

# Bracket Integer

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         1024 megabytes

Let  $(_w$  and  $)_w$  be a round bracket of weight  $w$ . Define the balanced weighted bracket sequence (BWBS) as follows:

- An empty sequence is a BWBS.
- If  $P$  is a BCBS, then  $(_wP)_w$  is also a BCBS. That is, the two brackets at the beginning and the end have the same weight.
- If  $P$  and  $Q$  are both BWBS, then  $PQ$  is also a BWBS.

For example,  $(_1(3)3)_1$  and  $(_5(7)7(2)2)_5$  are both BWBS, while  $(_1(3)1)_3$  and  $)_5(5(7)7)$  are not.

Consider a positive integer with  $n$  digits without leading zeros, where its  $i$ -th most significant digit is  $d_i$  (that is, the integer is equal to  $\sum_{i=1}^n d_i \times 10^{n-i}$ ). We say the integer is a bracket integer, if there exists a balanced weighted bracket sequence where the  $i$ -th bracket has weight  $d_i$ . For example, 1000022122 is a bracket integer, as there exists such BWBS  $(_1(0(0)0)0(2)2)_1(2)2$ .

Given an integer  $A$ , find the largest bracket integer smaller than or equal to  $A$ .

## Input

There are multiple test cases. The first line of the input contains an integer  $T$  ( $1 \leq T \leq 10^4$ ), indicating the number of test cases. For each test case:

The first and only line contains an integer  $A$  ( $11 \leq A < 10^{2 \times 10^5}$ ).

It's guaranteed that the total number of digits of  $A$  of all test cases does not exceed  $2 \times 10^5$ .

## Output

For each test case output one line containing one integer, indicating the largest bracket integer smaller than or equal to  $A$ . As 11 is a bracket integer, the answer always exists. Note that bracket integers must not have leading zeros.

## Example

standard input	standard output
4	20244202
20250525	11451418814154
11451419198100	1001
1001	99
1000	