

HLCS

SEASON 8 – SIXTH ROUND



The top programmer Tanya has recently learned about **LCS** (Longest Common Substring) problem. As this problem was too easy for her, she came up with harder version of it.

In this new version, you are given two strings **S** and **T**, and **Q** queries. For every query you are given a pair of integers (**L[i]**, **R[i]**), that define the **substring of consecutive characters** of **S** between these two positions – **S(L[i]; R[i])**. Both border characters are included in this substring.

For every query you must find the value of **LCS(S(L[i]; R[i]) , T)**, i.e. the length of the longest common subsequence of **consecutive** characters for the strings **S(L[i]; R[i])** and **T**. If there is no common subsequence between the two strings, the answer to the query is 0.

Unfortunately, Tanya has troubles with this new problem. Help her, by writing a program **HLCS**, which solves this harder version of the **LCS** problem.

Input

The first two lines of the input file `hlcs.in` contain the strings **S** and **T**. The third line contains **Q** – the number of queries.

The next **Q** lines contain the borders of the queries - **L[i]** and **R[i]**.

Output

The output file `hlcs.out` must contain **Q** lines with one integer on each – the answers to the queries.

Constraints:

$$1 \leq |S|, |T|, Q \leq 300\,000$$

$$1 \leq L[i] \leq R[i] \leq |S|$$

Time limit: 1.5 sec

Memory limit: 256 MB

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Example tests:

Input (hlcs.in)	Output (hlcs.out)
abcdaaaaa daaaab 3 1 2 1 9 3 3	2 5 0
iwqeiowuqeoieuoiwqsahdlkhjslk sadjkiwqeiqoieusadwqe 4 1 10 1 20 4 10 1 30	5 5 2 5