#include <stdio.h>

int binarySearch(int arr[], int n, int key) {

int left = 0;

int right = n - 1;

while (left <= right) {

int mid = left + (right - left) / 2;

if (arr[mid] == key) {

return mid; // Element found, return its index

} else if (arr[mid] < key) {

left = mid + 1; // Element is in the right half

} else {

right = mid - 1; // Element is in the left half

}

}

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]);

}

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

for (int j = i + 1; j < n; j++) {

if (arr[i] > arr[j]) {

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

printf("Sorted array: ");

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

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

}

printf("\n");

printf("Enter the element to search for: ");

scanf("%d", &key);

int result = binarySearch(arr, n, key);

if (result != -1) {

printf("Element %d found at index %d.\n", key, result);

} else {

printf("Element %d not found in the array.\n", key);

}

return 0;

}

