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

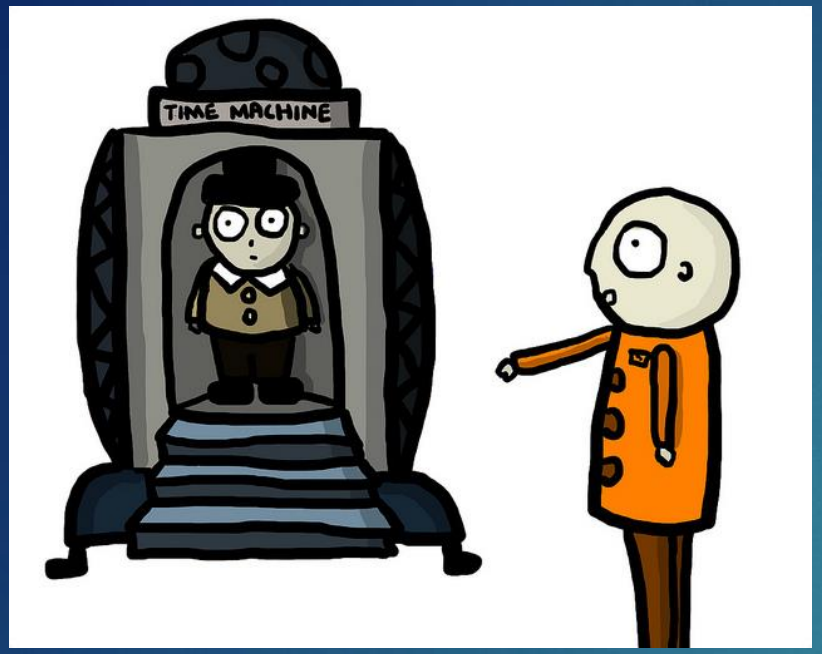
- string– Use single or double quotes
- number
- boolean
- function
- object
  - Object
  - Date
  - Array
- null – set and doesn't have a value
- undefined – not yet set
- Use typeof to find type

