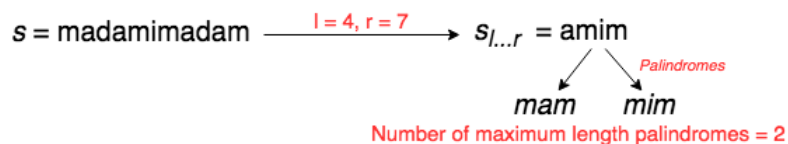# Maximum Palindromes

Madam Hannah Otto, the CEO of _Reviver_ Corp., is fond of palindromes, or words that read the same forwards or backwards. She thinks palindromic brand names are appealing to millennials.

As part of the marketing campaign for the company's new juicer called the _Rotator_™, Hannah decided to push the marketing team's palindrome-searching skills to a new _level_ with a new challenge.

In this challenge, Hannah provides a string s consisting of lowercase English letters. Every day, for q days, she would select two integers l and r, take the substring $s_{l...r}$ (the substring of s from index l to index r), and ask the following question: Consider all the palindromes that can be constructed from some of the letters from $s_{l...r}$. You can reorder the letters as you need.

Some of these palindromes have the maximum length among all these palindromes. How many maximum-length palindromes are there?

For example, if $s = \mathtt{madamimadam}$, $l = 4$ and $r = 7$, then we have,

Complete the functions $static\ void\ initialize\ (String\ s\ )$ and $static\ int\ answerQuery\ (int\ l,\ int\ r)$ and return the number of maximum-length palindromes.

Your job as the head of the marketing team is to answer all the questions. Since the answers can be very large, you are only required to find the answer modulo $10^9 + 7$.

Input Format

The first line contains the string s.

The second line contains a single integer q.

The ith of the next q lines contains two space-separated integers l_i, r_i denoting the l and r values Anna selected on the ith day.

Constraints

Here, $|s|$ denotes the length of s.

- $1 \le |s| \le 10^5$

- $1 \le q \le 10^5$

- $1 \le l_i \le r_i \le |s|$

Subtasks

For 30% of the total score:

- $1 \le |s| \le 100$

- $1 \le q \le 1000$

- $r_i - l_i \le 3$

For 60% of the total score:

- $1 \le |s| \le 100$
- $1 \le q \le 1000$

Output Format

For each query, print a single line containing a single integer denoting the answer.
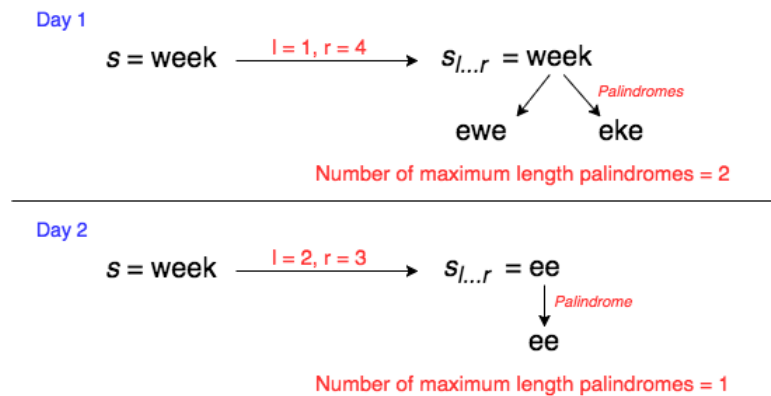
Sample Input 0

```
week
2
1 4
2 3
```

Sample Output 0

```
2
1
```

Explanation 0

On the first day, $l = 1$ and $r = 4$. The maximum-length palindromes are "ewe" and "eke".

On the second day, $l = 2$ and $r = 3$. The maximum-length palindrome is "ee".

Sample Input 1

```
abab
1
1 4
```

Sample Output 1

```
2
```

Explanation 1

Here, the maximum-length palindromes are "abba" and "baab".