GENERAL ASSEMBLY

JAVASCRIPT DEVELOPMENT

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HELLO!

1. Pull changes from the `JS-SF-15-resources` repo to your computer
2. Open the `13-prototypal-inheritance` folder in your editor

PROTOTYPAL INHERITANCE

LEARNING OBJECTIVES

At the end of this class, you will be able to

- Distinguish between classical and prototypal inheritance
- Explain the difference between literal and constructed objects.
- Write a constructor for a JavaScript object.
- Explain prototypal inheritance and its purpose.
- Create and extend prototypes.
- Work with prototypes using `class` keyword syntax

AGENDA

- Objects and constructors
- Prototypal inheritance
- The `class` keyword

WEEKLY OVERVIEW

WEEK 7	Project 2 lab / Prototypal inheritance
WEEK 8	Closures & `this` / CRUD & Firebase
WEEK 9	Deploying your app / Final project lab

ACTIVITY

EXERCISE

KEY OBJECTIVE

- Check in on Feedr

TYPE OF EXERCISE

- Pairs

TIMING

6 min

1. Share your biggest accomplishment so far in working on Feedr
2. Share a challenge you've encountered. If you overcame it, share how; if not, brainstorm with your partner on an approach.
3. Share your next step.

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[object Object],[object O...	▶	Confessio
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[object Object],[object O...	▶	Rapture (fe

EXIT TICKET QUESTIONS

- When pulling data from different API's will we need to update the literal notation "template" we make to fit each of the unique response names?

OBJECTS AND INHERITANCE

CLASS VS PROTOTYPE

CLASS-BASED LANGUAGE

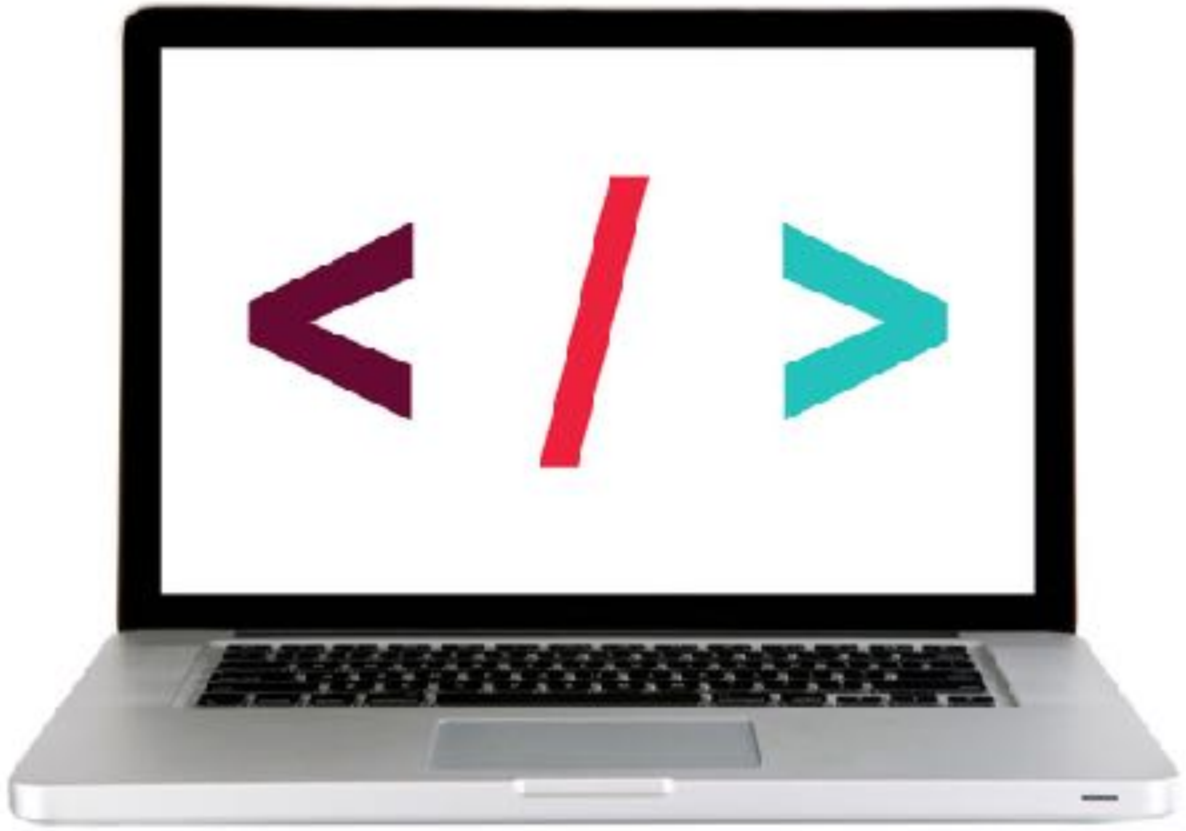
- class
  - manufactures new objects
  - defines behavior of manufactured objects

