

Prefix Suffix

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 256 megabytes

There are two strings $s = s_1 s_2 \dots s_n$ and $t = t_1 t_2 \dots t_m$. Several queries are given and for each query, you need to find the number of pairs (x, y) such that:

- $l_s \leq x \leq r_s, l_t \leq y \leq r_t$
- let $p = s_x s_{x+1} \dots s_n t_1 t_2 \dots t_y$, and p is a substring of s or t .

Input

The input contains multiple test cases. For each test case:

The first line contains three integers n, m and q ($1 \leq n, m, q \leq 5 \times 10^5$) – the length of s and t and the number of queries.

The second line contains a string s of length n . And the third line contains a string t of length m . Both strings consist only of lowercase English letters.

The next q lines, each contains four integers l_s, r_s, l_t, r_t ($1 \leq l_s \leq r_s \leq n, 1 \leq l_t \leq r_t \leq m$).

The sum of values of n in all test cases doesn't exceed 5×10^5 . The sum of values of m in all test cases doesn't exceed 5×10^5 . The sum of values of q in all test cases doesn't exceed 5×10^5 .

Output

For each query, output an integer denoting the answer.

Examples

standard input	standard output
3 3 3	3
aaa	0
aaa	1
1 3 1 3	
1 1 2 2	
3 3 1 1	