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## H. Queries for Number of Palindromes

time limit per test: 5 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You've got a string  $s = s_1s_2\dots s_{|s|}$  of length  $|s|$ , consisting of lowercase English letters. There also are  $q$  queries, each query is described by two integers  $l_i, r_i$  ( $1 \leq l_i \leq r_i \leq |s|$ ). The answer to the query is the number of substrings of string  $s[l_i\dots r_i]$ , which are palindromes.

String  $s[l\dots r] = s_ls_{l+1}\dots s_r$  ( $1 \leq l \leq r \leq |s|$ ) is a *substring* of string  $s = s_1s_2\dots s_{|s|}$ .

String  $t$  is called a *palindrome*, if it reads the same from left to right and from right to left. Formally, if  $t = t_1t_2\dots t_{|t|} = t_{|t|}t_{|t|-1}\dots t_1$ .

### Input

The first line contains string  $s$  ( $1 \leq |s| \leq 5000$ ). The second line contains a single integer  $q$  ( $1 \leq q \leq 10^6$ ) — the number of queries. Next  $q$  lines contain the queries. The  $i$ -th of these lines contains two space-separated integers  $l_i, r_i$  ( $1 \leq l_i \leq r_i \leq |s|$ ) — the description of the  $i$ -th query.

It is guaranteed that the given string consists only of lowercase English letters.

### Output

Print  $q$  integers — the answers to the queries. Print the answers in the order, in which the queries are given in the input. Separate the printed numbers by whitespaces.

### Examples

input	
caaaba	
5	
1 1	
1 4	
2 3	
4 6	
4 5	
output	
1	
7	
3	
4	
2	

### Note

Consider the fourth query in the first test case. String  $s[4\dots 6] = \text{«aba»}$ . Its palindrome substrings are: «a», «b», «a», «aba».

### → Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

### CROC-MBTU 2012, Elimination Round (ACM-ICPC)

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You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

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Language: GNU G++ 5.1.0 ▼

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