```cpp
#include<iostream.h>
#include<conio.h>
#include<process.h>

class demo
{
      int a[10],i,j,n,f,temp,ele,demo,mid,low,high;
public:
      void get();
      void sort();
      void linear();
      void binary();
      void dis();
};

void demo::get()
{
      cout<<"\n Enter n:";
      cin>>n;
      cout<<"\nEnter array Elements:";
      for(i=1;i<=n;i++)
        cin>>a[i];
}

void demo::linear()
{
      int ele;
      cout<<"\nEnter the element to be search";
      cin>>ele;
      for(i=1;i<=n;i++)
      {
            if(a[i]==ele)
            {
                  cout<<"\nSuccessful search";
                  cout<<"\nElement is found at position "<<i;
                  return;
            }
      }
      if(i>n)
      {
            cout<<"\nUnsuccessful search:";
            cout<<"\nElement is not found ";
      }
}

void demo::sort()
{
      for(i=1;i<=n;i++)
      {
        for(j=1;j<=n-1;j++)
          {
            if(a[j]<a[j+1])
             {
             temp=a[j];
             a[j]=a[j+1];
```

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                a[j+1]=temp;
              }
          }
        }
}

void demo::binary()
{
      cout<<"\nEnter element to be search ";
      cin>>ele;
      f=0;
      low=1;
      high=n;
      while(low<=high)
      {
            mid=(low+high)/2;
            if(a[mid]==ele)
            {
                  f=1;
                  cout<<"\nElement is found at :"<<mid;
                  return;
            }
            else if(a[mid]<ele)
                  low=mid+1;
            else if(a[mid]>ele)
                  high=mid-1;
      }
      if(f==0)
      cout<<"\n Element is not found:";
}

void demo::dis()
{
      cout<<"\n Element are \n";
      for(i=1;i<=n;i++)
       cout<<a[i]<<"\t";
}

void main()
{
      clrscr();
      demo d;
      int ch;
      d.get();
      d.dis();
      cout<<"\n 1:Linear 2:Binary 3:exit\n";
      while(ch!=3)
      {
            cout<<"\nEnter Choice:";
            cin>>ch;
            switch(ch)
            {
             case 1: d.linear(); break;
             case 2: d.sort();
                     d.dis();
                     d.binary(); break;
             case 3: exit(0); break;
            }
      }
      getch();
```

```
}
```

*/ Output */

```
 Enter n:3

Enter array Elements:12 3 45

 Element are
12        3        45
 1:Linear 2:Binary 3:exit

Enter Choice:1

Enter the element to be search 3

Successful search
Element is found at position 2
Enter Choice:2

 Element are
45        12        3
Enter element to be search 12

Element is found at :2
Enter Choice:2

 Element are
45        12        3
Enter element to be search 56

 Element is not found:
Enter Choice:3
```