String Sort

Nishant is a very naughty boy in Launchpad Batch. One day he was playing with strings, and randomly shuffled them all. Your task is to help Nishant Sort all the strings ( lexicographically ) but if a string is present completely as a prefix in another string, then string with longer length should come first. Eg bat, batman are 2 strings and the string bat is present as a prefix in Batman - then sorted order should have - Batman, bat.

Input Format:

N(integer) followed by N strings.

Constraints:

N<=1000

output format

N lines each containing one string.

sample input

3

bat

apple

batman

sample output

apple

batman

bat

Median of Sorted Arrays

We are given two sorted arrays of same size n. Find the median of an array formed after merging these two sorted arrays.

Input Format:

First line contains the input n. Second and Third line contains n space separated integers.

Constraints:

N < 1000

output format

Print the median in a single line.

sample input

5

1 3 5 7 9

2 4 6 8 10

sample output

5

Hostel Visit

Dean of MAIT is going to visit Hostels of MAIT. As you know that he is a very busy person so he decided to visit only first "K" nearest Hostels. Hostels are situated in 2D plane. You are given the coordinates of hostels and you have to answer the Rocket distance of Kth nearest hostel from origin ( Dean's place ) .

Input Format:

First line of input contains Q Total no. of queries and K There are two types of queries:

first type : 1 x y For query of 1st type, you came to know about the co-ordinates ( x , y ) of newly constructed hostel. second type : 2 For query of 2nd type, you have to output the Rocket distance of Kth nearest hostel till now.

The Dean will always stay at his place ( origin ). It is gauranted that there will be atleast k queries of type 1 before first query of type 2.

Rocket distance between two points ( x2 , y2 ) and ( x1 , y1 ) is defined as (x2 - x1)2 + (y2 - y1)2

Constraints:

1 < = k < = Q < = 10^5 -10^6 < = x , y < = 10^6

output format

For each query of type 2 output the Rocket distance of Kth nearest hostel from Origin.

sample input

9 3

1 10 10

1 9 9

1 -8 -8

2

1 7 7

2

1 6 6

1 5 5

2

sample output

200

162

98

String Window

Ravi has been given two strings named string1 and string 2. He is supposed to find the minimum length substring of the string1 which contains all the characters of string2. Help him to find the substring

Input Format:

The first line of the input contains string1. String1 can be a string containing spaces also. The second line of the input contains string2. String2 can be a string containing spaces also.

Constraints:

Length of both the strings can be at max 10^4

output format

Output the substring in a single line. If no such substring exist then output "No string" without quotes

sample input

qwerty asdfgh qazxsw

qas

sample output

qazxs

Unlock

Shekhar is a bomb defusal specialist. He once encountered a bomb that can be defused only by a secret code. He is given a number N and a number K. And he is also given permutation of first N natural numbers . The defusal code is the largest permutation possible by doing exactly K swaps among a pair of the given permutation. Help him to find the final permutation.

Input Format:

First line contains ​an integer N and an integer k. The next line contains N space separated integers denoting the given permutation.

Constraints:

1 <= n <= 10^5 1<= K <= 10^9

output format

The final permutation of the numbers with every number separated by a space with other number.

sample input

5 2

3 4 1 2 5

sample output

5 4 3 2 1

Subarrays with distinct elements

Given an array, the task is to calculate the sum of lengths of contiguous subarrays having all elements distinct

Input Format:

An integer n denoting size of array followed by n integers

Constraints:

1<=N<=10^5

output format

The answer mod 10^9+7

sample input

3

1 2 3

sample output

10