



## **CS-114 - Fundamentals of Programing**

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**ME-15/A**

### **LAB MANUAL 8(LAB TASKS)**

# QUESTIONS

## Q-No # 1

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

### Code

```
//Average of numbers of array
#include<iostream>
using namespace std;
int main()
{
    int n; double sum=0, average;
    cout<<"Input the number of elements in the array : ";
    cin>>n;

    int array[n]={};
    cout<<"Input the elements of array one by one: "<<endl;
    for(int i=0; i<n; i++)
    {
        cin>>array[i];
        sum += array[i];
    }

    average = sum/n;
    cout<<"The average of the elements of the array is : "<<sum<<"/"<<n<<" = "<<average;

    return 0;
}
```

### Code (copy)

```
//Average of numbers of array
#include<iostream>
using namespace std;
int main()
{
    int n; double sum=0, average;

    cout<<"Input the number of elements in the array : ";

    cin>>n;

    int array[n]={};

    cout<<"Input the elements of array one by one: "<<endl;

    for(int i=0; i<n; i++)
    {
        cin>>array[i];

        sum += array[i];
    }

    average = sum/n;

    cout<<"The average of the elements of the array is : "<<sum<<"/"<<n<<" = "<<average;

    return 0; }
```

## Execution (Example)

```
Input the number of elements in the array : 4
Input the elements of array one by one:
10
5
3
7
The average of the elements of the array is : 25/4 = 6.25
-----
Process exited after 6.365 seconds with return value 0
Press any key to continue . . .
```

## Q-No # 2

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

### Code

```
//Bubble sort on array of 5 integers
#include<iostream>
using namespace std;
int main()
{
    int array[5]={};
    cout<<"Input the (5) elements of the array one by one : "<<endl;
    for(int i=0; i<5; i++)
    {
        cin>>array[i];
    }

    int iteration=0;

    while(iteration<5-1)
    {
        for(int i=0; i<5-iteration-1; i++)
        {
            if (array[i]>array[i+1])
            {
                int store = array[i];
                array[i]=array[i+1];
                array[i+1]=store;
            }
        }
        iteration ++;
    }

    cout<<"The sorted array is : ";
    for (int i=0; i<5; i++)
    {
        cout<<array[i]<<" , ";
    }

    return 0;
}
```

## Code (copy)

```
//Bubble sort on array of 5 integers

#include<iostream>

using namespace std;

int main()
{
    int array[5]={};

    cout<<"Input the (5) elements of the array one by one : "<<endl;

    for(int i=0; i<5; i++)
    {
        cin>>array[i];
    }

    int iteration=0;

    while(iteration<5-1)
    {
        for(int i=0; i<5-iteration-1; i++)
        {
            if (array[i]>array[i+1])
            {
                int store = array[i];
                array[i]=array[i+1];
                array[i+1]=store;
            }
        }
        iteration ++;
    }

    cout<<"The sorted array is : ";

    for (int i=0; i<5; i++)
    {
        cout<<array[i]<<" , ";
    }

    return 0;}
```

## Execution (Example)

```
Input the (5) elements of the array one by one :
4
7
66
2
98
The sorted array is : 2 , 4 , 7 , 66 , 98 ,
-----
Process exited after 3.945 seconds with return value 0
Press any key to continue . . .
```

```
Input the (5) elements of the array one by one :
-33
4
6
-2
1
The sorted array is : -33 , -2 , 1 , 4 , 6 ,
-----
Process exited after 4.704 seconds with return value 0
Press any key to continue . . . |
```

### Q-No # 3

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

Code

```
//Selection sort on an array of 5 integers
#include<iostream>
using namespace std;
int main()
{
    int array[5]={};
    cout<<"Input the elements of Array : "<<endl;
    for(int i=0; i<5; i++)
    {
        cin>>array[i];
    }

    int min=0;
    for(int i=0; i<4; i++)
    {
        min = array[i];
        for(int j=i+1; j<5; j++)
        {
            if(array[j]<min)
            {
                min=array[j];
                array[j]=array[i];
                array[i]=min;
            }
        }
    }

    cout<<"The sorted array after selection sort is: "<<endl;
    for(int i=0; i<5; i++)
    {
        cout<<array[i]<<" , ";
    }

    return 0;
}
```

Code (copy)

```
//Selection sort on an array of 5 integers
#include<iostream>
using namespace std;
int main()
{
    int array[5]={};

    cout<<"Input the elements of Array : "<<endl;

    for(int i=0; i<5; i++){
        cin>>array[i];
    }
}
```

```

int min=0;

for(int i=0; i<4; i++)
{
    min = array[i];
    for(int j=i+1; j<5; j++)
    {
        if(array[j]<min)
        {
            min=array[j];
            array[j]=array[i];
            array[i]=min;
        }
    }
}

cout<<"The sorted array after selection sort is: "<<endl;

for(int i=0; i<5; i++)
{
    cout<<array[i]<<" , ";
}

return 0;}

```

## Execution (Example)

```

Input the elements of Array :
-33
5
6
9
-5
The sorted array after selection sort is:
-33 , -5 , 5 , 6 , 9 ,
-----
Process exited after 5.05 seconds with return value 0
Press any key to continue . . .

```