

PROGRAMMING

Lesson 7

Jay Young

Snr Digital Designer / Front End Web Developer - Clemenger BBDO

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



GENERAL ASSEMBLY

**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 program?
- 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.



GENERAL ASSEMBLY

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,
```

```
        turn_off_heater
```




GENERAL ASSEMBLY

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

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 ) {
```

```
        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

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

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)

x + y               // Addition
x - y               // Subtraction
x * y               // Multiplication
x / y               // Division
x % y               // Modulus (division remainder)
x++                 // Increment
x--                 // Decrement
```

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

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if (hour < 18) {  
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if (condition) {  
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EXERCISE:

EXAMINE SOME CODE

<https://codepen.io> - Colour Switcher

Q&A



GENERAL ASSEMBLY

FEEDBACK

Lesson 7 - PROGRAMMING

<http://ga.co/fewd23syd>