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

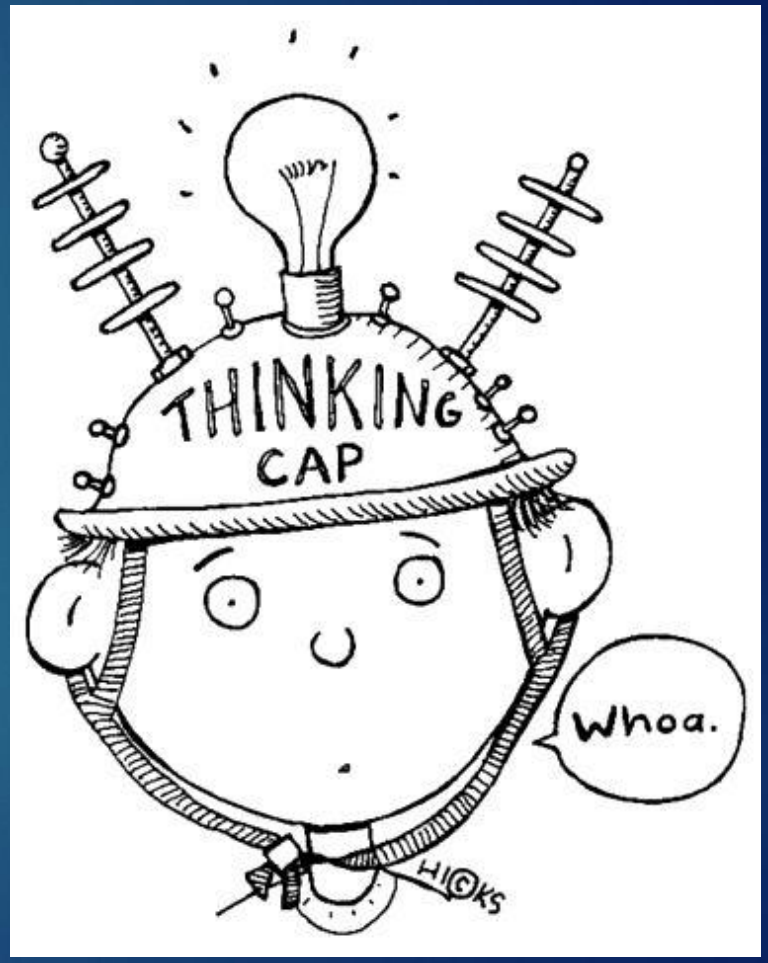


EXAMPLE

VARIABLES

ASSESSMENT

VARIABLES



Comparison Operators

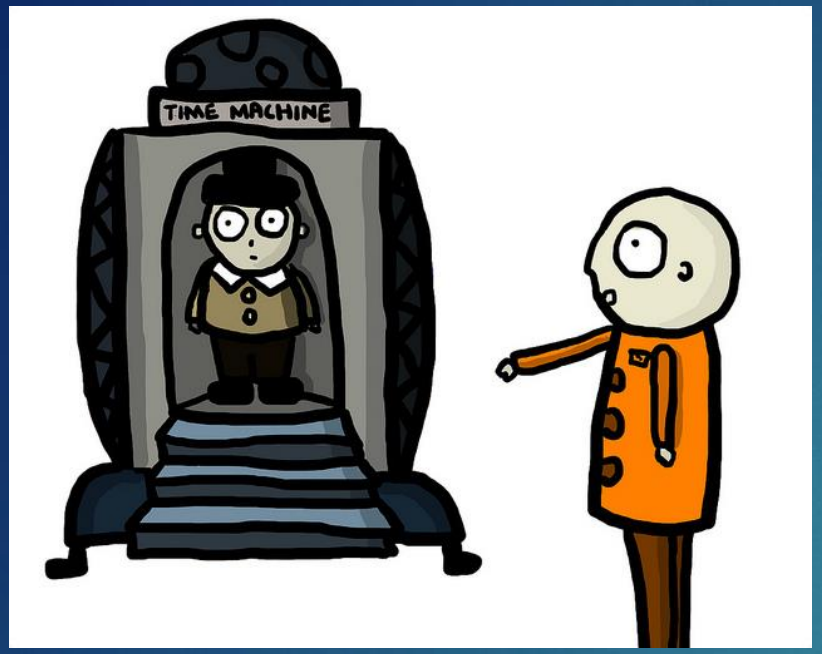
- == equal to
- === equal value and equal type
- != not equal
- !== not equal value or not equal type
- > greater than
- < less than
- >= greater than or equal to
- <= less than or equal to

