

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:

```
1  #include<iostream>
2  using namespace std;
3  int main()
4  {
5      int size;
6      double average, sum;
7      cout<<"Enter the size of array: ";
8      cin>>size;
9      int num[size];
10     for(int i=0; i<size; i++){
11         cout<<"Enter a number for the array: ";
12         cin>>num[i];
13     }
14     sum=0;
15     for(int i; i<size; i++)
16         sum+=num[i];
17
18     average= sum/size;
19     cout<<"The average is: "<<average;
20     return 0;
21 }
22
```

```
23
24  D:\University\CS\Untitled1.exe
25  Enter the size of array: 2
26  Enter a number for the array: 3
27  Enter a number for the array: 2
28  The average is: 2.5
29  -----
30  Process exited after 10.19 seconds with return value 0
31  Press any key to continue . . .
32
33
```

Lab Task-2:

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int num[5];
6      cout<<"Enter 5 numbers to implement bubble sort on: "<<endl;
7      for(int i=0; i<5; ++i){
8          cin>>num[i];
9      }
10     for(int i=0; i<5; ++i){
11         for(int j=0; j<5-i; ++j){
12             if(num[j]>num[j+1])
13             {
14                 int temp = num[j];
15                 num[j]=num[j+1];
16                 num[j+1]=temp;
17             }
18         }
19     }
20     cout<<"The bubble sorted array is: "<<endl;
21     for(int i=1; i<6; ++i){
22         cout<<num[i]<<" ";
23     }
24     return 0;
25 }
```

```
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:

```
1  #include <iostream>
2  using namespace std;
3  int main () {
4  int num[5], x=0;
5  cout<<"Enter 5 terms to implement selection sort on: "<<endl;
6  for (int i=0;i<5;i++)
7      cin>>num[i];
8  for (int i=0;i<5;i++) {
9      x=num[i];
10     for (int j=i;j<5;j++) {
11         if (x>num[j]) {
12             x=num[j];
13             num[j]=num[i];
14             num[i]=x;
15         }
16     }
17     cout<<num[i]<<" ";
18 }
19 return 0;
20 }
```

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 . . .