Problem A. Day Of Week

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

Days of the week are represented as three-letter strings ("Mon", "Tue", "Wed", "Thu", "Fri", "Sat", "Sun"). Write a solution that, given a string S representing the day of the week and an integer K, prints the day of the week that is K days later.

Input

The only line contains string S — day of the week and integer K ($0 \le K \le 500$).

Output

Print the single string — the day of the week that is K days later than S.

Examples

standard input	standard output
Wed 2	Fri
Sat 23	Mon

Problem B. Forbidden Trios

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

Write a solution that, given a string S of N lowercase English letters, prints a string with no instances of three identical consecutive letters, obtained from S by deleting the minimum possible number of letters.

Input

The only line contains string $S(1 \leq |S| \leq 2 \cdot 10^5)$ — initial string.

Output

Print the single string — the answer.

Examples

standard input	standard output
eedaaad	eedaad
xxxtxxx	xxtxx
uuuuxaaaaxuuu	uuxaaxuu

Problem C. Distinct Array Generator

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

Given an integer N, find an array containing N unique integers that sum up to 0, array elements cannot exceed 10^{18} in absolute value. You can print any such array.

For example, given $N = 4$, the answer could be $[1, 0, -3, 2]$ or $[-2, 1, -4, 5]$. The answer $[1, -1, 1, 3]$ would be incorrect (because value 1 occurs twice). For $N = 3$ one of the possible answers is $[-1, 0, 1]$ (but there are many more correct answers).

Input

The only line contains integer $N(1 \leq N \leq 100)$ — array length.

Output

Print the resulting array.

Examples

standard input	standard output
4	-2 1 -4 5
3	1 2 -3

Problem D. Find Close Numbers

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

Given an array A of N integers, print "YES" if A contains at least two elements which differ by 1, and "NO" otherwise.

Input

The first line contains integer N ($1 \le N \le 10^5$) — total number of array elements.

The second line contains N integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$) — the array elements.

Output

Print "YES" if A contains at least two elements which differ by 1, and "NO" otherwise.

Examples

standard input	standard output
1 7	NO
2 4 3	YES
5 11 1 8 12 14	YES
5 4 10 8 5 9	YES
5 5 5 5 5 5	NO

Problem E. Sticks

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

There are two wooden sticks of lengths A and B respectively. Each of them can be cut into shorter sticks of integer lengths. Our goal is to construct the largest possible square. In order to do this, we want to cut the sticks in such a way as to achieve four sticks of the same length (note that there can be some leftover pieces). What is the longest side of square that we can achieve?

Input

The single line contains integers A and B ($1 \le A, B \le 10^9$) — lengths of sticks.

Output

Print the longest side of square that we can achieve.

Examples

standard input	standard output
10 21	7
13 11	5
2 1	0
1 8	2

Problem F. Light bulbs

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

There are N bulbs, numbered from 1 to N, arranged in a row. The first bulb is plugged into the power socket and each successive bulb is connected to the previous one (the second bulb to the first, the third bulb to the second, etc.). Initially, all the bulbs are turned off. At moment K (for K from 0 to $N-1$), we turn on the $A[K]$-th bulb. A bulb shines if it is on and all the previous bulbs are turned on too. Write a solution that, given an array A of N different integers from 1 to N, prints the number of moments for which every turned on bulb shines.

Input

The first line contains integer N ($1 \le N \le 10^5$) — total number of array elements.

The second line contains N integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le N$) — elements of array A, all of them are distinct.

Output

Print the number of moments for which every turned on bulb shines.

Examples

standard input	standard output
5 2 1 3 5 4	3
5 2 3 4 1 5	2
5 1 3 4 2 5	3