Logical Operators

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

Conditional Statements

- If
- else
- else if
- switch

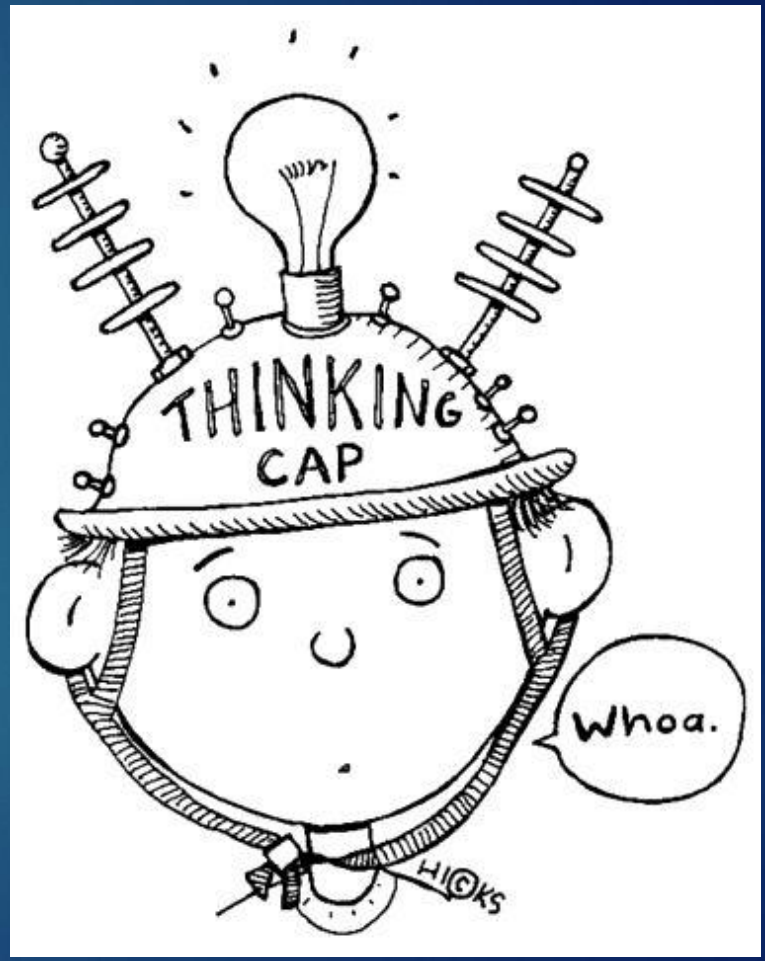


EXAMPLE

CONDITIONS

ASSESSMENT

CONDITIONS

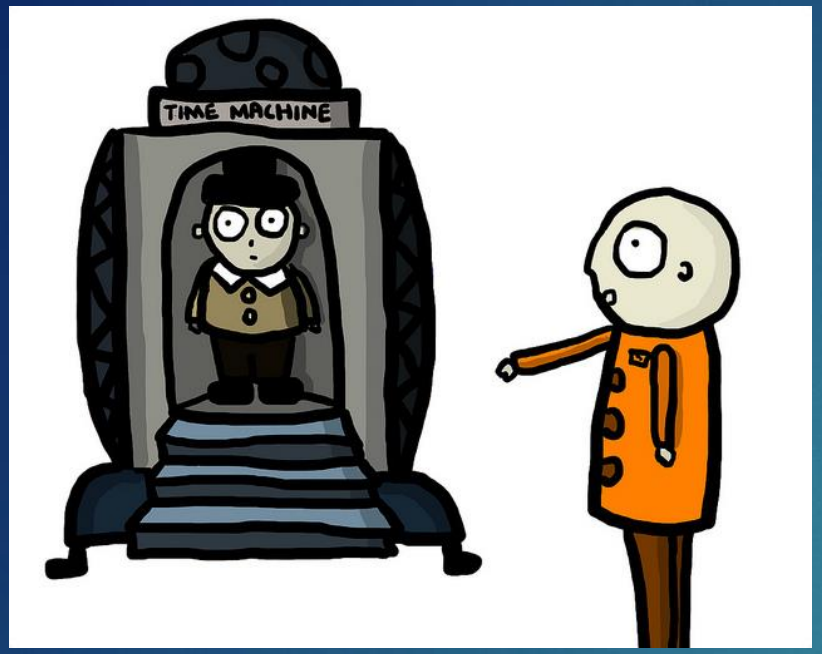


Assignment

- 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

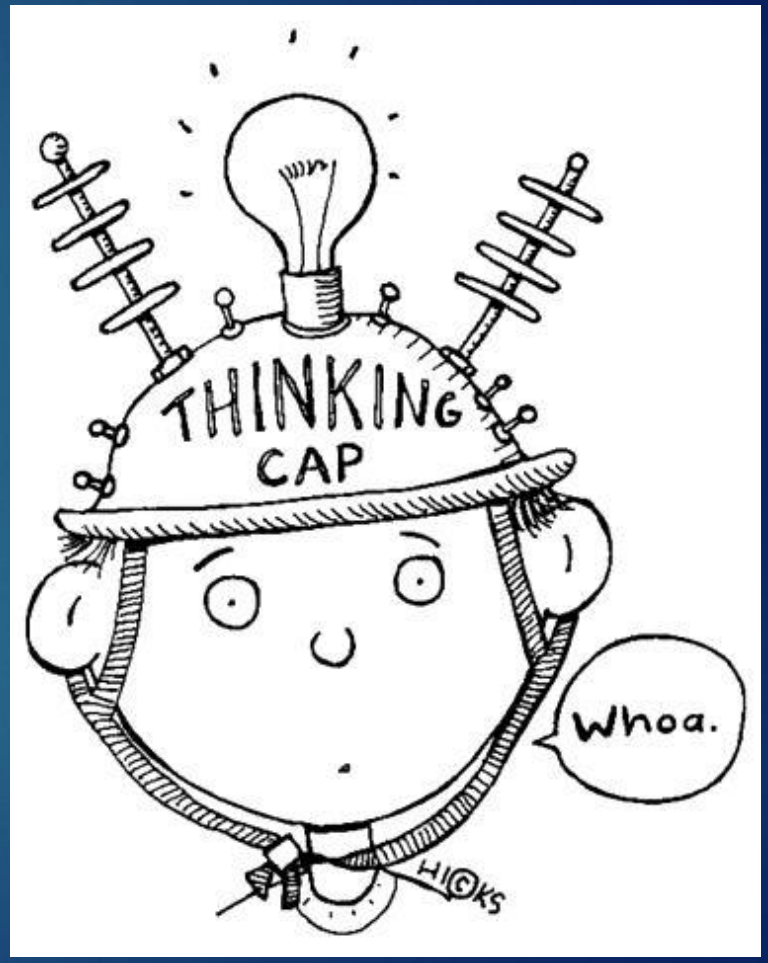


EXAMPLE

LOOPS

ASSESSMENT

LOOPS



Assignment

