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Diploma in Web Development – Part II

Front-End Development – Week 2
Object-Oriented JavaScript

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Week 1 Recap

Bootstrap Fundamentals

- Core Concepts
- Grid System
- Bootstrap Demonstration

- Summary
- Q&A

Today's Lesson

Object-Oriented JavaScript

- Object-Oriented Programming
- Properties & Methods
- Building a Prototype Object

- Summary
- Q&A

Let's Begin!

Object-Oriented JavaScript

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Object (in Programming)

Object-Oriented JavaScript

Object (in Programming)

is a logical combination of variables, functions, and data structures

Object-Oriented JavaScript

Object Oriented Programming

Is a computer programming methodology which creates objects, which consist of data in the form of properties and operations on that data in the form of methods

Object-Oriented JavaScript

Why OOP

Advantages

- ➢Clean Design
- ➢Modularize your Application
- ➢Easier to find the source of bugs!
- ➢More understandable
- ➢More expandable

Object-Oriented JavaScript

- Objects have a sense of self
- Denoted using the "*this*" keyword in JS
- (Use "*$this*" or "*self*" in PHP)

"I think, therefore I am"

- René Descartes

Object-Oriented JavaScript

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Properties & Methods

Object-Oriented JavaScript

Real Life Objects: A Water Bottle

State (Description)

- Max Volume
- Current Volume
- Weight
  - Depends on Current Volume
- crushed

Behaviour (Actions)

- Fill
- Empty
- DrinkFrom
- Crush

Objects in Programming

Properties

- **Variables** linked to the object
- Can be of any appropriate data type
- Controlled by the object

Methods

- **Fill(amount):**
  - Adds amount to Current Volume attribute
  - Checks to ensure Current Volume does not exceed Max Volume
- **Drink(amount):**
  - Removes amount from Current Volume

Object-Oriented JavaScript

Objects in Programming

Properties

- **Current Volume:**
  - Number
  - Can be changed by methods
- **Crushed:**
  - Boolean
- **(Weight):**
  - Automatically calculates when checked
  - Will actually be a method call!

