```
tt()
```

D3 FTW!

Schedule

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

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D3

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

D3

"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

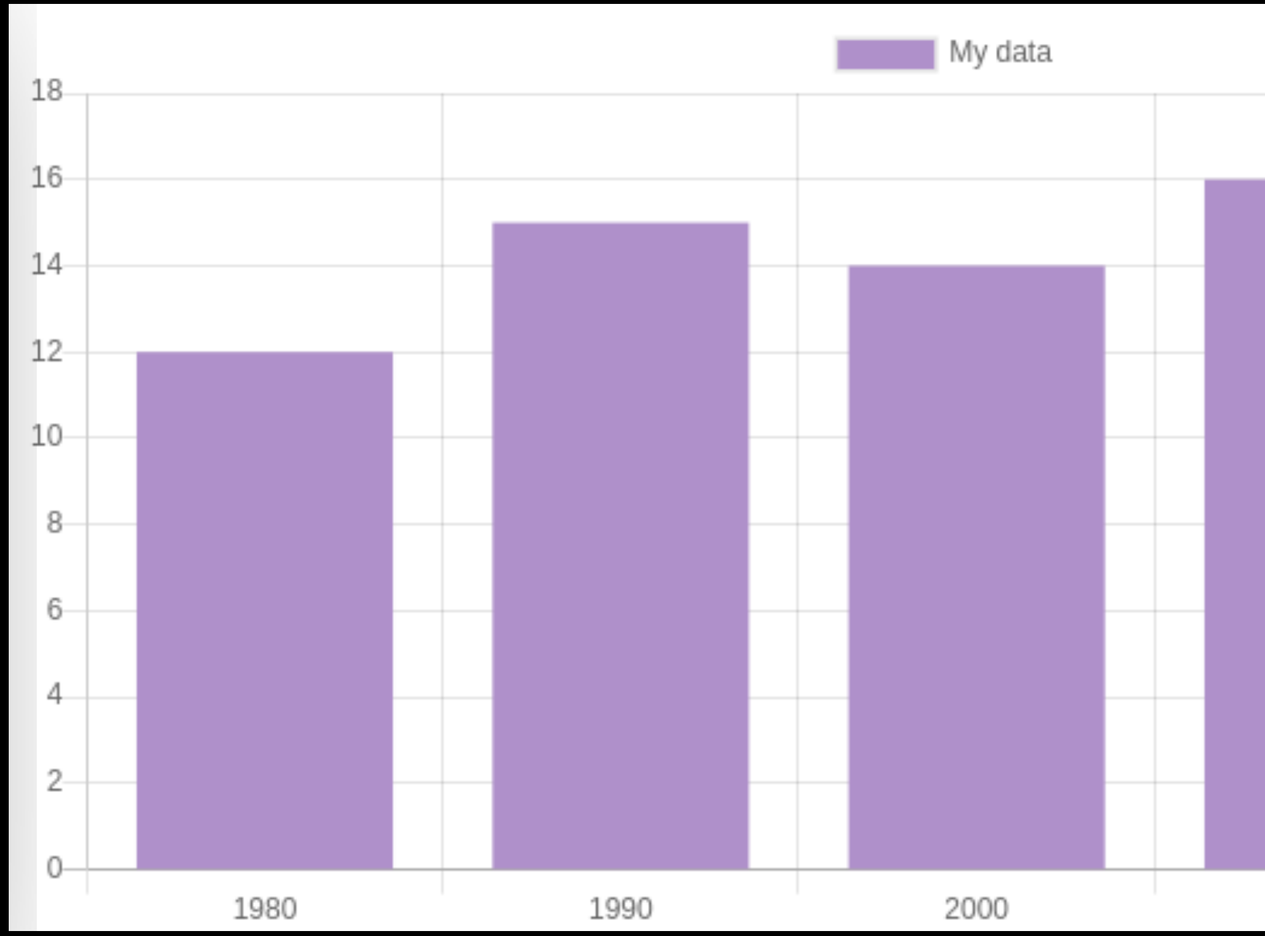
- RawGraphs.io
- LocalFocus.nl
- Flourish.studio

