#include<iostream>

using namespace std;

void insertion(int arr[], int n) {

int i, comp = 0, shift = 0, j = 0, key;

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

key = arr[i];

j = i - 1;

while (j >= 0 && arr[j] > key) {

comp++;

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

shift++;

j = j - 1;

}

arr[j + 1] = key;

shift++;

}

cout << "number of comparison " << comp << endl;

cout << "number of shift " << shift << endl;

cout << "sorted array" << endl;

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

{

cout << arr[i] << " ";

}

cout << endl;

}

int main()

{

int i,j,n,x;

cout<<"ENTER NUMBER OF ITERATION"<<endl;

cin>>x;

for(i=1;i<=x;i++)

{

cout<<"ENTER SIZE"<<endl;

cin>>n;

int arr[n];

cout<<"ENTER ELEMENTS IN ARRAY"<<endl;

for(j=0;j<n;j++)

{

cin>>arr[j];

}

insertion(arr,n);

}

}