Maximal Char Requests

In this challenge, a string and a list of intervals are given. The string consists of English letters only and it can contain both lowercase and uppercase letters.

For two different letters, we say that the first letter is greater than the second letter when the first letter comes later in the alphabet than the second letter ignoring the case of the letters.

The task is the following. For each given interval, you need to find the count of the greatest letter occurring in the string in that interval, ignoring the case of the letters, so occurrences of, for example, a and A are occurrences of the same letter.

Input Format

The first line contains integer N, denoting the length of the input string. The second line contains string S. The third line contains an integer Q, denoting the number of intervals. Each line of the Q subsequent lines contains two space-separated integers x_i and y_i, denoting the beginning and the end of ith interval.

Constraints

- $1 \leq N \leq 3 \cdot 10^5$
- $1 \leq Q \leq 10^5$
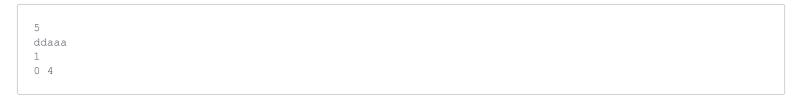- $0 \leq x_i \leq y_i < n$

Subtasks

- $1 \leq N \leq 2000$
- $1 \leq Q \leq 2000$

For 50% of the maximum score.

Output Format

For each interval, print the count of the greatest letter occurring in the string in that interval.
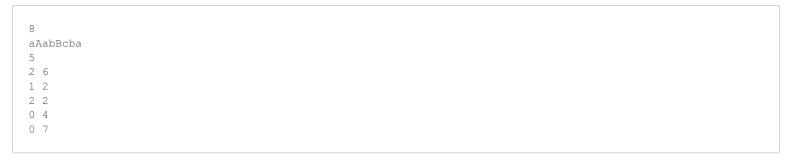
Sample Input 0

```
5
ddaaa
1
0 4
```

Sample Output 0

```
2
```

Explanation 0

The string is "ddaaa" and there is only one interval, i.e. the interval $[0, 4]$ denoting the whole string. The greatest character occuring in that interval is d and its count is 2, therefore, 2 is the answer.

Sample Input 1

```
8
aAabBcba
5
2 6
1 2
2 2
0 4
0 7
```

Sample Output 1

```
1
2
1
2
1
```

Explanation 1

The input string is "aAabBcba" and there are 5 intervals to check:

1. $[2, 6]$ -> aA[abBcb]a -> 'c' is the greatest and occurs 1 time

2. $[1, 2]$ -> a[Aa]bBcba -> 'a' is the greatest and occurs 2 times

3. $[2, 2]$ -> aA[a]bBcba -> 'a' is the greatest and occurs 1 time

4. $[0, 4]$ -> [aAabB]cba -> 'b' is the greatest and occurs 2 times

5. $[0, 7]$ -> [aAabBcba] -> 'c' is the greatest and occurs 1 time