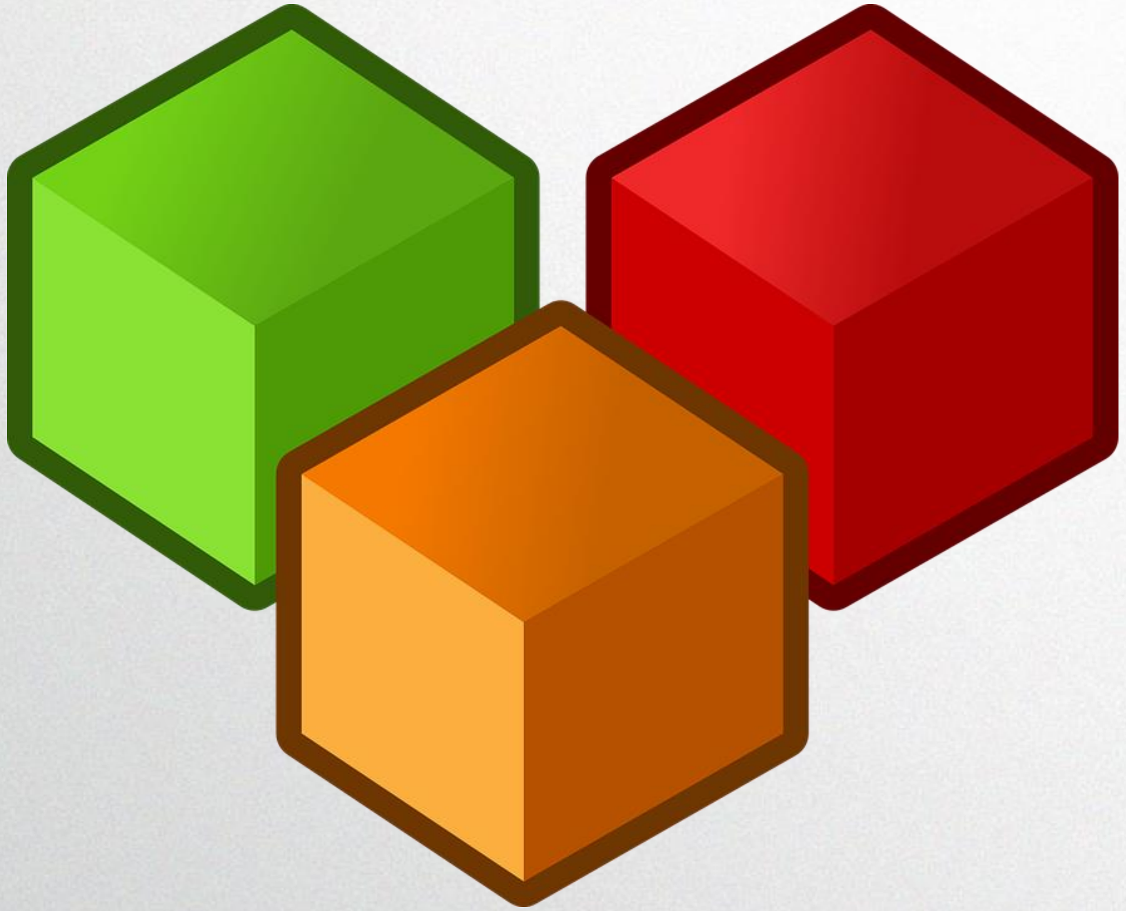
Methods

- **Functions** linked to the object
- Can cause changes to own properties
- Can be used to give indirect property information

Object-Oriented JavaScript

Objects

- Objects exist in Javascript
- Property ~ Variable
- Method ~ Function
- Dot operator (.) to access object properties and methods



Object-Oriented JavaScript

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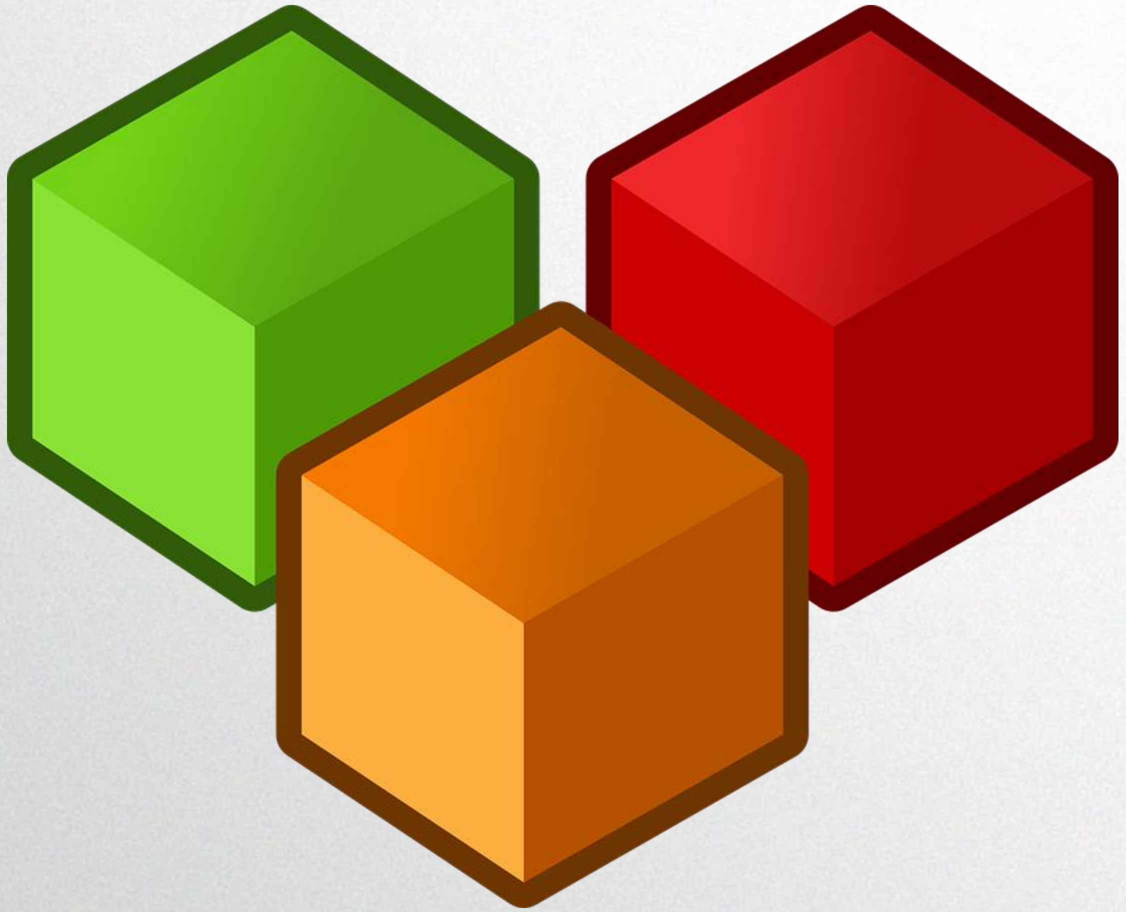
Objects

