ASSIGNMENT # 3
CSC103- PROGRAMMING FUNDAMENTALS

DUE DATE: 03-06-2022 TOTAL MARKS: 30

Instructions:

- Assignment should be hand written/typed on A4 page size, with front page having the following details. **(Note: Failing to attach the front page with the following details will result in deduction of 5 marks)**
  Reg. # :_____
  Name : _____
  Course Title : _____
  Section : _____
  Assignment # : _____
  Submitted to : _____
  Date : _____
  (Font size 16, Times New Roman)
- No marks for late submission.
- Assignment should be well formatted.

Question # 01: [CLO-2] **[2*5=10]**

Write C++ statement to :

a) Find the number of values populated in a two dimensional array.
b) Initialize a two dimensional array by the user and find the first repeating element from the array.

Question # 02: [CLO-2] **[20]**

Implement the bubble sort algorithm. It's called bubble sort or sinking sort because smaller values gradually "bubble" their way to the top of the array (i.e., toward the first element) like air bubbles rising in water, while the larger values sink to the bottom (end) of the array . You are required to write the code for sorting the array using bubble sort by considering the following conditions:

a) Get the size of the array from the user. Properly apply validations while getting the input for example the size of array should not be less or equal to zero.
b) Populate/input the data into the array from the user. The program should accept taking input values from the user unless either the array is fully populated or the user enters -1.
c) Sort the array using bubble sorting algorithm and finally print the original and the sorted array at the end.

Instructions:

- Follow program style instructions such as indentation, meaningful variables names, comments etc.
- Test your program by running it three times, using the following data and add the screen shot of each output screen in your assignment.

1st data for input:

Size of the array: 13

Input values	*13*	*0*	*7*	*10*	*3*	*1*	*4*	*6*	*-1*	*33*	*2*	*6*	*8*

Size of the array: 15

Input values	*0*	*3*	*17*	*1*	*13*	*14*	*25*	*42*	*4*	*10*	*16*	*12*	*8*	*18*	*76*	*32*	*2*	*55*

Size of the array: 10

Input values	*44*	*33*	*17*	*23*	*14*	*55*	*12*	*54*	*0*	*26*	*22*	*18*	*68*	*86*	*42*	*52*	*5*