

**The total time therefore is $O(x + 2x + \dots + nx)$. This reduces to $O(xn^2)$
Why is it $O(xn^2)$? Because $1 + 2 + \dots + n$ equals $n(n+1) / 2$, or $O(n^2)$.**

A common approach in string manipulation problems is to edit the string starting from the end and working backwards. This is useful because we have an extra buffer at the end, which allows us to change characters without worrying about what we're overwriting.

What does it take to be able to write a set of characters the same way forwards and backwards? We need to have an even number of almost all characters, so that half can be on one side and half can be on the other side. At most one character (the middle character) can have an odd count. For example, we know tactcoapapa is a permutation of a palindrome because it has two Ts, four As, two Cs, two Ps, and one O. That O would be the center of all possible palindromes