

Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1. Two Sum

Given an array of integers, return **indices** of the two numbers such that they add up to a specific target.

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

Example:

Given `nums = [2, 7, 11, 15]`, `target = 9`,

Because `nums[0] + nums[1] = 2 + 7 = 9`,
`return [0, 1]`.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1-Two-Sum](#)

All Problems:

[Link to All Problems](#)

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2. Add Two Numbers

You are given two **non-empty** linked lists representing two non-negative integers. The digits are stored in **reverse order** and each of their nodes contain a single digit. Add the two numbers and return it as a linked list.

You may assume the two numbers do not contain any leading zero, except the number 0 itself.

Example:

Input: (2 → 4 → 3) + (5 → 6 → 4)
Output: 7 → 0 → 8
Explanation: 342 + 465 = 807.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[2-Add-Two-Numbers](#)

All Problems:

[Link to All Problems](#)

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3. Longest Substring Without Repeating Characters

Given a string, find the length of the **longest substring** without repeating characters.

Example 1:

Input: "abcabcbb"

Output: 3

Explanation: The answer is "abc", with the length of 3.

Example 2:

Input: "bbbbbb"

Output: 1

Explanation: The answer is "b", with the length of 1.

Example 3:

Input: "pwwkew"

Output: 3

Explanation: The answer is "wke", with the length of 3.

Note that the answer must be a substring, "pwke" is

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[3-Longest-Substring-Without-Repeating-Characters](#)

All Problems:

[Link to All Problems](#)

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4. Median of Two Sorted Arrays

There are two sorted arrays **nums1** and **nums2** of size m and n respectively.

Find the median of the two sorted arrays. The overall run time complexity should be O(log (m+n)).

You may assume **nums1** and **nums2** cannot be both empty.

Example 1:

```
nums1 = [1, 3]
nums2 = [2]
```

The median is 2.0

Example 2:

```
nums1 = [1, 2]
nums2 = [3, 4]
```

The median is $(2 + 3)/2 = 2.5$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[4-Median-of-Two-Sorted-Arrays](#)

All Problems:

[Link to All Problems](#)

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5. Longest Palindromic Substring

Given a string s , find the longest palindromic substring in s . You may assume that the maximum length of s is 1000.

Example 1:

Input: "babad"
Output: "bab"
Note: "aba" is also a valid answer.

Example 2:

Input: "cbbd"
Output: "bb"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[5-Longest-Palindromic-Substring](#)

All Problems:

[Link to All Problems](#)

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6. ZigZag Conversion

The string "PAYPALISHIRING" is written in a zigzag pattern on a given number of rows like this: (you may want to display this pattern in a fixed font for better legibility)

```
P     A     H     N  
A P   L S   I I   G  
Y     I     R
```

And then read line by line: "PAHNAPLSIIGYIR"

Write the code that will take a string and make this conversion given a number of rows:

```
string convert(string s, int numRows);
```

Example 1:

Input: s = "PAYPALISHIRING", numRows = 3
Output: "PAHNAPLSIIGYIR"

Example 2:

