

## D. Anton and School - 2

time limit per test: 2 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

As you probably know, Anton goes to school. One of the school subjects that Anton studies is Bracketology. On the Bracketology lessons students usually learn different sequences that consist of round brackets (characters "(" and ")" (without quotes)).

On the last lesson Anton learned about the regular simple bracket sequences (RSBS). A bracket sequence  $s$  of length  $n$  is an RSBS if the following conditions are met:

- It is not empty (that is  $n \neq 0$ ).
- The length of the sequence is even.
- First charactes of the sequence are equal to "(".
- Last charactes of the sequence are equal to ")"

For example, the sequence " ( ( ( ) ) )" is an RSBS but the sequences " ( ( ( ) )" and " ( ( ) ( ) )" are not RSBS.

Elena Ivanovna, Anton's teacher, gave him the following task as a homework. Given a bracket sequence  $s$ . Find the number of its distinct subsequences such that they are RSBS. Note that a subsequence of  $s$  is a string that can be obtained from  $s$  by deleting some of its elements. Two subsequences are considered distinct if distinct sets of positions are deleted.

Because the answer can be very big and Anton's teacher doesn't like big numbers, she asks Anton to find the answer modulo  $10^9 + 7$ .

Anton thought of this task for a very long time, but he still doesn't know how to solve it. Help Anton to solve this task and write a program that finds the answer for it!

### Input

The only line of the input contains a string  $s$  — the bracket sequence given in Anton's homework. The string consists only of characters "(" and ")" (without quotes). It's guaranteed that the string is not empty and its length doesn't exceed 200 000.

### Output

Output one number — the answer for the task modulo  $10^9 + 7$ .

### Examples

<b>input</b>
) ( ( ) (
<b>output</b>
6

  

<b>input</b>
( ) ( ) (
<b>output</b>
7

  

<b>input</b>
)))

<b>output</b>
0

**Note**

In the first sample the following subsequences are possible:

- If we delete characters at the positions 1 and 5 (numbering starts with one), we will get the subsequence "( )".
- If we delete characters at the positions 1, 2, 3 and 4, we will get the subsequence "()".
- If we delete characters at the positions 1, 2, 4 and 5, we will get the subsequence "()".
- If we delete characters at the positions 1, 2, 5 and 6, we will get the subsequence "()".
- If we delete characters at the positions 1, 3, 4 and 5, we will get the subsequence "()".
- If we delete characters at the positions 1, 3, 5 and 6, we will get the subsequence "()".

The rest of the subsequences are not RSBS. So we got 6 distinct subsequences that are RSBS, so the answer is 6.