

Montgomery College, CMSC 203
Worksheet 4
Module 10

Objectives

- One dimensional Arrays
- Two dimensional Arrays

Concept Question:

Implement the following methods for `ArrayUtility` class and test it with the given `ArrayUtilityDemo` class.

```
public class ArrayUtility {

    /**
     * the following method will return an array
     * of the square roots of the elements backwards
     * @param arr1 original array of integers
     * @return an array of square root values in
     * the reverse order of the original array
     */

    public static double[] reverseSquare(int[] arr1)
    {
        //replace with the correct return value
        return null;
    }

    /**
     * The following method will test if arr2 is a subset
     * of arr1. to be a subset means that all the elements
     * in arr2 are present inside of arr1, ignoring case sensitive.
     * @param arr1 array of strings to compare arr2
     * @param arr2 array of strings tested if part of arr1
     * @return true if arr1 contains all of arr2
     */
    public static boolean isSubset(String[] arr1, String[] arr2)
    {
        //replace with the correct return value
        return true;
    }

}
```

```

/**
 * The following method will return an ArrayList
 * full of the diagonal values within the parameter
 * integer array. For example, a parameter array:
 * {{2, 3, 4},
 * {1, 1, 2},
 * {3, 5, 6}}
 * will return an ArrayList containing 2, 1, and 6
 * @param arr
 * @return
 */
public static ArrayList twoDimArray(int[][] arr){

    //replace with the correct return value
    return null;
}

```

```

/**
 * the following method will return an integer
 * that represents the sum of the elements
 * within the index 3 row, and the elements
 * within the index 2 column for example
 * an array as such:
 * {{1, 5, 2, 4},
 * {4, 2},
 * {1},
 * {2, 5, 7, 2, 4},
 * {12, 4 ,2 8}};
 * will return 12
 * @param arr two dimensional ragged array
 * @return integer of sum specifics inside array
 */
public static int sumRaggedArray(int[][] arr) {
    //replace with the correct return value
    return 0;
}

```

```

}

```

ArrayUtilityDemo class:

```
import java.util.ArrayList;

/**
 * ArrayUtilityDemo class tests the methods in the ArrayUtility class.
 * Change some values and test the methods yourself!
 */

public class ArrayUtilityDemo {

    public static void main(String[] args) {

        int[] numbers = { 4, 9, 16};
        String[] mainString = {"hello", "sun", "hey"};
        String[] subString = {"suN", "Hello", "HEY"};
        int[][] ragged={ {2, 7, 9, 10},
                          {8, 68, 29, 23,12,14},
                          {40, 32},
                          {12, 23, 54, 4, 2, 5},
                          {1, 11, 23, 10, 78, 99}};
        int[][] diagonal = {{ 2, 6, 3},
                             {5, 12, 2},
                             {0, 1, 15}};

        ArrayList<Integer> list =
        ArrayUtility.twoDimArray(diagonal);

        int sum = (ArrayUtility.sumRaggedArray(ragged));

        boolean isaSubset =
        ArrayUtility.isSubset(mainString,subString);

        // should display "is a subset"
        System.out.println( isaSubset? "is a subset" : "not a
subset");

        double[] numbers1 = ArrayUtility.reverseSquare(numbers);

        /*
         * the following loop should
         * print out 4.0 3.0 2.0
         * after looping through numbers1
         */
        for(double number: numbers1) {
            System.out.print(number + " ");
        }

        //following should return 215
    }
}
```

```
System.out.println("\nThis should print 215 -> " + sum);
```

```
/*  
 * The following loop should  
 * print out  
 * 2 12 15  
 */  
for(Integer elem: list) {  
    System.out.print(elem + " ");  
}
```

```
}
```

```
}
```