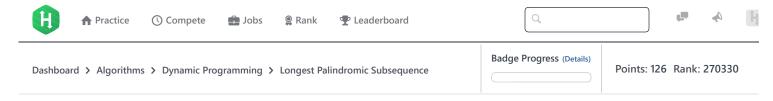
16/11/2017 HackerRank



Longest Palindromic Subsequence



Problem	Submissions	Leaderboard	Discussions	Editorial 🔒

Steve loves playing with palindromes. He has a string, \mathbf{s} , consisting of \mathbf{n} lowercase English alphabetic characters (i.e., a through z). He wants to calculate the number of ways to insert exactly 1 lowercase character into string s such that the length of the longest palindromic subsequence of s increases by at least k. Two ways are considered to be different if either of the following conditions are satisfied:

- The positions of insertion are different.
- The inserted characters are different.

This means there are at most 26 imes (n+1) different ways to insert exactly 1 character into a string of length n.

Given q queries consisting of n, k, and s, print the number of different ways of inserting exactly 1 new lowercase letter into string s such that the length of the longest palindromic subsequence of $m{s}$ increases by at least $m{k}$.

Input Format

The first line contains a single integer, q, denoting the number of queries. The 2q subsequent lines describe each query over two lines:

- 1. The first line of a query contains two space-separated integers denoting the respective values of n and k.
- 2. The second line contains a single string denoting s.

Constraints

- $1 \le q \le 10$
- $1 \le n \le 3000$
- $0 \le k \le 50$
- It is guaranteed that **s** consists of lowercase English alphabetic letters (i.e., a to z) only.

Subtasks

- $1 \le n \le 100$ for 25% of the maximum score.
- $1 \le n \le 1000$ for 70% of the maximum score.

Output Format

On a new line for each query, print the number of ways to insert exactly 1 new lowercase letter into string s such that the length of the longest palindromic subsequence of \boldsymbol{s} increases by at least \boldsymbol{k} .

Sample Input

3

3 2 aab

3 0

aba

16/11/2017 HackerRank

Sample Output

2 1 104

Explanation

We perform the following q = 2 queries:

- 1. The length of the longest palindromic subsequence of s = a is 1. There are two ways to increase this string's length by at least k = 1:
 - 1. Insert an a at the start of string s, making it aa.
 - 2. Insert an a at the end of string s, making it aa.

Both methods result in aa , which has a longest palindromic subsequence of length $\mathbf{2}$ (which is longer than the original longest palindromic subsequence's length by $\mathbf{k} = \mathbf{1}$). Because there are two such ways, we print $\mathbf{2}$ on a new line.

- 2. The length of the longest palindromic subsequence of s= aab is 2. There is one way to increase the length by at least k=2:
 - 1. Insert a b at the start of string s, making it baab.

We only have one possible string, baab, and the length of its longest palindromic subsequence is $\bf 4$ (which is longer than the original longest palindromic subsequence's length by $\bf k=2$). Because there is one such way, we print $\bf 1$ on a new line.

f in
Submissions:103
Max Score:70
Difficulty: Hard

Rate This Challenge:
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```
Current Buffer (saved locally, editable) & 🗗
                                                                                           Java 7
1 ▼ import java.io.*;
 2 import java.util.*;
   import java.text.*;
   import java.math.*;
   import java.util.regex.*;
7 ▼ public class Solution {
8
9 ▼
        static int longestPalindromicSubsequence(String s, int k) {
10
            // Complete this function
11
12
        public static void main(String[] args) {
13 ▼
            Scanner in = new Scanner(System.in);
14
15
            int q = in.nextInt();
16 ▼
            for(int a0 = 0; a0 < q; a0++){
                int n = in.nextInt();
17
                int k = in.nextInt();
18
                String s = in.next();
19
20
                int result = longestPalindromicSubsequence(s, k);
                System.out.println(result);
21
22
23
            in.close();
24
        }
25
    }
26
                                                                                                                    Line: 1 Col: 1
```

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