Lab 04 – 07-10-2024

Note 1: This is graded lab. Code in C++. Evaluation will be lenient but no compromise on cheating or any other violation. Therefore, please do your own work.

Note 2: Write code using array and single or nested loop, do not call any built-in function. You are encourage to create functions.

Task 1: Initialize two random arrays of size 10 in sorted order. Create a third array of size 20 and merge first two arrays in third array in sorted order. Print all three arrays.

Note: to initialize array in sorted order, you may use (**`rand() % 5 + previous element`**, initialize previous element with any number).

Task 2: Declare an array of size 10 with random unordered integers. Declare another array of size 10, initialize elements with values 1 to 10. Sort first array using bubble sort, while swapping swap elements of both arrays. After sorting for each element, print original position. See sample run carefully for the understanding:

Original Array: 31 45 18 76 20 15 97 22 35 48
Sorted Array: 15 18 20 22 31 35 45 48 76 97
15 at position 6
18 at position 3
20 at position 5
22 at position 8
…

Task 3: Create a list to store marks of 30 students. Initialize them randomly with marks 0 to 100. Print them in single line. Create another list of same size and store roll numbers 1 to 30. Next, at random remove 3-5 students by storing sentinel value in the roll no list (you may use -1 as sentinel value). Next, print roll numbers and marks column wise. Count the remaining students. Create two more lists according to count and store existing students and their roll numbers in the new list. Print new lists horizontally. See sample run carefully,

78 81 65 72 89 31 …

Roll No	Marks
1	78
2	81
3	65
5	89

…

1	2	3	5	…
78	81	65	89	…

Note: For formatting use following:

- **include header file <iomanip>**
- **in cout statement use setw, see example below:**

```
cout << setw(4) << n ...
```