

Count and Say

The count-and-say sequence is the sequence of integers beginning as follows:

1, 11, 21, 1211, 111221, ...

1 is read off as "one 1" or 11 .

11 is read off as "two 1s" or 21 .

21 is read off as "one 2 , then one 1" or 1211 .

Given an integer n , generate the n^{th} sequence. The sequence is 1-indexed, so the first spot is index 1, not 0.

Note: The sequence of integers will be represented as a string.

Input

The first line will contain an integer n indicating the number of test cases to follow. On each line, there will be a test case consisting of an integer.

Output

The count and say version of each test case.

Example

Input:

2
1
4

Output:

1
1211