- Objects can be declared:
  - Literally
  - as functions
  - as variables
- Prototype is a property that affects all object copies of the prototype object
  - Simply another object
- Methods and Properties can be declared as part of the constructor, or as part of the prototype property



Object-Oriented JavaScript

The truth is…

You have been using objects since day 1!

Object-Oriented JavaScript

The truth is…

Everything in Javascript is an object!

Object-Oriented JavaScript

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A simple number declaration: `var myNumber = 42;`

myNumber is a **Number** object

```
//Properties
myNumber.NaN;
myNumber.EPSILON;

//Methods
myNumber.parseFloat();
myNumber.parseInt();
```

Object-Oriented JavaScript

A simple string declaration:

```
var foo = "bar";
```

foo is a **String** object

```
//Properties
foo.length;

//Methods
foo.charAt();
foo.concat();
foo.substr();
```

Object-Oriented JavaScript

Important basic objects in Javascript:

Object: The parent object from which all other objects are created

Properties: prototype

Methods: create(), assign(), defineProperty()

Prototype: The set of all properties and methods that are inherited by child objects

Properties: constructor

Methods: hasOwnProperty(), isPrototypeOf(), toString()

Other objects:

Number, String, NaN, undefined, Function, Boolean, Math, Date, Array, and much much more!

Object-Oriented JavaScript

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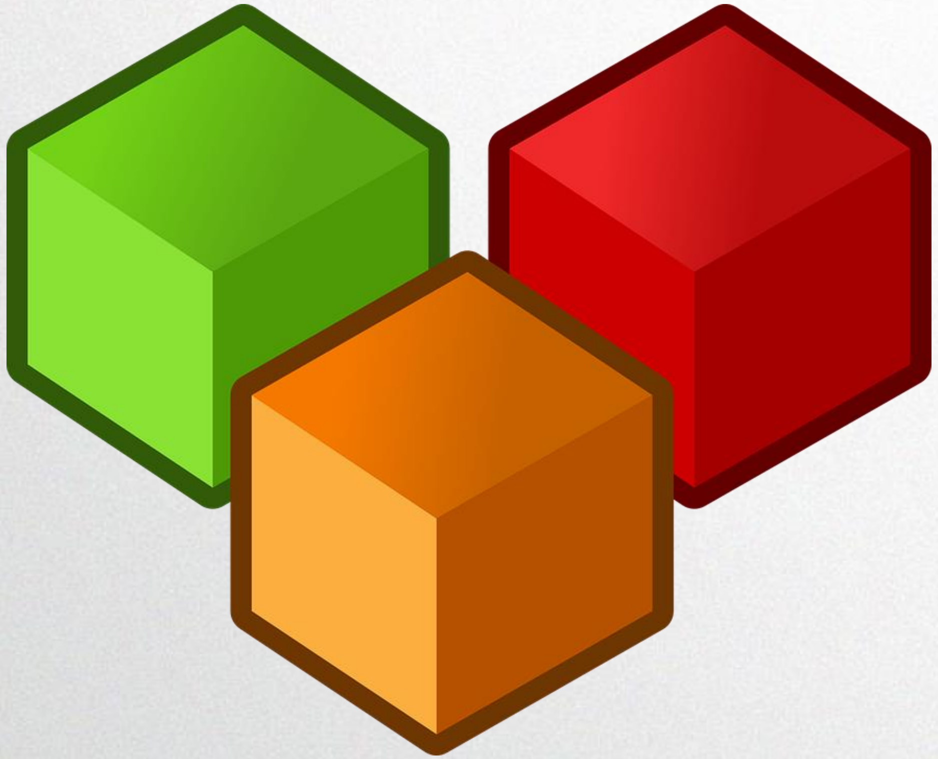
Final Notes

