PROBLEM 3 - CAESAR CIPHER

Julia has decided to encrypt her notes so that nobody else could understand them. The code is based on the so–called Caesar Cipher where each letter is shifted a certain number of places left or right through the alphabet. In this context, the alphabet is treated as being circular so that the first letter follows after the last letter, and the last letter precedes the first letter.

Julia applies these ideas separately to uppercase letters, lower case letters, and digits. For example, with a shift of 1, 'A' becomes 'B', 'Z' becomes 'A', 'a' becomes 'b', 'z' becomes 'a', '0' becomes '1', '9' becomes '0'. Spaces, punctuation, and any other symbols are not affected in this scheme.

Your task is to help Julia encrypt her notes.

INPUT FORMAT

Each line of input begins with a number representing the shift. The number will be in the range -1,000,000,000 to 1,000,000,000. The number is followed by a colon (':'). The rest of the line consists of a string of 1 to 200 arbitrary characters and represents a fragment of the text to be encrypted. A single '#' on a line by itself indicates the end of input.

SAMPLE INPUT:

```
0:Clear text!
1:David and Jane's wedding, March 2002, Alexandria
-1:Bahamas Holiday August 2001
53:ACMZ, acmz, 0379!
26000000:ACMZ, acmz, 0379!
26000001:ACMZ, acmz, 0379!
#
```

OUTPUT FORMAT

Output will be the corresponding encrypted text fragments, one per line.

SAMPLE OUTPUT:

```
Clear text!
Ebwje boe Kbof't xfeejoh, Nbsdi 3113, Bmfyboesjb
Azgzlzr Gnkhczx Ztftrs 1990
BDNA, bdna, 3602!
ACMZ, acmz, 0379!
BDNA, bdna, 1480!
```