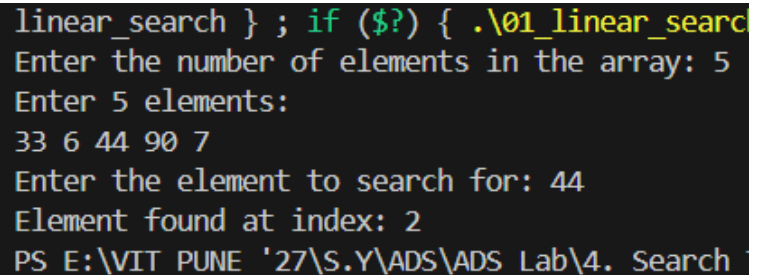


## Linear Search

```
#include <stdio.h>

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

int main() {
    int n, key;
    printf("Enter the number of elements in
the array: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d elements:\n", n);
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]); }
    printf("Enter the element to search for: ");
    scanf("%d", &key);
    int result = linearSearch(arr, n, key);
    if (result == -1) {
        printf("Element not found\n"); }
    else {
        printf("Element found at index: %d\n", result); }
    return 0;
}
```



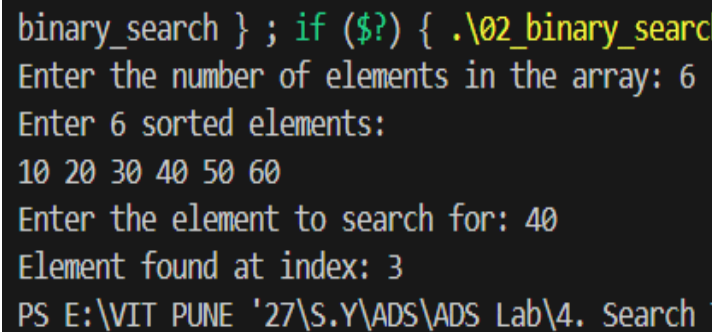
```
linear_search } ; if ($?) { .\01_linear_search
Enter the number of elements in the array: 5
Enter 5 elements:
33 6 44 90 7
Enter the element to search for: 44
Element found at index: 2
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\4. Search
```

## Binary Search

```
#include <stdio.h>

int binarySearch(int arr[], int size, int key) {
    int left = 0;
    int right = size - 1;
    while (left <= right) {
        int mid = left + (right - left) / 2;
        if (arr[mid] == key) {
            return mid;
        }
        if (arr[mid] < key) {
            left = mid + 1;
        } else {
            right = mid - 1;
        }
    }
    return -1;
}

int main() {
    int n, key;
    printf("Enter the number of elements in\nthe array: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d sorted elements:\n", n);
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Enter the element to search for: ");
    scanf("%d", &key);
    int result = binarySearch(arr, n, key);
    if (result != -1) {
        printf("Element found at index: %d\n", result);
    } else {
        printf("Element not found\n");
    }
    return 0;
}
```



```
binary_search } ; if ($?) { .\02_binary_searc
Enter the number of elements in the array: 6
Enter 6 sorted elements:
10 20 30 40 50 60
Enter the element to search for: 40
Element found at index: 3
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\4. Search
```