JavaScript Level Two

JavaScript Level Two

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- Welcome to Javascript Level Two.
- So far we've only learned the basics of Javascript, it is time to expand our understanding by learning about more advanced material!

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- In this section we will cover:
  - Functions
  - Arrays
  - Objects
- We will also have exercises for each of these topics for plenty of practice!

Let's get started!

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Part 1 - Functions

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- Functions will be our main building blocks.
- They will allow us to easily reuse code more than once and not constantly repeat ourselves.

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- The general syntax for a JS function is:
  - ```
    function name(parameter1, parameter2){
        //Code to be executed
    }
    ```

- We use the function keyword to indicate that we have a function.
  - ```
    function name(parameter1, parameter2){
        //Code to be executed
    }
    ```

- Then we have the option of passing in parameters (we could also not have any parameters).
  - ```
    function name(parameter1, parameter2){
        //Code to be executed
    }
    ```

- Someone using the function could pass in parameters required for the function to do something with.
  - ```
    function name(parameter1, parameter2){
        //Code to be executed
    }
    ```

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- Let's go straight to the editor and our console to really show how to create and use functions in Javascript!
  - ```
    function name(parameter1, parameter2){
        //Code to be executed
    }
    ```

Part 2 - Function Exercises

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- Let's get some practice with functions, open up the file:
  - Part2_Functions_Exercises.js
- The problems gradually get harder.
- Let's take a quick look at the problems!

Part 2 - Function Exercises - Solutions

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Part 3 - Arrays

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- Arrays will allow us to store various basic data types in a sequence, so we can then later access them as needed.
- This is best explained through example code, so let's get started!

Part 4 - Array Exercise

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- It is time to practice using arrays in a more realistic situation.
- We will create a student roster app using the Javascript that we know so far.
- Let's check out:
    - Part4_Array_Exercise.html

Part 4 - Array Exercise Solution

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Part 5 - Objects

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- JS Objects are hash-tables, they store information in a key-value pair.
- In other languages this is sometimes also called a dictionary.
- Unlike an array a JS Object does NOT retain any ordering.

- The name "Object" can sometimes be confusing when coming from another language because it sounds so generic, so keep that in mind.

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- The typical JS Object is in the form:
- `{ key1 : "value one", key2 : "value two",...}`
- You then access values through their corresponding key
- Let's see some examples of this and learn more about JS Objects!

Part 5 - Objects Continued

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- Let's continue by discussing Object methods.
- Object methods are essentially functions that are inside of an Object.

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- ```javascript
  var carInfo = {
      make: "Toyota",
      year: 1990 ,
      model: "Camry" ,
      carAlert: function(){
          alert("We've got a car here!")
      }
  };
  ```

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- More realistically you will want to use key value pairs from the object itself, in that case you use the special **this** keyword.
- The **this** keyword can be confusing for beginners at first, so don't worry if you don't immediately fully grasp it.

- The **this** keyword acts differently depending on the situation.
- For a JS Object, the **this** is set to the object the method is called on.
- For example...

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- ```javascript
  var myObj = {
      prop: 37,
      reportProp: function() {
          return this.prop;
      }
  };
  console.log(myObj.reportProp()); // logs 37
  ```

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- Good Link for More Details:
- https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/this
- Let's code out a few examples of Object Methods!

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- For this exercise check out the file:
  - Part6_Objects_Exercise.js
- It contains three objects along with tasks that involve you adding methods to each of the objects.
- Let's get a quick look!

Part 6 - Objects Exercise Solutions

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