



# Logols Learning

WEEKEND WEB DEVELOPMENT BOOT CAMP

TRAINING: JAVASCRIPT/TYPESCRIPT

# What is Javascript?

- ▶ Javascript != Java
- ▶ LiveScript vs. ECMAScript vs. JavaScript
- ▶ Client Side Scripting vs. Full Language
- ▶ Javascript Engine or Virtual Machine
- ▶ “Safe” Programming Language – Ignores Memory/CPU
- ▶ Objects, but not really object oriented

# Javascript Linking

- ▶ Script tag in html can be used to write Javascript
- ▶ Javascript files can be linked in the head element of html

Example:

```
<script>
```

```
  alert('test Javascript');
```

```
</script>
```

or

```
<script src="/script.js"></script>
```

# Comments

- ▶ `//` - is used for comments
- ▶ `/* */` - is used for multi-line comments

Example:

```
// this is a comment
```

```
/*
```

```
This is a multi-line comment
```

```
*/
```

# Declaring Variables

- ▶ `let [name];`
- ▶ `let [name] = [value];`
- ▶ `let [name1] = [value1], [name2] = [value2], [name3] = [value3];`
- ▶ You could use `var`, but it handles scope differently
- ▶ Use `let` or `const`

Example:

```
let message = "hello";  
alert(message);
```

# Data Types

- ▶ string– Use single or double quotes
- ▶ number
- ▶ boolean
- ▶ function
- ▶ object
  - ▶ Object
  - ▶ Date
  - ▶ Array
- ▶ null – set and doesn't have a value
- ▶ undefined – not yet set
- ▶ Use typeof to find type



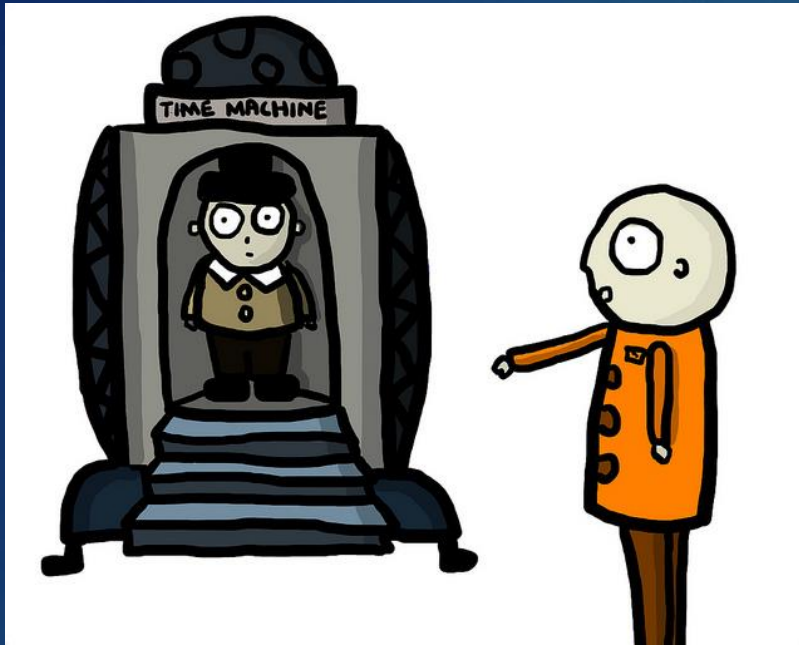
# Variable Scope

- ▶ Local or function scope
  - ▶ defined inside a function
- ▶ Global scope
  - ▶ The scope is global if the variable is declared outside of a function
- ▶ Lexical scope
  - ▶ Function inside a function has access to variables declared in outer function (closure)

# What is this?

- ▶ this can be used instead of variable name
- ▶ Different value bound to this depending on how function is called
- ▶ Refers to outer most global object (window) by default



