

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 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")["score"];`
`var max = _.maxBy(data, "score")["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:
4: var opponentScale = d3.scaleLinear()
5:   .domain( opponents )
6:   .range( [0, height] );
```

...what does this scale do?

Create the Axis

For any scale, we can create an axis on our visualization:

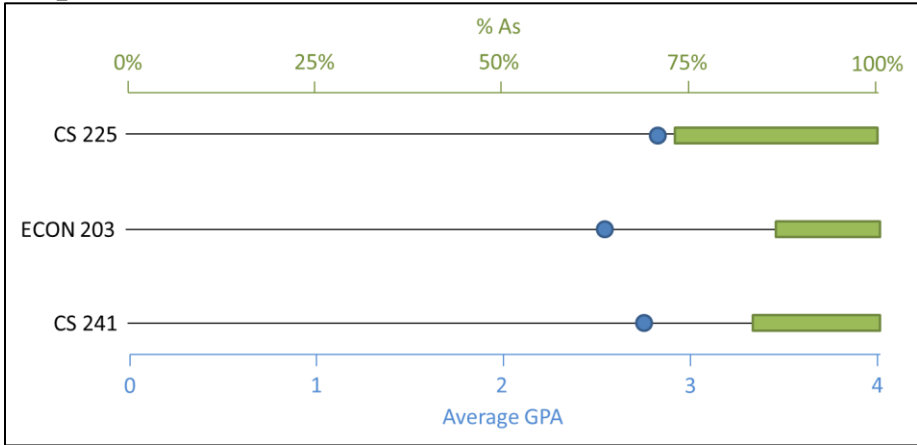
```
1: var axis = d3.axisTop()
2:   .scale( scaleName );
3:
4: svg.append("g")
5:   .call(axis);
```

Creating a Visualization:

Last class, we left off after computing **gpa.json**, which contains the following data:

```
1: [
2:   { "name": "CS 241", "avg_gpa": 2.72,
3:     "pct_As": 0.1959, ... },
4:   { "name": "CS 225", "avg_gpa": 2.846,
5:     "pct_As": 0.306, ... },
6:   ...
7: ]
```

Proposed Visualization:



Element #1:

- Data:
- Domain:
- Range:
- Encoding:
- Attributes:

Element #2:

- Data:
- Domain:
- Range:
- Encoding:
- Attributes:

Element #3:

- Data:
- Domain:
- Range:
- Encoding:
- Attributes:

Element #4:

- Data:
- Domain:
- Range:
- Encoding:
- Attributes:

Element #5:

- Data:
- Domain:
- Range:
- Encoding:
- Attributes: