BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering

January 2024 CSE 106 Data Structures and Algorithms I

Online Assignment I on Arrays Section: B1/B2

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Given an array ‘**arr’**, an ‘***inversion’*** is defined as a pair arr[i], arr[j] such that arr[i] > arr[j] while i < j. In this assignment, you will have to find the number of inversions of an integer array. The program will first take as input the number of test cases. For each test case there will be two lines of input; the first line will contain the array size (assume it to be a positive integer), and the second the elements of the array. Some example test cases are given below:

| **Input** | **Output** |
| --- | --- |
| 5  5  5 3 4 6 1  6  12 35 1 10 32 1  1  42  4  1 3 3 1  5  -1 -2 -3 -4 -5 | 6  9  Invalid input  2  10 |

Try to understand the general and corner cases by observing the given test cases. A skeleton program is given for your convenience. You only need to complete the **‘countInversion’** method. Note that some test cases may have more than one valid answer (one such example is given in the test cases above).

Time: 45 minutes.