

76. Minimum Window Substring

Difficulty : Hard

<https://leetcode.com/problems/minimum-window-substring>

Given two strings s and t of lengths m and n respectively, return *the minimum window substring of s such that every character in t (including duplicates) is included in the window*. If there is no such substring, return *the empty string ""*.

The testcases will be generated such that the answer is **unique**.

Example 1:

Input: $s = \text{"ADOBECODEBANC"}, t = \text{"ABC"}$

Output: "BANC"

Explanation: The minimum window substring "BANC" includes 'A', 'B', and 'C' from string t .

Example 2:

Input: $s = \text{"a"}, t = \text{"a"}$

Output: "a"

Explanation: The entire string s is the minimum window.

Example 3:

Input: $s = \text{"a"}, t = \text{"aa"}$

Output: ""

Explanation: Both 'a's from t must be included in the window.

Since the largest window of s only has one 'a', return empty string.

Constraints:

- $m == s.length$
- $n == t.length$
- $1 \leq m, n \leq 10^5$
- s and t consist of uppercase and lowercase English letters.

Follow up: Could you find an algorithm that runs in $O(m + n)$ time?