

**Q1.**

```
#include<iostream>

#define max 100

using namespace std;

int main()
{
    int a[100];

    int t,i,key,n,flag,c;

    cout<<"enter number of test cases";

    cin>>t;

    for(int p=0;p<t;p++)
    {
        flag=0;

        c=1;

        cout<<"enter the number of elements:";

        cin>>n;

        cout<<"enter the sorted array";

        for(i=0;i<n;i++)

            cin>>a[i];

        cout<<"enter the element to be searched";

        cin>>key;

        int l=0,u=n-1,mid,temp;

        while(l<=u)
        {
            mid=(l+u)/2;

            if(key==a[mid])
```

```

{
temp=mid;
flag=1;
while(a[mid-1]==key)
{
mid--;
c++;}
while(a[temp+1]==key)
{
temp++;
c++;
}
break;
}
else if(key<mid)
u=mid-1;
else
l=mid+1;

}
if(flag==0)
cout<<"not Present";
else
cout<<key<<" - "<<c<<endl;
}
return 0;    }

```

**OUTPUT-**

enter number of test cases2

enter the number of elements:10

enter the sorted array235 235 278 278 763 764 790 853 981 981

enter the element to be searched981

981 - 2

enter the number of elements:15

enter the sorted array1 2 2 3 3 5 5 5 25 75 75 75 97 97 97

enter the element to be searched75

75 - 3

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**Q2.**

```
#include<iostream>

#define max 100

using namespace std;

int main()
{
    int a[100];

    int t,i,key,n,j,k;

    cout<<"enter number of test cases";

    cin>>t;

    for(int p=0;p<t;p++)
    {
        cout<<"enter the number of elements:";

        cin>>n;

        cout<<"enter the sorted array";

        for(i=0;i<n;i++)

            cin>>a[i];

        int f=0;

        for(i=0;i<n;i++)
        {
            for(j=i+1;j<n;j++)
            {
                for(k=j+1;k<n;k++)
                {
```

```
        if(a[i]+a[j]==a[k])
        {
            cout<<i+1<<","<<j+1<<","<<k+1<<endl;

            f=1;

            break;
        }
    }

}

}

if(f==0)

cout<<"No sequence found"<<endl;

}

return 0;

}
```

**OUTPUT-**

enter number of test cases3

enter the number of elements:5

enter the sorted array1 5 84 209 341

No sequence found

enter the number of elements:10

enter the sorted array24 28 48 71 86 89 92 120 194 201

2,7,8

enter the number of elements:15

enter the sorted array64 69 82 95 99 107 113 141 171 350 369 400 511 590 666

1,6,9

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**Q3.**

```
#include<iostream>

#include<cstdlib>

using namespace std;

int main()
{
    int a[100];

    int t,i,key,n,c,j;

    cout<<"enter number of test cases";

    cin>>t;

    for(int p=0;p<t;p++)
    {

        c=0;

        cout<<"enter the number of elements:";

        cin>>n;

        cout<<"enter the elements";

        for(i=0;i<n;i++)

            cin>>a[i];

        cout<<"enter the element to be searched";

        cin>>key;

        for(i=0;i<n;i++)
        {

            for(j=i+1;j<n;j++)

                {
```

```
        if(abs(a[i]-a[j])==key)
            c++;
    }
}
cout<<c<<endl;
}
return 0;
}
```



**OUTPUT-**

enter number of test cases2

enter the number of elements:5

enter the elements1 51 84 21 31

enter the element to be searched20

2

enter the number of elements:10

enter the elements24 71 16 92 12 28 48 14 20 22

enter the element to be searched4

4

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