

Problem A. Seems easy but not

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

There some text where you have to count word and output them by sorting it's count.

Input

The first line contains string Text where size of string is $1 \leq N \leq 100$.

Output

Output count of words from text line and result must be sorted from max to min count. If some words have same count of appearance then sort them in lexicographically order.

Examples

standard input	standard output
some repeating words words words but	words : 3 but : 1 repeating : 1 some : 1
how do how do do you doing how you how	how : 4 do : 3 you : 2 doing : 1
illl	illl : 1

Note

Take attention to the format of the output - print spaces before and after ":" sign as it shown in the example.

Problem B. Aslan and password

Input file: `standard input`
Output file: `standard output`
Time limit: 2 seconds
Memory limit: 256 megabytes

Nurbol tries to hack Aslan's steam account every week. But Aslan is a very lazy person and he has a simple algorithm for new passwords. He just takes a number in which all digits are different. And that number is the smallest number between l and r (l and r inclusive). Help Nurbol find the password if he knows the numbers l and r . If there are no such number, Nurbol just says: "Understandable, have a great day". Continuation of the story, will be on the final exam:)

Input

Integers l and r . ($1000 \leq l \leq r \leq 100000$).

Output

Integer - password. Or "Understandable, have a great day" without quotes.

Examples

standard input	standard output
1000 1030	1023
1000 1022	Understandable, have a great day
3222 4000	3240
12345 12345	12345

Problem C. Vanya and Primes 2

Input file: `standard input`
Output file: `standard output`
Time limit: 2 seconds
Memory limit: 256 megabytes

On the previous quiz, you needed to find n-th prime for Vanya. I think it was very easy, so let's make it a little harder. You need to find a prime whose index is n-th prime. As an example prime numbers is: 2, 3, 5, 7... have indexes 1,2,3,4... so 2 and 3 indexes are primes too, therefore we have sequence of "superprimes" like: 3, 5, 11, 17... Find n-th superprime.

Input

Integer n. ($1 \leq n \leq 100$)

Output

N-th superprime

Examples

standard input	standard output
1	3
2	5
3	11
5	31

Problem D. No.9 Type S

Input file: **standard input**
Output file: **standard output**
Time limit: **2 seconds**
Memory limit: **256 megabytes**

After losing 2B, 9S was left alone. 9S's block of memories began to disintegrate, his thoughts became incoherent. 9S decided to run a self-test on its system. We have a representation of its memory block in the form of an NxM matrix. 0 - void, 1 - memory cell. How many parts did the memory block split into? If the memory block is empty, output - "nothing is left".

Input

First line n, m. ($3 \leq n, m \leq 10$). Next lines n rows, with m columns consist of 1 or 0.

Output

Integer - How many parts did the memory block split into, or "nothing is left" without quotes.

Examples

standard input	standard output
4 4 0000 1111 0110 0000	1
5 5 10111 10111 10000 00000 11111	3
3 3 000 000 000	nothing is left
4 4 1010 0101 1010 0101	8

Problem E. Calendar

Input file: `standard input`
Output file: `standard output`
Time limit: 1 second
Memory limit: 256 megabytes

You're given n dates in format $DD-MM-YYYY$. Sort them in ascending and print in the same format.

Input

The first line contains one integer n ($1 \leq n \leq 10^3$). Next n lines contain dates in format $DD-MM-YYYY$ ($1 \leq D \leq 31, 1 \leq M \leq 12, 1900 \leq Y \leq 3000$).

Output

Print sorted dates in the same format as the input.

Examples

standard input	standard output
3 01-12-2000 01-11-2000 31-10-2000	31-10-2000 01-11-2000 01-12-2000
4 01-12-1999 12-11-2002 20-02-1900 31-01-1999	20-02-1900 31-01-1999 01-12-1999 12-11-2002

Problem F. Sum of two numbers

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

You're given two arrays of numbers. For each number in the second array print "YES" if it can be viewed as sum of two elements with distinct indices from the first array, and "NO" otherwise.

Input

The first line contains an integer n ($1 \leq n \leq 1000$), number of elements in the first array. The next line contains n integers, elements of the first array ($1 \leq a_i \leq 10^9$). Next line contains one integer m ($1 \leq m \leq 10^5$), number of elements in the second array. The last line contains m integers ($1 \leq b_i \leq 10^9$), elements for the second array.

Output

For each element in the second array print in separate line "YES" if it can be viewed as sum of two elements with distinct indices from the first array, and "NO" otherwise.

Examples

standard input	standard output
9	YES
1 1 7 7 8 10 10 10 8	YES
6	NO
8 18 30 20 1 16	YES
	NO
	YES
5	YES
1 19 37 19 35	NO
4	YES
38 70 20 39	NO

Problem G. Merge

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Given two sorted integer arrays a and b , merge a into b as one sorted array.

Input

The first line contains one integer n ($1 \leq n \leq 10^5$) — a size. The second line contains n integers a_i ($1 \leq a_i \leq 10^5$) — elements of array. The third line contains one integer m ($1 \leq m \leq 10^5$) — b size. The next line contains m integers b_i ($1 \leq b_i \leq 10^5$) — elements of array.

Output

Array B into sorted order.

Examples

standard input	standard output
5 4 5 6 7 10 5 2 4 6 7 8	2 4 4 5 6 6 7 7 8 10
3 1 4 7 1 6	1 4 6 7
4 2 5 7 8 3 2 4 9	2 2 4 5 7 8 9
2 3 10 4 1 3 6 8	1 3 3 6 8 10
1 4 4 1 1 5 6	1 1 4 5 6