时间限制：C/C++/Rust/Pascal 5秒，其他语言10秒
空间限制：C/C++/Rust/Pascal 1024 M，其他语言2048 M
Special Judge, 64bit IO Format: %lld

题目描述

A string is a sequence of characters and a 01-string is a string composed of only 0-s and 1-s.

When reading a few 01-strings, Sean found some of them are pretty memorable: There is a prefix and a suffix that are the same with no overlapping. Also, they are separated by no more than k characters.

Then, he came across a long string s. He wants to dive deeper into this string and know about all the memorable sub-strings of s. A sub-string is a contiguous sequence of characters within a string.

He also wants you to do so, which is so inconsiderate. To make sure you really did this, he will ask queries like this:

- What is the q_i-th lexicographically-smallest sub-string of s that is memorable?

A word s_1 is lexicographically smaller than s_2 if and only if one of the following things happens:

- s_1 is a prefix of s_2 .
- There exists a j such that $\forall 1 \leq i < j, s_1[i] = s_2[i]$ and $s_1[j] < s_2[j]$.

Also, if $s =' 011101'$, the sub-strings $s[1...2]$ and $s[5...6]$ are considered different, as different indexes are chosen from the original string.

Also, Sean wants to make sure you listen to the words he says, so questions are slightly adjusted based on the answer to the last question. Check the input description for further information.

输入描述:

The first line contains two integers n, k $(2 \leq n \leq 10^4, 0 \leq k \leq n-2)$, the length of the given string s and the parameter for the memorable sub-string.

The second line contains the string s, which is composed of only 0-s and 1-s.

The third line contains an integer q $(1 \leq q \leq 5 \times 10^5)$, the number of questions Sean asks.

Each of the lines from the 4-th to the $(q+3)$-th contains an integer v_i $(1 \leq v_i \leq 10^9)$, which represents the