Solipsistic EDAV D3 timeline

March 8, 2018: 1st day of D3

March 12-16, 2018: Spring Break

March 20, 2018: 2nd day of D3

March 22, 2018: 3rd day of D3

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***...and release of* D3 v5!**

To upgrade or not to upgrade?

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Beginning of Semester

End of Semester

D3 v5 changes

- **"only a few non-backwards-compatible changes"**
- **no more `d3.schemeCategory20`, uses `d3-scale-chromatic` instead**
- **loading data uses *promises* instead of *callbacks***
- **a few other new things**
- `https://github.com/d3/d3/blob/master/CHANGES.md`

Goodbye, d3.schemeCategory20*

https://bl.ocks.org/pstuffa/3393ff2711a53975040077b7453781a9

Hello, d3-scale-chromatic

API Reference

Categorical

d3.schemeCategory10 <>

An array of ten categorical colors represented as RGB hexadecimal strings.

d3.**schemeAccent** <>

An array of eight categorical colors represented as RGB hexadecimal strings.

d3.**schemeDark2** <>

An array of eight categorical colors represented as RGB hexadecimal strings.

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

Asynchronous Programming

Events
`.on("click", function () {...})`

Callbacks `d3.csv() v4`

Promises `d3.csv() v5`

Callbacks

```
d3.csv("mydata.csv", function () {
```

all the stuff that uses the data

```
});
```

Multiple line graphs with labels

bl.ocks.org/d3noob/8603837

Multi-line graph 2 with v4: Colours

https://bl.ocks.org/d3noob/ae9786c26d6a821eefeabe60dec350a9

Loading files

1. **Use a local server**

2. **Work on blockbuilder.org**

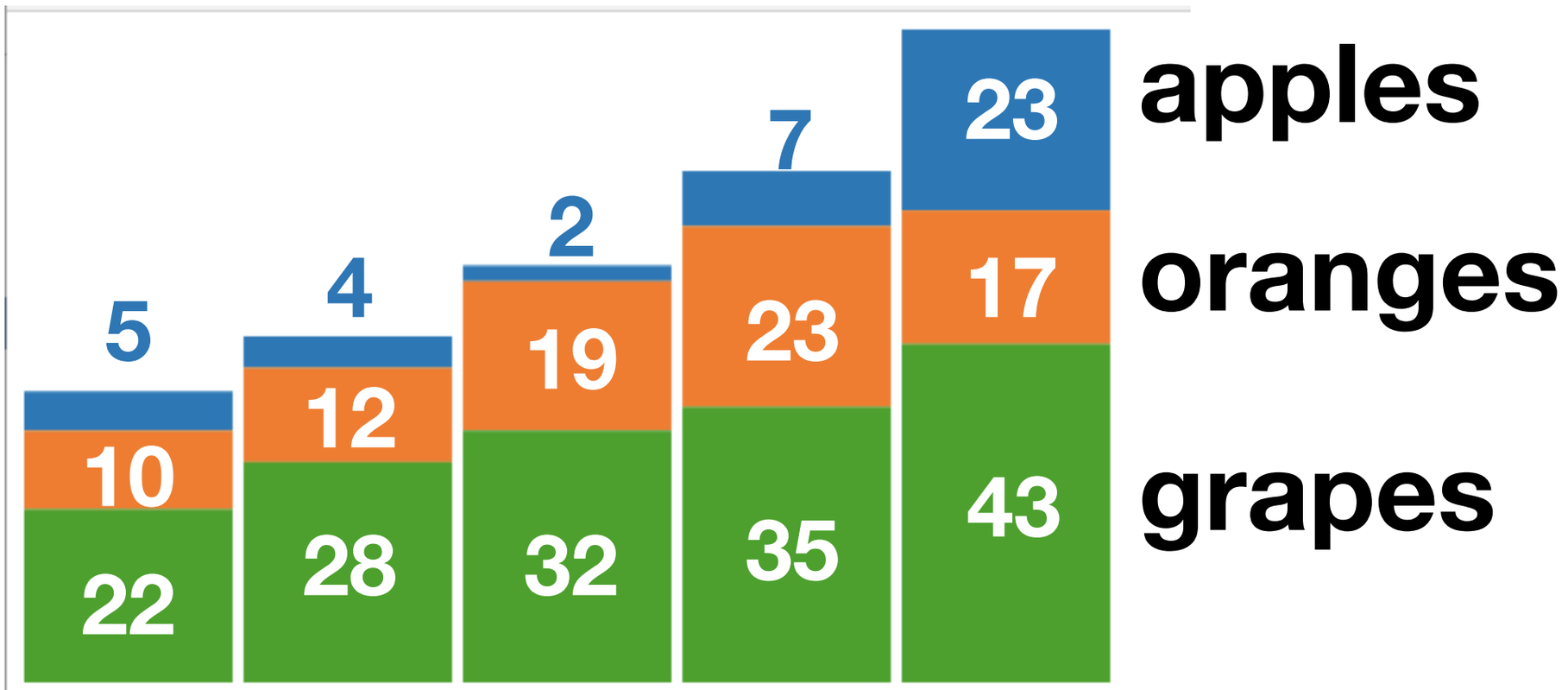
Layouts (Ch. 13)

