

```

1  #include<stdio.h>
2  #include<stdlib.h>
3
4  void linear_search()
5  {
6      int arr[20],search;
7      int pos,i;
8      int count=0;
9      for(i=0;i<20;i++)
10     {
11         arr[i]=rand()%100;
12     }
13     printf("The Elements Present in the Array are :\n");
14     for(i=0;i<20;i++)
15     {
16         printf("%d ",arr[i]);
17     }
18
19     printf("\nEnter the element to be searched:");
20     scanf("%d",&search);
21     for(i=0;i<20;i++)
22     {
23         if(arr[i]==search)
24         {
25             pos=i+1;
26             count=1;
27         }
28     }
29     if(count==0)
30     {
31         printf("Element not found!\n");
32     }
33     else
34     {
35         printf("Element is found at the position %d\n",pos);
36     }
37 }
38

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33     else
34     {
35         printf("Element is found at the position %d\n",pos);
36     }
37 }
38
39 void binary_search()
40 {
41     int arr[20];
42     int i,j,key;
43     int var;
44     for(i=0;i<20;i++)
45     {
46         arr[i]=rand()%50;
47     }
48     for(i=0;i<20;i++)
49     {
50
51         var=arr[i];
52         j=i-1;
53         while(j>=0 && arr[j]>var)
54         {
55             arr[j+1]=arr[j];
56             j=j-1;
57         }
58         arr[j+1]=var;
59     }
60     printf("The Final list is:\n");
61     for(i=0;i<20;i++)
62     {
63         printf("%d ",arr[i]);
64     }
65     printf("\nEnter the element to be searched:\n");
66     scanf("%d",&key);
67     int low=0,high=19,mid,count=0;
68     while(low<=high&& count==0)
69     {
70

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69 while(low<=high&& count==0)
70 {
71     mid=(low+high)/2;
72     if(arr[mid]==key)
73     {
74         count=1;
75     }
76     if(key>arr[mid])
77     {
78         low=mid+1;
79     }
80     else
81     {
82         high=mid-1;
83     }
84 }
85 if(count==0)
86 {
87     printf("Element not found\n");
88 }
89 else
90 {
91     printf("The Element found at position %d\n",mid+1);
92 }
93 }
94
95 int main()
96 {
97     int choice;
98     int count=1;
99     while(count==1)
100     {
101         printf("\n1)Linear Search\n2)Binary Search\n3)Exit\n");
102         scanf("%d",&choice);
103         switch(choice)
104         {
105
106             case 1:linear_search();

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80         else
81         {
82             high=mid-1;
83         }
84     }
85     if(count==0)
86     {
87         printf("Element not found\n");
88     }
89     else
90     {
91         printf("The Element found at position %d\n",mid+1);
92     }
93 }
94
95 int main()
96 {
97     int choice;
98     int count=1;
99     while(count==1)
100     {
101         printf("\n1)Linear Search\n2)Binary Search\n3)Exit\n");
102         scanf("%d",&choice);
103         switch(choice)
104         {
105
106             case 1:linear_search();
107                 break;
108             case 2:binary_search();
109                 break;
110             case 3:count=0;
111                 break;
112             default:printf("Invalid choice!\n");
113         }
114     }
115 }
116

```

g++ "lin.c" (in directory: C:\Users\DELL\Desktop\New folder)

```
1)Linear Seacrh
2)Binary Search
3)Exit
1
The Elements Present in the Array are :
41 67 34 0 69 24 78 58 62 64 5 45 81 27 61 91 95 42 27 36
Enter the element to be searched:42
Element is found at the position 18
```

```
1)Linear Seacrh
2)Binary Search
3)Exit
1
The Elements Present in the Array are :
91 4 2 53 92 82 21 16 18 95 47 26 71 38 69 12 67 99 35 94
Enter the element to be searched:100
Element not found!
```

```
1)Linear Seacrh
2)Binary Search
3)Exit
2
The Final list is:
3 3 7 9 11 11 12 14 18 22 23 23 28 29 33 37 41 41 44 47
Enter the element to be searched:
41
The Element found at position 18
```

```
1)Linear Seacrh
2)Binary Search
3)Exit
2
The Final list is:
0 1 5 6 6 14 16 20 29 35 38 40 40 40 42 42 43 46 48 48
Enter the element to be searched:
55
Element not found
```

```
1)Linear Seacrh
2)Binary Search
3)Exit
```