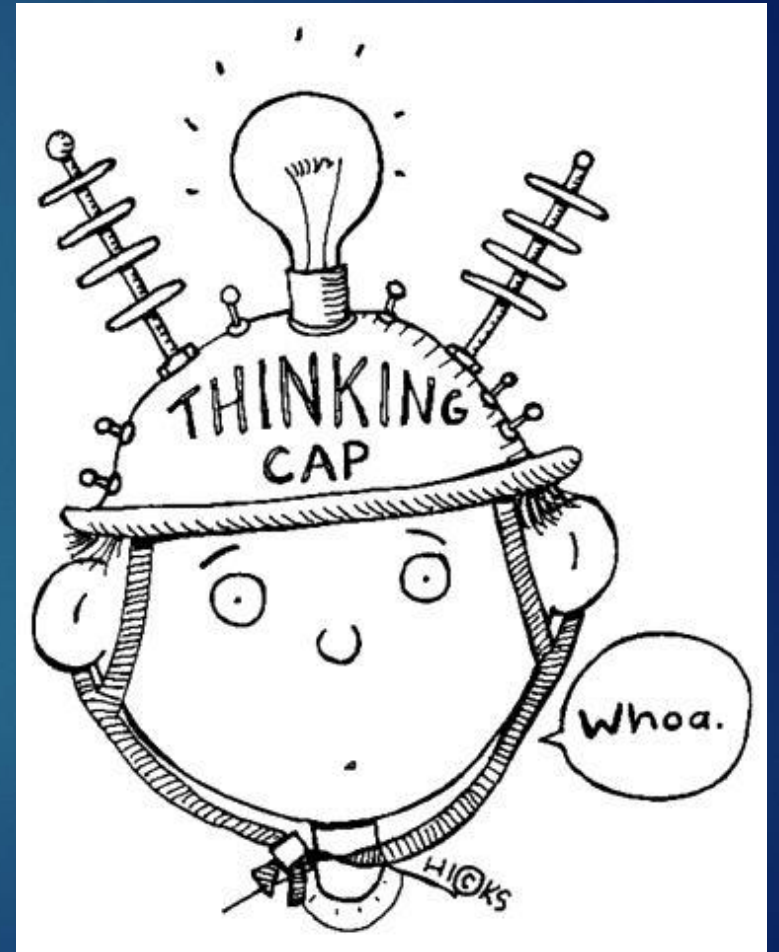


# EXAMPLE

VARIABLES

# ASSESSMENT

VARIABLES



# Comparison Operators

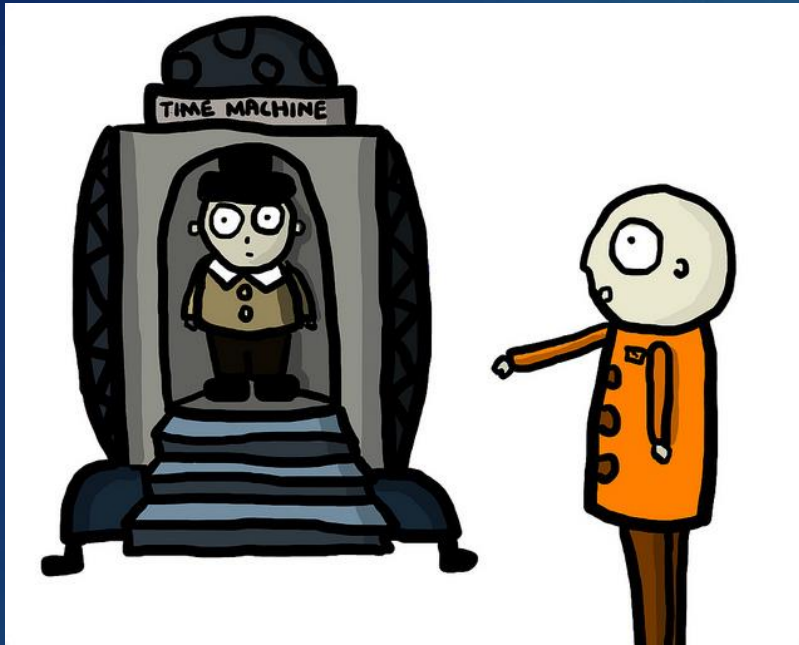
- ▶ == equal to
- ▶ === equal value and equal type
- ▶ != not equal
- ▶ !== not equal value or not equal type
- ▶ > greater than
- ▶ < less than
- ▶ >= greater than or equal to
- ▶ <= less than or equal to

