#include <iostream>

using namespace std;

pair<bool, int> binarySearch(int arr[], int n, int key) {

int comparisons = 0;

int low = 0, high = n - 1;

while (low <= high) {

int mid = low + (high - low) / 2;

comparisons++;

if (arr[mid] == key) {

return make\_pair(true, comparisons);

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

low = mid + 1;

} else {

high = mid - 1;

}

}

return make\_pair(false, comparisons);

}

int main() {

int t;

cin >> t;

while (t--) {

int n;

cin >> n;

int arr[n];

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

cin >> arr[i];

}

int key;

cin >> key;

pair<bool, int> result = binarySearch(arr, n, key);

if (result.first) {

cout << "Element found in the array.\n";

} else {

cout << "Element not found in the array.\n";

}

cout << "Total number of comparisons: " << result.second << endl;

}

return 0;

}