Loops

- Loops: Execute a block of code a number of times.
- JavaScript supports different kinds of loops:
  1. `for` - loops through a block of code a number of times
  2. `for/in` - loops through the properties of an object
  3. `while` - loops through a block of code while a specified condition is true
  4. `do/while` - also loops through a block of code while a specified condition is true
For loop

- The for loop has the following syntax:

```plaintext
for (statement 1; statement 2; statement 3)
{
    the code block to be executed
}
```

- **Statement 1** is executed before the loop (the code block) starts. (starter)

- **Statement 2** defines the condition for running the loop (the code block). (loop condition )

- **Statement 3** is executed each time after the loop (the code block) has been executed. (increment or decrement)
For loop

- Example

```javascript
for (var i=0; i<5; i++)
{
    x=x + "The number is " + i + "<br>
}
```

- Statement 1 sets a variable before the loop starts (var i=0).
- Statement 2 defines the condition for the loop to run (i must be less than 5).
- Statement 3 increases a value (i++) each time the code block in the loop has been executed.
For loop

- It is a common practice to define a loop variable inside the for:

1. `for(var i=0; i<10; i++) { ... }

2. `for(var i=10; i>0; i--) { ... }`
For loop

- You can leave any part of for empty. For example, a simple infinite loop looks like:

```plaintext
for( ; ; )
{
    Codes to be executed
    // will repeat eternally (in theory)
}
```
The Array object is used to store multiple values in a single variable, usually used when a list of items are needed to store.

Example:

```javascript
var fall_courses = new Array();
fall_courses [0] = "CS170";
fall_courses [1] = "MATH135";
fall_courses [2] = "FRENC"
```
JavaScript Array Object

• Example 2: The above can be condensed.

```javascript
var fall_courses =
new Array("CS170","MATH135","FRENCH101");
```

• Example 3: Also can be literal

```javascript
var fall_courses =["CS170","MATH135","FRENCH101"];`
Use for loop to output

Attention:

For an array of length n, the index value of the last element of the array will be n - 1