Grade Distribution at UIUC
Lecture #7 | Sept. 13, 2016

What type of data is the data?
(1): Quantitative Data
- Maps a continuous domain to a continuous range.
  - Linear: d3.scaleLinear()
  - Power/Log: d3.scalePow() or d3.scaleLog()

(2): Categorical Data
- Maps a discrete domain to a continuous or discrete range.
  - Bands (ex: bar chart): d3.scaleBand()
  - Points (ex: scatter chart): d3.scalePoint()

What is the domain (input) of the data?
(1): Quantitative Data
- Data may be fixed, ex: [0, 100] for grades
- Data may be pre-processed (ex: minValue, maxValue)
- Data may be found in JavaScript when the data is an array of dictionaries (ex: find min/max of "score"):
  - var min = _.minBy(data, "score");
  - var max = _.maxBy(data, "score");
  - Domain: [min, max]

(2): Categorical Data
- Data may be fixed or pre-processed
- Data may be found in JavaScript when the data is an array of dictionaries (ex: find categories of "className"):
  - var categories = _.map(data, "className");
  - categories = _.uniq(categories);
  - Domain: categories

What is the range (output) of the data?
(1): Horizontal (x-axis)
- .range( [0, width] )

(2): Vertical (y-axis)
- .range( [0, height] )

Create the Scale
1: var gpaScale = d3.scaleLinear()
2:   .domain( [0, 4] )
3:   .range( [0, width] );

...what does this scale do?

1: var opponents = _.map(data, "Opponent");
2:   opponents = _.uniq(opponents);
3: var opponentScale = d3.scaleLinear()
4:   .domain( opponents )
5:   .range( [0, height] );

...what does this scale do?

Create the Axis
For any scale, we can create an axis on our visualization:
1: var axis = d3.axisTop()
2:   .scale( scaleName );
3: var axis = d3.axisBottom()
4:   .scale( scaleName );
5: svg.append("g")
6:   .call(axis);

Data Set: Grade Distributions at UIUC
As usual, let’s find out about our dataset:

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Description/Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>Subject</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>