Input: s = "PAYPALISHIRING", numRows = 4
Output: "PINALSIGYAHRPI"
Explanation:

```
P       I       N  
A     L S   I G  
Y A     H R  
P       I
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[6-ZigZag-Conversion](#)**All Problems:**[Link to All Problems](#)

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7. Reverse Integer

Given a 32-bit signed integer, reverse digits of an integer.

Example 1:

Input: 123
Output: 321

Example 2:

Input: -123
Output: -321

Example 3:

Input: 120
Output: 21

Note:

Assume we are dealing with an environment which could only store integers within the 32-bit signed integer range: $[-2^{31}, 2^{31} - 1]$. For the purpose of this problem, assume that your function returns 0 when the reversed integer overflows.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[7-Reverse-Integer](#)

All Problems:

[Link to All Problems](#)

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8. String to Integer (atoi)

Implement `atoi` which converts a string to an integer.

The function first discards as many whitespace characters as necessary until the first non-whitespace character is found. Then, starting from this character, takes an optional initial plus or minus sign followed by as many numerical digits as possible, and interprets them as a numerical value.

The string can contain additional characters after those that form the integral number, which are ignored and have no effect on the behavior of this function.

If the first sequence of non-whitespace characters in str is not a valid integral number, or if no such sequence exists because either str is empty or it contains only whitespace characters, no conversion is performed.

If no valid conversion could be performed, a zero value is returned.

Note:

- Only the space character ' ' is considered as whitespace character.
- Assume we are dealing with an environment which could only store integers within the 32-bit signed integer range: $[-2^{31}, 2^{31} - 1]$. If the numerical value is out of the range of representable values, `INT_MAX` ($2^{31} - 1$) or `INT_MIN` (-2^{31}) is returned.

Example 1:

Input: "42"
Output: 42

Example 2:

Input: " -42"

Output: -42

Explanation: The first non-whitespace character is '-', which is a sign. Then take as many numerical digits as possible, which are '4' and '2'.

Example 3:

Input: "4193 with words"

Output: 4193

Explanation: Conversion stops at digit '3' as the next character is whitespace.

Example 4:

Input: "words and 987"

Output: 0

Explanation: The first non-whitespace character is 'w', which is not a digit or a +/- sign. Therefore no valid conversion can be done.

Example 5:

Input: "-91283472332"

Output: -2147483648

Explanation: The number "-91283472332" is out of the range of a 32-bit signed integer. Therefore INT_MIN (-2^{31}) is returned.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[8-String-to-Integer-](#)

All Problems:

[Link to All Problems](#)

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9. Palindrome Number

Determine whether an integer is a palindrome. An integer is a palindrome when it reads the same backward as forward.

Example 1:

Input: 121
Output: true

Example 2:

Input: -121
Output: false

Explanation: From left to right, it reads -121. From right to le

Example 3:

Input: 10
Output: false

Explanation: Reads 01 from right to left. Therefore it is not a

Follow up:

Could you solve it without converting the integer to a string?

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[9-Palindrome-Number](#)**All Problems:**[Link to All Problems](#)

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10. Regular Expression Matching

Given an input string (`s`) and a pattern (`p`), implement regular expression matching with support for `'.'` and `'*'.`

'.' Matches any single character.
'*' Matches zero or more of the preceding element.

The matching should cover the **entire** input string (not partial).

Note:

- s could be empty and contains only lowercase letters a-z .
- p could be empty and contains only lowercase letters a-z , and characters like . or * .

Example 1:

Input:
s = "aa"
p = "a"
Output: false
Explanation: "a" does not match the entire string "aa".

Example 2:

Input:
s = "aa"
p = "a*"
Output: true
Explanation: '*' means zero or more of the preceding element, 'a'

Example 3:

Input:
s = "ab"
p = ".*"
Output: true
Explanation: ".*" means "zero or more (*) of any character (.)".

Example 4:

Input:
s = "aab"
p = "c*a*b"
Output: true
Explanation: c can be repeated 0 times, a can be repeated 1 time

Example 5:

Input:
s = "mississippi"
p = "mis*is*p*."
Output: false

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[10-Regular-Expression-Matching](#)**All Problems:**[Link to All Problems](#)

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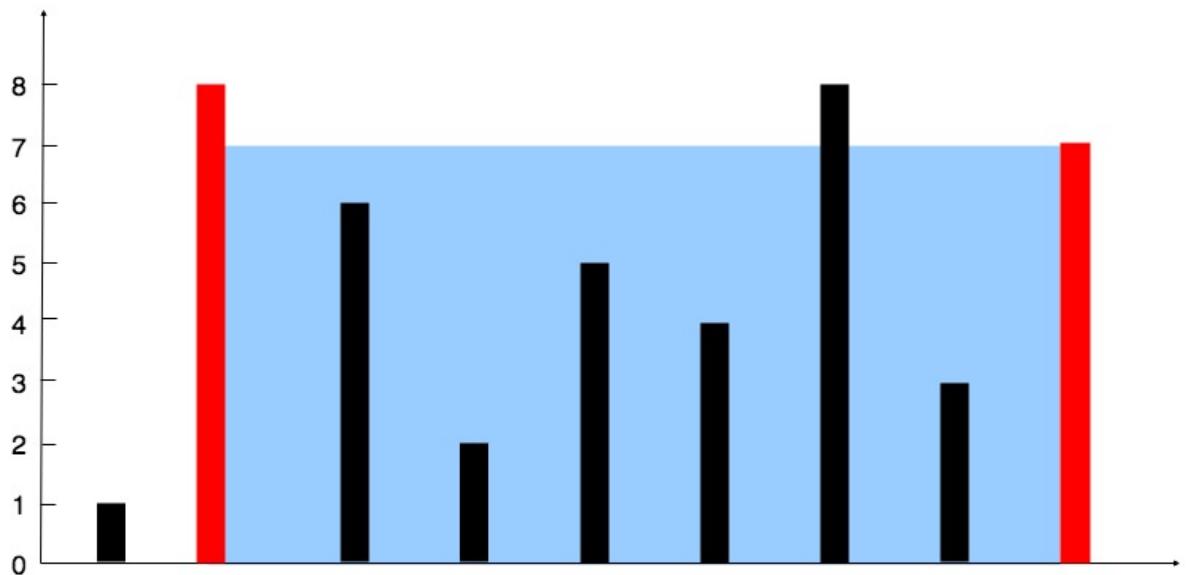
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11. Container With Most Water

Given n non-negative integers a_1, a_2, \dots, a_n , where each represents a point at coordinate (i, a_i) . n vertical lines are drawn such that the two endpoints of line i is at (i, a_i) and $(i, 0)$. Find two lines, which together with x-axis forms a container, such that the container contains the most water.

Note: You may not slant the container and n is at least 2.



The above vertical lines are represented by array [1,8,6,2,5,4,8,3,7]. In this case, the max area of water (blue section) the container can contain is 49.

Example:

Input: [1,8,6,2,5,4,8,3,7]
Output: 49

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[11-Container-With-Most-Water](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

12. Integer to Roman

Roman numerals are represented by seven different symbols: I , V , X , L , C , D and M .

Symbol	Value
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

For example, two is written as II in Roman numeral, just two one's added together. Twelve is written as, XII ,

which is simply X + II . The number twenty seven is written as XXVII , which is XX + V + II .

Roman numerals are usually written largest to smallest from left to right. However, the numeral for four is not IIII . Instead, the number four is written as IV . Because the one is before the five we subtract it making four. The same principle applies to the number nine, which is written as IX . There are six instances where subtraction is used:

- I can be placed before V (5) and X (10) to make 4 and 9.
- X can be placed before L (50) and C (100) to make 40 and 90.
- C can be placed before D (500) and M (1000) to make 400 and 900.

Given an integer, convert it to a roman numeral. Input is guaranteed to be within the range from 1 to 3999.

Example 1:

Input: 3
Output: "III"

Example 2:

Input: 4
Output: "IV"

Example 3:

Input: 9
Output: "IX"

Example 4:

Input: 58
Output: "LVIII"
Explanation: L = 50, V = 5, III = 3.

Example 5:

Input: 1994
Output: "MCMXCIV"
Explanation: M = 1000, CM = 900, XC = 90 and IV = 4.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[12-Integer-to-Roman](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

13. Roman to Integer

Roman numerals are represented by seven different symbols: I , V , X , L , C , D and M .

Symbol	Value
I	1

V	5
X	10
L	50
C	100
D	500
M	1000

For example, two is written as II in Roman numeral, just two one's added together. Twelve is written as, XII , which is simply X + II . The number twenty seven is written as XXVII , which is XX + V + II .

Roman numerals are usually written largest to smallest from left to right. However, the numeral for four is not IIII . Instead, the number four is written as IV . Because the one is before the five we subtract it making four. The same principle applies to the number nine, which is written as IX . There are six instances where subtraction is used:

- I can be placed before V (5) and X (10) to make 4 and 9.
- X can be placed before L (50) and C (100) to make 40 and 90.
- C can be placed before D (500) and M (1000) to make 400 and 900.

Given a roman numeral, convert it to an integer. Input is guaranteed to be within the range from 1 to 3999.

Example 1:

Input: "III"
Output: 3

Example 2:

Input: "IV"
Output: 4

Example 3:

Input: "IX"
Output: 9

Example 4:

Input: "LVIII"
Output: 58
Explanation: L = 50, V= 5, III = 3.

Example 5:

Input: "MCMXCIV"

Output: 1994

Explanation: M = 1000, CM = 900, XC = 90 and IV = 4.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[13-Roman-to-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

14. Longest Common Prefix

Write a function to find the longest common prefix string amongst an array of strings.

If there is no common prefix, return an empty string " " .

Example 1:

Input: ["flower", "flow", "flight"]
Output: "fl"

Example 2:

Input: ["dog", "racecar", "car"]
Output: ""

Explanation: There is no common prefix among the input strings.

Note:

All given inputs are in lowercase letters a - z .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[14-Longest-Common-Prefix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

15. 3Sum

Given an array `nums` of n integers, are there elements a , b , c in `nums` such that $a + b + c = 0$? Find all unique triplets in the array which gives the sum of zero.

Note:

The solution set must not contain duplicate triplets.

Example:

Given array `nums` = `[-1, 0, 1, 2, -1, -4]`,

A solution set is:

```
[  
  [-1, 0, 1],  
  [-1, -1, 2]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[15-3Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

16. 3Sum Closest

Given an array `nums` of n integers and an integer `target`, find three integers in `nums` such that the sum is closest to `target`. Return the sum of the three integers. You may assume that each input would have exactly one solution.

Example:

Given array nums = [-1, 2, 1, -4], and target = 1.

The sum that is closest to the target is 2. (-1 + 2 + 1 = 2).

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[16-3Sum-Closest](#)

All Problems:

[Link to All Problems](#)

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17. Letter Combinations of a Phone Number

Given a string containing digits from 2-9 inclusive, return all possible letter combinations that the number could represent.

A mapping of digit to letters (just like on the telephone buttons) is given below. Note that 1 does not map to any letters.



Example:

Input: "23"

Output: ["ad", "ae", "af", "bd", "be", "bf", "cd", "ce", "cf"].

Note:

Although the above answer is in lexicographical order, your answer could be in any order you want.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[17-Letter-Combinations-of-a-Phone-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

18. 4Sum

Given an array `nums` of n integers and an integer `target` , are there elements a , b , c , and d in `nums` such that $a + b + c + d = \text{target}$? Find all unique quadruplets in the array which gives the sum of `target` .

Note:

The solution set must not contain duplicate quadruplets.

Example:

Given array `nums` = [1, 0, -1, 0, -2, 2] , and `target` = 0.

