C. TONTON AND HOMEWORK
Time limit: 1s | Memory limit: 512MB
Input stream: stdin | Output stream: stdout

At school of Tonton, teacher assigns homework to Tobi. A string S with length not greater than 10^{18} and consisting only lower case English alphabet letter from 'a' to 'z' is encoded to string S_E which consists of only lower case letter 'a' to 'z' and digits. The encoding algorithm can be described as follows: From left to right, we replace the consecutive identical characters by one character and a number. The length of encoded string is not greater than 1000.

For example, string S = aaabbbbaaaaaaaaaaz can be encoded to S_E = a3b4a10z1

The homework consists of four tasks as follows:

1. Given two encoded string X_E and Y_E from string X and Y respectively. Output Z_E which is the encoded string of $Z = X + Y$.
   Example: X_E = a1b10, Y_E = b3c9 so Z_E = a1b13c9

2. Given an encoded string S_E from S and two integer number p and c. Delete c characters from position p. Output the encoded result.
   Example: S_E = a10b20, p=2, c=10 so the result S_E = a1b19 after being deleted.

3. Given an encoded string S_E from S and two integer number p and c. Output the substring of S from p to p + c - 1. Of course, the output should be encoded.
   Example: S_E =a10b20, p=2, c=10 so the answer is a9b1

4. Given two encoded string X_E and Y_E, and an integer number p. String Z is obtained by inserting string Y to string X at position p. Output the encoded string Z.
   Example: X_E = a10b20, Y_E = d1b2, p=11, so Z_E= a10d1b22

Tobi needs your help, because his grandmother is coming, and brings a lot of food. He wants to eat but do not want to do the homework.
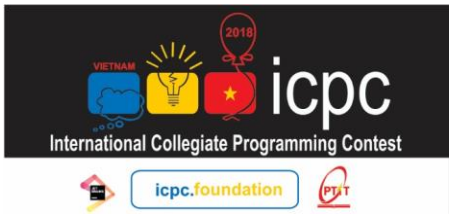
Input
   There are several tasks, each task format is as follows:
- The first line starts by '@' character followed by a number 1, 2, 3 or 4, which is the task index you have to do.
- If the number is 1, the next two lines are two string X and Y. If the number is 2 or 3, the second line is string S, then the third line contains two integer p and c separated by a single space. If the number is 4, the second and third line are two string X and Y, then the next line is an integer p.

Output
   Write answer for each task in one line, the format of one line is as follows:
   The first character is '@', then followed by number 1, 2, 3 or 4 which denotes the task index. Then character ':', and a single space and finally the encoded string result.

Sample

Input	Output
@1 a1b10 b3c9 @2 a10b20 2 10 @3 a10b20 2 10 @4 a10b20 d1b2 11 @1 a1 b3	@1: a1b13c9 @2: a1b19 @3: a9b1 @4: a10d1b22 @1: a1b3