

Code

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#include <stdio.h>

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

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

int main() {
    int n, key, i, choice, pos;
    scanf("%d", &n);
    int arr[n];
    for(i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
}
```

```

scanf("%d", &key);
scanf("%d", &choice); // 1 for Linear, 2 for Binary
if(choice == 1) {
    pos = linearSearch(arr, n, key);
    if(pos != -1)
        printf("Element found at position %d (Linear Search)", pos + 1);
    else
        printf("Element not found");
}
else if(choice == 2) {
    pos = binarySearch(arr, n, key);
    if(pos != -1)
        printf("Element found at position %d (Binary Search)", pos + 1);
    else
        printf("Element not found");
}
else {
    printf("Invalid choice");
}
return 0;
}

```

Output

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| Enter number of elements: 4
| Enter 4 elements:
| 10
| 20
| 30
| 40
| Enter element to search: 40

| Linear Search: Element 40 found at position 4 (index 3)

| Sorted Array (for Binary Search): 10 20 30 40
| Binary Search: Element 40 found at position 4 (index 3)

```