JAVASCRIPT

- constructor
  - manufactures new objects
- prototype
  - defines behavior of manufactured objects

CONSTRUCTORS

LET'S TAKE A CLOSER LOOK



EXERCISE — CREATE A MAKECAR FUNCTION

EXERCISE

TYPE OF EXERCISE

- Individual/pair

LOCATION

- `start files > 01-make-car-exercise`

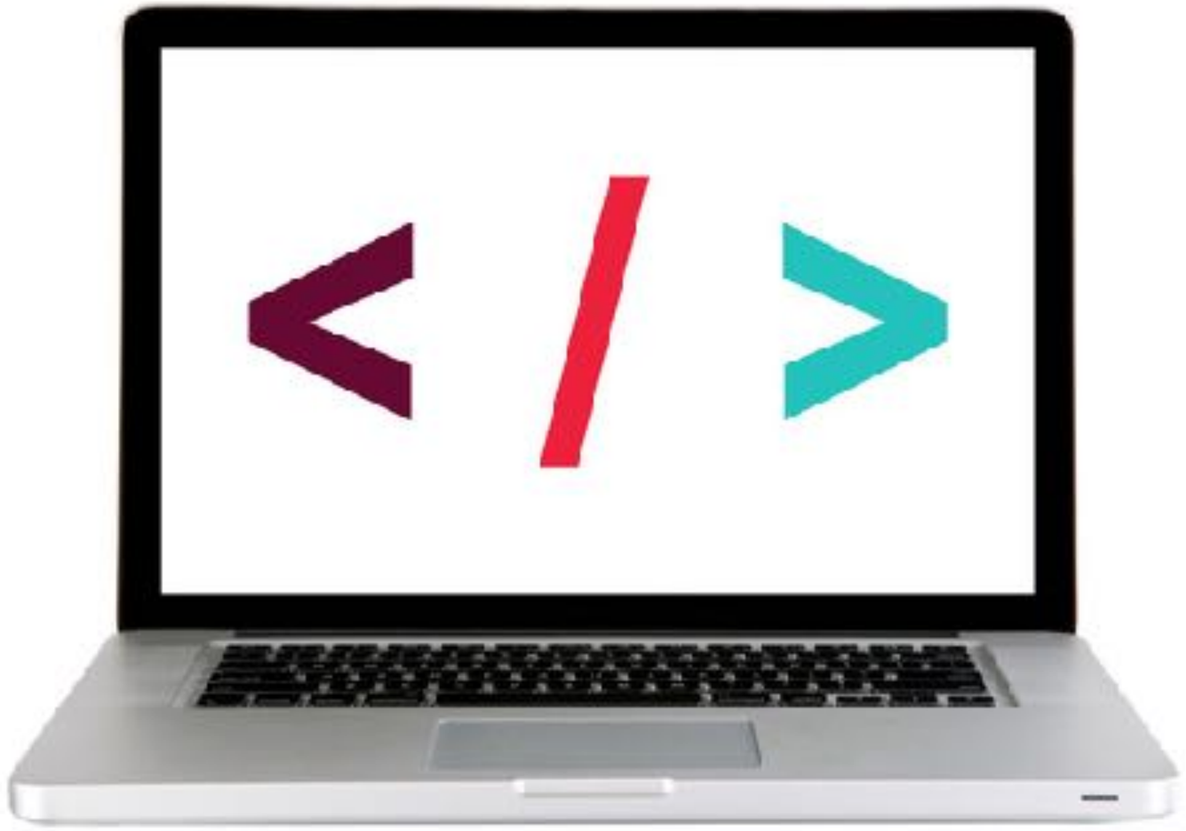
TIMING

8 min

1. In app.js, Define a function called makeCar() that takes two parameters (model, color), makes a new object literal for a car using those params, and returns that object.

CONSTRUCTOR FUNCTIONS

LET'S TAKE A CLOSER LOOK



EXERCISE — MAKE A CAR CONSTRUCTOR FUNCTION

EXERCISE

TYPE OF EXERCISE

- Individual/pair

LOCATION

- `start files > 03-constructor-exercise`

TIMING

8 min

1. In app.js, write a constructor function to replace our makeCar function from earlier.
2. Your constructed objects should include the same properties as in the 1-make-car-function exercise.

EXERCISE — LITERAL VS CONSTRUCTED OBJECTS

EXERCISE

TYPE OF EXERCISE

- Groups of 2 or 3

TIMING

