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

void linear_search()
{
    int arr[20],search;
    int pos,i;
    int count=0;
    for(i=0;i<20;i++)
    {
        arr[i]=rand()%100;
    }
    printf("The Elements Present in the Array are :\n");
    for(i=0;i<20;i++)
    {
      printf("%d ",arr[i]);
    }

    printf("\nEnter the element to be searched:");
    scanf("%d",&search);
    for(i=0;i<20;i++)
    {
        if(arr[i]==search)
        {
            pos=i+1;
            count=1;
        }
    }
    if(count==0)
    {
        printf("Element not found!\n");
    }
    else
    {
        printf("Element is found at the position %d\n",pos);
    }

}
```

```
    else
    {
        printf("Element is found at the position %d\n",pos);
    }

}
void binary_search()
{
    int arr[20];
    int i,j,key;
    int var;
    for(i=0;i<20;i++)
    {
        arr[i]=rand()%50;
    }
    for(i=0;i<20;i++)
    {

        var=arr[i];
        j=i-1;
        while(j>=0 && arr[j]>var)
        {
            arr[j+1]=arr[j];
            j=j-1;
        }
        arr[j+1]=var;

    }
    printf("The Final list is:\n");
    for(i=0;i<20;i++)
    {
        printf("%d ",arr[i]);
    }
    printf("\nEnter the element to be searched:\n");
    scanf("%d",&key);
    int low=0,high=19,mid,count=0;
    while(low<=high&& count==0)
    {
```

```
    while(low<=high&& count==0)
    {
        mid=(low+high)/2;
        if(arr[mid]==key)
        {
            count=1;
        }
        if(key>arr[mid])
        {
            low=mid+1;
        }
        else
        {
            high=mid-1;
        }
    }
    if(count==0)
    {
        printf("Element not found\n");
    }
    else
    {
        printf("The Element found at position %d\n",mid+1);
    }
}

int main()
{
    int choice;
    int count=1;
    while(count==1)
    {
        printf("\n1)Linear Seacrh\n2)Binary Search\n3)Exit\n");
        scanf("%d",&choice);
        switch(choice)
       {

            case 1:linear_search();
```

```
        else
        {
            high=mid-1;
        }
    }
    if(count==0)
    {
        printf("Element not found\n");
    }
    else
    {
        printf("The Element found at position %d\n",mid+1);
    }
}

int main()
{
    int choice;
    int count=1;
    while(count==1)
    {
        printf("\n1)Linear Seacrh\n2)Binary Search\n3)Exit\n");
        scanf("%d",&choice);
        switch(choice)
       {

            case 1:linear_search();
                   break;
            case 2:binary_search();
                   break;
            case 3:count=0;
                   break;
            default:printf("Invalid choice!\n");
        }
    }
}
```

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

C:\WINDOWS\SYSTEM32\cmd.exe

```
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
```