# Logical Operators

- ▶ && logical and
- ▶ || logical or
- ▶ ! Logical not

# Conditional Statements

- ▶ If
- ▶ else
- ▶ else if
- ▶ switch



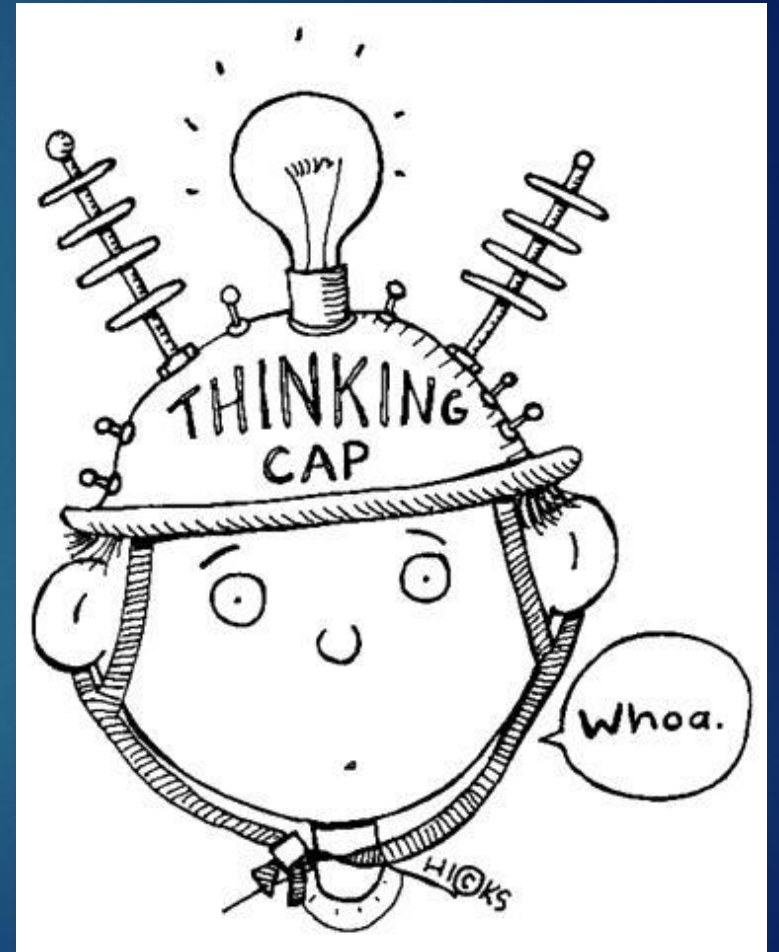
# EXAMPLE

CONDITIONS



# ASSESSMENT

CONDITIONS



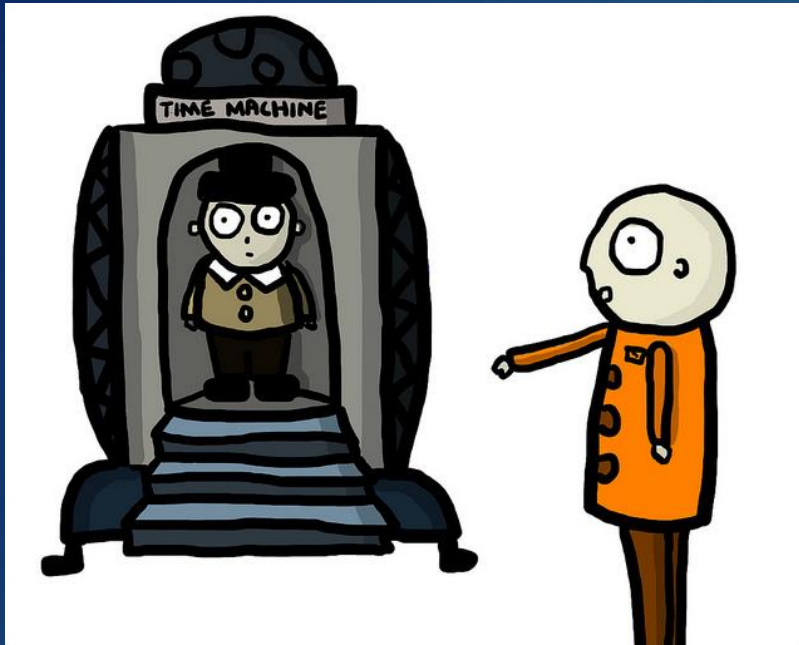
# Assignment

- ▶ A status report is needed of all government employees. Statuses are:
  - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Given an number variable, write if else statements and console out the persons status.
- ▶ Using the same number variable, modify your code to perform the same operation with a switch statement.