- ➢ All Objects inherit from Object or a child of Object
- ➢ Therefore, all objects have the properties and methods of the Object class
- ➢ The same applies to inheritance from ***any*** other object
- ➢ All objects are created by copying a prototype

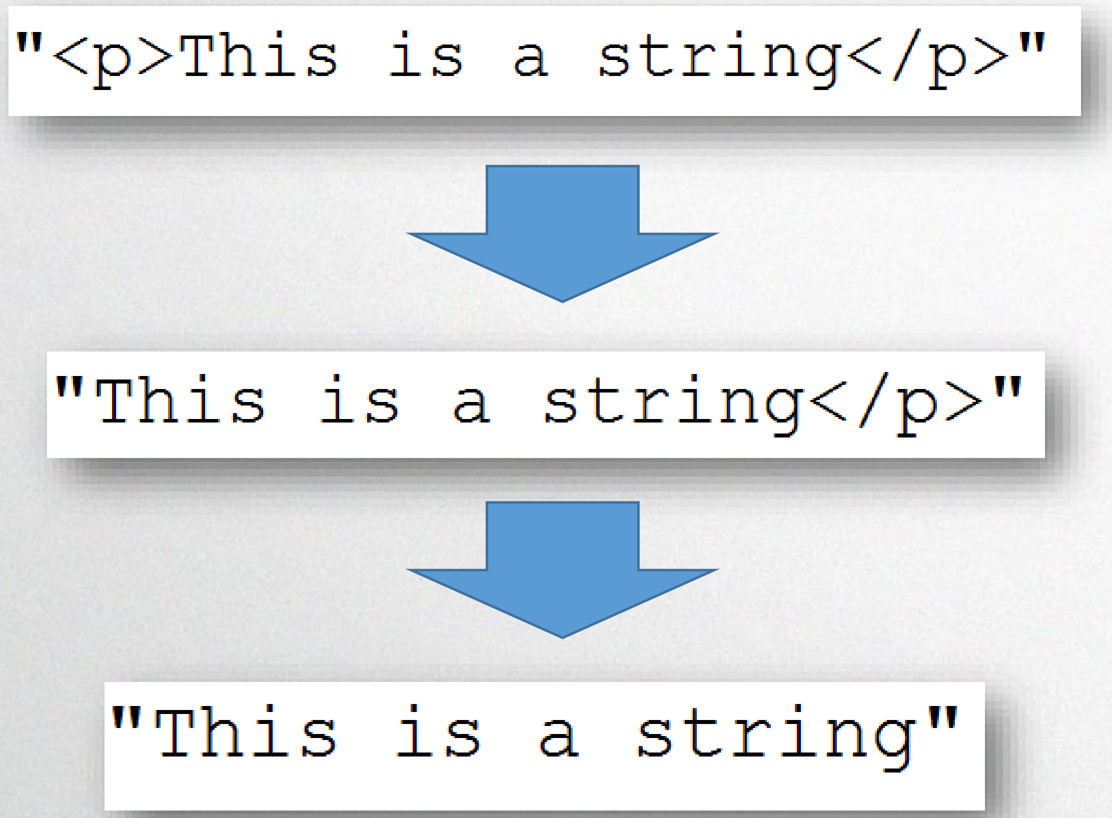


Object-Oriented JavaScript

Creating the removeMarkup() method

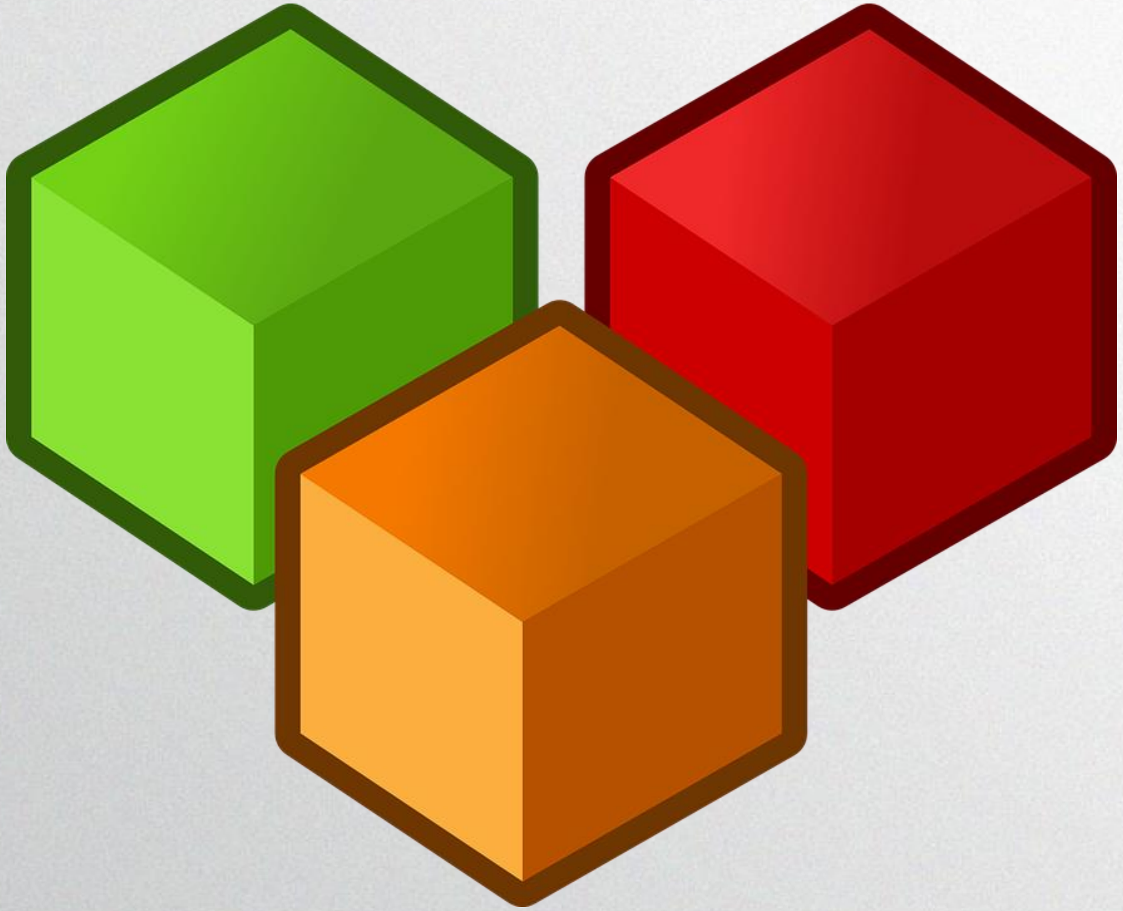
What do I want to do?

1. Find if substring <element> exists, where element can be anything
2. Find the position of the < and > symbols
3. Remove substring from string
4. Repeat above until there are no html markup elements left



```
"<p>This is a string</p>"
"This is a string</p>"
"This is a string"
```

Object-Oriented JavaScript



Demo

Today’s Lesson

Object-Oriented JavaScript

✓ Object-Oriented Programming
✓ Properties & Methods
✓ Building a Prototype Object

➢ Summary
➢ Q&A

Next Week

- The next session is "JQuery"
  - JQuery: The JavaScript Library
  - Getting Started with JQuery
  - Event Handling

- Recordings are available within 24 hours after the live webinar
- Go to www.shawacademy.com and then the Top Right Corner – Members Area

Q&A

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Next Lesson is

JQuery: The JavaScript Library

- ➢ Learn about the power and expediency of JavaScript's most popular library
- ➢ You will understand how to write statements using JQuery's easy-to-use methods

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