

# Problem C: Library Confusion

Filename: library

Time limit: 10 seconds

Bessie is working at the library and is tasked with organizing books according to the name of the book's author. Bessie recently received a shipment of books that are arranged in a line, numbered 1 through  $n$  but not organized correctly. Bessie is curious about how many bad pairs of books there are. A book pair is bad if the  $i^{\text{th}}$  book's author is alphabetically bigger than the  $j^{\text{th}}$  book's author for  $i < j$ . Luckily for Bessie, the author's name is denoted with a single lowercase letter.

## Problem

Given the line of the books' authors, can you help Bessie figure out how many bad pairs are in this shipment. (Note: books with authors having the same letter do not count as a bad pair).

## Input

The first line will contain a single integer  $c$ , the number of test cases.

The first line will contain one integer  $n$ .

The next line contains a string of length  $n$  composed of only lowercase letters.

## Output

For each input case on a line by itself, output a single integer: the number of bad pairs of authors there are.

## Input Bounds and Corresponding Credit

20 Points	80 Points
<ul style="list-style-type: none"><li>• <math>1 \leq c \leq 30</math></li><li>• <math>1 \leq n \leq 1000</math></li></ul>	<ul style="list-style-type: none"><li>• <math>1 \leq c \leq 30</math></li><li>• <math>1 \leq n \leq 3 \cdot 10^5</math></li></ul>

## Samples

Input	Output
2	5
7 abkaczf	15
10 cihgfmooalp	