

Lab Manual 8

Submitted by: Ali Rehman Qureshi

Class: ME-15(C)

ID: 459203

Lab Task

Task 1:

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

main.cpp

```
1 // Online C++ compiler to run C++ program online
2 #include <iostream>
3 using namespace std;
4 int main()
5 {
6     int n;
7     cin >> n;
8     int arr[n];
9     float sum=0;
10    for (int i = 0; i < n; i++)
11    {
12        cout << "enter";
13        cin >> arr[i];
14    }
15    for (int i = 0; i < n; i++)
16    {
17        sum += arr[i];
18    }
19    float avg = 0;
20    avg = sum / n;
21    cout << avg << " is the average";
22    return 0;
23 }
```

/tmp/r4wMC4fc2n.o

```
Enter the number of elements in the array
6
enter 12
enter 18
enter 3
enter 9
enter 5
enter 3
8.33333 is the average
```

Task 2:

Implement Bubble sort on an array of 5 integers.

```
#include <iostream>
using namespace std;
int main()
{
    int num[5];
    int temp = 0;
    for (int i = 0; i < 5; i++)
    {
        cin >> num[i];
    }
    for (int i = 0; i < 5; i++)
    {
        for (int j = 0; j < 4; j++)
        {
            if (num[j] > num[j + 1])
            {
                temp = num[j];
                num[j] = num[j + 1];
                num[j + 1] = temp;
            }
        }
    }
    for (int k = 0; k < 5; k++)
    {
        cout << num[k] << endl;
    }
}
```

Microsoft Visual Studio Debug Console

Enter 5 numbers for array

12
15
19
11
9

The sorted array is

9
11
12
15
19

Task 3:

Implement Selection Sort on an array of 5 integers.

```
#include <iostream>
using namespace std;
int main()
{
    int n = 0;
    int num[5];
    int temp = 0;
    int ind = 0;
    cout << "Enter 5 numbers for array\n";
    for (int i = 0; i < 5; i++)
    {
        cin >> num[i];
    }
    for (int i = 0; i < 5; i++)
    {
        int smallest = i;
        for (int j = i + 1; j < 5; j++)
        {
            if (num[j] < num[smallest])
            {
                smallest = j;
            }
        }
        temp = num[i];
        num[i] = num[smallest];
        num[smallest] = temp;
        n += 1;
    }
    for (int k = 0; k < 5; k++)
    {
        cout << num[k] << endl;
    }
    return 0;
}
```

Enter 5 numbers for array

78
14
18
17
22
14
17
18
22
78