Problem K
Suffixes may Contain Prefixes

Time Limit: 2 seconds

You are playing a game on character strings. At the start of a game, a string of lowercase letters, called the *target string,* is given. Each of the players submits one string of lowercase letters, called a *bullet string,* of the specified length. The winner is the one whose bullet string marks the highest score.

The score of a bullet string is the sum of the points of all of its suffixes. When the bullet string is "$b_1 b_2 \ldots b_n$", the point of its suffix s_k starting with the k-th character ($1 \leq k \leq n$), "$b_k b_{k+1} \ldots b_n$", is the length of its longest common prefix with the target string. That is, with the target string "$t_1 t_2 \ldots t_m$", the point of s_k is p when $t_j = b_{k+j-1}$ for $1 \leq j \leq p$ and either $p = m$, $k + p - 1 = n$, or $t_{p+1} \neq b_{k+p}$ holds.

You have to win the game today by any means, as Alyssa promises to have a date with the winner! The game is starting soon. Write a program in a hurry that finds the highest achievable score for the given target string and the bullet length.

Input

The input consists of a single test case with two lines. The first line contains the non-empty target string of at most 2000 lowercase letters. The second line contains the length of the bullet string, a positive integer not exceeding 2000.

Output

Output the highest achievable score for the given target string and the given bullet length.

Sample Input 1	**Sample Output 1**
ababc 6	10

Sample Input 2	**Sample Output 2**
aabaacaabaa 102	251

For the first sample, "`ababab`" is the best bullet string. Three among its six suffixes, "`ababab`", "`abab`", and "`ab`" obtain 4, 4, and 2 points, respectively, achieving the score 10. A bullet string "`ababca`" may look promising, but its suffixes "`ababca`", "`abca`", and "`a`" get 5, 2, and 1, summing up only to 8.