# Loops

- ▶ for
- ▶ for / in
- ▶ while
- ▶ do / while

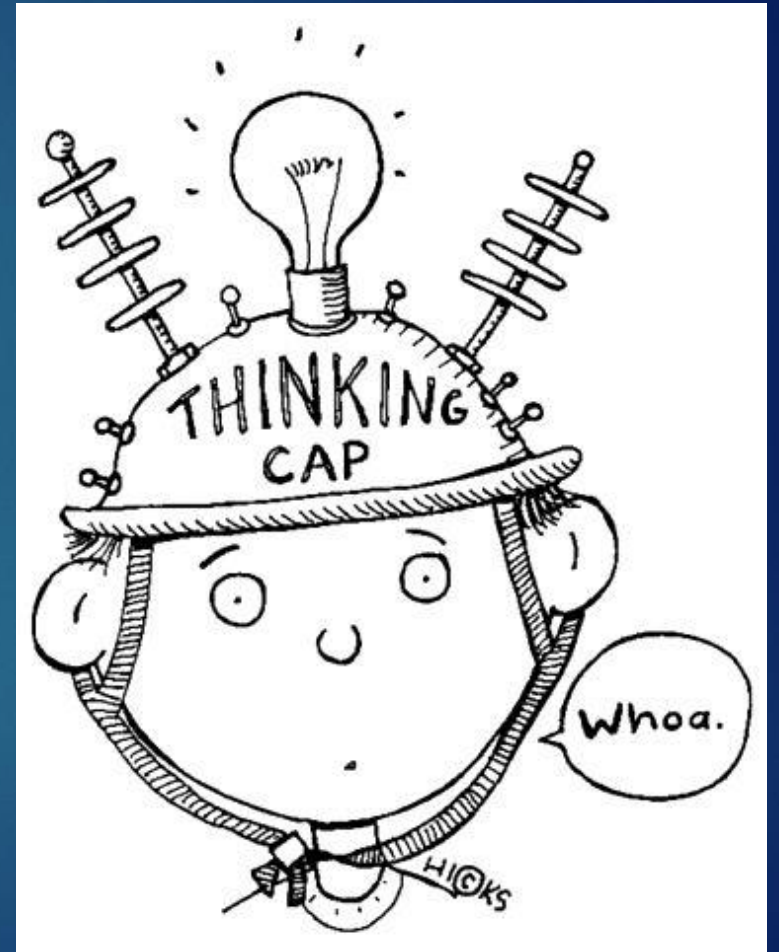


# EXAMPLE

LOOPS

# ASSESSMENT

LOOPS





# Assignment

- ▶ A status report is needed of all government employees. Statuses are:
  - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Given an array of number variable, write loops with if else statements and console out everyone's status.
- ▶ Use all loop types.
- ▶ Given another array of string variables with names, write out the name and their status.



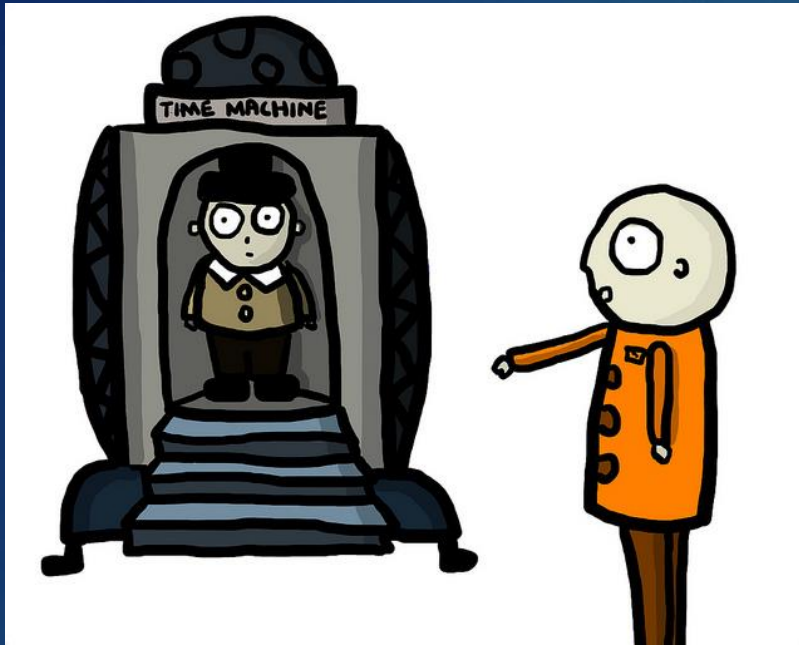


# function Syntax

- ▶ Function performs an action
- ▶ Can also be a type in Javascript

Example:

```
function square(num) {  
    return num * num;  
}  
alert(square(4));
```



# EXAMPLE

FUNCTIONS

# ASSESSMENT

FUNCTIONS



# Assignment

- ▶ A status report is needed of all government employees. Statuses are:
  - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Modify your previous program to create a method that handles the condition given a parameter for status and for name that returns the concatenated string.
- ▶ Write a void method that takes a string parameter and writes it to the console.



