National University of Sciences and Technology (NUST)

Department of Mechanical Engineering (SMME)

Fundamentals of Programming (FOP)

Lab Tasks

Lab Manual 8

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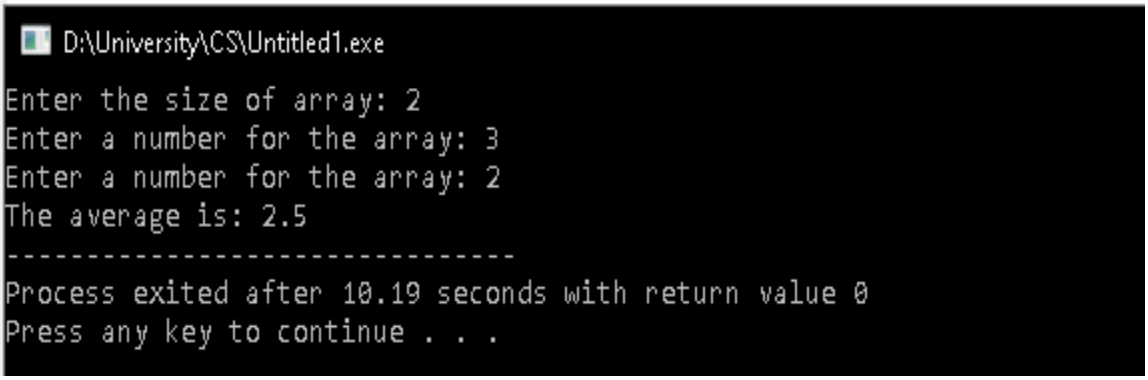
Lab Task-1:

```cpp
#include<iostream>
using namespace std;
int main()
{
int size;
double average, sum;
cout<<"Enter the size of array: ";
cin>>size;
int num[size];
for(int i=0; i<size; i++){
    cout<<"Enter a number for the array: ";
    cin>>num[i];

}
sum=0;
for(int i; i<size; i++)
    sum+=num[i];

average= sum/size;
cout<<"The average is: "<<average;
    return 0;
}
```



Lab Task-2:

```cpp
#include <iostream>
using namespace std;
int main()
{
int num[5];
cout<<"Enter 5 numbers to implement bubble sort on: "<<endl;
for(int i=0; i<5; ++i){
cin>>num[i];
}
for(int i=0; i<5; ++i){
    for(int j=0; j<5-i; ++j){
        if(num[j]>num[j+1])
        {
            int temp = num[j];
            num[j]=num[j+1];
            num[j+1]=temp;
        }
    }
}
cout<<"The bubble sorted array is: "<<endl;
for(int i=1; i<6; ++i){
    cout<<num[i]<<" ";
}
    return 0;
}
```

```
D:\University\CS\Untitled1.exe
Enter 5 numbers to implement bubble sort on:
2
4
3
6
7
The bubble sorted array is:
2 3 4 6 7
--------------------------------
Process exited after 4.431 seconds with return value 0
Press any key to continue . . .
```

Lab Task-3:

```cpp
#include <iostream>
using namespace std;
int main () {
int num[5], x=0;
cout<<"Enter 5 terms to implement selection sort on: "<<endl;
for (int i=0;i<5;i++)
    cin>>num[i];
for (int i=0;i<5;i++) {
x=num[i];
for (int j=i;j<5;j++) {
if (x>num[j]) {
    x=num[j];
    num[j]=num[i];
    num[i]=x;
}
}
cout<<num[i]<<" ";
}
return 0;
}
```

```
D:\University\CS\Untitled1.exe
Enter 5 terms to implement selection sort on:
2
3
4
1
6
1 2 3 4 6
--------------------------------
Process exited after 4.739 seconds with return value 0
Press any key to continue . . .
```