Fibonacci Search

Program:

```
#include<stdio.h>
#include<math.h>
void main()
{
   int n,j,i,temp,fn,fn_1,fn_2,search_element,index,offset,pos;
   printf("Enter a the number of elements in the array");
   scanf("%d",&n);
   int arr[n];
   for ( j = 0; j < n; j++)
   {
      printf("Enter elements in the array");
      scanf("%d",&arr[j]);
   }

   printf("\nEnter search element");
   scanf("%d",&search_element);

   for ( j= 0; j < n; j++)
   {

      for ( i = 0; i < n-1-j; i++)
      {
         if (arr[i]>arr[i+1])
         {
            temp=arr[i+1];
            arr[i+1]=arr[i];
            arr[i]=temp;

         }
```

```
    }


}

for ( i=0; i<n; i++)
{
    printf("The arranged list is:\t[%d]\n%d\n",i , arr[i]);
}



fn_2=0;
fn_1=1;
fn=fn_1+fn_2;
while (fn < n)
{


    fn_2=fn_1;
    fn_1=fn;
    fn=fn_1+fn_2;

}

offset=-1;
pos=-1;
while ( fn > 1)
{

    if ( offset + fn_2 < n-1)
    {
        index=offset + fn_2;
    }
```

```
        else
        {
            index= n-1;
        }

        if ( arr[index] == search_element)
        {
            pos++;
            break;
        }
        else if ( arr[index] > search_element)
        {
            fn=fn_1;
            fn_1=fn_2;
            fn_2=fn-fn_1;
        }
        else
        {
            fn=fn_1;
            fn_1=fn_2;
            fn_2=fn-fn_1;
            offset=index;
        }
    }

    if (fn && (arr[offset+1] == search_element))
    {
        printf("\nFound its index %d", offset+1);
        pos++;
    }
    else if (pos < 0)
    {
        printf("\nNot in the list");
    }
}
```

Output:

```
Enter a the number of elements in the array4
Enter elements in the array34
Enter elements in the array47
Enter elements in the array23
Enter elements in the array19

Enter search element45
The arranged list is:   [0]
19
The arranged list is:   [1]
23
The arranged list is:   [2]
34
The arranged list is:   [3]
47

Not in the list

=== Code Exited With Errors ===
```

```
Enter a the number of elements in the array5
Enter elements in the array2
Enter elements in the array4
Enter elements in the array8
Enter elements in the array9
Enter elements in the array7

Enter search element9
The arranged list is:   [0]
2
The arranged list is:   [1]
4
The arranged list is:   [2]
7
The arranged list is:   [3]
8
The arranged list is:   [4]
9

Found its index 4
```