# What is TypeScript?

- ▶ Superset of the Javascript language
- ▶ Transpiler – interprets Typescript to Javascript
- ▶ Strongly Typed
- ▶ Also Support for:
  - ▶ Generics
  - ▶ Classes
  - ▶ Interfaces
  - ▶ Namespaces
  - ▶ Etc...





# Typescript Types

- ▶ \* - any
- ▶ Built-in Types
  - ▶ Number
  - ▶ String
  - ▶ Boolean
  - ▶ Void
  - ▶ Null
  - ▶ Undefined
- ▶ User-defined Types
  - ▶ enum
  - ▶ class
  - ▶ Interface
  - ▶ array
  - ▶ tuple

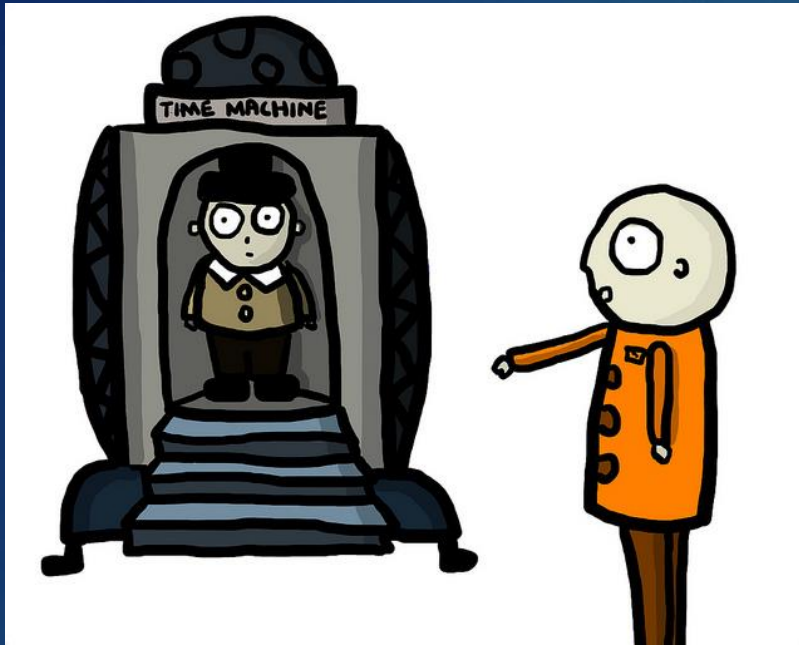


# TypeScript Syntax

- ▶ Typescript is written in .ts files that are transpiled to .js files
- ▶ Also option to create .d.ts declaration files for intellisense
- ▶ Variable Declaration: `let[name] :[type] = [value];`

Function: `function [name] ([param1]:[type], [param2]:[type]) : [return type] {}`

```
class [name] {  
  name:string;  
  
  constructor(name:string) {  
    this.name = name;  
  }  
  
  write():void {  
    console.log("Name is " + this.name);  
  }  
}
```



# EXAMPLE

TYPESCRIPT

# ASSESSMENT

TYPESCRIPT



# Assignment

- ▶ A status report is needed of all government employees. Statuses are:
  - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Write the same program in TypeScript Syntax that you just created in JavaScript. Make use of typing.





# QUICK REVIEW

JAVASCRIPT / TYPESCRIPT



Not really a sign you'd want to see whilst driving through an eerily quiet neighbourhood...

# Additional Resources

- ▶ JSFiddle
  - ▶ <https://jsfiddle.net/>
- ▶ free Code Camp
  - ▶ <https://www.freecodecamp.org/>
- ▶ Microsoft Virtual Academy
  - ▶ <https://mva.microsoft.com/en-us/training-courses/javascript-fundamentals-for-absolute-beginners-14194>
- ▶ MDN Web Docs
  - ▶ [https://developer.mozilla.org/en-US/docs/Web/JavaScript/Language\\_Resources](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Language_Resources)
- ▶ TypeScript Documentation
  - ▶ <https://www.typescriptlang.org/docs/home.html>