



LECTURE #4

STRINGS AND NUMBERS

WHAT ARE NUMBERS USED FOR?

- ▶ To perform Arithmetic operations
 - Common Arithmetic
 1. Addition
 2. Subtraction
 3. Multiplication
 4. Division
 5. Remainder(Modulus)



- ▶ JavaScript has only one type of number. All numbers can be written with or without decimals. Max number of decimals is 17. Integers are accurate up to 15 digits.
 - ▶ Exp:
3 3.14 0.28
- ▶ Extra large or small numbers can be written with scientific notation.
 - ▶ Exp:
158e29 158e-29

WHAT EXACTLY IS A STRING?

- ▶ **String**: a series of characters enclosed by and apostrophe or quotation marks. example: 'Code' or "Ninjas"
- ▶ Make sure to always open and close with the same.
wrong way example: 'Code" "Ninjas'
- ▶ **Concatenation**: Adds or "Combines" strings together using the + operator.

▶ example

```
var college = "Qcc "  
var bootcamp = "bootcamp"  
college + bootcamp // "Qcc bootcamp"
```

SO HOW CAN WE ACCESS AN INDIVIDUAL CHARACTER IN A STRING??

- ▶ Strings may look like one linked unit but they are actually made up of a series of characters.
- ▶ Each character represents an "index" in the string
- ▶ Indexes represents the placement character with a number value
- ▶ Indexes with string start at 0(zero) . Remember they are **Zero-Based Index**

"Qcc" . .

• 012 . . .

• "bootcamp"

• • 01234567

USING INDEX TO ACCESS A CHARACTER

1. We can use a method. `.charAt()` method returns a character at a specified(the argument's) index value

```
.. "Qcc bootcamp".charAt(9)  
.. // a
```

2. Or we can use Bracket notation. Bracket notation returns the character at the specified index value

```
.. "Qcc bootcamp"[4]  
.. // b
```

QUICK OVERVIEW OF METHOD AND PROPERTIES

- ▶ Almost all value types have Methods and Properties
- ▶ Method and Properties are internal behaviors and characteristics accessible to a value. Just like Strings have the `.toLowerCase()` and `.charAt()`
- ▶ To call a property or a Method we use the “dot” operator followed by a name
 - ▶ Methods require a set of parenthesis and optional arguments.
 - ▶ Calling a method is much like calling a function.
 - ▶ Properties do not need parenthesis or arguments.

```
.. "Qcc bootcamp".charAt(9)  
.. // a
```

Method

```
.. "Qcc bootcamp".length  
..
```

Property

METHOD AND PROPERTIES

- ▶ Method and Properties return values. Just like our `.charAt(9)` returned the value `a`

```
.. "Qcc bootcamp".charAt(9)  
.. // a
```

- ▶ Common String Methods

1. `toUpperCase`
2. `toLowerCase`
3. `charAt`
4. `indexOf`
5. `slice`
6. `length(property)`

HOW TO USE THE LENGTH PROPERTY

- ▶ The .length property is commonly used in programming. So it's very important to understand how to use it.
- ▶ First, when trying to understand a method or property, we must get used to reading the documentation

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/length

- ▶ Remember that .length returns the total amount of characters and starts at 1, unlike indexes that start at 0(zero). This is key to remember.

```
.. "Qcc bootcamp".length
.. |
```

```
· var string = "Qcc bootcamp"
· string.length
```

indexOf method

- ▶ Another common string method is indexOf.
- ▶ Once again let's look at the documentation to better understand it.
- ▶ https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/indexOf
- ▶ Don't worry about the fromIndex argument. Its optional and if we don't use it the search starts at the 0(zeroth) index.
- ▶ Remember if we search for a certain character in the argument and its no in the string the return value will be -1.

```
• var string = "Qcc bootcamp"  
• string.indexOf("t")  
• //7
```

```
• var string = "Qcc bootcamp"  
• string.indexOf("z")  
• //-1
```

SLICE METHOD

- ▶ Let's learn how to use the Slice method.
- ▶ Once again were going to read the docs
- ▶ https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/slice
- ▶ Remember that the slice method returns a NEW string!! This is key to remember.
- ▶ It has a begin argument and an end argument. Remember the order when using the method. It's very important. By default with the slice method, if you don't give an end argument it will go to the end of the entire string.

```
..  
..var newString = "Very Good Morning"  
..newString.slice(5)  
..// "Good Morning"
```

```
..var newString = "Very Good Morning"  
..newString.slice(0,8)  
..// "Very Good"
```

“DATA TYPES”

- ▶ As we've already used both Strings and Numbers we haven't explained them in depth.
 - ▶ Strings and Numbers are the first two “data types” in Javascript
 - ▶ They are immutable
1. String: “QCC Bootcamp”
 2. Number: 8
 3. Boolean: true false
 4. Undefined: undefined
 5. Null: null

- ▶ Comments are annotations in the source code of a program that are ignored by the interpreter, and therefore have no effect on the actual output of the code. Comments can be immensely helpful in explaining the intent of what your code is or should be doing.
- ▶ Single line comments are written with two forward `//`
 - ▶ Example:

```
3 //this is a single line comment
```
- ▶ Multi-line comments or Block comments are written with opening tags `/*` and closing tags `*/`
 - ▶ Example:

```
5 /*  
6  this is a multi-line comment  
7  */
```


RECAP

1. Numbers
2. Strings
3. methods: `charAt()`, `indexOf()`, `slice()`
4. property: `length`
5. Use documentation.

- ▶ Mozilla Developer Network is the official Mozilla website for development documentation of web standards and Mozilla projects. A huge resource to look into specific JavaScript functionality
<https://developer.mozilla.org/en-US/>
- ▶ <https://repl.it> is a tool that allows you to run simple programs written in multiple languages including JavaScript with an integrate console.
- ▶ <https://stackoverflow.com/> - **Stack Overflow** is a question and answer site for professional and enthusiast programmers. If you have questions about a programming pattern, or problem - this site is an invaluable tool that professional software engineers use everyday.
- ▶ String Methods https://www.w3schools.com/jsref/jsref_obj_string.asp
- ▶ Number Methods https://www.w3schools.com/js/js_number_methods.asp