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

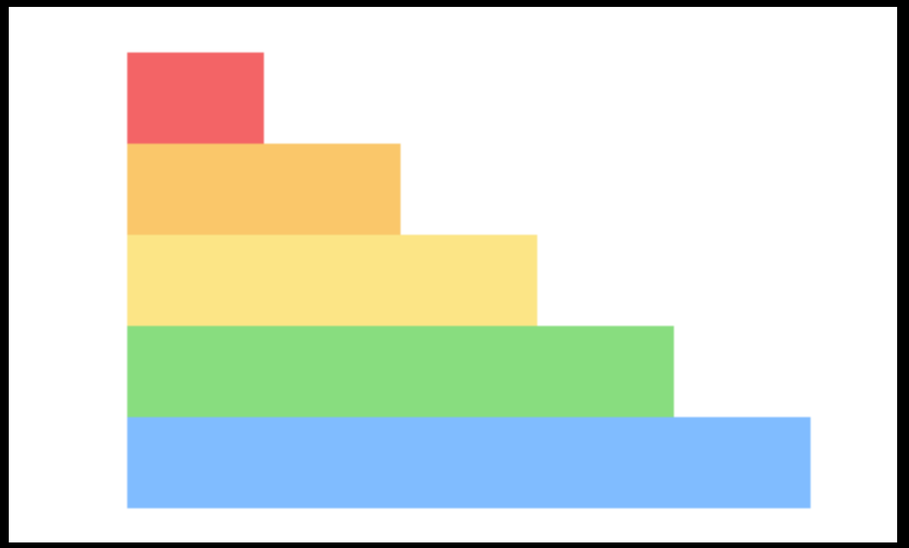
```html
<table class="charts-css bar">

  <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

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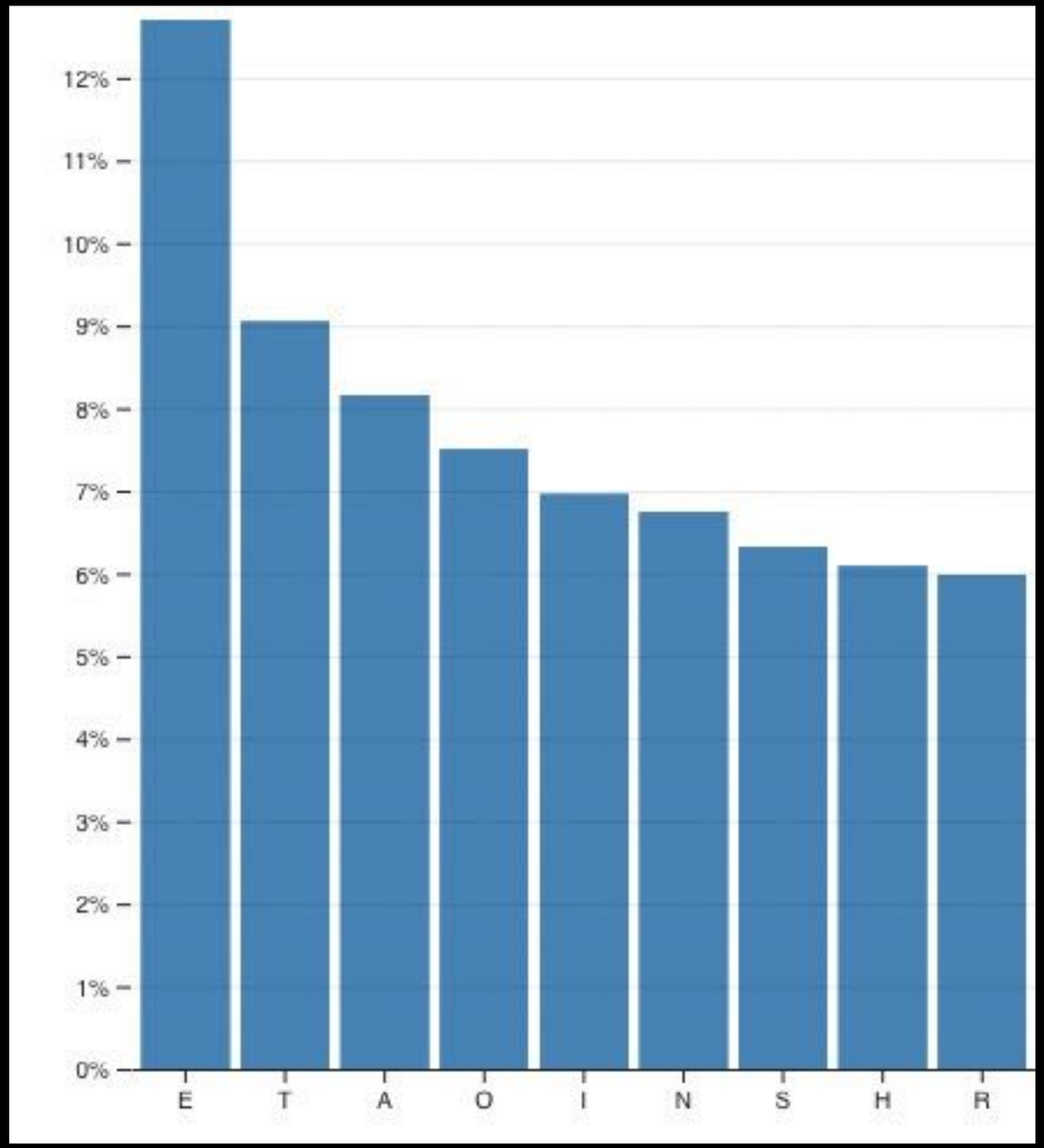