A solution set is:

```
[  
    [-1, 0, 0, 1],  
    [-2, -1, 1, 2],  
    [-2, 0, 0, 2]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[18-4Sum](#)**All Problems:**[Link to All Problems](#)

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19. Remove Nth Node From End of List

Given a linked list, remove the n -th node from the end of list and return its head.

Example:

Given linked list: 1->2->3->4->5, and n = 2.

After removing the second node from the end, the linked list becomes 1->2->3->5.

Note:

Given n will always be valid.

Follow up:

Could you do this in one pass?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[19-Remove-Nth-Node-From-End-of-List](#)

All Problems:

[Link to All Problems](#)

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20. Valid Parentheses

Given a string containing just the characters '(', ')', '{', '}', '[', and ']', determine if the input string is valid.

An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

Note that an empty string is also considered valid.

Example 1:

Input: "()"
Output: true

Example 2:

Input: "()[]{}"
Output: true

Example 3:

Input: "(])"
Output: false

Example 4:

Input: "([)]"
Output: false

Example 5:

Input: "{[}]}"
Output: true

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[20-Valid-Parentheses](#)

All Problems:

[Link to All Problems](#)

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21. Merge Two Sorted Lists

Merge two sorted linked lists and return it as a new list.
The new list should be made by splicing together the
nodes of the first two lists.

Example:

Input: 1->2->4 , 1->3->4
Output: 1->1->2->3->4->4

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[21-Merge-Two-Sorted-Lists](#)

All Problems:

[Link to All Problems](#)

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22. Generate Parentheses

Given n pairs of parentheses, write a function to generate all combinations of well-formed parentheses.

For example, given $n = 3$, a solution set is:

```
[  
    "((()))",  
    "(()())",  
    "((())()",  
    "()(())",  
    "()()()"  
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[22-Generate-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

23. Merge k Sorted Lists

Merge k sorted linked lists and return it as one sorted list.
Analyze and describe its complexity.

Example:

Input:

```
[  
    1->4->5,  
    1->3->4,  
    2->6  
]
```

Output: 1->1->2->3->4->4->5->6

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[23-Merge-k-Sorted-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

24. Swap Nodes in Pairs

Given a linked list, swap every two adjacent nodes and return its head.

You may **not** modify the values in the list's nodes, only nodes itself may be changed.

Example:

Given 1->2->3->4, you should return the list as 2->1->4->3.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[24-Swap-Nodes-in-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

25. Reverse Nodes in k-Group

Given a linked list, reverse the nodes of a linked list k at a time and return its modified list.

k is a positive integer and is less than or equal to the length of the linked list. If the number of nodes is not a multiple of k then left-out nodes in the end should remain as it is.

Example:

Given this linked list: 1 -> 2 -> 3 -> 4 -> 5

For $k = 2$, you should return: 2 -> 1 -> 4 -> 3 -> 5

For $k = 3$, you should return: 3 -> 2 -> 1 -> 4 -> 5

Note:

- Only constant extra memory is allowed.
- You may not alter the values in the list's nodes, only nodes itself may be changed.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[**25-Reverse-Nodes-in-k-Group**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

26. Remove Duplicates from Sorted Array

Given a sorted array *nums* , remove the duplicates **in-place** such that each element appear only *once* and return the new length.

Do not allocate extra space for another array, you must do this by **modifying the input array in-place** with O(1) extra memory.

Example 1:

Given *nums* = [1,1,2] ,

Your function should return *length* = 2 , with the first two elements.

It doesn't matter what you leave beyond the returned length.

Example 2:

Given *nums* = [0,0,1,1,1,2,2,3,3,4] ,

Your function should return *length* = 5 , with the first five elements.

It doesn't matter what values are set beyond the returned length.

Clarification:

Confused why the returned value is an integer but your answer is an array?

Note that the input array is passed in by **reference** , which means modification to the input array will be known to the caller as well.

Internally you can think of this:

```
// nums is passed in by reference. (i.e., without making a copy)
int len = removeDuplicates(nums);

// any modification to nums in your function would be known by the caller
// using the length returned by your function, it prints the first len elements.
for (int i = 0; i < len; i++) {
```

```
        print(nums[i]);  
    }  
  
Difficulty:
```

Easy

Lock:

Normal

Company:

Problem Solution

[26-Remove-Duplicates-from-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

27. Remove Element

Given an array *nums* and a value *val* , remove all instances of that value [in-place](#) and return the new length.

Do not allocate extra space for another array, you must do this by **modifying the input array in-place** with O(1) extra memory.

The order of elements can be changed. It doesn't matter what you leave beyond the new length.

Example 1:

Given `nums = [3, 2, 2, 3]`, `val = 3`,

Your function should return `length = 2`, with the first two elements.

It doesn't matter what you leave beyond the returned length.

Example 2:

Given `nums = [0, 1, 2, 2, 3, 0, 4, 2]`, `val = 2`,

Your function should return `length = 5`, with the first five elements.

Note that the order of those five elements can be arbitrary.

It doesn't matter what values are set beyond the returned length.

Clarification:

Confused why the returned value is an integer but your answer is an array?

Note that the input array is passed in by **reference**, which means modification to the input array will be known to the caller as well.

Internally you can think of this:

```
// nums is passed in by reference. (i.e., without making a copy)
int len = removeElement(nums, val);

// any modification to nums in your function would be known by the caller
// using the length returned by your function, it prints the first len elements.
for (int i = 0; i < len; i++) {
    print(nums[i]);
}
```

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[27-Remove-Element](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

28. Implement strStr()

Implement [strStr\(\)](#).

Return the index of the first occurrence of needle in haystack, or -1 if needle is not part of haystack.

Example 1:

Input: haystack = "hello", needle = "ll"
Output: 2

Example 2:

```
Input: haystack = "aaaaa", needle = "bba"
Output: -1
```

Clarification:

What should we return when `needle` is an empty string? This is a great question to ask during an interview.

For the purpose of this problem, we will return 0 when `needle` is an empty string. This is consistent to C's [strstr\(\)](#) and Java's [indexOf\(\)](#).

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[28-Implement-strStr](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

29. Divide Two Integers

Given two integers dividend and divisor , divide two integers without using multiplication, division and mod operator.

Return the quotient after dividing dividend by divisor .

The integer division should truncate toward zero.

Example 1:

Input: dividend = 10, divisor = 3
Output: 3

Example 2:

Input: dividend = 7, divisor = -3
Output: -2

Note:

- Both dividend and divisor will be 32-bit signed integers.
- The divisor will never be 0.
- Assume we are dealing with an environment which could only store integers within the 32-bit signed integer range: $[-2^{31}, 2^{31} - 1]$. For the purpose of this problem, assume that your function returns $2^{31} - 1$ when the division result overflows.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[29-Divide-Two-Integers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

30. Substring with Concatenation of All Words

You are given a string, **s** , and a list of words, **words** , that are all of the same length. Find all starting indices of substring(s) in **s** that is a concatenation of each word in **words** exactly once and without any intervening characters.

