Problem A. Statue

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

Almaz received statues of various sizes as a gift from a friend. Since he likes to make things perfect, he wants to make sure that each statue is larger than the previous one exactly by 1. For this he needs additional statues. Help him figure out the minimum number of additional statues needed. (there are no duplicates)

Input

Given array. The first line contains integer n ($1 <= n <= 50$) — array size. The next line contains n integers a[i] ($1 <= a[i] <= 100$) — elements of array.

Output

You need to print how many additional statue needed.

Examples

standard input	standard output
4 6 2 3 8	3
2 0 3	2

Note

1st Ex: needs statues of sizes 4, 5 and 7. (3)

Problem B. Matrix lines

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

You are given $N \times N$ matrix. Print all lines parallel to the main diagonal. Main diagonal comes from top-left to bottom-right corner.

Input

The first line of the input contains integer number N ($1 \le N \le 100$). In the next N lines you are given N integer numbers - elements of the array.

Output

Print all the lines parallel to the main diagonal, starting from the top-right, each on new line.

Examples

standard input	standard output
3 1 2 3 4 5 6 7 8 9	3 2 6 1 5 9 4 8 7
2 3 4 8 10	4 3 10 8
4 9 8 9 7 0 8 6 3 9 9 9 9 5 6 3 1	7 9 3 8 6 9 9 8 9 1 0 9 3 9 6 5

Problem C. Array modes

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

You are given an array of integer numbers. Print its mode. Mode is the number that occurs most frequently in the array. If there is several modes, print them in descending order.

Input

The first line of the input contains integer number n ($1 \le n \le 1000$). In the next line you are given $a_1, a_2, ..., a_n$ - elements of the array. ($1 \le a_i \le 1000$).

Output

Print array's mode(-s) in descending order.

Examples

standard input	standard output
10 1 2 2 9 8 9 6 6 7 6	6
7 1 9 4 8 2 8 1	8 1
6 9 20 64 7 3 92	92 64 20 9 7 3
5 1 1 1 1 1	1

Problem D. Not a palindrome

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

You're given string s. Print the maximum length of its substring that is not a palindrome. If there is no such substring print 0.

Input

The only line of input contains string s ($1 \le length(s) \le 100$).

Output

Print the maximum length of substring of given string that is not a palindrome.

Examples

standard input	standard output
aaaaaaa	0
bbaaabb	6
abcdcb	6

Problem E. Awesome quiz

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

One day the freshmen passed the PP1 quiz. There were 9 problems in the exam. Daniil wants to calculate how many tasks were completed by students from his group. He decided to automate this process. He has created string s, each character in this string shows how many tasks the student has completed. Example: "342". The first student completed 3 tasks, the second 4 tasks, the third 2 tasks. Help automate this process and display statistics.

Input

String s: 1 <= string size <= 300.

Output

In decreasing order, in each line: How many problems have been done + ":"with a space + number of students who also solved the same number of problems.

Examples

standard input	standard output
1234567890	0: 1
	1: 1
	2: 1
	3: 1
	4: 1
	5: 1
	6: 1
	7: 1
	8: 1
	9: 1
999833	3: 2
	8: 1
	9: 3
000403339	0: 4
	3: 3
	4: 1
	9: 1
999999999999999	9: 15
000999444555	0: 3
	4: 3
	5: 3
	9: 3

Note

If 0 students solved the 'n' tasks, you shouldn't display this number of tasks

Problem F. 73517. High quality matrix

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

Rayan has a two-dimensional array with n rows and m columns. He wants to estimate the quality of the array with respect to some number x.

Quality of a two-dimensional array with respect to x is calculated as the number of rows in the array that contains number x in them.

Given a two-dimensional array and a number x, can you help Rayan with calculating the array's quality with respect to x?

Input

The first line of input contains three space-separated integers n, m, x — the number of rows and columns of the array and the number that's used to calculate the quality ($1 \leq n, m \leq 200, 1 \leq x \leq 10^6$).

Output

Output a single integer — the number of rows containing x.

Examples

standard input	standard output
3 5 10 1 2 6 10 4 6 5 1 7 2 4 4 10 2 10	2
3 3 1 2 3 3 4 2 9 4 5 6	0
2 4 6 6 6 6 6 7 7 7 7	1

Note

In the first example, only rows 1 and 3 contain number 10.

In the second example, no row contains 1.

In the third example, only the first row contains 6.

Problem G. Repeating letters

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

Given string s. You need to print new string which contain repeating letters in appearing order. Guaranteed that the string only has small letters of the English alphabet.

Input

The program receives one stiring s.

Output

The program should print the resulting string.

Examples

standard input	standard output
abcdabd	abd
programminglanguage	rmgangag
asdfasd	asd

Problem H. 73314. Shift+delete

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

Have you ever tried to create your own language? Akerke, another hero of our legends, states that it is very simple! She just picks up one letter of the Latin alphabet and never uses that letter anymore. That is the way how she comes up with a new language.

Now, when her language has become very popular among her friends, she decided to make a translator. As she is not a programmer, she dared to ask for your help in this. The translator should get a string, delete all occurrences of some letter and output the modified string.

Can you help Akerke in creating a translator?

Input

The first line of input contains a single lowercase Latin letter c — letter that is never used in Akerke's language.

The second line of input contains string s — a word in a normal language that is going to be translated to Akerke's new language. Given word consists of only lowercase Latin letters.

It is guaranteed that the letter c appears in s at least once and there are other letters than c in s.

Output

Output a string in a single line — string s, from which all occurrences of letter c are deleted.

Examples

standard input	standard output
i elimination	elmnaton
a amplification	mplifiction

Problem I. Yelnur and Training

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

Yelnur is very ambitious kid who always loves training. Today his training is in the forest. He made some jumps, each jump in one of the four directions. He clearly remembers direction of each his jump. But at the end he ended up being at the zone he doesn't remember. Help him to get back to the position he started his training.

His moves represents string containing characters **R, L, F, B**.

R - jump to right, **L** - jump to left, **F** - jump forward, **B** - jump backwards.

Your task is to **output minimal sequnce of directions in alphabetical order**, so that Yelnur can get back. In case he is already in the position he started, **output "Chill Yelnur"**.

Input

Single line containing string **S**, sequence of directions of Yelnur's jumps. ($1 \leq$ S.size() ≤ 10000).

Output

Single line, minimal sequence of directions or "Chill Yelnur".

Examples

standard input	standard output
BR	FL
LLFFB	BRR
RBBRRBL	FFFLL

Problem J. Matrix

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

You are given string **S** representing drone's movement script. Initially, drone stays at the (0, 0) coordinate. Then according to the script it starts to move. Drone can move in four possible directions: up(U), down(D), left(L), right(R).

Your task is to construct **N×M** matrix representing his path. For each coordinate (**i, j | i<N, j<M**), output '*', in case drone was in that coordinate, and 'X' in case it wasn't.

Input

First line contains string **S**, second line contains two space separated integers **N** and **M** ($1 \le N, M \le 100$).

Output

N×M matrix representing his path

Examples

standard input	standard output

DDRRUURDURDR
5 6
	`*X***X`
	`*X****`
	`***XXX`
	`XXXXXX`
	`XXXXXX`

RDUDDDLRDUDUR
5 6
	`**XXXX`
	`X*XXXX`
	`X*XXXX`
	`***XXX`
	`X*XXXX`

DDURRDDULD
6 5
	`*XXXX`
	`***XX`
	`***XX`
	`X**XX`
	`XXXXX`
	`XXXXX`