# Meow String

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1.5 seconds |
| Memory limit: | 256 megabytes |

Genesis Mooncat just got rescued from the Moon. The owner wants to test its worthiness and give it a string $S$ with length $N$. The string is made of 4 characters: 'M', 'E', 'O', and 'W'. The owner will ask $Q$ queries regarding the string.

For each query, $Q_i$, you will be given two integers, $L_i$, and $R_i$. Consider the substring of $S$, starting from index $L_i$ and ending at index $R_i$, how many times does 'ME' appears as a substring?

This task seems tedious to Genisis Mooncat. Can you help Genesis Mooncat?

Note: A substring of a string is a contiguous subsequence of that string. So, string "league" is substring of string "programmingleague", but string "programmingg" is not.

Image source: https://mooncats.shop/

## Input

The first line of the input contains two space-separated integers $N$ and $Q$ ($2 \leq N \leq 10^5; 1 \leq Q \leq min(\frac{N \times (N-1)}{2}, 10^5)$— the length of the string $S$ and the number of queries respectively.

The second line of the input contains the string $S$ of length $N$ consisting only of 'M', 'E', 'O', and 'W'.

The next $Q$ lines contains two space-separated integers $L_i, R_i$ ($1 \leq L_i < R_i \leq N$) — the starting index and the ending index of substring of S for query $Q_i$.

## Output

For each query, output an integer per line — the number of 'ME' appears in the substring of S for query $Q_i$.

## Example

| standard input | standard output |
|---|---|
| 8 3<br>MEOWMEWO<br>1 8<br>3 7<br>1 4 | 2<br>1<br>1 |

## Note

Query 1: the substring of $S$ is the same as $S$, "**ME**OW**ME**WO", a total of 2 'ME's appear.

Query 2: the substring of $S$ is "OW**ME**W", one 'ME' appears.

Query 3: the substring of $S$ is "**ME**OW", one 'ME' appears.