Example 1:

Input:

s = "barfoothefoobarman" ,

```
words = ["foo", "bar"]
Output: [0,9]
Explanation: Substrings starting at index 0 and 9 are "barfoor"
The output order does not matter, returning [9,0] is fine too.
```

Example 2:

```
Input:
s = "wordgoodgoodgoodbestword",
words = ["word", "good", "best", "word"]
Output: []
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[30-Substring-with-Concatenation-of-All-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

31. Next Permutation

Implement **next permutation**, which rearranges numbers into the lexicographically next greater permutation of numbers.

If such arrangement is not possible, it must rearrange it as the lowest possible order (ie, sorted in ascending order).

The replacement must be **in-place** and use only constant extra memory.

Here are some examples. Inputs are in the left-hand column and its corresponding outputs are in the right-hand column.

1 , 2 , 3 → 1 , 3 , 2
3 , 2 , 1 → 1 , 2 , 3
1 , 1 , 5 → 1 , 5 , 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[31-Next-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

32. Longest Valid Parentheses

Given a string containing just the characters '(' and ')', find the length of the longest valid (well-formed) parentheses substring.

Example 1:

Input: "(()"

Output: 2

Explanation: The longest valid parentheses substring is "()"

Example 2:

Input: ")()())"

Output: 4

Explanation: The longest valid parentheses substring is "()()"

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[32-Longest-Valid-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

33. Search in Rotated Sorted Array

Suppose an array sorted in ascending order is rotated at some pivot unknown to you beforehand.

(i.e., `[0,1,2,4,5,6,7]` might become
`[4,5,6,7,0,1,2]`).

You are given a target value to search. If found in the array return its index, otherwise return -1 .

You may assume no duplicate exists in the array.

Your algorithm's runtime complexity must be in the order of $O(\log n)$.

Example 1:

Input: `nums = [4,5,6,7,0,1,2]`, `target = 0`
Output: 4

Example 2:

Input: nums = [4,5,6,7,0,1,2], target = 3
Output: -1

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[33-Search-in-Rotated-Sorted-Array](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

34. Find First and Last Position of Element in Sorted Array

Given an array of integers `nums` sorted in ascending order, find the starting and ending position of a given target value.

Your algorithm's runtime complexity must be in the order of $O(\log n)$.

If the target is not found in the array, return `[-1, -1]`.

Example 1:

Input: `nums = [5, 7, 7, 8, 8, 10]`, `target = 8`
Output: `[3, 4]`

Example 2:

Input: `nums = [5, 7, 7, 8, 8, 10]`, `target = 6`
Output: `[-1, -1]`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[34-Find-First-and-Last-Position-of-Element-in-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

35. Search Insert Position

Given a sorted array and a target value, return the index if the target is found. If not, return the index where it would be if it were inserted in order.

You may assume no duplicates in the array.

Example 1:

Input: [1,3,5,6], 5
Output: 2

Example 2:

Input: [1,3,5,6], 2
Output: 1

Example 3:

Input: [1,3,5,6], 7
Output: 4

Example 4:

Input: [1,3,5,6], 0
Output: 0

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[35-Search-Insert-Position](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

36. Valid Sudoku

Determine if a 9x9 Sudoku board is valid. Only the filled cells need to be validated **according to the following rules :**

1. Each row must contain the digits 1 - 9 without repetition.

2. Each column must contain the digits 1-9 without repetition.
3. Each of the 9 3x3 sub-boxes of the grid must contain the digits 1-9 without repetition.

5	3			7				
6			1	9	5			
	9	8				6		
8				6				3
4			8		3			1
7				2				6
	6				2	8		
		4	1	9			5	
			8			7	9	

A partially filled sudoku which is valid.

The Sudoku board could be partially filled, where empty cells are filled with the character '.'.

Example 1:

Input:

```
[["5", "3", ".", ".", "7", ".", ".", ".", ".", "."],  
 ["6", ".", ".", "1", "9", "5", ".", ".", ".", "."],  
 [".", "9", "8", ".", ".", ".", ".", "6", "."],  
 ["8", ".", ".", ".", "6", ".", ".", ".", "3"],  
 ["4", ".", ".", "8", ".", "3", ".", ".", "1"],  
 ["7", ".", ".", ".", "2", ".", ".", ".", "6"],  
 [".", "6", ".", ".", ".", "2", "8", "."],  
 [".", ".", ".", "4", "1", "9", ".", ".", "5"],  
 [".", ".", ".", "8", ".", ".", "7", "9"]]
```

]

Output: true

Example 2:

Input:

```
[["8", "3", ".", ".", "7", ".", ".", ".", ".", "."],  
 ["6", ".", ".", "1", "9", "5", ".", ".", ".", "."],  
 [".", "9", "8", ".", ".", ".", ".", "6", "."],  
 ["8", ".", ".", ".", "6", ".", ".", ".", "3"],  
 ["4", ".", ".", "8", ".", "3", ".", ".", "1"],  
 ["7", ".", ".", ".", "2", ".", ".", ".", "6"],  
 [".", "6", ".", ".", ".", "2", "8", "."],  
 [".", ".", ".", "4", "1", "9", ".", ".", "5"],
```

```
[ ".",".",".",".","8",".",".","7","9"]
]
Output: false
Explanation: Same as Example 1, except with the 5 in the top left
modified to 8. Since there are two 8's in the top left 3x3 s
```

Note:

- A Sudoku board (partially filled) could be valid but is not necessarily solvable.
- Only the filled cells need to be validated according to the mentioned rules.
- The given board contain only digits 1-9 and the character ' . ' .
- The given board size is always 9x9 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[36-Valid-Sudoku](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

37. Sudoku Solver

Write a program to solve a Sudoku puzzle by filling the empty cells.

A sudoku solution must satisfy **all of the following rules** :

1. Each of the digits 1 - 9 must occur exactly once in each row.
2. Each of the digits 1 - 9 must occur exactly once in each column.
3. Each of the digits 1 - 9 must occur exactly once in each of the 9 3x3 sub-boxes of the grid.

Empty cells are indicated by the character ' . ' .

5	3			7				
6			1	9	5			
	9	8				6		
8				6				3
4			8		3			1
7				2				6
	6				2	8		
			4	1	9			5
				8		7	9	

A sudoku puzzle...

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9

...and its solution numbers marked in red.

Note:

- The given board contain only digits 1-9 and the character ' . ' .
- You may assume that the given Sudoku puzzle will have a single unique solution.
- The given board size is always 9x9 .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[37-Sudoku-Solver](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

38. Count and Say

The count-and-say sequence is the sequence of integers with the first five terms as following:

- | | |
|----|--------|
| 1. | 1 |
| 2. | 11 |
| 3. | 21 |
| 4. | 1211 |
| 5. | 111221 |

1 is read off as "one 1" or 11 .

11 is read off as "two 1s" or 21 .

21 is read off as "one 2 , then one 1" or 1211 .

Given an integer n where $1 \leq n \leq 30$, generate the n^{th} term of the count-and-say sequence.

Note: Each term of the sequence of integers will be represented as a string.

Example 1:

Input: 1
Output: "1"

Example 2:

Input: 4
Output: "1211"

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[38-Count-and-Say](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

39. Combination Sum

Given a **set** of candidate numbers (`candidates`) **(without duplicates)** and a target number (`target`), find all unique combinations in `candidates` where the candidate numbers sums to `target`.

The **same** repeated number may be chosen from candidates unlimited number of times.

Note:

- All numbers (including target) will be positive integers.
- The solution set must not contain duplicate combinations.

Example 1:

Input: candidates = [2,3,6,7], target = 7,
A solution set is:
[
 [7],
 [2,2,3]
]

Example 2:

Input: candidates = [2,3,5], target = 8,
A solution set is:
[
 [2,2,2,2],
 [2,3,3],
 [3,5]
]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[39-Combination-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

40. Combination Sum II

Given a collection of candidate numbers (candidates) and a target number (target), find all unique combinations in candidates where the candidate numbers sums to target .

Each number in candidates may only be used **once** in the combination.

Note:

- All numbers (including target) will be positive integers.
- The solution set must not contain duplicate combinations.

Example 1:

```
Input: candidates = [10,1,2,7,6,1,5], target = 8,
A solution set is:
[
    [1, 7],
    [1, 2, 5],
    [2, 6],
    [1, 1, 6]
]
```

Example 2:

```
Input: candidates = [2,5,2,1,2], target = 5,
A solution set is:
[
    [1,2,2],
    [5]
]
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[40-Combination-Sum-II](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

41. First Missing Positive

Given an unsorted integer array, find the smallest missing positive integer.

