Alexandria University
Faculty of Engineering
Computer and Systems Engineering Department

CS122: Data Structures I
Assigned: Tues, Mar. 1st , 2022
Due: Monday, Feb. 7th , 2022

Assignment 2

Provide a Java-code implementation for each of the following methods.

1. `public int[] reverse(int[] arr);`
   Reverses the elements of a single dimensional array in place.

2. `public int[] sumEvenOdd(int[] arr);`
   Returns sum of the even and the odd elements in a single dimensional Array of 2 elements [sumEven, sumOdd] and returns an array of [0, 0] if the array is empty .

3. `public double average(int[] arr);`
   Returns the average of the elements in an array and 0 if the array is empty.

4. `public int[] moveValue(int[] arr, int val);`
   Move elements that equals to val to the end of the array and the rest of the elements to the start with preserving their relative order.
   Example:
   Input: [1,2,3,4,5,6,5, 5, 7, 7], val = 5
   Output: [1, 2, 3, 4, 6, 7, 7, 5, 5, 5]

5. `public int[][] transpose(int[][] arr);`
   Transpose a 2d-rectangular array.
   Assume your input is always rectangular, but it might be empty.

6. `public int fibonacci(int n);`
   Returns the Nth term of the Fibonacci Sequence: 0, 1, 1, 2, 3, 5, 8, 13, ...

Notes:

- Provide your solutions on Hackerrank Online Judge.
- You should work individually.
- Plagiarism will be seriously penalized.