

  <thead>
    <tr>
      <th scope="col"> Country </th>
      <th scope="col"> Gold </th>
      <th scope="col"> Silver </th>
      <th scope="col"> Bronze </th>
    </tr>
  </thead>

  <tbody>
    <tr>
      <th scope="row"> USA </th>
      <td> 46 </td>
      <td> 37 </td>
      <td> 38 </td>
    </tr>
    <tr>
      <th scope="row"> GBR </th>
      <td> 27 </td>
      <td> 23 </td>
      <td> 17 </td>
    </tr>
    <tr>
      <th scope="row"> CHN </th>
      <td> 26 </td>
      <td> 18 </td>
      <td> 26 </td>
    </tr>
  </tbody>

</table>
```



D3 Concepts

1. Why you're using D3
2. **D3 Concepts**
3. Let's get started



D3 Concepts

1. Selections
2. Joins
3. Accessor functions
4. Scales
5. Axes
6. Ticks

Selections - the purpose

We work with HTML elements, SVG …. and want to modify them

d3.select() is kinda like document.querySelector()

d3.selectAll is kinda like document.querySelectorAll()

```
d3.selectAll('circle')
```

```
d3.selectAll('circle').style('fill', 'red')
```

Selections

d3.select() is kinda like document.querySelector()

d3.selectAll is kinda like document.querySelectorAll()

Name	Behaviour	Example
.style	Update the style	d3.selectAll('circle').style('fill', 'red')
.attr	Update an attribute	d3.selectAll('rect').attr('width', 10)
.classed	Add/remove a class attribute	d3.select('.item').classed('selected', true)
.property	Update an element's property	d3.selectAll(‘input[type=checkbox]’).property('checked', true)
.text	Update the text content	d3.select(‘h1').text('Hello world’)
.html	Change the html content	d3.select(‘form').html('<button>Turn off</button>’)

https://codepen.io/vijnv/pen/ExrNBYL

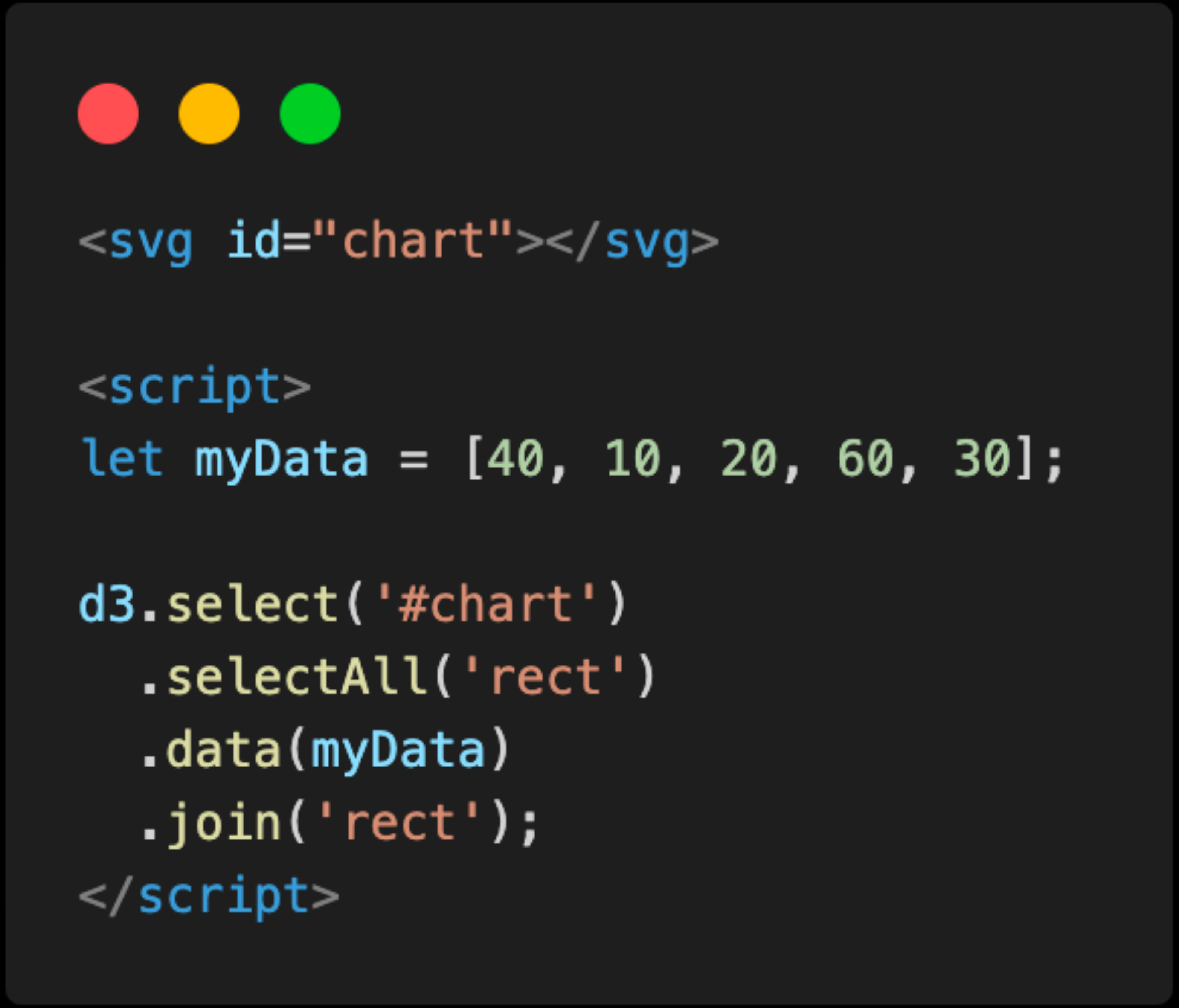
Joins - the purpose

We never know in advance how many SVG elements we will need.

It depends on our data

Joins

Data joins are kinda like doing a mail merge in Office to create address labels based on a list in Excel

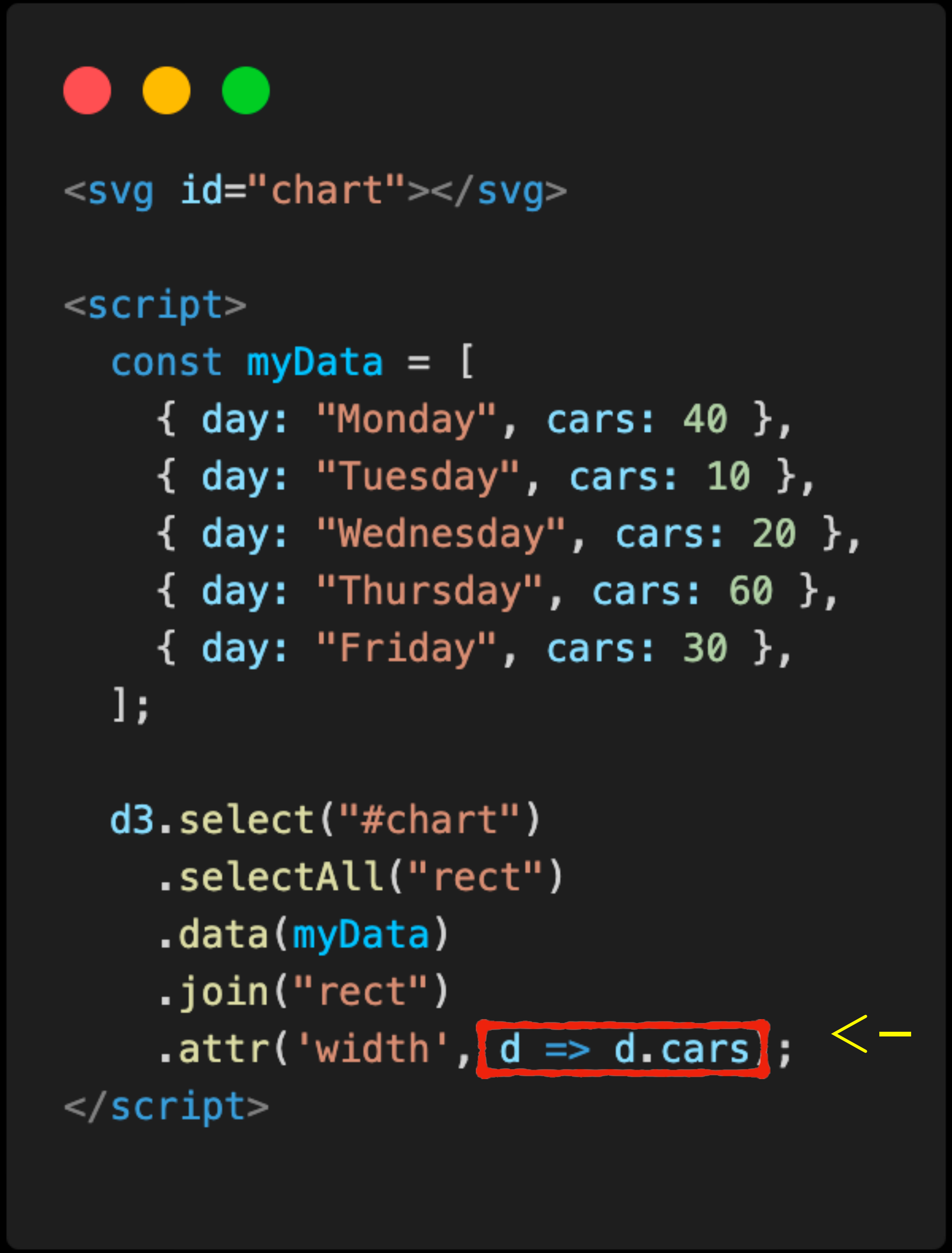