Example 1:

Input: [1, 2, 0]
Output: 3

Example 2:

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

Example 3:

Input: [7, 8, 9, 11, 12]
Output: 1

Note:

Your algorithm should run in $O(n)$ time and uses constant extra space.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[41-First-Missing-Positive](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

42. Trapping Rain Water

Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it is able to trap after raining.



The above elevation map is represented by array [0,1,0,2,1,0,1,3,2,1,2,1]. In this case, 6 units of rain water (blue section) are being trapped. **Thanks Marcos** for contributing this image!

Example:

Input: [0, 1, 0, 2, 1, 0, 1, 3, 2, 1, 2, 1]
Output: 6

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**42-Trapping-Rain-Water**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

43. Multiply Strings

Given two non-negative integers num1 and num2 represented as strings, return the product of num1 and num2 , also represented as a string.

Example 1:

Input: num1 = "2", num2 = "3"
Output: "6"

Example 2:

Input: num1 = "123", num2 = "456"
Output: "56088"

Note:

1. The length of both num1 and num2 is < 110.
2. Both num1 and num2 contain only digits 0-9 .
3. Both num1 and num2 do not contain any leading zero, except the number 0 itself.
4. You **must not use any built-in BigInteger library or convert the inputs to integer** directly.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[43-Multiply-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

44. Wildcard Matching

Given an input string (`s`) and a pattern (`p`), implement wildcard pattern matching with support for '`?`' and '`*`'.

'`?`' Matches any single character.

'`*`' Matches any sequence of characters (including the empty sequence).

The matching should cover the **entire** input string (not partial).

Note:

- `s` could be empty and contains only lowercase letters `a-z`.
- `p` could be empty and contains only lowercase letters `a-z`, and characters like `?` or `*`.

Example 1:

Input:

`s = "aa"`

`p = "a"`

Output: `false`

Explanation: "`a`" does not match the entire string "`aa`".

Example 2:

Input:
s = "aa"
p = "*"
Output: true
Explanation: '*' matches any sequence.

Example 3:

Input:
s = "cb"
p = "?a"
Output: false
Explanation: '?' matches 'c', but the second letter is 'a', which

Example 4:

Input:
s = "adceb"
p = "*a*b"
Output: true
Explanation: The first '*' matches the empty sequence, while the

Example 5:

Input:
s = "acdcb"
p = "a*c?b"
Output: false

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[44-Wildcard-Matching](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

45. Jump Game II

Given an array of non-negative integers, you are initially positioned at the first index of the array.

Each element in the array represents your maximum jump length at that position.

Your goal is to reach the last index in the minimum number of jumps.

Example:

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

Output: 2

Explanation: The minimum number of jumps to reach the last index
Jump 1 step from index 0 to 1, then 3 steps to the last index

Note:

You can assume that you can always reach the last index.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[45-Jump-Game-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

46. Permutations

Given a collection of **distinct** integers, return all possible permutations.

Example:

Input: [1, 2, 3]

Output:

```
[  
    [1, 2, 3],  
    [1, 3, 2],  
    [2, 1, 3],
```

```
[2,3,1],  
[3,1,2],  
[3,2,1]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[46-Permutations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

47. Permutations II

Given a collection of numbers that might contain duplicates, return all possible unique permutations.

Example:

```
Input: [1,1,2]
Output:
[
    [1,1,2],
    [1,2,1],
    [2,1,1]
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[47-Permutations-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

48. Rotate Image

You are given an $n \times n$ 2D matrix representing an image.

Rotate the image by 90 degrees (clockwise).

Note:

You have to rotate the image [in-place](#), which means you have to modify the input 2D matrix directly. **DO NOT** allocate another 2D matrix and do the rotation.

Example 1:

```
Given input matrix =
[
    [1,2,3],
    [4,5,6],
    [7,8,9]
],  
  
rotate the input matrix in-place such that it becomes:
[
    [7,4,1],
    [8,5,2],
    [9,6,3]
]
```

Example 2:

```
Given input matrix =
[
    [ 5,  1,  9,11],
    [ 2,  4,  8,10],
    [13,  3,  6,  7],
    [15,14,12,16]
],  
  
rotate the input matrix in-place such that it becomes:
[
    [15,13,  2,  5],
    [14,  3,  4,  1],
    [12,  6,  8,  9],
    [ 1,  5, 10, 11]
]
```

```
[16, 7, 10, 11]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[48-Rotate-Image](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

49. Group Anagrams

Given an array of strings, group anagrams together.

Example:

```
Input: ["eat", "tea", "tan", "ate", "nat", "bat"],  
Output:  
[  
    ["ate", "eat", "tea"],  
    ["nat", "tan"],  
    ["bat"]  
]
```

Note:

- All inputs will be in lowercase.
- The order of your output does not matter.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[49-Group-Anagrams](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

50. Pow(x, n)

Implement [pow\(x, n\)](#), which calculates x raised to the power n (x^n).

Example 1:

Input: 2.00000, 10
Output: 1024.00000

Example 2:

Input: 2.10000, 3
Output: 9.26100

Example 3:

Input: 2.00000, -2
Output: 0.25000
Explanation: $2^{-2} = 1/2^2 = 1/4 = 0.25$

Note:

- $-100.0 < x < 100.0$
- n is a 32-bit signed integer, within the range $[-2^{31}, 2^{31} - 1]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[50-Pow\(x,-n\)](#)

All Problems:

[Link to All Problems](#)

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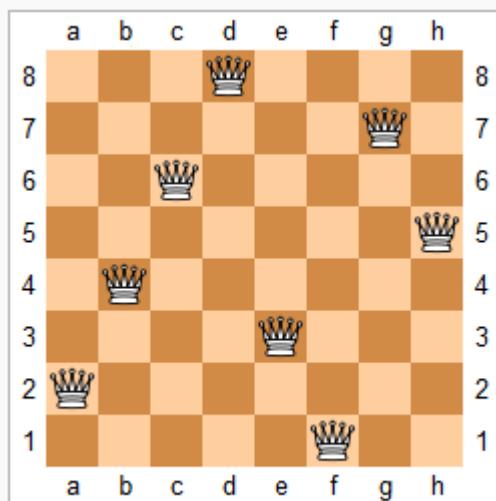
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Welcome to Subscribe On Youtube:

51. N-Queens

The n -queens puzzle is the problem of placing n queens on an $n \times n$ chessboard such that no two queens attack each other.



One solution to the eight queens puzzle

Given an integer n , return all distinct solutions to the n -queens puzzle.

Each solution contains a distinct board configuration of the n -queens' placement, where 'Q' and '.' both indicate a queen and an empty space respectively.

Example:

```
Input: 4
Output: [
    [".Q..",  // Solution 1
     "...Q",
     "Q...",
     "...Q"],
    [...Q.,  // Solution 2
     "Q...",
     "...Q",
     ".Q.."]
]
```

Explanation: There exist two distinct solutions to the 4-queens puzzle.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[51-N-Queens](#)

All Problems:

[Link to All Problems](#)

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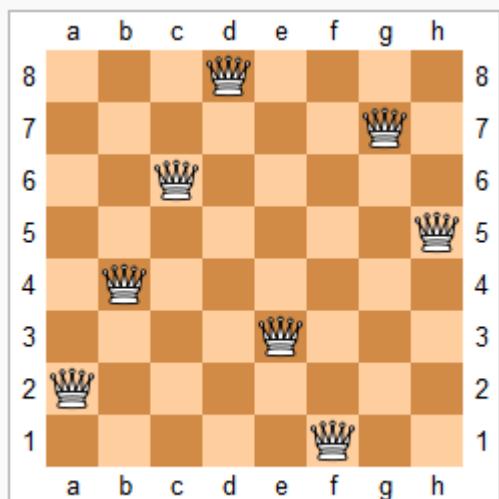
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Welcome to Subscribe On Youtube:

52. N-Queens II

The n -queens puzzle is the problem of placing n queens on an $n \times n$ chessboard such that no two queens attack each other.



One solution to the eight queens puzzle

Given an integer n , return the number of distinct solutions to the n -queens puzzle.

Example:

Input: 4

Output: 2

Explanation: There are two distinct solutions to the 4-queens puzzle.

