

## **CMSC 122 Quiz 4 Worksheet**

The fourth quiz for the course will be on Wednesday, April 29 at the beginning of the class (2:00 pm). The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible. We recommend that you use pencil and eraser.

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TA or instructor during office hours. You do not need to define a `main()` function or `<script>` tags for the problems below. If we ask for the implementation of a function just provide the function. **We recommend you answer the exercises without a computer, then verify your answers by writing the program in a computer.**

**Note:** The prototype for a function is the word **function** followed by the function's name and the parameter's list.

### **Exercises**

1. Write a function named "initialize" that has the following prototype:

```
function initialize(initialValue, maxRows, maxCols);
```

The function creates a two-dimensional array of integers with a number of rows and columns that corresponds to **maxRows**, and **maxCols**, respectively. In addition, the function initializes each array entry with the value **initialValue**.

2. Write a function named "isRagged" that determines whether a two-dimensional array is a ragged array. Remember, a ragged array is one where all the rows do not have the same length.
3. Write a function named "equals" that has the following prototype:

```
function equals(array1, array2);
```

The function will return true if the two-dimensional arrays (**array1** and **array2**) have the same corresponding elements. For example:

|            |           |            |
|------------|-----------|------------|
| 10, 20, 30 | equals to | 10, 20, 30 |
| 50, 40     |           | 50, 40     |

|            |               |            |
|------------|---------------|------------|
| 10, 30, 20 | not equals to | 10, 20, 30 |
| 50, 40, 60 |               | 40, 50, 60 |

|            |               |            |
|------------|---------------|------------|
| 10, 20, 30 | not equals to | 10, 20, 30 |
| 40, 50     |               | 40, 50, 60 |
| 60         |               |            |

4. Write a function named "printByColumns" that prints the contents of a two-dimensional array column by column (i.e., data of column 0 will be printed, followed by data of column 1, etc.)

5. Write a function named "sum" that has the following prototype:

```
function sum(array1);
```

The function takes a two-dimensional array of integers (**array1**) as parameter and returns a one-dimensional array where each entry of the one-dimensional array corresponds to the sum of the values of each row of **array1**. For example if array1 is:

```
10, 20, 30  
50, 40  
60, 9
```

sum will return

```
60, 90, 69
```