Aim: write a program in c to perform linear search with recursive approach

Algorithm:

1. Take an array arr, element to be searched x, size of array n and current index index as input.
2. If index is equal to n, return -1 as element is not found.
3. If arr[index] is equal to x, return index as element is found.
4. Recursively call the function with index + 1.
5. Return the index if element is found, else -1 if not found.

Source Code:

#include <stdio.h>

*int* linear\_search\_recursive(*int* arr[], *int* x, *int* n, *int* index) {

    if (index == n)

        return -1;

    if (arr[index] == x)

        return index;

    return linear\_search\_recursive(arr, x, n, index + 1);

}

*int* main() {

*int* arr[] = {10, 20, 80, 30, 60, 50,

                 110, 100, 130, 170};

*int* x = 110;

*int* n = sizeof(arr)/sizeof(arr[0]);

*int* result = linear\_search\_recursive(arr, x, n, 0);

    if (result == -1)

        printf("Element is not present in array");

    else

        printf("Element is present at index %d", result);

    return 0;

}

Output:

Element is present at index 6