```
[  
  [".Q..", // Solution 1  
   "...Q",  
   "Q...",  
   "...Q."],  
  
  ["...Q.", // Solution 2  
   "Q...",  
   "...Q",  
   ".Q.."]  
]
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[52-N-Queens-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

53. Maximum Subarray

Given an integer array `nums` , find the contiguous subarray (containing at least one number) which has the largest sum and return its sum.

Example:

Input: [-2,1,-3,4,-1,2,1,-5,4],

Output: 6

Explanation: [4,-1,2,1] has the largest sum = 6.

Follow up:

If you have figured out the $O(n)$ solution, try coding another solution using the divide and conquer approach, which is more subtle.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[53-Maximum-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

54. Spiral Matrix

Given a matrix of $m \times n$ elements (m rows, n columns), return all elements of the matrix in spiral order.

Example 1:

```
Input:  
[  
    [ 1, 2, 3 ],  
    [ 4, 5, 6 ],  
    [ 7, 8, 9 ]  
]  
Output: [1,2,3,6,9,8,7,4,5]
```

Example 2:

```
Input:  
[  
    [1, 2, 3, 4],  
    [5, 6, 7, 8],  
    [9,10,11,12]  
]  
Output: [1,2,3,4,8,12,11,10,9,5,6,7]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[54-Spiral-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

55. Jump Game

Given an array of non-negative integers, you are initially positioned at the first index of the array.

Each element in the array represents your maximum jump length at that position.

Determine if you are able to reach the last index.

Example 1:

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

Output: true

Explanation: Jump 1 step from index 0 to 1, then 3 steps to the

Example 2:

Input: [3,2,1,0,4]

Output: false

Explanation: You will always arrive at index 3 no matter what. If the jump length is 0, which makes it impossible to reach

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

55-Jump-Game

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

56. Merge Intervals

Given a collection of intervals, merge all overlapping intervals.

Example 1:

Input: [[1,3],[2,6],[8,10],[15,18]]

Output: [[1,6],[8,10],[15,18]]

Explanation: Since intervals [1,3] and [2,6] overlaps, merge them into one [1,6].

Example 2:

Input: [[1,4],[4,5]]

Output: [[1,5]]

Explanation: Intervals [1,4] and [4,5] are considered overlapping.

NOTE: input types have been changed on April 15, 2019.

Please reset to default code definition to get new method signature.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[56-Merge-Intervals](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

57. Insert Interval

Given a set of *non-overlapping* intervals, insert a new interval into the intervals (merge if necessary).

You may assume that the intervals were initially sorted according to their start times.

Example 1:

```
Input: intervals = [[1,3],[6,9]], newInterval = [2,5]
Output: [[1,5],[6,9]]
```

Example 2:

```
Input: intervals = [[1,2],[3,5],[6,7],[8,10],[12,16]], newInterval = [4,8]
Output: [[1,2],[3,10],[12,16]]
Explanation: Because the new interval [4,8] overlaps with [3,5],
```

NOTE: input types have been changed on April 15, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[57-Insert-Interval](#)

All Problems:

[Link to All Problems](#)

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58. Length of Last Word

Given a string s consists of upper/lower-case alphabets and empty space characters ' ', return the length of last word in the string.

If the last word does not exist, return 0.

Note: A word is defined as a character sequence consists of non-space characters only.

Example:

Input: "Hello World"
Output: 5

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[58-Length-of-Last-Word](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

59. Spiral Matrix II

Given a positive integer n , generate a square matrix filled with elements from 1 to n^2 in spiral order.

Example:

```
Input: 3
Output:
[
  [ 1, 2, 3 ],
  [ 8, 9, 4 ],
  [ 7, 6, 5 ]
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[59-Spiral-Matrix-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

60. Permutation Sequence

The set $[1, 2, 3, \dots, n]$ contains a total of $n!$ unique permutations.

By listing and labeling all of the permutations in order, we get the following sequence for $n = 3$:

1. "123"
2. "132"
3. "213"
4. "231"
5. "312"
6. "321"

Given n and k , return the k^{th} permutation sequence.

Note:

- Given n will be between 1 and 9 inclusive.
- Given k will be between 1 and $n!$ inclusive.

Example 1:

Input: $n = 3$, $k = 3$
Output: "213"

Example 2:

Input: $n = 4$, $k = 9$
Output: "2314"

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****60-Permutation-Sequence****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:

61. Rotate List

Given a linked list, rotate the list to the right by k places, where k is non-negative.

Example 1:

Input: 1->2->3->4->5->NULL, $k = 2$

Output: 4->5->1->2->3->NULL

Explanation:

rotate 1 steps to the right: 5->1->2->3->4->NULL

rotate 2 steps to the right: 4->5->1->2->3->NULL

Example 2:

Input: 0->1->2->NULL, $k = 4$

Output: 2->0->1->NULL

Explanation:

rotate 1 steps to the right: 2->0->1->NULL

rotate 2 steps to the right: 1->2->0->NULL

rotate 3 steps to the right: 0->1->2->NULL

rotate 4 steps to the right: 2->0->1->NULL

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[61-Rotate-List](#)

All Problems:

[Link to All Problems](#)

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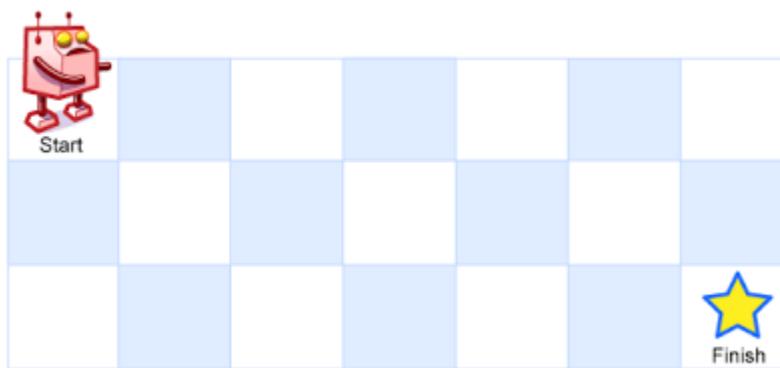
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62. Unique Paths

A robot is located at the top-left corner of a $m \times n$ grid (marked 'Start' in the diagram below).

The robot can only move either down or right at any point in time. The robot is trying to reach the bottom-right corner of the grid (marked 'Finish' in the diagram below).

How many possible unique paths are there?



Above is a 7×3 grid. How many possible unique paths are there?

Note: m and n will be at most 100.

Example 1:

Input: $m = 3$, $n = 2$
Output: 3

Explanation:

From the top-left corner, there are a total of 3 ways to reach the bottom-right corner.

1. Right -> Right -> Down
2. Right -> Down -> Right
3. Down -> Right -> Right

Example 2:

Input: m = 7, n = 3

Output: 28

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[62-Unique-Paths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

63. Unique Paths II

A robot is located at the top-left corner of a $m \times n$ grid (marked 'Start' in the diagram below).

The robot can only move either down or right at any point in time. The robot is trying to reach the bottom-right corner of the grid (marked 'Finish' in the diagram below).

