**LAB EXERCISES**

**EX.NO:08**

**LINEAR SEARCH USING POINTER TO AN ARRAY**

**AIM:**

**To write a C program for implementing linear search using pointer to an array.**

**PROCEDURE:**

1. **Start the program.**
2. **Declare necessary variables:**
   * **An array arr[100] to store elements.**
   * **An integer variable n for the number of elements.**
   * **A pointer ptr to traverse the array.**
   * **Integer variable key for the search element.**
   * **Integer i for indexing and found to indicate if the element is found.**
3. **Get the number of elements n from the user.**
4. **Input the array elements:**
   * **Use a loop to read n elements into arr[i].**
5. **Initialize the pointer:**
   * **Set ptr = arr; (points to the first element of the array)**
6. **Get the element to be searched (key) from the user.**
7. **Perform Linear Search using pointer:**
   * **Loop from i = 0 to n - 1**
   * **If \*(ptr + i) == key, then:**
     + **Set found = 1**
     + **Display the position (i) and break the loop**
8. **After the loop:**
   * **If found == 0, display that the element is not found.**
9. **End the program.**

**PROGRAM:**

**#include <stdio.h>**

**void main()**

**{**

**int n, key, a[20], i, \*ptr;**

**clrscr();**

**printf("Enter the number of elements in the array\n");**

**scanf("%d", &n);**

**printf("Enter the elements of the array\n");**

**for (i = 0; i < n; i++)**

**scanf("%d", &a[i]);**

**printf("\nEnter the element to search\n");**

**scanf("%d", &key);**

**for (ptr = a; ptr < a + n; ptr++) {**

**if (\*ptr == key) {**

**printf("\nThe given number %d is found in the array", key);**

**printf("\nThe position of %d is %d", key, ptr - a + 1); // 1-based index**

**break;**

**}**

**}**

**if (ptr == a + n) {**

**printf("\nThe element %d is not found in the array", key);**

**}**

**getch();**

**}**

**RESULT:**

**Thus the above C program is executed and the output is obtained.**