D3 Concepts

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

Selections

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

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

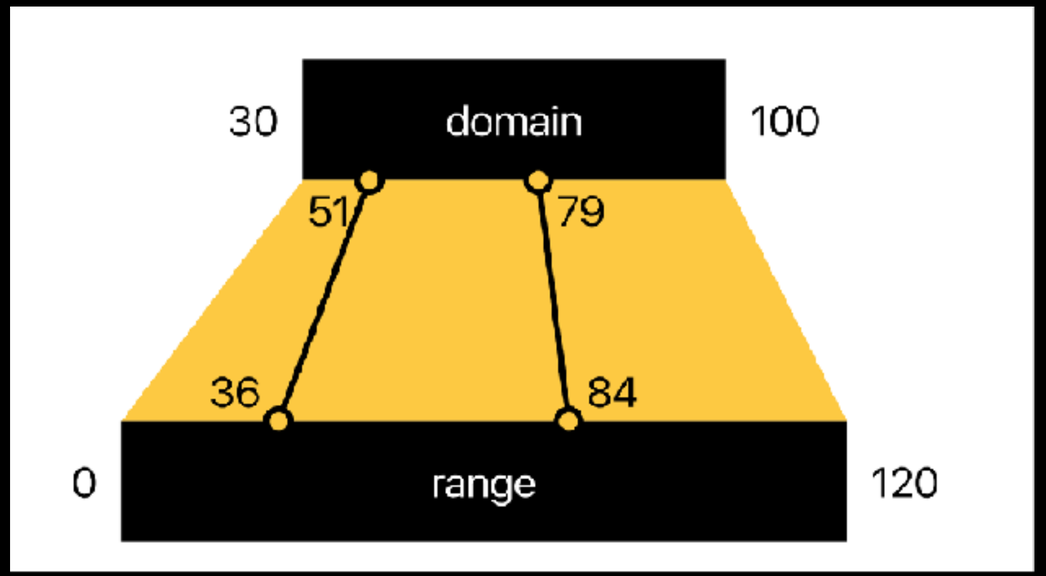
```
<svg id="chart"></svg>

