

PROGRAMMING

Lesson 7

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HOMEWORK & ASSIGNMENT

LEARNING OBJECTIVES

- Practice programmatic thinking by writing pseudo code to solve a basic problem.
- Define web site behavior and the practical uses of JavaScript.
- Predict DOM output / changes by reading JS code.

AGENDA

- Discuss what it means to be a programmer
- Write pseudo code
- Javascript
- Lab Time

WHAT DOES IT MEAN TO BE A PROGRAMMER

WHAT IS PROGRAMMING?

It means creating a solution to a problem, that may or may not exist yet.

It's the process of writing instructions to direct how a computer will react when given a specific tasks.

WHAT IS SOMETHING WE PROGRAM?

- What items in your house use programming?
- What items do we programm?
- What software do we use?
- What are the problems we are trying to solve?



WHAT IS A PROGRAM

WHAT IS A PROGRAM?

It is a set of instructions written in a specific sequence and language that the computer can understand and follow to perform a certain task.

A program is a recipe given to a robot.

PSEUDOCODE THINK LIKE A PROGRAM

WHAT IS PSEUDOCODE?

Pseudocode is an informal description of the operating principle of a computer program.

It uses the structure of a programming language, but is intended for human reading rather than machine reading.

Being a programmer isn't just about knowing programming languages, it's about how you think.

WHAT IS PSEUDOCODE?

- Pseudocode is a set of logical instructions
- Written without using the syntax of a programming language
- It can be written however you like
- It's like planning out our actions in words

PROGRAM: MAKE A CUP OF TEA

- 1. check kitchen cupboard for tea bags
- 2. if tea bags
 - 2.1 boil kettle
 - 2.2 wait for kettle to boil
 - 2.2.1 get cup from cupboard
 - 2.3 when kettle is boiled
 - 2.3.1 put tea bag in mug
 - 2.3.2 fill cup with water
 - 2.3.3 let water stand for 5 minute
 - 2.3.4 remove tea bag from mug
 - 2.4. Done Kick back and enjoy
- 3. otherwise
 - 3.1 go to the shop to buy tea bags

LETS PROGRAM A THERMOSTAT

What is a thermostat?

- A device to control temperature
- When temperature is too low, it turns on the heater
- When temperature is too high, it turns off the heater

EXERCISE: PROGRAM THERMOSTAT

https://codepen.io - Group Exercise

PROGRAM: MAKE A CUP OF TEA

```
target temperature = 35
  repeat forever,
    current temperature = get sensor reading
    if target_temperature > current_temperature,
       turn_on_heater
    if target_temperature < current_temperature,</pre>
       turn_off_heater
```

EXERCISE: ROCK PAPER SCISSORS

Sublime Text - In Small Groups

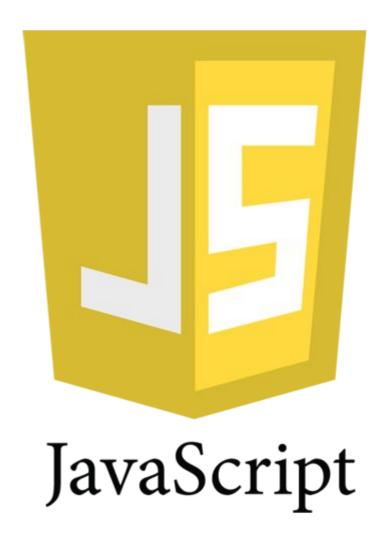


JAVASCRIPT

WHAT IS JAVASCRIPT?

It's an object-oriented computer programming language commonly used to create interactive effects within web browsers.

Javascript follows a specific syntax.



JAVASCRIPT

```
var target_temperature = 35
while (true) {
     var current_temperature = get_sensor_reading
     if ( target_temperature > current_temperature ) {
       turn_on_heater();
     } else if ( target_temperature < current_temperature ) {</pre>
       turn_off_heater();
```

WHAT IS JAVASCRIPT USED FOR?

- JAVASCRIPT = BEHAVIOR
- HTML = structure
- CSS = styling

JS can be used to traverse and manipulate the DOM.

https://www.angrybirds.com

JAVASCRIPT: Variables & Data Types

```
// Number
var length = 16;
var lastName = "Johnson";
                                              // String
var cars = [ "Saab", "Volvo", "BMW" ];
                                              // Array
var x = { firstName:"John", lastName:"Doe" }; // Object
                                              // Boolean
var answer = true;
```

JAVASCRIPT: Operators

```
var x = 5;
               // assign the value 5 to x
var y = 2; // assign the value 2 to y
var z = x = y; // assign the value 7 to z(x + y)
                // Addition
 x + y
                // Subtraction
 X - y
                // Multiplication
x * y
                // Division
 x/y
 x % y
                // Modulus (division remainder)
               // Increment
 X++
                // Decrement
 X--
```

JAVASCRIPT: Functions

```
function myFunction(p1, p2) {
   return p1 * p2;
//The function returns the product of p1 and p2
function name(parameter1, parameter2, parameter3) {
   // code to be executed
```

JAVASCRIPT: Conditions

```
if (hour < 18) {
   greeting = "Good day";
if (condition) {
   // block of code to be executed if the condition is true
```

JAVASCRIPT: Functions

```
if (hour < 18) {
   greeting = "Good day";
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   // block of code to be executed if the condition is true
```

EXERCISE: EXAMINE SOME CODE

https://codepen.io - Colour Switcher

Q&A



FEBBACK

Lesson 7 - PROGRAMMING

http://ga.co/fewd23syd