```c
/* I. Given an array of nonnegative integers, design a linear algorithm and implement it using a
program to find whether given key element is present in the array or not. Also, find total number
of comparisons for each input case. (Time Complexity = O(n), where n is the size of input) */

#include <stdio.h>

int comparisons = 0;
int linearsearch(int arr[], int n, int key)
{
    for (int i = 0; i < n; i++)
    {
        comparisons++;
        if (arr[i] == key)
        {
            return i;
        }
    }
    return -1;
}

int main()
{
    int n, key;
    printf("enter the size of the array: ");
    scanf("%d", &n);
    int arr[n];
    printf("enter the array elements: ");
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &arr[i]);
    }
    printf("enter the key to be searched: ");
    scanf("%d", &key);
    int result = linearsearch(arr, n, key);
    if (result != -1)
    {
        printf("Key found at index %d", result);
    }
    else
    {
        printf("Key not found in the array");
    }
    printf("Total number of comparisons: %d", comparisons);
    return 0;
}
```