<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

Scales

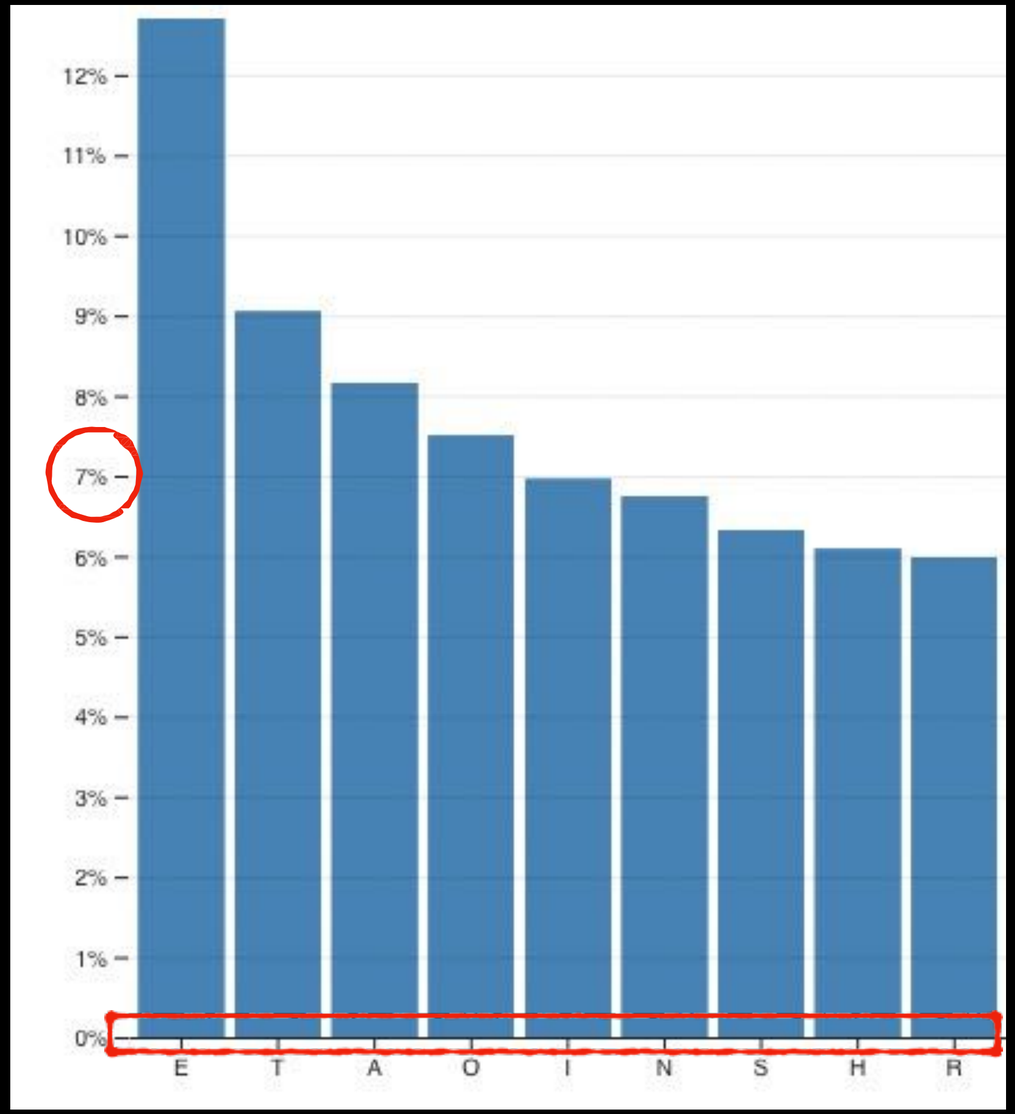
Scales help you calculate how big elements of your graph are going to be and where are they positioned. We'll cover these on Wednesday.



Axes & Ticks

Ticks ->

Axes ->



Accessor functions

```
<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); <- Accessor function
</script>
```

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

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Exercise

1. Browse through examples on the D3 website (d3js.org)
2. Create a bar chart using D3:
    1. https://observablehq.com/@d3/lets-make-a-bar-chart
    2. https://www.d3indepth.com/selections/
    3. https://www.d3indepth.com/datajoins/

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