Problem G. Accurate

Time limit 2000 ms
Mem limit 262144 kB

Lee was cleaning his house for the party when he found a messy string under the carpets. Now he'd like to make it clean accurately and in a stylish way...

The string s he found is a binary string of length n (i. e. string consists only of `0`-s and `1`-s).

In one move he can choose two consecutive characters s_i and s_{i+1}, and if s_i is `1` and s_{i+1} is `0`, he can erase **exactly one of them** (he can choose which one to erase but he can't erase both characters simultaneously). The string shrinks after erasing.

Lee can make an arbitrary number of moves (possibly zero) and he'd like to make the string s as *clean* as possible. He thinks for two different strings x and y, the **shorter** string is cleaner, and if they are the same length, then the *lexicographically smaller* string is cleaner.

Now you should answer t test cases: for the i-th test case, print the cleanest possible string that Lee can get by doing some number of moves.

Small reminder: if we have two strings x and y of the same length then x is lexicographically smaller than y if there is a position i such that $x_1 = y_1$, $x_2 = y_2$,..., $x_{i-1} = y_{i-1}$ and $x_i < y_i$.

Input

The first line contains the integer t ($1 \le t \le 10^4$) — the number of test cases.

Next $2t$ lines contain test cases — one per two lines.

The first line of each test case contains the integer n ($1 \le n \le 10^5$) — the length of the string s.

The second line contains the binary string s. The string s is a string of length n which consists only of zeroes and ones.

It's guaranteed that sum of n over test cases doesn't exceed 10^5.

Output

Print t answers — one per test case.

The answer to the i-th test case is the cleanest string Lee can get after doing some number of moves (possibly zero).

Sample 1

Input	Output
5 10 0001111111 4 0101 8 11001101 10 1110000000 1 1	0001111111 001 01 0 1

Note

In the first test case, Lee can't perform any moves.

In the second test case, Lee should erase s_2.

In the third test case, Lee can make moves, for example, in the following order: 11001101 $\rightarrow$ 1100101 $\rightarrow$ 110101 $\rightarrow$ 10101 $\rightarrow$ 1101 $\rightarrow$ 101 $\rightarrow$ 01.