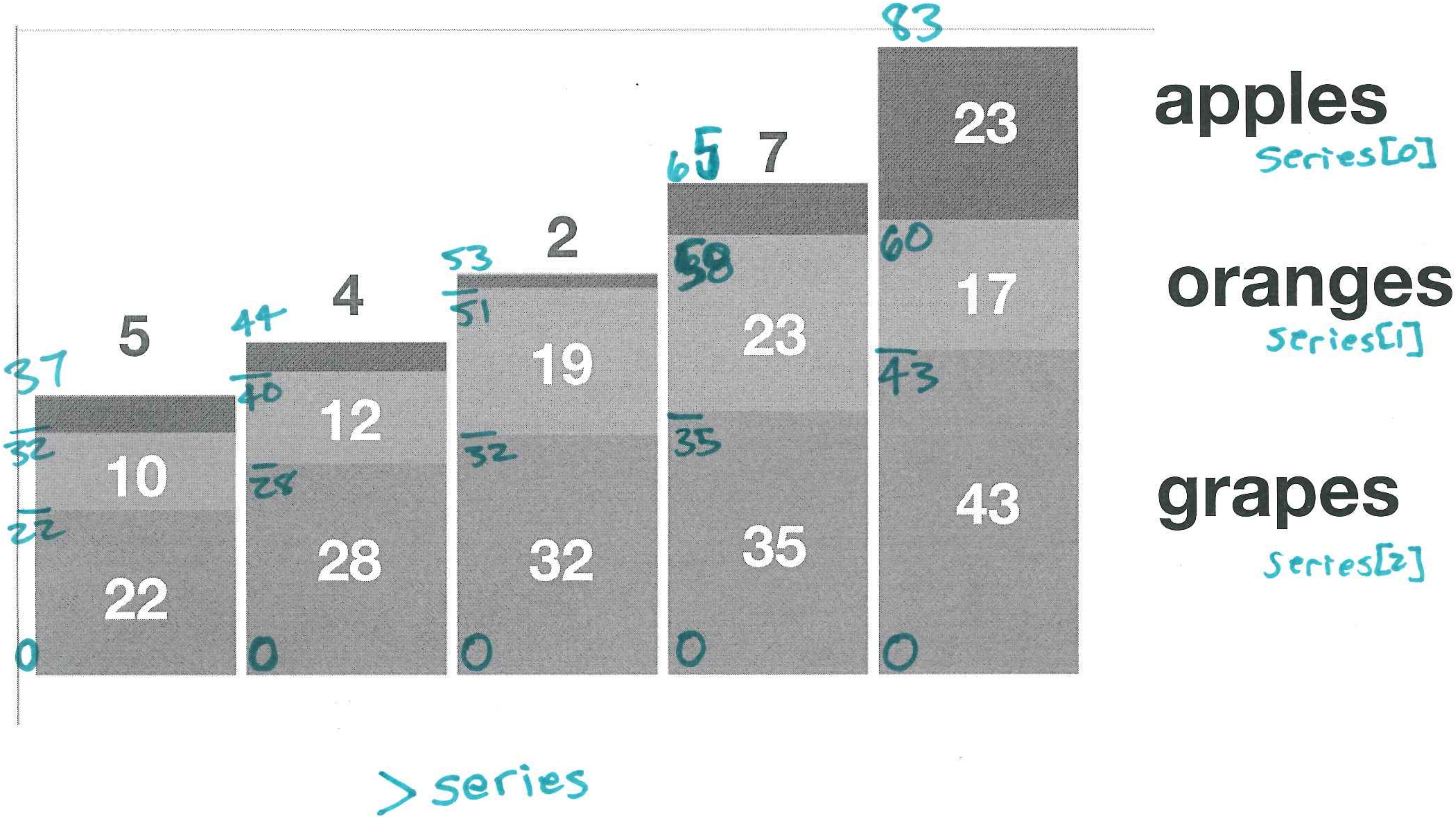
reorganize your data into a more convenient form for the type of graph you want to draw