Now consider if some obstacles are added to the grids. How many unique paths would there be?



An obstacle and empty space is marked as 1 and 0 respectively in the grid.

Note: m and n will be at most 100.

Example 1:

Input:

```
[  
    [0,0,0],  
    [0,1,0],  
    [0,0,0]  
]
```

Output: 2

Explanation:

There is one obstacle in the middle of the 3x3 grid above.
There are two ways to reach the bottom-right corner:

1. Right -> Right -> Down -> Down
2. Down -> Down -> Right -> Right

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**63-Unique-Paths-II**](#)**All Problems:**[**Link to All Problems**](#)

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64. Minimum Path Sum

Given a $m \times n$ grid filled with non-negative numbers, find a path from top left to bottom right which *minimizes* the sum of all numbers along its path.

Note: You can only move either down or right at any point in time.

Example:

```
Input:  
[  
    [1,3,1],  
    [1,5,1],  
    [4,2,1]  
]  
Output: 7  
Explanation: Because the path 1→3→1→1→1 minimizes the sum.
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****64-Minimum-Path-Sum****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:

65. Valid Number

Validate if a given string can be interpreted as a decimal number.

Some examples:

```
"0" => true
" 0.1 " => true
"abc" => false
"1 a" => false
"2e10" => true
" -90e3 " => true
" 1e" => false
"e3" => false
" 6e-1" => true
" 99e2.5 " => false
"53.5e93" => true
" --6 " => false
"-+3" => false
"95a54e53" => false
```

Note: It is intended for the problem statement to be ambiguous. You should gather all requirements up front before implementing one. However, here is a list of characters that can be in a valid decimal number:

- Numbers 0-9
- Exponent - "e"
- Positive/negative sign - "+"/-"
- Decimal point - "."

Of course, the context of these characters also matters in the input.

Update (2015-02-10):

The signature of the C++ function had been updated. If you still see your function signature accepts a `const char *` argument, please click the reload button to reset your code definition.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[65-Valid-Number](#)

All Problems:

[Link to All Problems](#)

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66. Plus One

Given a **non-empty** array of digits representing a non-negative integer, plus one to the integer.

The digits are stored such that the most significant digit is at the head of the list, and each element in the array contain a single digit.

You may assume the integer does not contain any leading zero, except the number 0 itself.

Example 1:

Input: [1,2,3]

Output: [1,2,4]

Explanation: The array represents the integer 123.

Example 2:

Input: [4,3,2,1]

Output: [4,3,2,2]

Explanation: The array represents the integer 4321.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[66-Plus-One](#)**All Problems:**[Link to All Problems](#)

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67. Add Binary

Given two binary strings, return their sum (also a binary string).

The input strings are both **non-empty** and contains only characters 1 or 0 .

Example 1:

Input: a = "11", b = "1"
Output: "100"

Example 2:

Input: a = "1010", b = "1011"
Output: "10101"

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[67-Add-Binary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

68. Text Justification

Given an array of words and a width $maxWidth$, format the text such that each line has exactly $maxWidth$ characters and is fully (left and right) justified.

You should pack your words in a greedy approach; that is, pack as many words as you can in each line. Pad extra spaces ' ' when necessary so that each line has exactly $maxWidth$ characters.

Extra spaces between words should be distributed as evenly as possible. If the number of spaces on a line do not divide evenly between words, the empty slots on the left will be assigned more spaces than the slots on the right.

For the last line of text, it should be left justified and no **extra** space is inserted between words.

Note:

- A word is defined as a character sequence consisting of non-space characters only.
- Each word's length is guaranteed to be greater than 0 and not exceed $maxWidth$.
- The input array `words` contains at least one word.

Example 1:

Input:

```
words = ["This", "is", "an", "example", "of", "text", "justifica"
maxWidth = 16
```

```
Output:  
[  
    "This    is    an",  
    "example  of text",  
    "justification. "  
]
```

Example 2:

```
Input:  
words = ["What", "must", "be", "acknowledgment", "shall", "be"]  
maxWidth = 16  
Output:  
[  
    "What    must    be",  
    "acknowledgment    ",  
    "shall    " "  
]
```

Explanation: Note that the last line is "shall be " instead of "shall be" because the last line must be left-justified instead of right-justified. Note that the second line is also left-justified because it has more than 16 characters.

Example 3:

```
Input:  
words = ["Science", "is", "what", "we", "understand", "well", "enough"  
        "to", "a", "computer.", "Art", "is", "everything", "else", "we"  
maxWidth = 20  
Output:  
[  
    "Science is what we",  
    "understand      well",  
    "enough to explain to",  
    "a computer. Art is",  
    "everything else we",  
    "do                "  
]
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[68-Text-Justification](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

69. Sqrt(x)

Implement `int sqrt(int x)` .

Compute and return the square root of x , where x is guaranteed to be a non-negative integer.

Since the return type is an integer, the decimal digits are truncated and only the integer part of the result is returned.

Example 1:

Input: 4
Output: 2

Example 2:

Input: 8
Output: 2

Explanation: The square root of 8 is 2.82842..., and since the decimal part is truncated, 2 is returned.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[69-Sqrt](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

70. Climbing Stairs

You are climbing a stair case. It takes n steps to reach to the top.

Each time you can either climb 1 or 2 steps. In how many distinct ways can you climb to the top?

Note: Given n will be a positive integer.

Example 1:

Input: 2

Output: 2

Explanation: There are two ways to climb to the top.

1. 1 step + 1 step
2. 2 steps

Example 2:

Input: 3

Output: 3

Explanation: There are three ways to climb to the top.

1. 1 step + 1 step + 1 step
2. 1 step + 2 steps
3. 2 steps + 1 step

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[70-Climbing-Stairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

71. Simplify Path

Given an **absolute path** for a file (Unix-style), simplify it.
Or in other words, convert it to the **canonical path**.

In a UNIX-style file system, a period . refers to the current directory. Furthermore, a double period .. moves the directory up a level. For more information, see: [Absolute path vs relative path in Linux/Unix](#)

Note that the returned canonical path must always begin with a slash / , and there must be only a single slash / between two directory names. The last directory name (if it exists) **must not** end with a trailing / . Also, the canonical path must be the **shortest** string representing the absolute path.

Example 1:

Input: "/home/"
Output: "/home"

Explanation: Note that there is no trailing slash after the last

Example 2:

Input: "/../"
Output: "/"

Explanation: Going one level up from the root directory is a no-

Example 3:

Input: "/home//foo/"
Output: "/home/foo"

Explanation: In the canonical path, multiple consecutive slashes

Example 4:

Input: "/a/./b/../../c/"
Output: "/c"

Example 5:

Input: "/a/././b/./c//.//"
Output: "/c"

Example 6:

Input: "/a//b///c/d//././/.//."
Output: "/a/b/c"

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[71-Simplify-Path](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

72. Edit Distance

Given two words $word1$ and $word2$, find the minimum number of operations required to convert $word1$ to $word2$.

You have the following 3 operations permitted on a word:

1. Insert a character
2. Delete a character
3. Replace a character

Example 1:

Input: $word1 = "horse"$, $word2 = "ros"$

Output: 3

Explanation:

horse -> rorse (replace 'h' with 'r')
rorse -> rose (remove 'r')
rose -> ros (remove 'e')

Example 2:

Input: $word1 = "intention"$, $word2 = "execution"$

Output: 5

Explanation:

intention -> inention (remove 't')
inention -> enention (replace 'i' with 'e')
enention -> exention (replace 'n' with 'x')
exention -> exection (replace 'n' with 'c')
exection -> execution (insert 'u')

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[72-Edit-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

73. Set Matrix Zeroes

Given a $m \times n$ matrix, if an element is 0, set its entire row and column to 0. Do it [in-place](#).

