S.No: 5	Exp. Name: ***Write a Program to Search an element using Linear Search and Recursion***	Date:2023-04-14

Aim:

Write a program to `search` the given element from a list of elements with `linear search` technique using **recursion**.

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 : 6
```

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

```
Enter 5 elements :
```

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

```
Enter 5 elements : 12 54 32 9 26
```

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

```
Enter a key element :
```

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

```
Enter a key element : 9
```

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

```
The key element 9 is found at position : 3
```

Similarly, if the key element is given as `18` for the above example then the program should print the output as:

```
The key element 18 is not found
```

Note: Write the functions **read()** and **linearSearch()** in `Program911a.c`

Source Code:

Program911.c

```
#include <stdio.h>
#include "Program911a.c"
void main() {
   int a[20], n, pos, key;
   printf("Enter n value : ");
   scanf("%d", &n);
   read(a, n);
   printf("Enter a key element : ");
   scanf("%d", &key);
   pos = linearSearch(a, 0, n - 1, key);
```

```
   if (pos == -1) {
      printf("The key element %d is not found\n", key);
 }   else {
      printf("The key element %d is found at position : %d\n", key, pos);
 }
}
```

Program911a.c

```
int read(int a[],int n)
{
   int i;
   printf("Enter %d elements : ",n);
   for(i=0;i<n;i++)
   {
   scanf("%d",&a[i]);
 }
}
int linearSearch(int a[],int i,int n,int key)
{
   int pos=0;
   if(i>=n)
   {
       return -1;
 }
   else if(a[i]==key)
   {
      pos=i;
      return pos;
 }
   else
   {
         linearSearch(a,i+1,n,key);
 }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter n value : 4
Enter 4 elements : 10 20 15 12
Enter a key element : 15
The key element 15 is found at position : 2

Test Case - 2
User Output
Enter n value : 6
Enter 6 elements : 2 6 4 1 3 7
Enter a key element : 5
The key element 5 is not found

ID: 22K61A05B3

Test Case - 3
User Output
Enter n value : 5
Enter 5 elements : 11 44 33 55 22
Enter a key element : 11
The key element 11 is found at position : 0

Test Case - 4
User Output
Enter n value : 5
Enter 5 elements : 99 65 78 34 27
Enter a key element : 26
The key element 26 is not found