010-11 Shorten

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

You are given a string S of length N consisting of `0` and `1`.

You can perform the following two operations on S:

- **Operation 1**: choose a contiguous substring `010` and replace it with `1`.
- **Operation 2**: choose a contiguous substring `11` and replace it with `1`.

Find the maximum number of operations you can perform.

You have T test cases; solve each of them.

Input

The input is given from Standard Input in the following format:

T
case_1
$\vdots$
case_T

Each test case is given in the following format:

N
S

- $1 \leq T \leq 10^5$
- $1 \leq N \leq 10^6$
- S is a string of length N consisting of `0` and `1`.
- The sum of N over all test cases does not exceed 10^6.
- T and N are integers.

Output

Print T lines. On the i-th line, output the answer to the i-th test case.

Example

standard input	standard output
5 6 010100 4 0110 3 100 2 00 20 01001100000001101001	3 2 0 0 11

Note

In the first test case, you can perform the operations as follows:

- Replace the underlined 010 of 01<u>010</u>0 with 1. S becomes 0110.
- Replace the underlined 11 of 0<u>11</u>0 with 1. S becomes 010.
- Replace the underlined 010 of <u>010</u> with 1. S becomes 1.

You can not perform the operations on S more than three times, so the answer is 3.