



ACM-ICPC AFGHANISTAN
ACM-ICPC First Training BootCamp
Hosted by Kateb University

Fourth Session

Location: Kateb University

Date: 8/2/2018

Time: 01:30 pm

1) Find Name

You have a list of names, write a program to find a specific name from this list.

Note:

- You will find just one name from a list of names.
- The find time of the specified name should be $O(1)$

Input format:

The first line of the input will contain N comma separated names, the second line of the input will contain the name to be searched.

Output Format:

Check the answer with a trainer.

2) Consecutive Sequence

There is a list of unsorted integers, write a program to order and find the longest consecutive sequence from this list of integers.

Input format:

first line of the input will contain T, the number of test cases. second line will contain n integer values separated with a space.

Constraints:

$$1 \leq n \leq 10^2$$

$$1 \leq n_i \leq 10^5$$

Output Format:

The length of longest consecutive sequence;

Input:

1

3 5 7 2 1 9 7 20

Output

3

3) Equal Elements

You have an unsorted List of integers, the elements of this list may not be same or equal to each other, your job is to count the number of operations required to make all elements equal to all other elements in the list.

Input Format:

First line of the input will contain the n separated integers denoting the elements of the list, second line will contain x, the number that all elements will be equaled to.

Output Format:

Print the number of operations that made the elements of this list equal.

Note:

Equality is not an operation.

Input:

5 2 8 3 4

4

Output:

4

4) Swapping in List

Giving a list of almost sorted integers where just two integers of this list is not sorted, your job is to find them and make this list as a sorted list.

Input Format:

One-line input, the input will contain the n space separated integers denoting the elements of the list,

Output Format:

Print the sorted list

Input: 10 20 60 40 50 30

Output: 10 20 30 40 50 60

5) Election Winner

Given a list of names of candidates in an election. A candidate name in list represents a vote casted to the candidate. Print the name of candidates received Max vote. If there is tie, you can print any of them.

Input format:

You need to read the names from a file called “names.txt” and store that in Array/list/Vector... to calculate the result. In file: the names will be at the first line of text separated with a space.

Output Format:

Write the name of the winner to another file called “winner.txt”

Note:

You can use Set DS (optional)

You can sort the list

Search Time complexity must be linear

Input Example:

John Johnny Jackie Johnny John Jackie Jamie Jamie John Johnny Jamie Johnny John

Output:

John

Explanation:

We have four candidates with name “John”, “Johnny”, “Jamie” and “Jackie”. The candidates John and Johnny got the maximum votes, since John is alphabetically smaller, we print John as winner

6) Gifting

Suppose you have n pens and m pencils which number of pens is equal to number of pencils. You are going to gift one pencil and one pen to each student. Taking the pen and pencil from their box for each time is boring, so, you want to arrange them in order of one pen and one pencil to make it easy for sharing them between students.

Note:

- The pen is labeled to 1 and pencil is labeled to 0

Input format:

The first line of the input will contain S the number of students, second line will contain two space separated integers (n, m) denoting the number of pens and pencils. If the all students got their gifts equally, print the arranged list of pens and pencils, otherwise print "Error".

Constraints:

$$1 \leq m, n \leq 10^2$$

Output Format:

Print the pens and pencils after arranging them for gifting.

Input:

6

6 6

Output:

1 0 1 0 1 0 1 0 1 0

Input:

7

6 6

Output:

Error

7) Sorting the List

You are giving a list of unsorted integers with length of N, your job is to sort this list of integers.

Data structure to use:

Priority Queue

Input Format:

Input will contain a list of coma separated integers.

Output Format:

Print the sorted list of integers separate them with white space.

Input:

7,5,2,12,10,1,20

Output:

1 2 5 7 10 12 20