NUST

NATIONAL UNIVERSITY
OF SCIENCES & TECHNOLOGY

Computer Programming Lab

Manual #8

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2. Implement Bubble sort on an array of 5 integers.

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

int bubbleSort(int arr[], int size) {
   for (int i = 0; i < size - 1; ++i) {
      bool swapped = false;

      for (int j = 0; j < size - i - 1; ++j) {
         if (arr[j] > arr[j + 1]) {

            swap(arr[j], arr[j + 1]);
            swapped = true;
         }
      }
      if (!swapped) {
         break;
      }
   }
}

int main() {
   int arr[] = {6, 3, 8, 5, 1, };
   int size = sizeof(arr) / sizeof(arr[0]);

   cout << "Original Array: ";
   for (int i = 0; i < size; ++i) {
      cout << arr[i] << " ";
   }
   cout << endl;
```

```
    bubbleSort(arr, size);

    cout << "Sorted Array: ";
    for (int i = 0; i < size; ++i) {
        cout << arr[i] << " ";
    }
    cout << endl;

    return 0;
}
```

```
Original Array: 6 3 8 5 1
Sorted Array: 1 3 5 6 8
```

1. Write a C++ program to calculate average of numbers of array.

main.cpp

```cpp
#include<iostream>
using namespace std;
int main (){
    float arr[]={2,4,5,7,9};
    float sum=0;
    float average=0;
    for(int i=0; i<5; i++){
        sum+= arr[i];
    }
    average+= (sum)/5;
     cout<<" The average of array numbers is ="<<average<<endl;
     return 0;
}
```

```
="<<average<<endl;
```

```
/tmp/p6uvlCrNrh.o
The average of array numbers is =5.4
```

3. Implement Selection Sort on an array of 5 integers.

```
#include<iostream>
using namespace std;
int main () {
   int arr []={4,5,6,2,8};
   int temp;
   for(int i=0; i<5; i++){
      for(int j=i+1; j<5; j++){
         if(arr[i]>arr[j]){
            temp=arr [i];
            arr[i]=arr [j];
            arr [j]=temp;
         }
      }
   }
   cout<<" The sorted array is= ";
   for(int i=0; i<5; i++)
   cout<<arr[i]<<" ";
    return 0;
}
```

```
/tmp/p6uvlCrNrh.o
The sorted array is= 2 4 5 6 8
```