

Stage One Confusion

time limit per test: 1 second (5 seconds for Python)
memory limit per test: 976.6 megabytes
input: standard input
output: standard output
points: 100 · problem code: stageoneconfusion

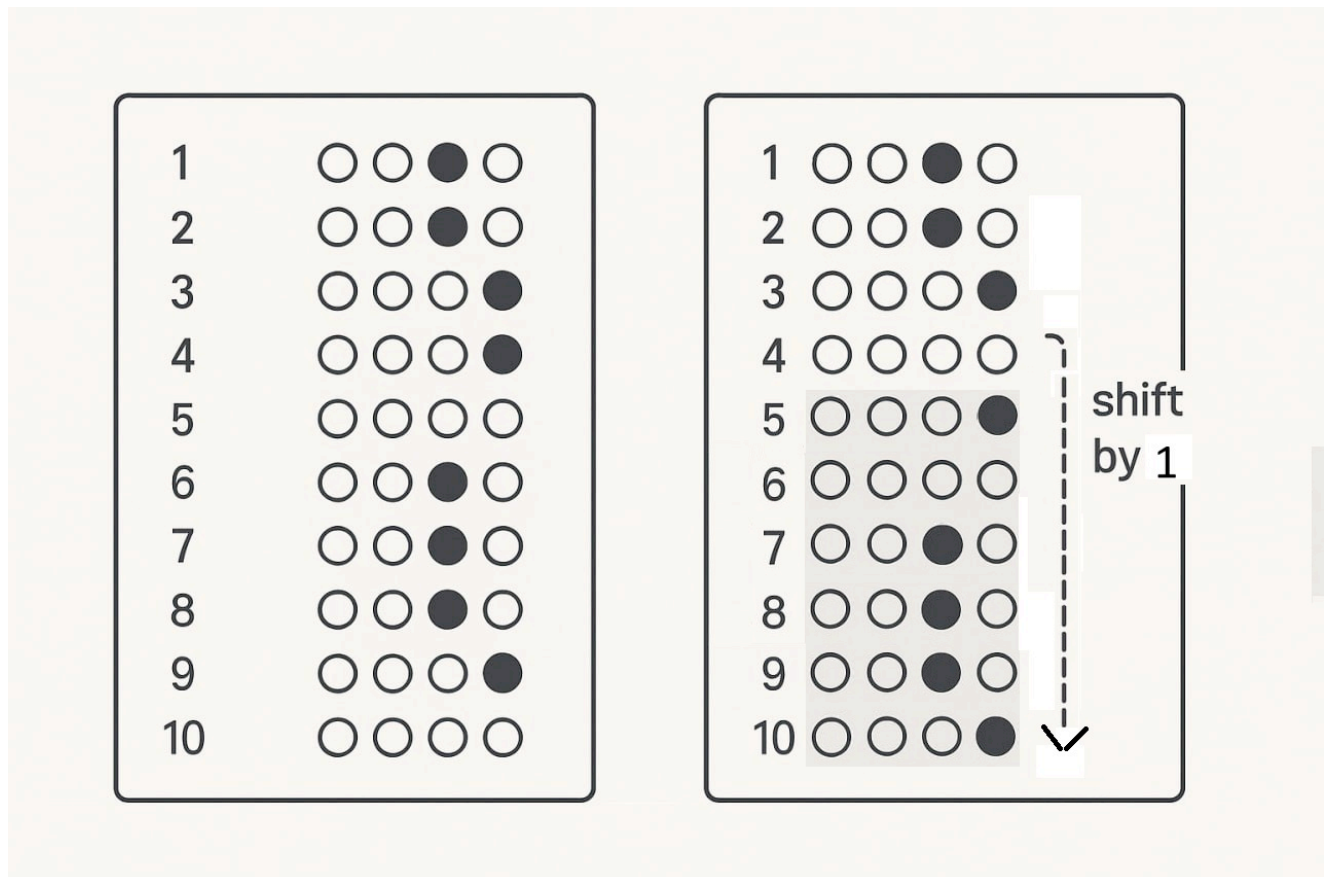
Parsa is taking a multiple-choice exam with n questions. He looks at the questions in order, answers some of them, and never goes back.

Parsa's answer sheet contains m answers. The i -th answer says that he chose option c_i for question p_i . The question numbers on the sheet are strictly increasing.

Parsa may have made at most one copying mistake on the sheet. Such a mistake could have happened to one consecutive block of his answers: while copying that block onto the sheet, every intended question number in the block was changed by the same nonzero offset. More precisely, starting from Parsa's intended answer sheet, one copying mistake consists of choosing one block $l, l+1, \dots, r$ and one nonzero integer d , then changing every question number in that block from q_i to $q_i + d$.

Both the intended question numbers and the written question numbers must be strictly increasing and between 1 and n . You may also decide that no mistake was made.

Given the correct answer key and Parsa's answer sheet as written, find the largest possible number of answers Parsa could have gotten correct before the copying mistake was made.



In the picture, one block is shifted by $d = 1$ while being copied onto the sheet.

Input

The first line contains an integer T , the number of test cases.

Each test case has the following format:

- The first line contains two integers n and m .
- The second line contains a string S of length n . The i -th character is the correct answer for question i .
- The next m lines each contain an integer p_i and a character c_i , meaning Parsa wrote answer c_i for question p_i .

If $m > 0$, it is guaranteed that $1 \leq p_1 < p_2 < \dots < p_m \leq n$.

Output

For each test case, print one integer: the maximum possible number of correct answers on Parsa's intended answer sheet, before any copying mistake.

Constraints

- $1 \leq T \leq 10^4$
- $1 \leq n \leq 2000$
- $0 \leq m \leq n$
- The sum of n over all test cases is ≤ 2000 .
- Each character of S and each c_i is one of **A**, **B**, **C**, **D**, or **E**.

Example 1

Input

```
5
5 4
AECDB
1 A
2 A
4 C
5 B
7 2
AAACDAA
1 C
3 D
7 2
AAACDAA
1 C
2 D
10 5
ABECCDBAEA
3 B
4 E
6 C
8 A
10 E
4 0
ABCD
```

Output

```
3
1
2
4
0
```

Explanation

In the first test case, the score on the sheet as written is 2. Parsa could have originally written that answer for question 3, then copied it as question 4 by mistake. Before that mistake, his score would have been 3.