



77 Technical Terms

The Coding Interview Dictionary →

```
1 def characterReplacement(self, s: str, k: int) -> int:
2     count = {}
3     res = 0
4
5     l = 0
6     maxf = 0
7     for r in range(len(s)):
8         count[s[r]] = 1 + count.get(s[r], 0)
9         maxf = max(maxf, count[s[r]])
10
11        while (r - l + 1) - maxf > k:
12            count[s[l]] -= 1
13            l += 1
14        res = max(res, r - l + 1)
```

```
# Return the left and right index
# assuming there's exactly one
# Sliding window variation of
def slidingWindow(nums):
    maxf = nums[0]
    curf = 0
    start, end = 0, 0
    i, j = 0, 0
```

1. Arrays & Strings

Term	Definition
Subarray	A contiguous portion of an array
Subsequence	A sequence derived by deleting elements without changing their order
Monotonic	Elements are entirely non-decreasing or non-increasing
Circular Array	Array where the end connects to the beginning
Partition	Dividing array into parts based on specific criteria
Kadane's Algorithm	Technique to find maximum sum subarray
Two Pointers	Using two index pointers to solve array problems
Sliding Window	Technique of maintaining a window that slides through an array
Prefix Sum	Array where each element is sum of all previous elements
Suffix Sum	Array where each element is sum of all elements after it
Rotation	Shifting array elements by a certain offset
In-place	Algorithm that transforms input without creating another data structure
Anagram	A word created by rearranging the letters of another word or phrase, using all the original letters exactly once
Substring	A contiguous block of a string (like subarray but for strings).
Palindrome	Strings that read the same forward and backward.
Lexicographic Order	Dictionary ordering of strings



2. Trees

Term	Definition
Binary Tree	Tree where each node has at most two children
BST (Binary Search Tree)	Binary tree where left child < parent < right child
Complete Binary Tree	Every level filled except possibly last, which is filled left to right
Perfect Binary Tree	All internal nodes have exactly two children and all leaf nodes are at same level
Balanced Tree	Height difference between left and right subtrees is limited (often ≤ 1)
Self-Balancing Tree	Automatically maintains balance after insertions/deletions (e.g., AVL, Red-Black)
Traversal	Methods to visit all nodes (preorder, inorder, postorder, level-order)
Lowest Common Ancestor (LCA)	Deepest node that is an ancestor of two given nodes
Serialization/Deserialization	Converting a tree to/from a string representation
Diameter	Longest path between any two nodes in a tree
Level Order	Processing tree nodes level by level
Segment Tree	Data structure for range queries
BFS	Traversing the tree level by level
Height	Longest path from node to a leaf
Depth	Distance from root to a node
Heap	Complete binary tree where each parent node is \leq (min-heap) or \geq (max-heap) its children.
DFS	Traversing the tree in a depth-first manner

