

**//program to perform binary search operation**

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
#include<time.h>
```

```
int main()
```

```
{
```

```
    clock_t start,end;
```

```
    double t;
```

```
    int a[20],n,i,key;
```

```
    printf("ENTER THE LIMIT\n");
```

```
    scanf("%d",&n);
```

```
    printf("ENTER %d ELEMENTS\n",n);
```

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

```
        scanf("%d",&a[i]);
```

```
    printf("ENTER THE KEY ELEMENT TO BE SEARCHED\n");
```

```
    scanf("%d",&key);
```

```
    start=clock();
```

```
    binarysearch(a,n,key);
```

```
    end=clock();
```

```
    t=(double)(end-start)/CLOCKS_PER_SEC;
```

```
    printf("EXECUTION TIME : %f\n",t);
```

```
    return 0;
```

```
}
```

```
void binarysearch(int a[],int n,int key)
```

```
{
```

```
    int l,mid,h;
```

```
    l=0;
```


```
    h=n-1;
```

```

while(l<=h)
{
    mid=(l+h)/2;
    if(a[mid]==key)
    {
        printf("THE KEY FOUND AT %d POSITION\n",mid+1);
        exit(0);
    }
    if(key>a[mid])
        l=mid+1;
    else
        h=mid-1;
}
printf("THE KEY IS NOT FOUND\n");
}

```

### Output:

 "D:\Users\User\3D Objects\@SUB Access\Dock 1\2nd Yr\4th Sem\Lab\DAA\Programs\12\_Quick Sort\pgm\quick sort\bin\Debug\quick sort.exe"

```

ENTER THE LIMIT
5
ENTER 5 ELEMENTS
10 20 30 40 50
ENTER THE KEY ELEMENT TO BE SEARCHED
10
THE KEY FOUND AT 1 POSITION

Process returned 0 (0x0)   execution time : 11.070 s
Press any key to continue.

```

"D:\Users\User\3D Objects\@SUB Access\Dock 1\2nd Yr\4th Sem\Lab\DAA\Programs\13\_Binary search\pgm\Binary search\bin\Debug\Binary search.exe"

```
ENTER THE LIMIT
7
ENTER 7 ELEMENTS
1 2 3 6 5 4 3
ENTER THE KEY ELEMENT TO BE SEARCHED
6
THE KEY FOUND AT 4 POSITION

Process returned 0 (0x0)   execution time : 15.955 s
Press any key to continue.
```

"D:\Users\User\3D Objects\@SUB Access\Dock 1\2nd Yr\4th Sem\Lab\DAA\Programs\13\_Binary search\pgm\Binary search\bin\Debug\Binary search.exe"

```
ENTER THE LIMIT
5
ENTER 5 ELEMENTS
1 2 3 4 5
ENTER THE KEY ELEMENT TO BE SEARCHED
5
THE KEY FOUND AT 5 POSITION

Process returned 0 (0x0)   execution time : 15.810 s
Press any key to continue.
```

"D:\Users\User\3D Objects\@SUB Access\Dock 1\2nd Yr\4th Sem\Lab\DAA\Programs\13\_Binary search\pgm\Binary search\bin\Debug\Binary search.exe"

```
ENTER THE LIMIT
5
ENTER 5 ELEMENTS
12 32 13 14 56
ENTER THE KEY ELEMENT TO BE SEARCHED
11
THE KEY IS NOT FOUND
EXECUTION TIME : 0.000000

Process returned 0 (0x0)   execution time : 17.401 s
Press any key to continue.
```