

3703. Remove K-Balanced Substrings

Solved ●

Medium  Hint

You are given a string `s` consisting of '(' and ')', and an integer `k`.

A **string** is **k-balanced** if it is **exactly** `k` **consecutive** '(' followed by `k` **consecutive** ')', i.e., `('' * k + ')' * k`.

For example, if `k = 3`, `k-balanced` is `"((()))"`.

You must **repeatedly** remove all **non-overlapping k-balanced substrings** from `s`, and then join the remaining parts. Continue this process until no `k-balanced substring` exists.

Return the final string after all possible removals.

Example 1:

Input: `s = "()"`, `k = 1`

Output: `""`

Explanation:

`k-balanced` substring is `"()"`

Step	Current <code>s</code>	<code>k-balanced</code>	Result <code>s</code>
1	<code>(())</code>	<code>(())</code>	<code>()</code>
2	<code>()</code>	<code>()</code>	Empty

Thus, the final string is `""`.

Example 2:

Input: `s = "(()"`, `k = 1`

Output: `"(("`

Explanation:

`k-balanced` substring is `"()"`

Step	Current <code>s</code>	<code>k-balanced</code>	Result <code>s</code>
1	<code>((())</code>	<code>((())</code>	<code>((</code>
2	<code>((</code>	-	<code>((</code>

Thus, the final string is `"(("`.

Example 3:

Input: `s = "((()))()()"`, `k = 3`

Output: `"()()"`

Explanation:

`k-balanced` substring is `"((()))"`

Step	Current <small>s</small>	k-balanced	Result <small>s</small>
1	((()))()()	((())) ()()	()()
2	()()	-	()()

Thus, the final string is "()"


Constraints:

- $2 \leq s.length \leq 10^5$
- s consists only of '(' and ')'
- $1 \leq k \leq s.length / 2$

Seen this question in a real interview before? 1/5

Yes No

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Topics	▼
	▼
Hint 1	▼
Hint 2	▼
Hint 3	▼
Discussion (31)	▼