



# University of Maryland College Park

## Department of Computer Science

### CMSC122 Fall 2021

### Exam #2

FIRSTNAME, LASTNAME (PRINT IN UPPERCASE):

STUDENT ID (e.g. 123456789):

#### Instructions

- Please print your answers and use a pencil.
- This exam is a closed-book, closed-notes exam with a duration of 50 minutes and 100 total points.
- **Do not remove the exam's staple.** Removing it will interfere with the scanning process (even if you staple the exam again).
- Write your directory id (e.g., terps1, not UID) at the bottom of pages with **DirectoryId**.
- Provide answers on the provided lines or the rectangular areas.
- Do not remove any exam pages. Even if you don't use the extra pages for scratch work, return them with the rest of the exam.
- Your code must be efficient and as short as possible.
- If you continue a problem on the extra page(s) provided, make a note on the particular problem.
- You don't need to use meaningful variable names; however, we expect good indentation.
- **You must write your name and id at this point (we will not wait for you after time is up).**
- You must stop writing once time is up.

#### Grader Use Only

#1	Part #1 (Short Answer 3pts)	45
#2	Part #2 (Write the Code)	55
<b>Total</b>	Total	100

## Part #1 (Short Answer – 3 pts each)

1. Given:

```
let num = 7 + 3;
num += 4;
alert(num);
```

What will the alert box display? \_\_\_\_\_.

2. Which statement is true? Simply write the letter of the true statement: \_\_\_\_\_.

- A. The last index of an array is the same as the length of the array
- B. An array can only have numbers as the values of the elements, not strings.
- C. A `for` loop is a pre-test loop, meaning it checks the condition before the first iteration.
- D. A `while` loop is a post-test loop, meaning it checks the condition after the first iteration

3. Given:

```
let str = "hi";
str = str.toUpperCase();
alert(str);
```

What will the alert box display? \_\_\_\_\_.

4. Given:

```
let arr = [1,2,3];
let b = arr;
b[1] = 100;
alert(arr[1]);
```

What will the alert box display? \_\_\_\_\_.

5. Given:

```
let myVar1 = 10, myVar2 = "hi";
if (myVar1 == 10 && myVar2 == "Hi")
  alert("line 1");
else if (myVar1 == 10 || myVar2 == "Hi")
  alert("line 2");
else
  alert("line 3");
```

What will the alert box display? \_\_\_\_\_.

6. Given:

```
let myVar1 = 10, myVar2 = 20;
if (myVar1 == 10 && myVar2 == 20)
  alert("line 1");
else if (myVar1 == 10 || myVar2 == 20)
  alert("line 2");
else
  alert("line 3");
```

What will the alert box display? \_\_\_\_\_.

7. Given the code below, how many alert boxes with Hello will show up? \_\_\_\_\_.

```
let count = 0;
do{
  alert("Hello");
  count++;
} while (count <= 0);
```

8. Given the code below, how many alert boxes with Hello will show up? \_\_\_\_\_.

```
for (let i =0; i<=3; i++)
{
  for (let j=i; j<=3; j++)
    alert("Hello");
}
```

9. Given:

```
let myVar1 = [7,6,5];
myVar1 [0] = 25;
myVar1 = [10,20,30];
alert(myVar1[0]+ myVar1[1]);
```

What will the alert box display? \_\_\_\_\_.

10. Given:

```
function example1(myNum) {
  myNum = 100;
}

let myNum = 5;
example1(myNum);
alert(myNum);
```

What will the alert box display? \_\_\_\_\_.

11. Given:

```
function example2(myArray) {
  myArray[0]=0;
  myArray[1]=0;
  myArray = "hi";
}

let myVar=[5,4];
example2(myVar);
alert(myVar);
```

What will the alert box display? \_\_\_\_\_.

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12. Given:

```
function example3(myStr){
  myStr="CSS";
}
let myVar ="JavaScript";
myVar = example3(myVar);
alert(myVar);
```

What will the alert box display? \_\_\_\_\_.

13. Given:

```
function example4(myNum)
{
  return myNum + 10;
}

let x = 5, y;
y = example4(x);
y+=x;
alert(y);
```

What will the alert box display? \_\_\_\_\_.

14. Given:

```
let x = 10;
if (x < 5) {
  alert("One");
}
Else {
  alert("Two");
}
```

There is an error in this code. What is wrong with it? (You can assume that it has been correctly placed in the <script> element in an html document).

**Answer** \_\_\_\_\_

15. Given:

```
let myArray =[5, 6, 7];
myArray.shift();
myArray.unshift(3);
myArray.pop();
myArray.push(1);

alert(myArray);
```

What will the alert box display? \_\_\_\_\_.

## Section 2—Write the code – YOU ONLY NEED TO WRITE THE FUNCTIONS

16. (18 pts) Write a function called `changeIfLess` that will have an array parameter called `myArr` and an integer parameter called `target`. The function should change any value that is less than `target` to be a `-1`. You can assume that `myArr` will be an array of integers with at least one element and that `target` will be an integer. The function should not return a value or print anything on the webpage. Notice in the sample code below, all values less than 10 are changed to a `-1` after the function call.

```
<script>
```

```
let example = [5,7,13,12,8,10,11,6];  
changeIfLess(example, 10);  
alert (example); // -1,-1,13,12,-1,10,11,-1
```

```
</script>
```

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17. (19 pts) Write a function called `stringMaker` that will have a string parameter called `word` and an integer parameter called `repeat`. The function should return a string with `repeat` parts, each terminated with an `*`. Each part will have the word concatenated one more time than the previous part. As an example, look at the sample code where `word` is `CSS` and `repeat` is 4. The output has 4 parts each ending with a `*`. The first part has `CSS` once, second part had `CSS` 2 times, third part has `CSS` 3 times, and 4<sup>th</sup> part has `CSS` 4 times. **Hint:** Think about the code to make a triangle.

```
<script>
```

```
    alert (stringMaker ("CSS", 4)); //CSS*CSSCSS*CSSCSCSS*CSSCSCSCSS*
    alert (stringMaker ("Hi", 6)); // Hi*HiHi*HiHiHi*HiHiHiHi*HiHiHiHiHi*HiHiHiHiHiHi*
```

```
</script>
```

18. (18 pts) Write a function called `calculateStats` with one array parameter called `myData`. You can assume `myData` is a reference to an integer array with at least one element. The function will return a new array with 2 elements. The first element will have the sum of the values in `myData` and the second element will have the average of the values in `myData`. The values inside of `myData` should not be modified. Make sure that you are returning the newly created 2 element array from your function.

<script>

```
let arr = [10,20,30,40,50];
alert (calculateStats (arr)); //150,30
alert (arr); //10,20,30,40,50
```

</script>

**Directory id:**

**EXTRA PAGE IN CASE YOU NEED IT (SUBMIT WITH THE EXAM)**

**LAST PAGE**