`d3.stack()`

d3.stack()

```
var dataset = [
      { apples: 5, oranges: 10, grapes: 22 },
      { apples: 4, oranges, 12, grapes: 28 },
      { apples: 2, oranges: 19, grapes: 32 },
      { apples: 7, oranges, 23, grapes: 35 },
      { apples: 23, oranges, 17, grapes: 43 }
];
```



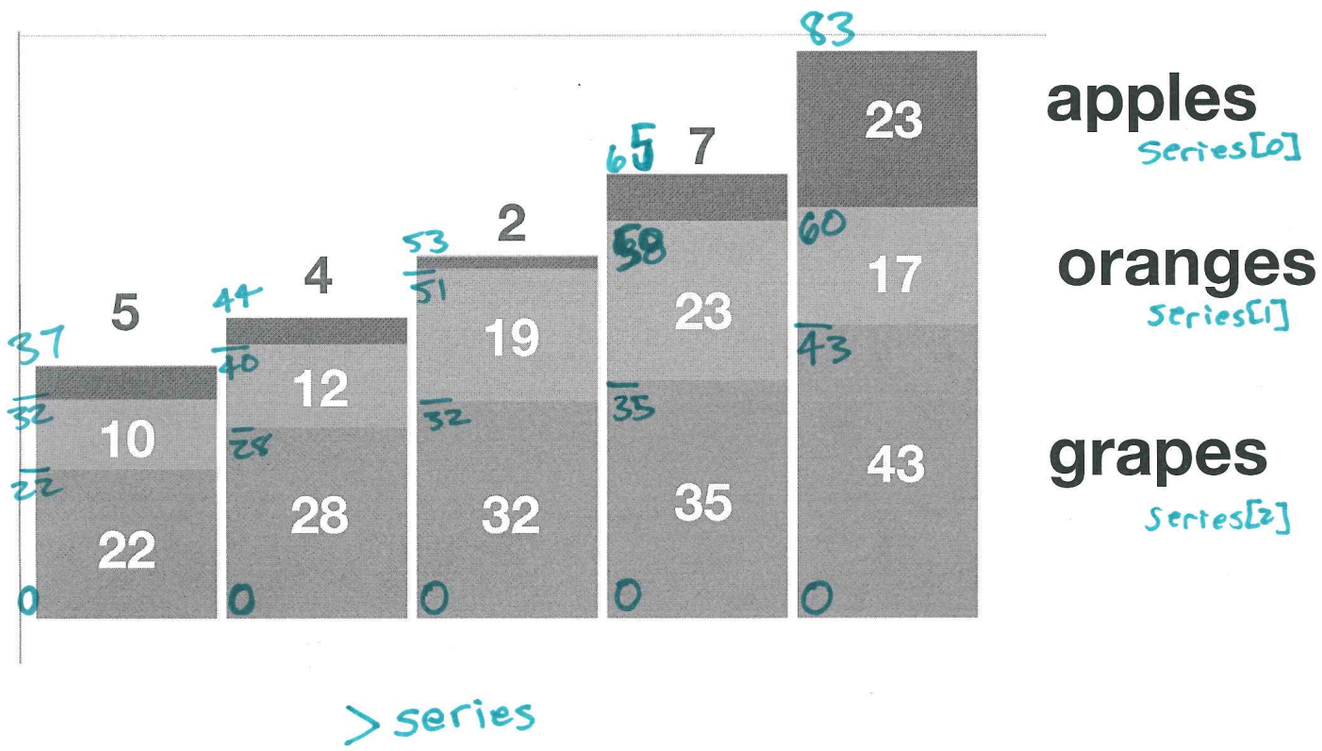

apples
series[0]
oranges
series[1]
grapes
series[2]
5
10
22
4
12
28
2
19
32
7
23
35
23
17
43
37
32
22
0
44
40
28
0
53
51
32
0
65
58
35
0
83
60
43
0
>series

