Part 1

O(n + 10)

* O(n)

O(100 \* n)

* O(n)

O(25)

* O(1)

O(n^2 + n^3)

* O(n^3)

O(n + n + n + n)

* O(n)

O(1000 \* log(n) + n)

* O(n)

O(1000 \* n \* log(n) + n)

* O(n log n)

O(2^n + n^2)

* O(2^n)

O(5 + 3 + 1)

* O(1)

O(n + n^(1/2) + n^2 + n \* log(n)^10)

* O(n^2)

Part 2

function logUpTo(n) {

for (let i = 1; i <= n; i++) {

console.log(i);

}

}

* Time Complexity: O(n)

function logAtLeast10(n) {

for (let i = 1; i <= Math.max(n, 10); i++) {

console.log(i);

}

}

* Time Complexity: O(n)

function logAtMost10(n) {

for (let i = 1; i <= Math.min(n, 10); i++) {

console.log(i);

}

}

* Time Complexity: O(1)

function onlyElementsAtEvenIndex(array) {

let newArray = [];

for (let i = 0; i < array.length; i++) {

if (i % 2 === 0) {

newArray.push(array[i]);

}

}

return newArray;

}

* Time Complexity: O(n)

function subtotals(array) {

let subtotalArray = [];

for (let i = 0; i < array.length; i++) {

let subtotal = 0;

for (let j = 0; j <= i; j++) {

subtotal += array[j];

}

subtotalArray.push(subtotal);

}

return subtotalArray;

}

* Time Complexity: O(n^2)

function vowelCount(str) {

let vowelCount = {};

const vowels = "aeiouAEIOU";

for (let char of str) {

if(vowels.includes(char)) {

if(char in vowelCount) {

vowelCount[char] += 1;

} else {

vowelCount[char] = 1;

}

}

}

return vowelCount;

}

* Time Complexity: O(n)

Part 3

True or false: n^2 + n is O(n^2).

* True

True or false: n^2 \* n is O(n^3).

* True

True or false: n^2 + n is O(n).

* False

What’s the time complexity of the .indexOf array method?

* O(n)

What’s the time complexity of the .includes array method?

* O(n)

What’s the time complexity of the .forEach array method?

* O(n) but, this will also depend on the type of callback.

What’s the time complexity of the .sort array method?

* O(n log n)

What’s the time complexity of the .unshift array method?

* O(n)

What’s the time complexity of the .push array method?

* O(1)

What’s the time complexity of the .splice array method?

* O(n) although it could be O(1)

What’s the time complexity of the .pop array method?

* O(1)

What is the time complexity of the Object.keys() function?

* O(n)

What is the space complexity of the Object.keys() function?

* O(n)