Javascript Objects

Our next data structure

Objectives

- Understand objects conceptually
- Write code using JS objects

Suppose I wanted to model a single person: name, age, and city

```
//I could use an array like this:
var person = ["Cindy", 32, "Missoula"];

//to retrieve the person's hometown:
person[2]  //this is not very meaningful code

//what if I accidentally reversed the order?
var person2 = ["Travis", "Los Angeles", 21];
```

This is a perfect use case for an OBJECT

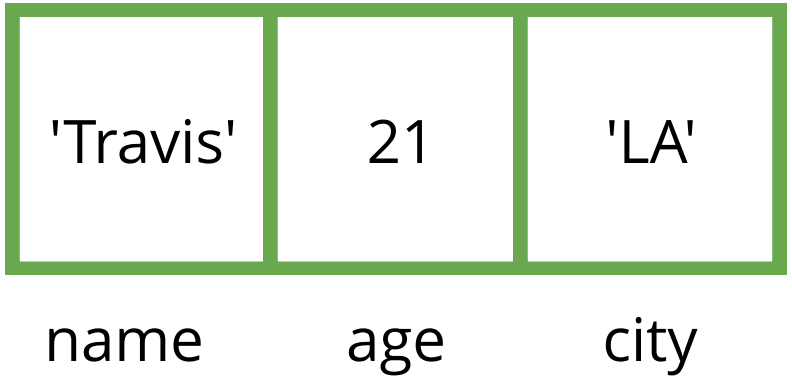
```
var person = {
  name: "Cindy",
  age: 32,
  city: "Missoula"
};
```

Objects

Store data in key-value pairs

```
var person = {
  name: "Travis",
  age: 21,
  city: "LA"
};
```

Note: unlike arrays, objects have no order



Retrieving Data

You have two choices: bracket and dot notation

```
var person = {
  name: "Travis",
  age: 21,
  city: "LA"
};

//bracket notation, similar to arrays:
console.log(person["name"]);
//dot notation:
console.log(person.name);
```

Retrieving Data

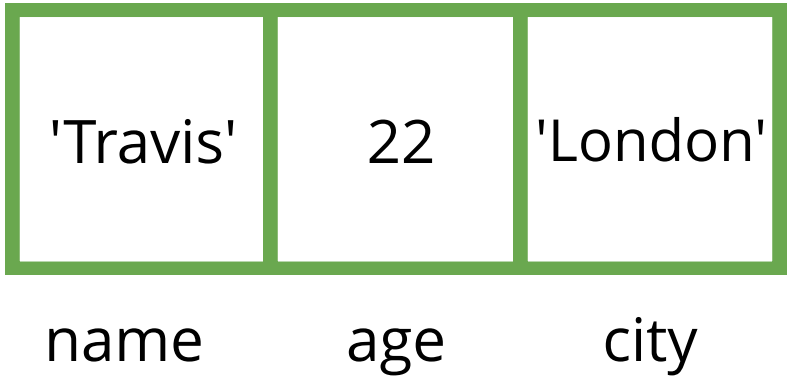
There are a few differences between the 2 notations:

```
//you cannot use dot notation if the property starts with a number
someObject.1blah    //INVALID
someObject["1blah"] //VALID!

//you can lookup using a variable with bracket notation
var str = "name";
someObject.str   //doesn't look for "name"
someObject[str] //does evaluate str and looks for "name"

//you cannot use dot notation for property names with spaces
someObject.fav color      //INVALID
someObject["fav color"];  //VALID
```

Updating Data

Just like an array: access a property and reassign it

```
var person = {
  name: "Travis",
  age: 21,
  city: "LA"
};

//to update age
person["age"] += 1;
//to update city
person.city = "London";
```



Creating Objects

Like arrays, there are a few methods of initializing objects

```
//make an empty object and then add to it
var person = {}
person.name = "Travis";
person.age = 21;
person.city = "LA";

//all at once
var person = {
  name: "Travis",
  age: 21,
  city: "LA"
};

//another way of initializing an Object
var person = new Object();
person.name = "Travis";
person.age = 21;
person.city = "LA";
```

Objects

Objects can hold all sorts of data

```
var junkObject = {
  age: 57,
  color: "purple",
  isHungry: true,
  friends: ["Horatio", "Hamlet"],
  pet: {
   name: "Rusty",
   species: "Dog",
   age: 2
  }
};
```

Objects

Exercise 1

```
var someObject = {};

//Which of the following are valid:

someObject._name = "Hedwig";

someObject.age = 6;

var prop = "color"
someObject[prop] = "red";

someObject.123 = true;
```

```
dog.speak = function() {
    return "woof!";
};
```

Objects

Exercise 2

```
var someObject = {
  friends: [
    {name: "Malfoy"},
    {name: "Crabbe"},
    {name: "Goyle"}
  ],
  color: "baby blue",
  isEvil: true
};

//Write code to retrieve "Malfoy" from someObject
//Go one "layer" at a time!
```