



# Binary Search

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#include<iostream.h>
#include<conio.h>

void sort();
int searcher(int, int, int);

int arr[15], n;

void main() {
    int l_val, r_val, pos, i = 0, ele;
    clrscr();
    cout<<"Enter the range: ";
    cin>>n;

    for (; i < n; i++) {
        cout<<"Enter the "<<i + 1<<" element: ";
        cin>>arr[i];
    }

    sort();
    cout<<"\nThe array in sorted order:\n";
    for(i = 0; i < n; i++)
        cout << arr[i] << " ";

    cout<<"\nEnter the element to be searched: ";
    cin>>ele;

    l_val = 0;
    r_val = n - 1;
    pos = searcher(ele, l_val, r_val);

    if (pos == -1) {
        cout<<"\nThe element not found in the array";
    } else {
        cout<<"\nThe element found in position " << pos + 1;
    }
    getch();
}

void sort() {
```

```

int i, j, temp;
for (i = 0; i < n - 1; i++) {
    for (j = 0; j < n - 1 - i; j++) {
        if (arr[j] > arr[j + 1]) {
            temp = arr[j];
            arr[j] = arr[j + 1];
            arr[j + 1] = temp;
        }
    }
}

int searcher(int element, int l_val, int r_val) {
    int mid;
    while (l_val <= r_val) {
        mid = (l_val + r_val) / 2;

        if (element == arr[mid])
            return mid;

        else if (element > arr[mid])
            l_val = mid + 1;

        else
            r_val = mid - 1;
    }
    return -1;
}

```