3 min

1. Spend 30 seconds thinking about the difference between literal and constructed objects.
2. Form a pair or group of 3, then take turns explaining how you understand the difference between the two.
3. Be prepared to share your thoughts with the class.

JAVASCRIPT DEVELOPMENT

PROTOTYPES

Using the `prototype` property

```
function Dog(name, breed) {
  this.name = name;
  this.breed = breed;
}
Dog.prototype.species = “Canis Canis”;
Dog.prototype.bark = function() {
  return “Woof! I’m “ + this.name;
}
```

Dog.prototype

```
{
  species: “Canis Canis”,
  bark: function() {
    return “Woof! I’m “ +
      this.name;
  }
}
```

Using the `prototype` property

```
var spot = new Dog("Spot", "Beagle");
```

`spot` object (constructed)

individual properties created by the constructor function

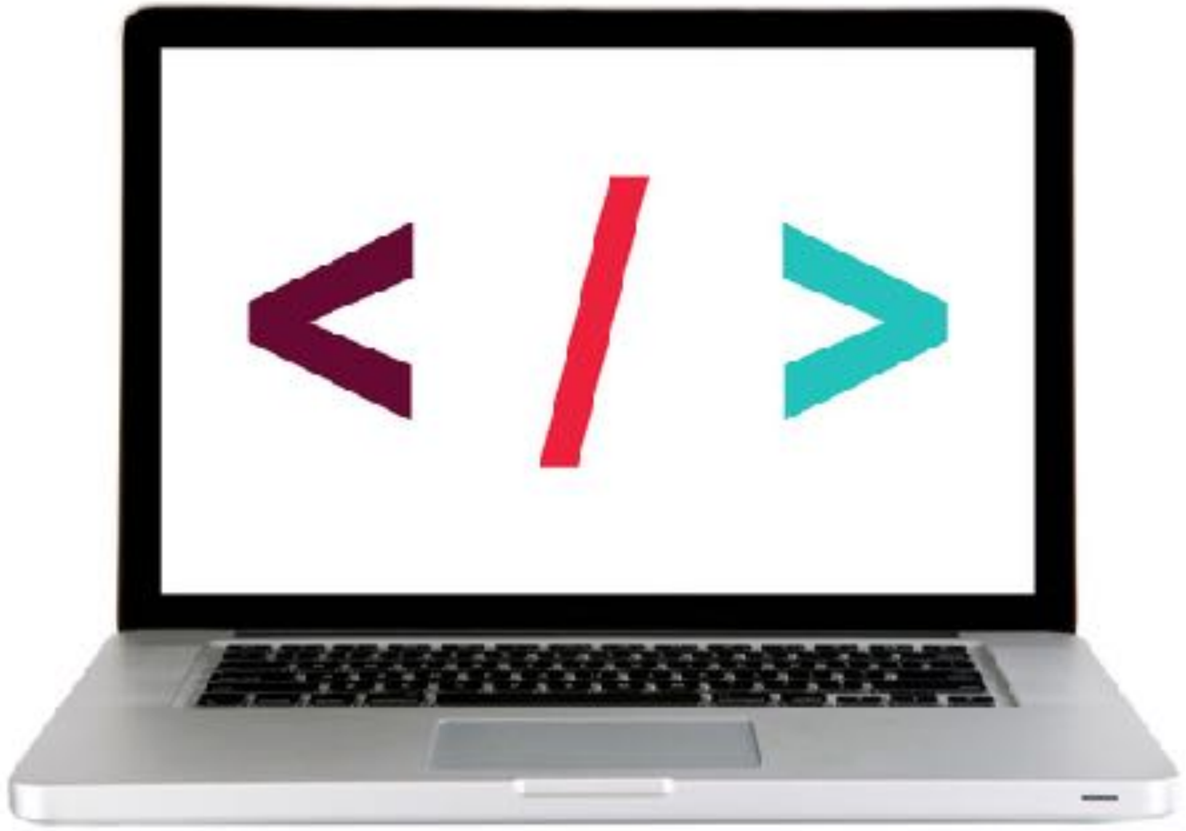
inherited from `Dog.prototype` object

```
{
  name: “Spot”,
  breed: “Beagle”,
  species: “Canis Canis”,
  bark: function() {
    return “Woof! I’m “ + this.name;
  }
}
```