d3.stack()

```
var dataset = [
      { apples: 5, oranges: 10, grapes: 22 },
      { apples: 4, oranges, 12, grapes: 28 },
      { apples: 2, oranges: 19, grapes: 32 },
      { apples: 7, oranges, 23, grapes: 35 },
      { apples: 23, oranges, 17, grapes: 43 }
];

var stack = d3.stack()
      .keys( [ "apples", "oranges", "grapes" ])
      .order(d3.stackOrderDescending);

var series = stack(dataset);
```




```
> series
▼ (3) [Array(5), Array(5), Array(5)]
  ▼ 0: Array(5)
    ▶ 0: (2) [32, 37, data: {…}]
    ▶ 1: (2) [40, 44, data: {…}]
    ▶ 2: (2) [51, 53, data: {…}]
    ▶ 3: (2) [58, 65, data: {…}]
    ▶ 4: (2) [60, 83, data: {…}]
      index: 2
      key: "apples"
      length: 5
    ▶ __proto__: Array(0)
  ▼ 1: Array(5)
    ▶ 0: (2) [22, 32, data: {…}]
    ▶ 1: (2) [28, 40, data: {…}]
    ▶ 2: (2) [32, 51, data: {…}]
    ▶ 3: (2) [35, 58, data: {…}]
    ▶ 4: (2) [43, 60, data: {…}]
      index: 1
      key: "oranges"
      length: 5
    ▶ __proto__: Array(0)
  ▼ 2: Array(5)
    ▶ 0: (2) [0, 22, data: {…}]
    ▶ 1: (2) [0, 28, data: {…}]
    ▶ 2: (2) [0, 32, data: {…}]
    ▶ 3: (2) [0, 35, data: {…}]
    ▶ 4: (2) [0, 43, data: {…}]
      index: 0
      key: "grapes"
      length: 5
    ▶ __proto__: Array(0)
```

Now what?

Step 1:
Append a group for each array
(that is, each fruit)

```
var groups = svg.selectAll("g")
      .data(series)
      .enter()
      .append("g")
      .style("fill", function(d,i) {
          return colors(i);
});
```

One fruit per group

<g>

```
> series
<- ▼ (3) [Array(5), Array(5), Array(5)]
    ▼ 0: Array(5)
      ▶ 0: (2) [32, 37, data: {…}]
      ▶ 1: (2) [40, 44, data: {…}]
      ▶ 2: (2) [51, 53, data: {…}]
      ▶ 3: (2) [58, 65, data: {…}]
      ▶ 4: (2) [60, 83, data: {…}]
        index: 2
        key: "apples"
        length: 5
      ▶ __proto__: Array(0)
```

<g>

```
▼ 1: Array(5)
  ▶ 0: (2) [22, 32, data: {…}]
  ▶ 1: (2) [28, 40, data: {…}]
  ▶ 2: (2) [32, 51, data: {…}]
  ▶ 3: (2) [35, 58, data: {…}]
  ▶ 4: (2) [43, 60, data: {…}]
    index: 1
    key: "oranges"
    length: 5
  ▶ __proto__: Array(0)
```

<g>

```
▼ 2: Array(5)
  ▶ 0: (2) [0, 22, data: {…}]
  ▶ 1: (2) [0, 28, data: {…}]
  ▶ 2: (2) [0, 32, data: {…}]
  ▶ 3: (2) [0, 35, data: {…}]
  ▶ 4: (2) [0, 43, data: {…}]
    index: 0
    key: "grapes"
    length: 5
  ▶ __proto__: Array(0)
```

> d3.select("g").data()

```
<- ▼ [Array(5)] i
    ▼ 0: Array(5)
      ▶ 0: (2) [32, 37, data: {…}]
      ▶ 1: (2) [40, 44, data: {…}]
      ▶ 2: (2) [51, 53, data: {…}]
      ▶ 3: (2) [58, 65, data: {…}]
      ▶ 4: (2) [60, 83, data: {…}]
```

Step 2: Draw the rects

```
var rects = groups.selectAll("rect")
      .data(d => d) <-- Bind the group data
      .enter()
      .append("rect")
      .attr("y", d => yScale(d[0]))
      .attr("height", d =>
            yScale(d[1]) - yScale(d[0]))
      .attr(
      ...
      );
});
```