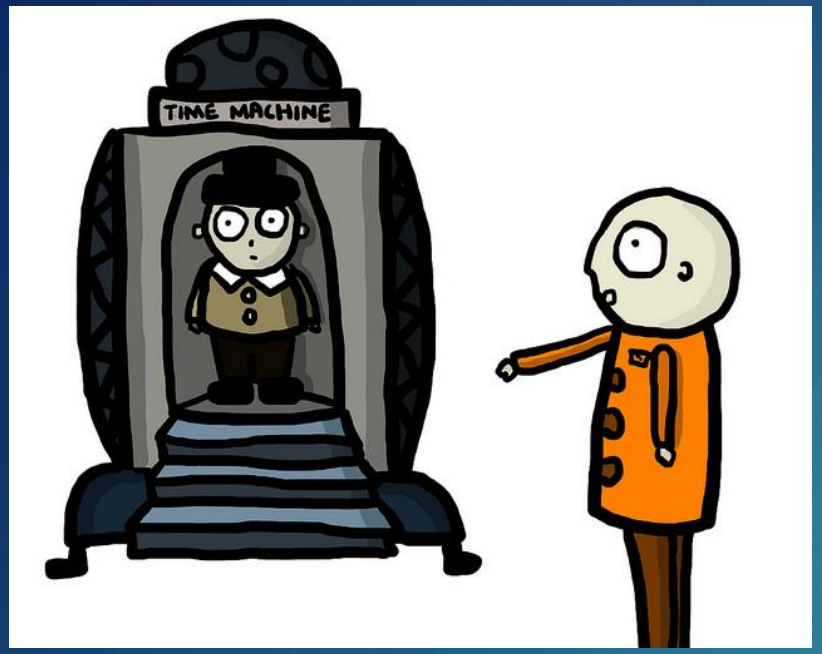
- A status report is needed of all government employees. Statuses are:
  - 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- Given an array of number variable, write loops with if else statements and console out everyone's status.
- Use all loop types.
- Given another array of string variables with names, write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