PROTOTYPE TERMINOLOGY

- prototype: a model used to create instances
- `prototype` property: a reference to another object that is generally an instance of the constructor object
- `__proto__` (or “dunder proto”): a property used by web browsers that indicates an object’s parent in the prototype chain

LET'S TAKE A CLOSER LOOK



EXERCISE — MAKE A MONKEY CONSTRUCTOR FUNCTION AND PROTOTYPE

EXERCISE

TYPE OF EXERCISE

- Individual/pair

LOCATION

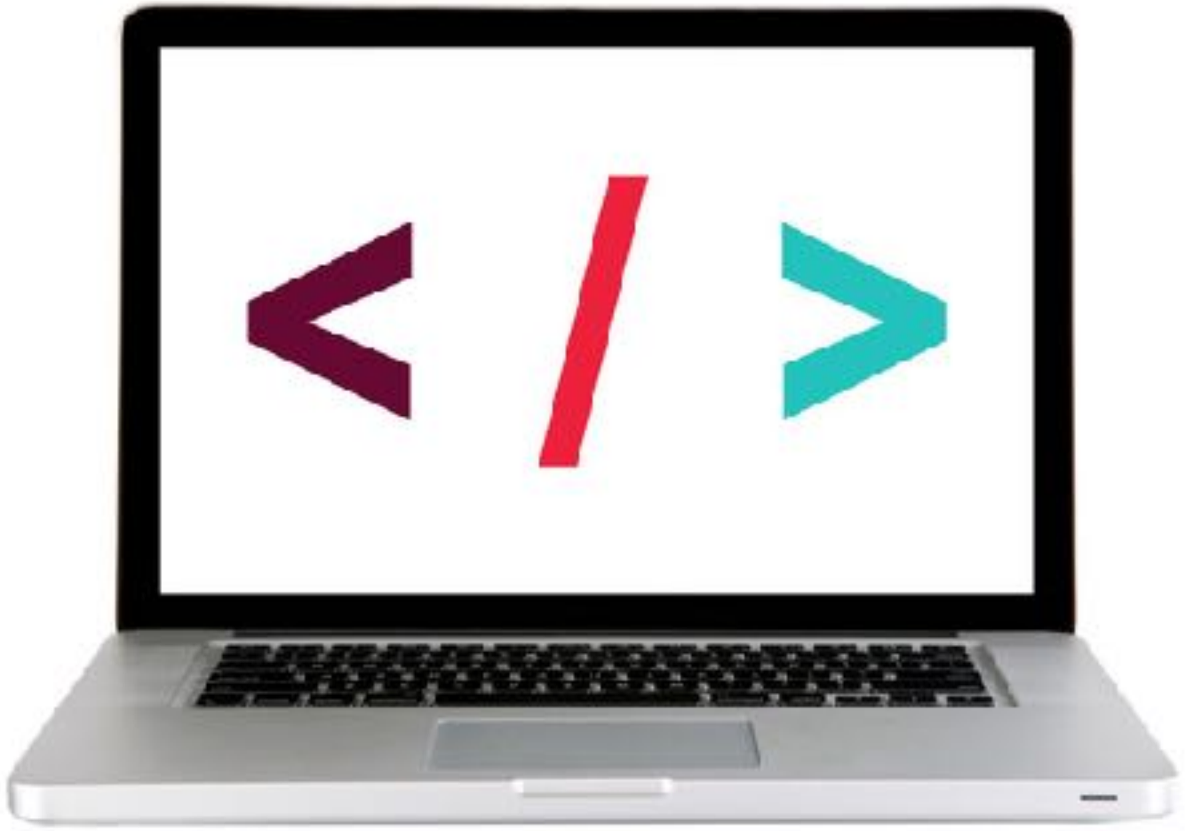
- `start files > 06-prototypes-exercise`

