



Input

The first line of the input gives the number of test cases, T . T lines follow. Each line contains a single test case and contains only the string S .



SWITCH TO EDITOR

Output

For each test case, output one line containing Case # x : y , where x is the test case number (starting from 1) and y is the string S' defined above.

Limits

Time limit: 20 seconds per test set.

Memory limit: 1GB.

$1 \leq T \leq 100$.

$1 \leq \text{length of } S \leq 100$.

Test set 1 (Visible Verdict)

Each character in S is either 0 or 1.

Test set 2 (Visible Verdict)

Each character in S is a decimal digit between 0 and 9, inclusive.

Sample

Input	Output
4	Case #1: 0000
0000	Case #2: (1)0(1)
101	Case #3: (111)000
111000	Case #4: (1)
1	

The strings $()0000()$, $(1)0((((1)))1)$ and $(1)(11)000$ are not valid solutions to Sample Cases #1, #2 and #3, respectively, only because they are not of minimum length. In addition, $1)($ and $)(1$ are not valid solutions to Sample Case #4 because they contain unmatched parentheses and the nesting depth is 0 at the position where there is a 1.

You can create sample inputs that are valid only for Test Set 2 by removing the parentheses from the example strings mentioned in the problem statement.