

Problem B. Describe A Number

Input file: describe.in
Output file: describe.out
Time limit: 2 seconds
Memory limit: 256 megabytes

A somewhat popular puzzle goes like this: what's the next number in sequence 1, 11, 21, 1211, 111221, 312211?

The answer is 13112221. And the explanation is: given a number, we describe groups of consecutive equal digits as we read it. For example, 312211 is “one three, then one one, then two twos, and then two ones”, which translates to 13112221. More formally, for each group of equal digits we write the size of the group as an integer without leading zeroes, followed by the digit itself. For example, 1111111111 (ten ones) is described as 101.

You're given a number x , and need to find the shortest possible predecessor of this number — such number y that transforms to x after zero or more applications of the description operation detailed above. The length of the number is the length of its decimal representation.

Input

The only line of the input file contains one number x without leading zeroes. x will contain at least one and at most 10^4 digits.

Output

Print the shortest possible predecessor y without leading zeroes. In case there are several possible shortest predecessors, output any. Note that we disallow leading zeroes, so for example $y = 0$ is not possible.

Examples

describe.in	describe.out
13112221	1
99	99