Activity No. <4.2>	
Seatwork 4.1: Bubble sort	
Course Code: CPE007	**Program:** Computer Engineering
Course Title: Programming Logic and Design	**Date Performed:** Sep 10, 2025
Section: CPE11S1	**Date Submitted:** Sep 11, 2025
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6. Output

1. Working Bubble Sort Implementation Code and Output

```cpp
1   #include <iostream>
2   using namespace std;
3
4   int main (){
5
6       int i;
7       int j;
8       int temp;
9       int arr[10] = {13,23,15,35,8,17,5,3,27,1};
10      cout <<"Unsorted array:  \n" ;
11      for (i = 0; i<10; i++){
12          cout <<arr[i]<<"\t";
13      }
14      cout<<endl;
15      for(i = 0; i<10; i++)
16      {
17          for(j = i+1; j<10; j++)
18          {
19              if(arr[j] < arr [i])
20              {
21                  temp = arr[i];
22                  arr[i] = arr [j];
23                  arr[j] = temp;
24              }
25          }
26      }
27      cout <<"Sorted Elements ...\n";
28      for(i = 0; i<10; i++)
29      {
30          cout <<arr[i]<<"\t";
31      }
32      return 0;
33  }
```

```
C:\Dev-Cpp\Bubble sort.exe         X      +    v

Unsorted array:
13       23       15       35       8        17       5        3        27       1
Sorted Elements ...
1        3        5        8        13       15       17       23       27       35
--------------------------------
Process exited after 2.754 seconds with return value 0
Press any key to continue . . .
```

I got a reference from: Ravikiran, A. S. (2025). Article on Simplilearn. https://www.simplilearn.com

2. A comprehensive discussion of how bubble sort works

- From what I learned from our last lesson and experience on making this activity, bubble sort is a way of putting numbers in order. You take two numbers, and if the first number is the biggest, you then switch those two numbers. You do this operation until you eventually move the biggest number to the end, sort of like a bubble moves up. Then you repeat that operation until all the numbers are in the right order. It is simple to do but can be slow when there are many numbers.

7. Supplementary Activity

8. Conclusion

I learned through this activity how bubble sort operates in sorting numbers. Bubble sort checks two numbers and if the first number is larger, the two numbers swap positions. As we keep doing this, the largest number will eventually go to the end, moving like a bubble. Then we repeat the process until all of the numbers are sorted. Bubble sort is easy to understand as it is just comparing and swapping. However, I noticed that when there are a lot of numbers, it can take a long time. It is helpful doing the activity because I practiced my programming and also now understand more about sorting.

9. Assessment Rubric

Rubric for SO 7 (6)

Criteria	Ratings						Pts
SO 7 PI 1 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts

Total Points: 24