Stepping Stones

Time Limit : 1 Second
Memory Limit : 512 MB

Liausvia wants to cross a river of width N. She is at coordinate 0, and the other end of the river is at coordinate N + 1. There are N stepping stones on the river each at coordinate 1, 2, 3, ..., N. Thus, her initial plan was simply jumping from one stone to another until she reaches the other end (i.e. 0 → 1 → 2 → ... → N → N + 1).

However, due to an evil mastermind, Putra the Mad Man, "half" of the stones in the universe disappear, so, some of the stones on the river might as well disappear. This makes Liausvia feel sad as crossing the river is her dream. To cope with this, she trained herself very hard until finally obtained powerful legs to do a long jump. Specifically, instead of only jumping from coordinate P to P + 1, now she can also jump from coordinate P to P + 2.

For example, let N = 10 (thus the other end of the river is at coordinate 11), and the stones are at coordinates: 1, 3, 4, 5, 7, and 9 (2, 6, 8, and 10 disappeared).

```
0 1 * 3 4 5 * 7 * 9 * 11
```

One possible way for Liausvia to reach 11 is 0 → 1 → 3 → 4 → 5 → 7 → 9 → 11. Of course, she can also jump from 3 to 5 directly (3 → 5) instead of using an intermediate stone at 4 (3 → 4 → 5).

With this new power, she came back to the river to find out that she might still not be able to cross the river.

For example, with the same N as the previous example, but the stones are only at coordinates: 1, 3, 4, and 5.

```
0 1 * 3 4 5 * * * * * 11
```

In this case, Liausvia cannot reach 11 as the gap between 5 and 11 is 6 (more than 2).

Despaired as her dream shattered, Liausvia went to Kathmandu to learn magic from the Ancient One. After consulting with Dr. Effendy, one of the Ancient One's student, now Liausvia has the ability to conjure stones! With this new ability, she came back to the river again. However, conjuring stone requires a lot of energy thus she wants to conjure only a minimum number of stones such that she still can reach the other end of the river.

In the previous example, she can conjure stones at coordinate 7 and 9.

```
0 1 * 3 4 5 * * * * * 11
```

```
0 1 * 3 4 5 * 7 * 9 * 11
```

Then, she can reach the other end of the river at coordinate 11 with her legs power.

Given the status of each of the N stones (whether disappeared or not), you should compute the minimum number of stones Liausvia needs to conjure to be able to reach the other end of the river with her legs power.

Input

Input begins with an integer: T (1 ≤ T ≤ 100) denoting the number of cases.

Each case contains the following input block: Each case begins with one integer: N (1 ≤ N ≤ 1000) in a line. The next line contains a string: S of length N. Each character is either '0' or '1'. '0' denotes that the stone at that particular position is disappeared, while '1' denotes that the stone is still there.

Output

For each case, output in a line "`Case #X: Y`" where `X` is the case number (starts from 1) and `Y` is the output for the respective case.

Examples

input	Example #1

```
4
10
1011101010
10
1011100000
7
0000000
11
01100110100
```

output

```
Case #1: 0
Case #2: 2
Case #3: 3
Case #4: 2
```

explanation

Case 3: Liausvia needs to conjure 3 stones each at coordinate: 2, 4, and 6.

Case 4: Liausvia can conjure 2 stones each at coordinate: 4 and 10. There are other possibilities but none requires fewer than 2 stones.

End of Problem