Chapter-13-Sorting-Algorithm.cpp

Year 02 > Data Structure & Programming > C++ > Course > Chapter 13 Sorting algorithm > Chapter-13-So

```cpp
#include<iostream>
using namespace std;
// A method to swap or exchange values of two variables
void swap(int *x, int *y){
    int tmp;
    tmp = *x;
    *x = *y;
    *y = tmp;
}
void selectionSort(int a[], int n){
    for(int i=0;i<n;i++){
        //find position of min element
        int minPosition=i;
        for(int k=i+1;k<n;k++){
            if(a[minPosition]>a[k]){
                minPosition = k;
            }
        }
        //swap min with position i
        swap(&a[minPosition],&a[i]);
    }
}
void printArray(int a[], int n){
    for(int i=0;i<n;i++){
        cout<<a[i]<<" ";
    }
```

Chapter-13-Sorting-Algorithm.cpp

Year 02 > Data Structure & Programming > C++ > Course > Chapter 13 Sorting algorithm > Chapter-13-Sorting-Algorithm.cpp > printArray(int [], int)

```
22  }
23  void printArray(int a[], int n){
24      for(int i=0;i<n;i++){
25          cout<<a[i]<<" ";
26      }
27      cout<<endl<<endl;
28  }
29  int main(){
30      int a1[] = {1,9,-5,0,7,20};
31      printArray(a1,6);
32      selectionSort(a1,6);
33      printArray(a1,6);
34
35      return 0;
36  }
```

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```
hm } ; if ($?) { .\Chapter-13-Sorting-Algorithm }
1 9 -5 0 7 20

-5 0 1 7 9 20

PS D:\Year 02\Data Structure & Programming\C++\Course\Chapter 13 Sorting algorithm>
```

C/C++: ... ✓
cppdbg: Ch...
Code

```
23  void exchange(int *x, int *y){
24      int tmp;
25      tmp = *x;
26      *x = *y;
27      *y = tmp;
28  }
29  void bubbleSort(int a[], int n){
30      for(int k=0;k<n-1;k++){
31          for(int m=0;m<n-1;m++){
32              if(a[m]>a[m+1]){      //when not in order
33                  exchange(&a[m], &a[m+1]); //swap
34              }
35          }
36      }
37  }
38  void bubbleSortLargestToSmallest(int a[], int n){
39      int state;
40      for(int k=0;k<n-1;k++){
41          state = 0;
42          for(int m=0;m<n-1;m++){
43              if(a[m]<a[m+1]){
44                  exchange(&a[m], &a[m+1]);
45                  state = 1;
46              }
47          }
```

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```
41      }
42      cout<<endl<<endl;
43  }
44  int main(){
45      int a1[] = {1,9,-5,0,7,20};
46      printArray(a1,6);
47      selectionSort(a1,6);
48      printArray(a1,6);
49      int b[] = {3,8,0,-100,500,9,1};
50      printArray(b,7);
51      printArray(b,7);
52      printArray(b,7);
53      return 0;
54  }
55
56
```

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```
-5 0 1 7 9 20

3 8 0 -100 500 9 1

3 8 0 -100 500 9 1

3 8 0 -100 500 9 1

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```

Chapter-13-Sorting-Algorithm.cpp

Year 02 > Data Structure & Programming > C++ > Course > Chapter 13 Sorting algorithm > Chapter-13-Sorting-Algorithm.cpp > ...

```
57      cout<<endl<<endl;
58  }
59  int main(){
60      int a1[] = {1,9,-5,0,7,20};
61      printArray(a1,6);
62      selectionSort(a1,6);
63      printArray(a1,6);
64      int b[] = {3,8,0,-100,500,9,1};
65      printArray(b,7);
66      printArray(b,7);
67      printArray(b,7);
68      bubbleSortLargestToSmallest(b,7);
69      printArray(b,7);
70      return 0;
71  }
```

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```
rithm.cpp -o Chapter-13-Sorting-Algorithm } ; if ($?) { .\Chapter-13-Sorting-Algorithm }
1 9 -5 0 7 20

-5 0 1 7 9 20

3 8 0 -100 500 9 1

3 8 0 -100 500 9 1

3 8 0 -100 500 9 1

500 9 8 3 1 0 -100
```