JavaScript Basics

What is JavaScript?

- High level, interpreted programming language
- Conforms to the ECMAScript specification
- Multi-paradigm
    - Can write code in many different ways (object oriented code, function code, etc)
- Runs on the client/browser as well as on the server (Node.js)

Why Learn JavaScript?

- It is the programming language of the browser (it's everywhere)
- Build very interactive user interfaces with frameworks like React
- Used in building very fast server side and full stack applications
- Used in mobile development (React Native, NativeScript, Ionic)
- Used in desktop application development (Electron JS)

Topics to Learn:

- Variables and Data Types
- Arrays
- Object Literals
- Methods for strings, arrays, objects, etc
- Loops - for, while, for...of, forEach, map
- Conditionals (if, ternary & switch)
- Functions (normal and array)
- OOP (Object Oriented Programming - prototypes and classes)
- DOM Selection
- DOM manipulation
- Events
- Basic Form Validation

Methods for Debugging:

- Use console for debugging
- Exp: console.error('This is an error');
- Tool: MDN to see different methods for console (like log, error, warn, assert)

Variables:

- Three different ways: var, let, const
- **var:**
    - Don't really want to use it anymore
    - Globally scoped
- **let:**
    - Has block level scope
    - Can reassign values

- **const:**
    - Constant, cannot be reassigned, but can me manipulated
    - Has block level scope
    - Always use const unless you know you are going to reassign the value
    - Have to assign a value if using const

Data Types:

- Primitive data types: Not a resource, gets directly assigned to memory
    - String, numbers, boolean, null, undefined, symbol

Strings:

- Concatenation: Using strings and other variables together at once
    - Older method
- Template String:
    - New method of concatenation
- String properties and methods:
    - Properties: does not have parentheses
        - Exp: s.length
    - Methods: Does has parentheses. Is a function associated with an object
        - Exp: s.toUpperCase()

Arrays:

- A variable that holds multiple values
- Can have multiple data types in the same array
- Do not have to set size
- Array of n items: Indexed 0 - n-1
    - Example: const fruits = [‘apples’, ‘oranges’, ‘bananas’];
    - console.log(fruits[1]) will output ‘oranges’

Object Literals:

- Key-value pairs (exp: text: ‘Meeting with boss’)

JSON:

- A data format used when sending data to a server
    - Data is sent/received in JSON format
- Format similar to object literals

High Order Array Methods:

- Preferred methods to iterate through arrays
- Three methods:
    - 1. forEach: loops through array
    - 2. Map: allows us to create a new array from an array
    - 3. Filter: Allows us to create a new array based on a condition

Conditionals:

- Const a = “10”; If (a == 10) vs. if (a === 10)
    - == does not match type
        - If will be true, == does not match type
    - === does match type
        - If will be false, a is a string, a === 10 is testing for a number
        - Good to use === to make sure data types match
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