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Learn JS Data

Data cleaning, manipulation, and wrangling in JavaScript

Iterating Over and Reducing Data

Most of the functions we used to summarize our data had to iterate over the entire dataset to generate their results - but the details were hidden behind the function. Now let's look at how we might perform this iteration ourselves for other metrics and manipulations!

Again, we start with a basic data set already loaded:

```
var data = [
  {"city":"seattle", "state":"WA", "population":652405, "land_area":
  {"city":"new york", "state":"NY", "population":8405837, "land_area'
  {"city":"boston", "state":"MA", "population":645966, "land_area":4
  {"city":"kansas city", "state":"MO", "population":467007, "land_are
];
```

Iterating

First some basic iteration. We already saw this in the data loading task, but a common way to process each data object is by using forEach

```
var count = 0;

data.forEach(function(d) {
  count += 1;
});
```

```
console.log(count);
```

```
=> 4
```

Of course, data also has the property `length` which would be the actual way to get the number of data elements in `data` - but this is just an example.

```
console.log(data.length);
```

```
=> 4
```

Immutability

Let me sidetrack this task just a bit to talk about

`forEach` provides for a basic way to loop through our data set. We can use this to modify the data in place, generate counts, or perform other manipulations that deal with each piece of data individually.

This works, but can get clunky and confusing fast. Keeping straight what form the data is in at any given time can be confusing, as can side effects of modifying your data that you might not be aware of.

To combat this confusion, it can be useful to think of the data as *immutable*. Immutable data cannot be modified once created. Immutability seems a bit counterintuitive for a task where we want to coerce our data into the form we want - but it comes together with the concept of **transformations**.

The idea is simple: each immutable dataset can be *transformed* into another immutable dataset through the use of a transformation function that works on each