

Binary search using recursion

```
1  #include<iostream>
2  using namespace std;
3  void binary_search(int[],int,int,int);
4  void bubblesort(int[],int);
5  int main()
6  {
7      int key,size;
8      int list[25];
9      cout<<"enter the size of the list\n";
10     cin>>size;
11     cout<<"enter elements";
12     for(int i=0;i<size;i++)
13         cin>>list[i];
14     bubblesort(list,size);
15     cout<<"\n";
16     cout<<"enter key element to search";
17     cin>>key;
18     binary_search(list,0,size,key);
19     return 0;
20 }
21 void bubblesort(int list[],int size)
22 {
23     int temp,j,i;
24     for(i=0;i<size-1;i++)
25     {
26         for(j=1;j<size-i-1;j++)
27         {
28             if(list[j]>list[j+1])
29             {
30                 temp=list[j];
31                 list[j]=list[j+1];
32                 list[j+1]=temp;
33             }
34         }
35     }
36 }
37 void binary_search(int list[],int lo,int hi,int key)
38 {
39     int mid;
40     if(lo>hi)
41     {
42         cout<<"key not found\n";
43         return;
44     }
45     mid=(lo+hi)/2;
46     if(list[mid]==key)
47         cout<<"key found at position:"<<(mid+1)<<endl;
48     else if(list[mid]>key)
49         binary_search(list,lo,mid-1,key);
50     else if(list[mid]<key)
51         binary_search(list,mid+1,hi,key);
52 }
```

Output:

```
enter the size of the list
10
enter elements
5
4
6
8
7
2
3
1
9
10

enter key element to search
8
key found at position:8

...Program finished with exit code 0
Press ENTER to exit console.
```