

541. Reverse String II

Dec. 10, 2017 | 32.7K views

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Given a string and an integer k , you need to reverse the first k characters for every $2k$ characters counting from the start of the string. If there are less than k characters left, reverse all of them. If there are less than $2k$ but greater than or equal to k characters, then reverse the first k characters and left the other as original.

Example:

Input: $s = \text{"abcdefg"}$, $k = 2$
Output: "bacdfeg"

Restrictions:

- The string consists of lower English letters only.
- Length of the given string and k will in the range $[1, 10000]$

Approach #1: Direct [Accepted]

Intuition and Algorithm

We will reverse each block of $2k$ characters directly.

Each block starts at a multiple of $2k$: for example, $0, 2k, 4k, 6k, \dots$. One thing to be careful about is we may not reverse each block if there aren't enough characters.

To reverse a block of characters from i to j , we can swap characters in positions $i++$ and $j--$.

JavaPythonCopy

```
1 class Solution(object):
2     def reverseStr(self, s, k):
3         a = list(s)
4         for i in xrange(0, len(a), 2*k):
5             a[i:i+k] = reversed(a[i:i+k])
6         return "".join(a)
```

Complexity Analysis

- Time Complexity: $O(N)$, where N is the size of s . We build a helper array, plus reverse about half the characters in s .
- Space Complexity: $O(N)$, the size of a .


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goyalshub

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🕒 September 22, 2018 8:46 AM


This is more complicated than an "Easy" level problem. Isn't it?

116

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tobe2019

★ 80

🕒 June 12, 2019 10:32 AM


The problem statement could be much, much clearer. The problem itself is quite easy, but it's so hard to understand what exactly the programmer is supposed to do. :(

34

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hamhus

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🕒 May 11, 2020 7:03 AM

Gosh, I worked on this problem for more than 90 mins and I couldn't solve it, finally had to look at the solution. This wasn't an easy problem for me. To make matters worse, the description is really confusing

4

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kengni

★ 75

🕒 May 29, 2019 5:03 PM

Instead of using the `reversed()` function. It is better to reverse using slicing. i.e

```
a[i:i+k] = a[i:i+k][::-1] instead of a[i:i+k] = reversed(a[i:i+k]).
```


Slicing is much faster(32ms) than the built in function reversed(52ms- i guess because the built in

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Woors

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🕒 October 5, 2019 1:07 PM

your ans is wrong for "abcdefg" k=8


My ans can't pass for this case

```
char * reverseStr(char * s, int k){
```

3

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bobmeade44

★ 16


🕒 December 27, 2019 12:06 AM

I think this is a great problem because it challenges the ability to understand a problem that is clearly not a fun programming problem, and that is the way the real work is sometimes. It is an easy first reaction to just skip this problem because it is wordy. These are some of the biggest challenges for me to be patient and work through the description of the problem. My goal here was just to have a working solution and not judge myself on time or space in this case since it is such a contrived (but not

2

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niphadkameha

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🕒 October 14, 2019 9:32 PM

Instead of xrange it should be range. Python 3 does not have xrange.

2

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ssap

★ 36

🕒 August 20, 2018 7:54 AM


What is the logic behind: `Math.min(start + k - 1, a.length - 1)`? Thanks!

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KacySin

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🕒 July 7, 2018 10:26 AM


Why are you returning `new String(a)` rather than returning `a.toString()`;

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g5li

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🕒 March 29, 2019 4:10 PM

Here is slow but interesting solution by Java StringBuilder.

Code First:

```
StringBuilder builder = new StringBuilder(s.length());
```

0

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