

Bubble sort 😊

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int n;
```

```
    printf("Enter array size at least 10: ");
```

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

```
    int arr[n];
```

```
    printf("Enter Unsorted numeric values: ");
```

```
    for (int i = 0; i < n; i++)
```

```
    {
```

```
        scanf("%d", &arr[i]);
```

```
    }
```

```
    // Bubble Sort
```

```
    for (int i = 0; i < n - 1; i++)
```

```
    {
```

```
        for (int j = 0; j < n - 1 - i; j++)
```

```
        {
```

```
            if (arr[j] > arr[j + 1])
```

```
            {
```

```
                int tmp = arr[j];
```

```
                arr[j] = arr[j + 1];
```

```
                arr[j + 1] = tmp;
```

```
            }
```

```
        }
```

```
    }
```

```
    printf("Sorted array:\n");
```

```
    for (int i = 0; i < n; i++)
```

```
    {
```

```
        printf("%d ", arr[i]);
```

```
    }
```

```
    printf("\n");
```

```
    return 0;
```

```
}
```

Binary search 👍

```
#include <stdio.h>

int main() {
    int n;
    printf("Enter array size at least 10:\n");
    scanf("%d", &n);

    if (n < 10) {
        printf("Input at least 10\n");
        return 0;
    }

    int arr[n];
    printf("Enter sorted numeric values:\n");
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    int x;
    printf("Enter the element to search:\n");
    scanf("%d", &x);

    int left = 0, right = n - 1, index = -1;

    while (left <= right) {
        int mid = (left + right) / 2;
        if (arr[mid] == x) {
            index = mid;
            break;
        } else if (arr[mid] < x) {
            left = mid + 1;
        } else {
            right = mid - 1;
        }
    }

    if (index == -1) {
        printf("Element not found.\n");
    } else {
        int start = index, end = index;
```

```
while (start > 0 && arr[start - 1] == x) start--;  
while (end < n - 1 && arr[end + 1] == x) end++;  
  
printf("Element found at positions:\n");  
for (int i = start; i <= end; i++) {  
    printf("%d ", i);  
}  
printf("\nTotal occurrences: %d\n", end - start + 1);  
}  
  
return 0;  
}
```