

# Bubble sort Algorithm

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What Is Bubble sort Algorithm?

- Bubble sort works on the repeatedly swapping of adjacent elements until they are not in the intended order.
- it is simple to use, it is primarily used as an educational tool because the performance of bubble sort is poor in the real world.
- not suitable for large data sets
- The average and worst-case complexity of Bubble sort is  $O(n^2)$ , where  $n$  is a number of items.

## Bubble Sort Algorithm majorly used Where-

- complexity does not matter
- simple and shortcode is preferred

## Code- In CPP

```
#include <iostream>
using namespace std;

void bubbleSort(int arr[], int n) {
    for (int i = 0; i < n - 1; ++i) {
        bool swapped = false;
        for (int j = 0; j < n - i - 1; ++j) {
            if (arr[j] > arr[j + 1]) {
                swap(arr[j], arr[j + 1]);
                swapped = true;
            }
        }
        if (!swapped) {
            break;
        }
    }
}

void printArray(int arr[], int size) {
    for (int i = 0; i < size; ++i) {
        cout << arr[i] << " ";
    }
    cout << endl;
}

int main() {
    int arr[] = {64, 34, 25, 12, 22, 11, 90};
    int n = sizeof(arr) / sizeof(arr[0]);
```

```
cout << "Unsorted array: ";  
printArray(arr, n);  
  
bubbleSort(arr, n);  
  
cout << "Sorted array: ";  
printArray(arr, n);  
  
return 0;  
}
```