**LeetCode Grind75 Questions**

**1. Two Sum (1st in LeetCode)**

1.Given an array of integers nums and an integer target, return indices of the two numbers such that they add up to target.

You may assume that each input would have exactly one solution, and you may not use the same element twice.

You can return the answer in any order.

Example 1:

Input: nums = [2,7,11,15], target = 9

Output: [0,1]

Explanation: Because nums[0] + nums[1] == 9, we return [0, 1].

Example 2:

Input: nums = [3,2,4], target = 6

Output: [1,2]

Example 3:

Input: nums = [3,3], target = 6

Output: [0,1]

Constraints:

* 2 <= nums.length <= 104
* -109 <= nums[i] <= 109
* -109 <= target <= 109
* Only one valid answer exists.

Follow-up: Can you come up with an algorithm that is less than O(n2) time complexity?

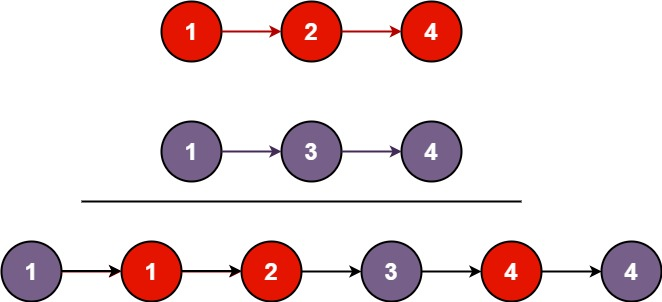
**2. Merge Two Sorted List (21 in LC)**

**You are given the heads of two sorted linked lists list1 and list2.**

Merge the two lists in a one sorted list. The list should be made by splicing together the nodes of the first two lists.

Return the head of the merged linked list.

Example 1:



Input: list1 = [1,2,4], list2 = [1,3,4]

Output:[1,1,2,3,4,4]

Example 2:

Input: list1 = [], list2 = []

Output: []

Example 3:

Input: list1 = [], list2 = [0]

Output: [0]

Constraints:

* The number of nodes in both lists is in the range [0, 50].
* -100 <= Node.val <= 100
* Both list1 and list2 are sorted in non-decreasing order.

**3. Best Time to Buy and Sell Stock (121 in LC)**

**You are given an array prices where prices[i] is the price of a given stock on the ith day.**

You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock.

Return the maximum profit you can achieve from this transaction. If you cannot achieve any profit, return 0.

Example 1:

Input: prices = [7,1,5,3,6,4]

Output: 5

Explanation: Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit = 6-1 = 5.

Note that buying on day 2 and selling on day 1 is not allowed because you must buy before you sell.

Example 2:

Input: prices = [7,6,4,3,1]

Output: 0

Explanation: In this case, no transactions are done and the max profit = 0.

Constraints:

* 1 <= prices.length <= 105
* 0 <= prices[i] <= 104

**4. Valid Palindrome (125 in LC)**

A phrase is a palindromeif, after converting all uppercase letters into lowercase letters and removing all non-alphanumeric characters, it reads the same forward and backward. Alphanumeric characters include letters and numbers.

Given a string s, return true if it is a palindrome, or false otherwise.

Example 1:

Input: s = "A man, a plan, a canal: Panama"

Output: true

Explanation: "amanaplanacanalpanama" is a palindrome.

Example 2:

Input: s = "race a car"

Output: false

Explanation: "raceacar" is not a palindrome.

Example 3:

Input: s = " "

Output: true

Explanation: s is an empty string "" after removing non-alphanumeric characters.

Since an empty string reads the same forward and backward, it is a palindrome.

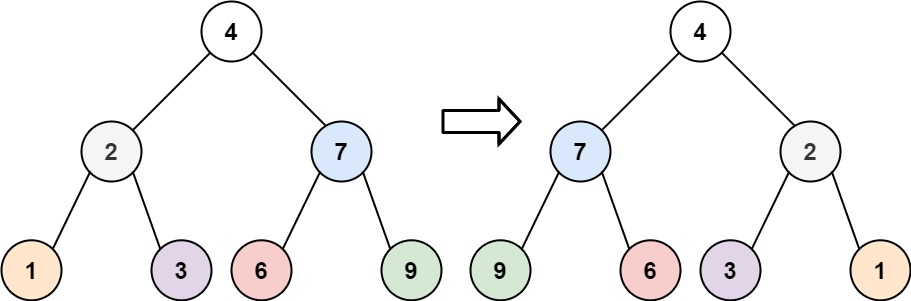
Constraints:

* 1 <= s.length <= 2 \* 105
* s consists only of printable ASCII characters.

**5. Invert Binary Tree (226 in LC)**

Given the root of a binary tree, invert the tree, and return its root.

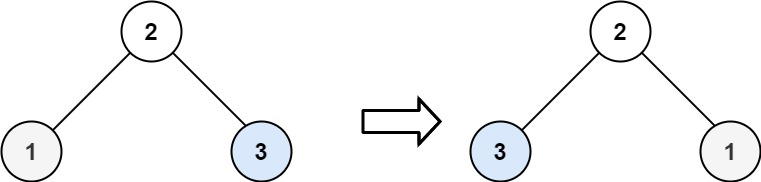
Example 1:

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Input: root = [4,2,7,1,3,6,9]

Output: [4,7,2,9,6,3,1]

Example 2:

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Input: root = [2,1,3]

Output: [2,3,1]

Example 3:

Input: root = []

Output: []

Constraints:

* The number of nodes in the tree is in the range [0, 100].
* -100 <= Node.val <= 100