```
<svg id="chart"></svg>

<script>
let myData = [40, 10, 20, 60, 30];

d3.select('#chart')
  .selectAll('rect')
  .data(myData)
  .join('rect');
</script>
```

Here we use d3.join() to create a <rect> element for each item in our myData array

https://codepen.io/vijnv/pen/poGNmme

Accessor functions - the purpose



```
<svg id="chart"></svg>

<script>
  const myData = [
    { day: "Monday", cars: 40 },
    { day: "Tuesday", cars: 10 },
    { day: "Wednesday", cars: 20 },
    { day: "Thursday", cars: 60 },
    { day: "Friday", cars: 30 },
  ];

  d3.select("#chart")
    .selectAll("rect")
    .data(myData)
    .join("rect")
    .attr('width', d => d.cars);
</script>
```

<- Accessor function

If you're using JSON (an array of objects) you'll need to tell D3 which property you want to use

Schedule

1. Why you're using D3
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Exercise

1. Live demo!
2. Practice with selections, joins and accessor function:
    1. https://codepen.io/Laura_B/pen/KKOBMgL

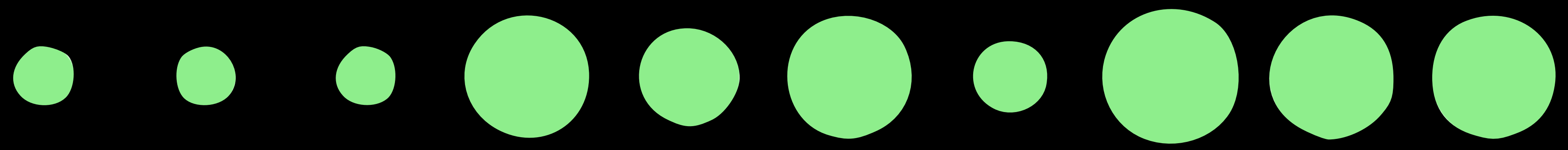
