Week 1 - Fundamentals - '13' Review #2

Array with Odds

Create an array with odd integers from 1-255.

```
function oddArray1to255()
{
  var oddArray = [];
  for (var num = 1; num <= 255; num += 2) {
    oddArray.push(num);
  }
  return oddArray;
}
```

Greater Than Y

Count the number of array values less than a given Y.

```
function numGreaterThanY(arr, y)
{
  var numGreater = 0;
  for (var idx = 0; idx < arr.length; idx++) {
    if (arr[idx] > y) {
      numGreater++;
    }
  }
  console.log("%d values greater than %d",
              numGreater, y);
}
```

Max, Min, Average

Given an array, print max, min and average values.

```
function maxMinAverage(arr)
{
  if (arr.length == 0) {
    console.log("Null arr, no min/max/avg");
    return;
  }
  var min = arr[0];
  var max = arr[0];
  var sum = arr[0];
  for (var idx = 1; idx < arr.length; idx++) {
    if (arr[idx] < min) { min = arr[idx]; }
    if (arr[idx] > max) { max = arr[idx]; }
    sum += arr[idx];
  }
  console.log("Max value:", max);
  console.log("Min value:", min);
  console.log("Avg value:", sum / arr.length);
}
```

Square the Values

Given an array, square each value in the array.

```
function squareArrVals(arr)
{
  for (var idx = 0; idx < arr.length; idx++) {
    arr[idx] = arr[idx] * arr[idx];
  }
  return arr;
}
```

Zero Out Negative Numbers

Set negative array values to zero.

```
function setNegsToZero(arr)
{
  for (var idx = 0; idx < arr.length; idx++) {
    if (arr[idx] < 0) {
      arr[idx] = 0;
    }
  }
  return arr;
}
```

Shift Array Values

Given an array, shift all values forward, dropping the first value and leaving an extra '0' value at the end.

```
function arrShift(arr)
{
  for (var idx = 1; idx < arr.length; idx++) {
    arr[idx - 1] = arr[idx];
  }
  arr[arr.length - 1] = 0;
  return arr;
}
```

Week 1 - Fundamentals - Tuesday

What is a variable? Think of this as simply an empty container with a label.
Once you put something into the container, you can refer to its value by the label. How do you put a value into a variable? Do this by using single-equals, which you can think of as "is set to a value of". In other words, the code **`var name = "Zaphod"`** can be read as "Variable labeled 'name' is set to a value of Zaphod ". Now, when you refer to 'name', you get a value of "Zaphod". If you are still getting used to the idea of variables, *don't panic*.

This week you will familiarize yourself with basic programming constructs. Here is a list of concepts for you to study. Some or all of these will be used to solve this week's challenges.

variables functions for loops, while loops if / else statements
&& || ! (and, or, not) % (modulus) Math.random, Math.floor, Math.ceil console.log

Sigma

Implement a function sigma(n) that, given a number n, returns the sum of all positive integers from 1 up to n (inclusive). For example sigma(3) = 1+2+3; sigma(5) = 1+2+3+4+5.

Answer:

Factorial

Write a function factorial() that, given a number n, returns the product (multiplication) of all positive integers from 1 up to n (inclusive). For example, factorial(3) = 1 * 2 * 3; factorial(5) = 1 * 2 * 3 * 4 * 5

Answer:

Tomorrow: why so selfish? 'Greedy' algorithms