

**Programming section:**

- **Maintain separate notes for lab section (observation book). This book should contain only programs related to lab exercise.**
- **After each program leave two pages for output of program during practical session.**
- **The same book will be considered as the lab observation notes during the regular lab sessions**

Shruthi Shetty

## PROGRAM TITLE : FREQUENCY OF OCCURANCE OF A ELEMENT IN ARRAY

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>

class frequency
{
    int arr[10],n,ele,i,count;
public:
    void getData();
    void count_Ele();
    void display();
};

void frequency::getData()
{
    cout<<"Enter the number of elements : ";
    cin>>n;
    cout<<"Enter the array elements:"<<endl;
    for(i=0;i<n;i++)
        cin>>arr[i];
    cout<<"Enter the element to be counted :";
    cin>>ele;
}

void frequency::count_Ele()
{
    count=0;
    for(i=0;i<n;i++)
    {
        if(arr[i]==ele)
            count++;
    }
}

void frequency::display()
{
    if( count > 0)
        cout<<"Element "<<ele<<" occurs "<<count<<"times";
    else
        cout<<"Element "<<ele<<" not found";
}

void main()
{
    frequency f;
    clrscr();
    f.getData();
    f.count_Ele();
}
```

```
f.display();  
getch();  
}
```

\*\*\*\*\*OUTPUT\*\*\*\*\*

Enter the number of elements : 5

Enter the array elements:

10

20

60

10

20

Enter the element to be counted :10

Element 10 occurs 2times

\*\*\*\*\*

Enter the number of elements : 5

Enter the array elements:

10

50

40

20

60

Enter the element to be counted :70

Element 70 not found

\*\*\*\*\*/

Shrutha Shetty

## PROGRAM TITLE: INSERT AN ELEMENT TO ARRAY

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>

class array_Insert
{
    int n,arr[10],ele,p;
public:
    void getData();
    void insert_Ele();
    void display();
};

void array_Insert::getData()
{
    cout<<"Enter the number of elements  :";
    cin>>n;
    cout<<"Enter the elements to the array  :";
    for(int i=0;i<n;i++)
        cin>>arr[i];
    cout<<"Enter the element to be inserted  :";
    cin>>ele;
    cout<<"Enter the position less than "<<n<<":";
    cin>>p;
}

void array_Insert::insert_Ele()
{
    if(p>n)
        cout<<p<<" is an invalid position!!!";
    else
    {
        for(int i=n-1; i>=p;i--)
            arr[i+1] = arr[i];
        arr[p]=ele;
        n = n+1;
        cout<<ele<<"is successfully inserted at position "<<p<<endl;
    }
}

void array_Insert::display()
{
    cout<<"The array for insertion is"<<endl;
    for(int i=0;i<n;i++)
        cout<<setw(4)<<arr[i];
}
```

```
void main()
{
    array_Insert ai;
    clrscr();
    ai.getData();
    ai.insert_Ele();
    ai.display();
    getch();
}
```

\*\*\*\*\*OUTPUT\*\*\*\*\*

```
Enter the number of elements :5
Enter the elements to the array :2
4
6
8
10
Enter the element to be inserted :99
Enter the position less than 5:3
99is successfully inserted at position 3
The array for insertion is
 2 4 6 99 8 10
```

\*\*\*\*\*

```
Enter the number of elements :5
Enter the elements to the array :1
3
5
7
9
Enter the element to be inserted :6
Enter the position less than 5:8
8 is an invalid position!!!The array for insertion is
 1 3 5 7 9
```

\*\*\*\*\*/

**PROGRAM TITLE:      DELETE AN ELEMENT FROM ARRAY**

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>

class array_Del
{
    int n,arr[10],ele,p;
public:
    void getData();
    void delete_Ele();
    void display();
};

void array_Del::getData()
{
    cout<<"Enter the number of elements   :";
    cin>>n;
    cout<<"Enter the elements to the array   :";
    for(int i=0;i<n;i++)
        cin>>arr[i];
    cout<<"Enter the position less than "<<n<<":";
    cin>>p;
}

void array_Del::delete_Ele()
{
    if(p<n)
    {
        ele = arr[p];
        for(int i=p;i<n;i++)
            arr[i] = arr[i+1];
        n = n-1;
        cout<<ele<<" at position "<<p<<" is successfully removed"<<endl;
    }
}

void array_Del::display()
{
    if(p>n)
        cout<<p<<" is an invalid position!!!";
    else{
        cout<<"The array atfer deletion is"<<endl;
        for(int i=0;i<n;i++)
            cout<<setw(4)<<arr[i];
    }
}
```

```
void main()
{
    array_Del ad;
    clrscr();
    ad.getData();
    ad.delete_Ele();
    ad.display();
    getch();
}
```

\*\*\*\*\*OUTPUT\*\*\*\*\*

Enter the number of elements :5

Enter the elements to the array :1

2

3

4

5

Enter the position less than 5:3

4 at position 3 is successfully removed

The array after deletion is

1 2 3 5

\*\*\*\*\*

Enter the number of elements :5

Enter the elements to the array :1

2

3

4

5

Enter the position less than 5:6

6 is an invalid position!!!

\*\*\*\*\*/

**PROGRAM TITLE: SORT AN ARRAY USING INSERTION SORT**

```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>

class insertion_sort
{
    int arr[10],n,i;
public:
    void getData();
    void sort_Array();
    void display();
};

void insertion_sort::getData()
{
    cout<<"Enter the number of elements : ";
    cin>>n;
    cout<<"Enter the array elements:"<<endl;
    for(i=0;i<n;i++)
        cin>>arr[i];
}

void insertion_sort::sort_Array()
{
    int j,temp;
    for(i=1;i<n-1;i++)
    {
        j=i;
        while((j>=1)&&(arr[j]<arr[j-1]))
        {
            temp=arr[j];
            arr[j]=arr[j-1];
            arr[j-1]=temp;

            j=j-1;
        }
    }
}

void insertion_sort::display()
{
    cout<<"Elements after sorting are: "<<endl;
    for(i=0;i<n;i++)
        cout<<setw(4)<<arr[i];
}
```



```
void main()
{
    insertion_sort I;
    clrscr();
    I.getData();
    I.sort_Array();
    I.display();
    getch();
}
```

\*\*\*\*\*OUTPUT\*\*\*\*\*

**Enter the number of elements : 5**

**Enter the array elements:**

**40**

**20**

**30**

**10**

**50**

**Elements after sorting are:**

**10 20 30 40 50**

\*\*\*\*\*/

Shurath Shetty