TIMING

8 min

1. In app.js, create a Monkey constructor that meets the specs described.
2. Create 3 objects using your Monkey constructor and verify that all properties and methods of each have the expected values.

LET'S TAKE A CLOSER LOOK



LAB – BUILD A PROTOTYPE CHAIN

EXERCISE

TYPE OF EXERCISE

- Individual/pair

LOCATION

- `start files > 08-prototypes-lab`

TIMING

10 min

1. Create an Item constructor using the specs in the start file.
2. Create Clothing and Household constructors and use Item as the prototype for each.
3. Test your work in the browser console.
4. If you finish early, work on the bonus items described in app.js.

CLASSES IN JAVASCRIPT

CLASS VS PROTOTYPE

CLASS-BASED LANGUAGE

class
- manufactures new objects
- defines behavior of manufactured objects

JAVASCRIPT

constructor
- manufactures new objects

prototype
- defines behavior of manufactured objects

CLASS KEYWORD

```
function Vehicle(color) {
  this.color = color;
}
```

=

```
class Vehicle {
  constructor(color) {
    this.color = color;
  }
}
```

CONSTRUCTOR

CLASS KEYWORD (ES6)

EXTENDS AND SUPER KEYWORDS

```
function Car(color) {
  this.color = color;
}

Car.prototype = new Vehicle();
```

=

```
class Car extends Vehicle() {
  constructor(color) {
    super(color);
  }
}
```

CONSTRUCTOR + PROTOTYPE

CLASS + SUPER KEYWORDS (ES6)

LAB – REFACTOR CODE TO USE CLASSES

EXERCISE

TYPE OF EXERCISE

- Individual/pair

LOCATION

- `start files > 10-classes-lab`

TIMING

until 9:25

1. Refactor the Item, Clothing, and Household prototypes and constructors to recreate the same prototype chain using class keyword syntax.
2. Test your work in the browser console.

Exit Tickets!

(Class #13)

LEARNING OBJECTIVES – REVIEW

- Distinguish between classical and prototypal inheritance
- Explain the difference between literal and constructed objects.
- Write a constructor for a JavaScript object.
- Explain prototypal inheritance and its purpose.
- Create and extend prototypes.
- Work with prototypes using `class` keyword syntax

NEXT CLASS PREVIEW

Closures & `this`

- Understand and explain Javascript context.
- Understand and explain closures.
- Instantly invoke functions.
- Predict what the `this` keyword refers to in different situations.

Q&A