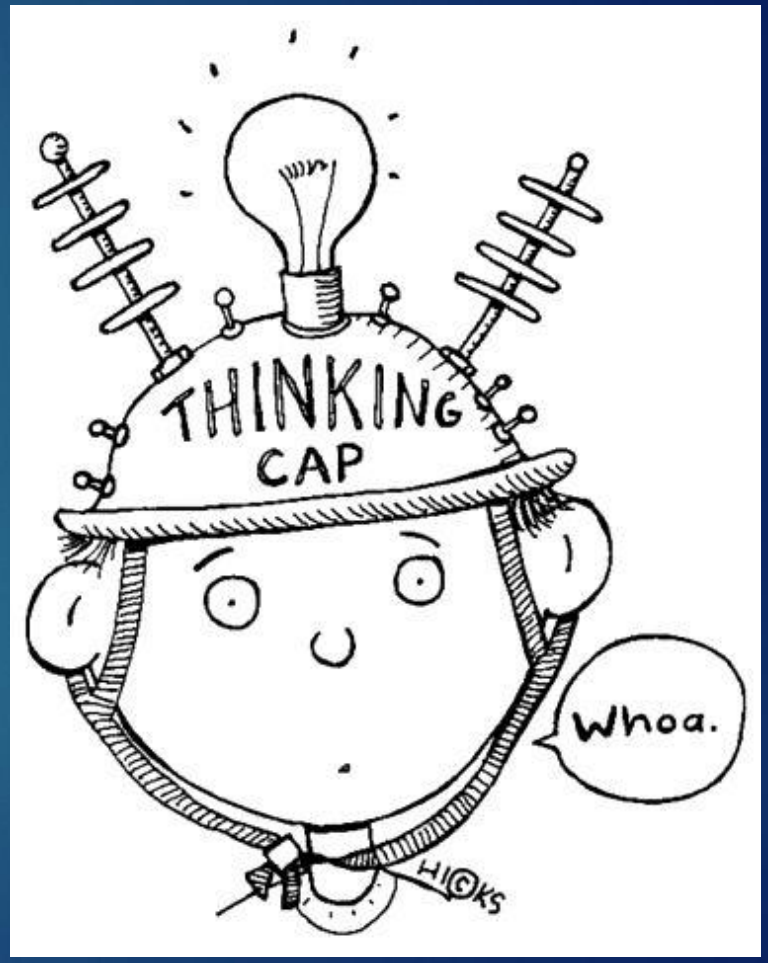


EXAMPLE

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

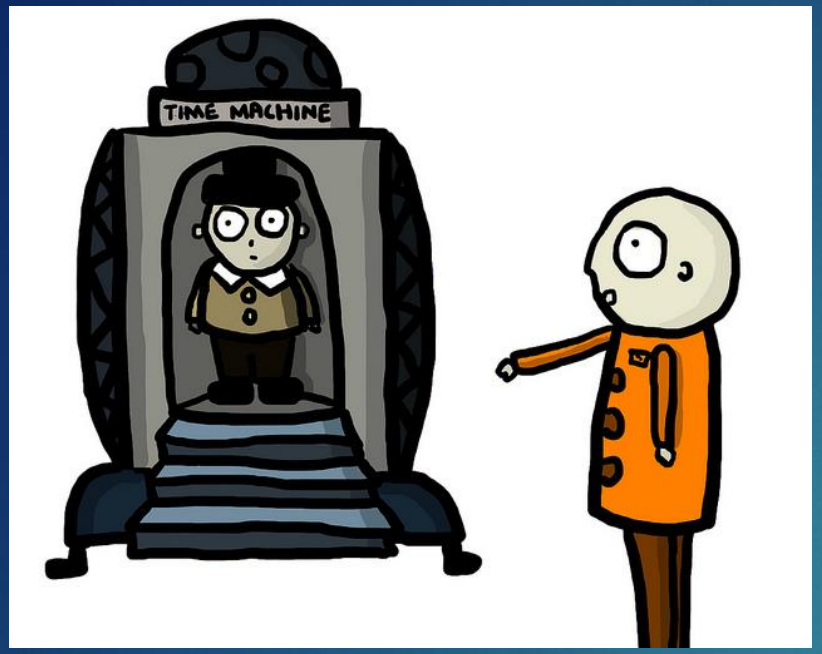
- Typescript is written in .ts files that are transpiled to .js files
- Also option to create .d.ts declaration files for intellisense
- Variable Declaration: let[name] :[type] = [value];

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);
  }
}
```

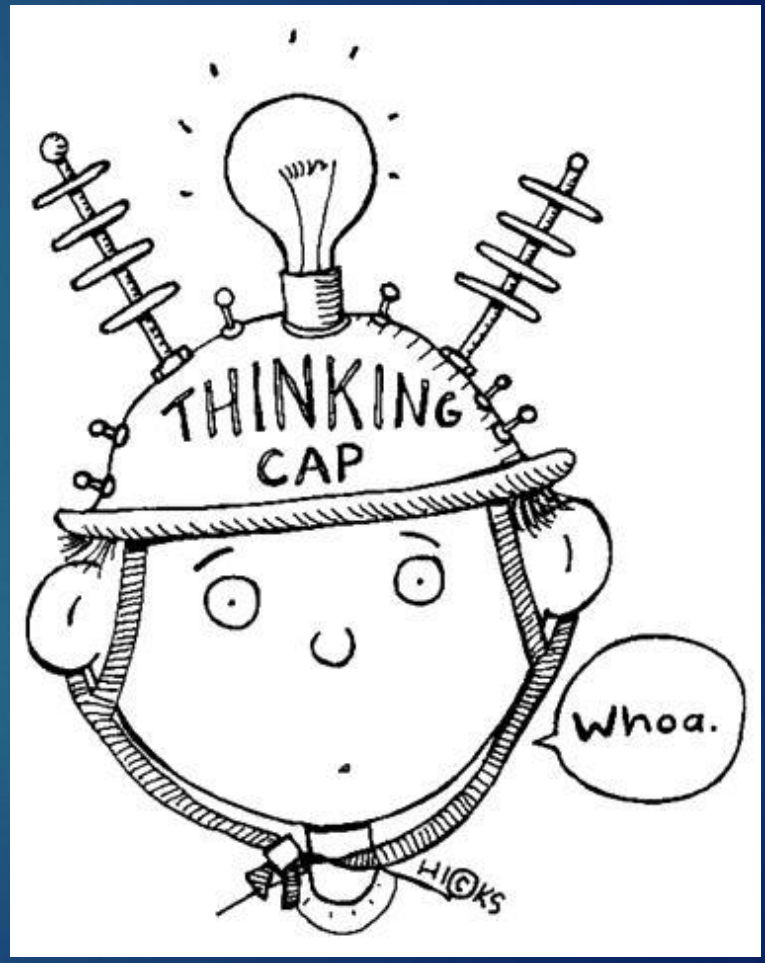


EXAMPLE

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
- TypeScript Documentation
  - https://www.typescriptlang.org/docs/home.html