D3 Concepts

1. Why you're using D3
2. **More D3 Concepts**
3. Let's get started

Scales - the purpose

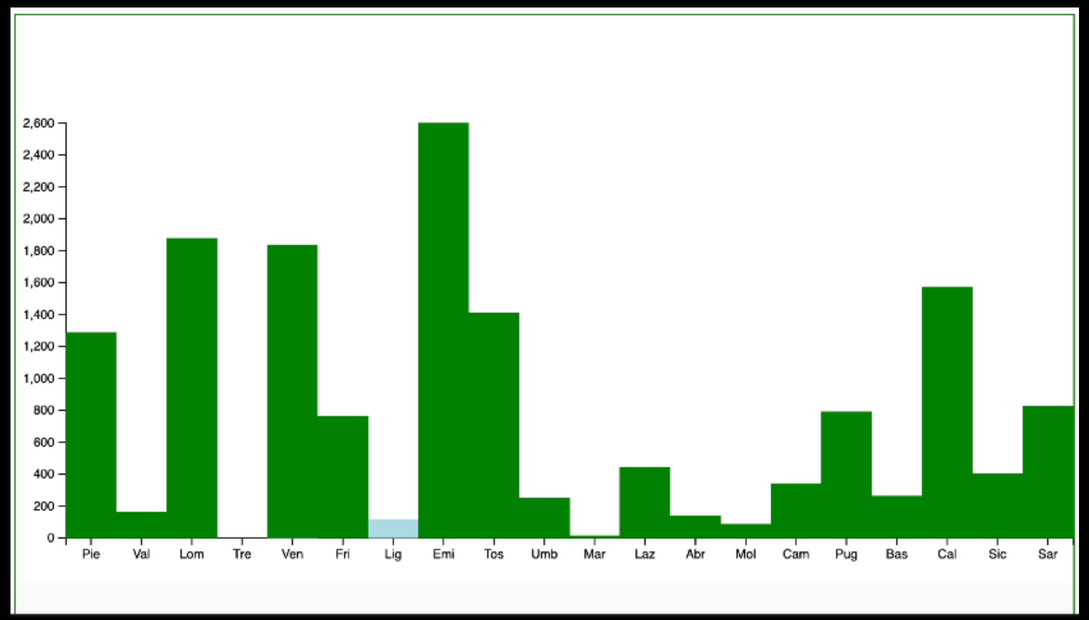
Scales allow to visualize data through:

size



position

(In a way they fit in your graphic view)



Scales - the math

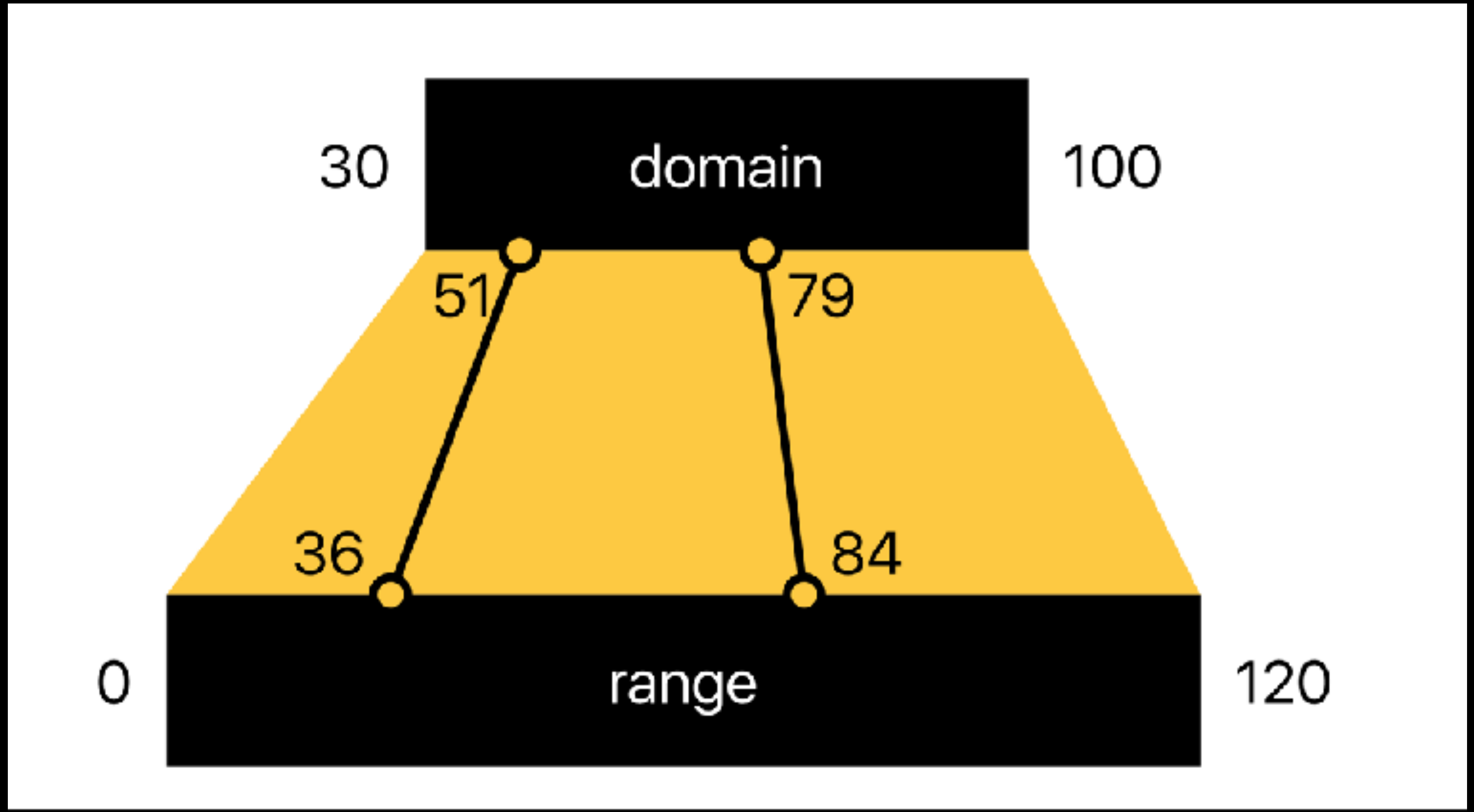
Scales help you calculate

- how big elements of your graph should be
- where are they positioned

They are **functions**

domain = what you need to show

range = the options you have



We will cover this tomorrow

Scales

Scales allow to visualize data through:

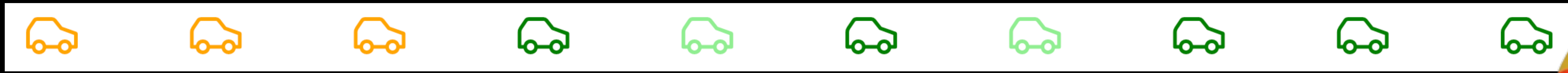
size

position

and **color**

Huiswerk - voor morgen

- Werk in tweetallen
- Maak een **point scale** die er voor zorgt dat, hoeveel ritten er ook worden afgebeeld door een auto, ze altijd passen in een rij van 800px
- Maak een **kleurscale** die de user laat zien hoe rendabel de rit is, bijvoorbeeld:



- **Zie: https://www.d3indepth.com/scales/**

Wij zijn benieuwd!!!!

```
Uncaught SyntaxError
Unexpected end of input
```