Problem B. Baby's First Suffix Array Problem

A suffix array for string s of length n is a permutation sa of integers from 1 to n such that $s[sa_1..n], s[sa_2..n], \ldots, s[sa_n..n]$ is the list of non-empty suffixes of s sorted in lexicographical order. The rank table for suffixex of s is a permutation $rank$ of integers from 1 to n such that $rank_{sa_i} = i$.

Kotori has a string $s = s_1 s_2 \ldots s_n$. She would like to ask m queries. And in the i-th query, a substring $x = s[l_i..r_i]$ of s is given, Kotori would like to know the rank of suffix $s[k_i..r_i]$ of x.

Note $s[l..r]$ means the substring of s which starts from the l-th position and ends at the r-th position, both inclusive.

Input

There are multiple test cases. The first line of the input contains an integer T indicating the number of test cases. For each test case:

The first line contains two integers n and m ($1 \le n, m \le 5 \times 10^4$) – the length of the string and the number of queries.

The second line contains a string s of length n consisting only of lowercase English letters.

Each of the next m lines contains three integers l_i, r_i and k_i ($1 \le l_i \le r_i \le n, l_i \le k_i \le r_i$) denoting a query.

It is guaranteed that neither the sum of n or the sum of m of all test cases will exceed 5×10^4.

Output

For each query output one line containing one integer denoting the answer.

Example

standard input	standard output
2 10 4 baaabbabba 2 8 3 1 1 1 2 3 2 2 5 4 20 3 cccbccbadaacbbbcccab 14 17 16 3 20 17 17 20 18	2 1 2 3 4 15 3