S.No: 21	Exp. Name: ***Write a C program to Search an element using Linear Search process***	Date:2023-01-10

Aim:

Write a program to `search` a key element with in the given array of elements using `linear search` process.

At the time of execution, the program should print the message on the console as:

```
Enter value of n :
```

For example, if the user gives the **input** as:

```
Enter value of n : 3
```

Next, the program should print the messages one by one on the console as:

```
Enter element for a[0] :
Enter element for a[1] :
Enter element for a[2] :
```

if the user gives the **input** as:

```
Enter element for a[0] : 89
Enter element for a[1] : 33
Enter element for a[2] : 56
```

Next, the program should print the message on the console as:

```
Enter key element :
```

if the user gives the **input** as:

```
Enter key element : 56
```

then the program should **print** the result as:

```
The key element 56 is found at the position 2
```

Similarly if the key element is given as **25** for the above one dimensional array elements then the program should print the output as "**The Key element 25 is not found in the array**".

Note: Do use the **printf()** function with a **newline** character (`\n`) at the end.

Source Code:

Program509.c

```
#include<stdio.h>
int main()
{
   int a[20],i,x,n;
   printf("Enter value of n : ");
   scanf("%d",&n);
   for(i=0;i<n;++i)
   {
      printf("Enter element for a[%d] : ",i);
      scanf("%d",&a[i]);
```

```
    }
    printf("Enter key element : ");
    scanf("%d",&x);
    for(i=0;i<n;++i)
    if(a[i]==x)
    break;
    if(i<n)
    printf("The key element %d is found at the position %d",x,i);
    else
    printf("The key element %d is not found in the array",x);
    printf("\n");
}
```


Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter value of n : 5
Enter element for a[0] : 45
Enter element for a[1] : 67
Enter element for a[2] : 35
Enter element for a[3] : 28
Enter element for a[4] : 16
Enter key element : 28
The key element 28 is found at the position 3

Test Case - 2
User Output
Enter value of n : 5
Enter element for a[0] : 2
Enter element for a[1] : 7
Enter element for a[2] : 5
Enter element for a[3] : 1
Enter element for a[4] : 4
Enter key element : 2
The key element 2 is found at the position 0

Test Case - 3
User Output
Enter value of n : 4
Enter element for a[0] : 452
Enter element for a[1] : 356
Enter element for a[2] : 754
Enter element for a[3] : 127
Enter key element : 127
The key element 127 is found at the position 3

Test Case - 4
User Output

Enter value of n : 3
Enter element for a[0] : 5
Enter element for a[1] : 7
Enter element for a[2] : 3
Enter key element : 4
The key element 4 is not found in the array

Test Case - 5
User Output
Enter value of n : 3
Enter element for a[0] : 11
Enter element for a[1] : 45
Enter element for a[2] : 37
Enter key element : 25
The key element 25 is not found in the array