Example 1:

```
Input:  
[  
    [1,1,1],  
    [1,0,1],  
    [1,1,1]  
]  
Output:  
[  
    [1,0,1],  
    [0,0,0],  
    [1,0,1]  
]
```

Example 2:

```
Input:  
[
```

```
[0,1,2,0],  
[3,4,5,2],  
[1,3,1,5]  
]  
Output:  
[  
    [0,0,0,0],  
    [0,4,5,0],  
    [0,3,1,0]  
]
```

Follow up:

- A straight forward solution using $O(mn)$ space is probably a bad idea.
- A simple improvement uses $O(m+n)$ space, but still not the best solution.
- Could you devise a constant space solution?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[73-Set-Matrix-Zeroes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

74. Search a 2D Matrix

Write an efficient algorithm that searches for a value in an $m \times n$ matrix. This matrix has the following properties:

- Integers in each row are sorted from left to right.
- The first integer of each row is greater than the last integer of the previous row.

Example 1:

```
Input:  
matrix = [  
    [1, 3, 5, 7],  
    [10, 11, 16, 20],  
    [23, 30, 34, 50]  
]  
target = 3  
Output: true
```

Example 2:

```
Input:  
matrix = [  
    [1, 3, 5, 7],  
    [10, 11, 16, 20],  
    [23, 30, 34, 50]  
]  
target = 13  
Output: false
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[74-Search-a-2D-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

75. Sort Colors

Given an array with n objects colored red, white or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white and blue.

Here, we will use the integers 0, 1, and 2 to represent the color red, white, and blue respectively.

Note: You are not suppose to use the library's sort function for this problem.

Example:

Input: [2, 0, 2, 1, 1, 0]
Output: [0, 0, 1, 1, 2, 2]

Follow up:

- A rather straight forward solution is a two-pass algorithm using counting sort.
First, iterate the array counting number of 0's, 1's, and 2's, then overwrite array with total number of 0's, then 1's and followed by 2's.
- Could you come up with a one-pass algorithm using only constant space?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[75-Sort-Colors](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

76. Minimum Window Substring

Given a string S and a string T, find the minimum window in S which will contain all the characters in T in complexity O(n).

Example:

Input: S = "ADOBECODEBANC", T = "ABC"
Output: "BANC"

Note:

- If there is no such window in S that covers all characters in T, return the empty string " " .
- If there is such window, you are guaranteed that there will always be only one unique minimum window in S.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[76-Minimum-Window-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

77. Combinations

Given two integers n and k , return all possible combinations of k numbers out of $1 \dots n$.

Example:

```
Input: n = 4, k = 2
Output:
[
    [2,4],
    [3,4],
    [2,3],
    [1,2],
    [1,3],
    [1,4],
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[77-Combinations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

78. Subsets

Given a set of **distinct** integers, *nums* , return all possible subsets (the power set).

Note: The solution set must not contain duplicate subsets.

Example:

```
Input: nums = [1,2,3]
Output:
[
  [3],
  [1],
  [2],
  [1,2,3],
  [1,3],
  [2,3],
```

```
[1, 2],  
[]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[78-Subsets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

79. Word Search

Given a 2D board and a word, find if the word exists in the grid.

The word can be constructed from letters of sequentially adjacent cell, where "adjacent" cells are those horizontally or vertically neighboring. The same letter cell may not be used more than once.

Example:

```
board =  
[  
    ['A', 'B', 'C', 'E'],  
    ['S', 'F', 'C', 'S'],  
    ['A', 'D', 'E', 'E']  
]  
  
Given word = "ABCCED", return true.  
Given word = "SEE", return true.  
Given word = "ABCB", return false.
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[79-Word-Search](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

80. Remove Duplicates from Sorted Array II

Given a sorted array *nums* , remove the duplicates [in-place](#) such that duplicates appeared at most *twice* and return the new length.

Do not allocate extra space for another array, you must do this by **modifying the input array [in-place](#)** with O(1) extra memory.

Example 1:

Given *nums* = [1,1,1,2,2,3] ,

Your function should return *length* = 5, with the first five elements.

It doesn't matter what you leave beyond the returned *length*.

Example 2:

Given *nums* = [0,0,1,1,1,1,2,3,3] ,

Your function should return *length* = 7, with the first seven elements.

It doesn't matter what values are set beyond the returned *length*.

Clarification:

Confused why the returned value is an integer but your answer is an array?

Note that the input array is passed in by **reference** , which means modification to the input array will be known to the caller as well.

Internally you can think of this:

```
// nums is passed in by reference. (i.e., without making a copy)
int len = removeDuplicates(nums);

// any modification to nums in your function would be known by the caller
// using the length returned by your function, it prints the first len elements.
for (int i = 0; i < len; i++) {
    print(nums[i]);
}
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[80-Remove-Duplicates-from-Sorted-Array-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

81. Search in Rotated Sorted Array II

Suppose an array sorted in ascending order is rotated at some pivot unknown to you beforehand.

(i.e., [0, 0, 1, 2, 2, 5, 6] might become [2, 5, 6, 0, 0, 1, 2]).

You are given a target value to search. If found in the array return true , otherwise return false .

Example 1:

Input: nums = [2, 5, 6, 0, 0, 1, 2], target = 0
Output: true

Example 2:

Input: nums = [2, 5, 6, 0, 0, 1, 2], target = 3
Output: false

Follow up:

- This is a follow up problem to [Search in Rotated Sorted Array](#), where nums may contain duplicates.
- Would this affect the run-time complexity? How and why?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[81-Search-in-Rotated-Sorted-Array-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

82. Remove Duplicates from Sorted List II

Given a sorted linked list, delete all nodes that have duplicate numbers, leaving only *distinct* numbers from the original list.

Example 1:

Input: 1->2->3->3->4->4->5
Output: 1->2->5

Example 2:

Input: 1->1->1->2->3
Output: 2->3

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[82-Remove-Duplicates-from-Sorted-List-II](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

83. Remove Duplicates from Sorted List

Given a sorted linked list, delete all duplicates such that each element appear only *once* .

Example 1:

Input: 1->1->2
Output: 1->2

Example 2:

Input: 1->1->2->3->3
Output: 1->2->3

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[83-Remove-Duplicates-from-Sorted-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

84. Largest Rectangle in Histogram

Given n non-negative integers representing the histogram's bar height where the width of each bar is 1, find the area of largest rectangle in the histogram.

Above is a histogram where width of each bar is 1, given height = [2, 1, 5, 6, 2, 3] .

The largest rectangle is shown in the shaded area, which has area = 10 unit.

Example:

Input: [2, 1, 5, 6, 2, 3]
Output: 10

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[84-Largest-Rectangle-in-Histogram](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

85. Maximal Rectangle

Given a 2D binary matrix filled with 0's and 1's, find the largest rectangle containing only 1's and return its area.

Example:

Input:

```
[  
    ["1", "0", "1", "0", "0"],  
    ["1", "0", "1", "1", "1"],  
    ["1", "1", "1", "1", "1"],  
    ["1", "0", "0", "1", "0"]]
```

Output: 6

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[85-Maximal-Rectangle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

86. Partition List

Given a linked list and a value x , partition it such that all nodes less than x come before nodes greater than or equal to x .

You should preserve the original relative order of the nodes in each of the two partitions.

Example:

Input: head = 1->4->3->2->5->2 , x = 3
Output: 1->2->2->4->3->5

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[86-Partition-List](#)

All Problems:

[Link to All Problems](#)

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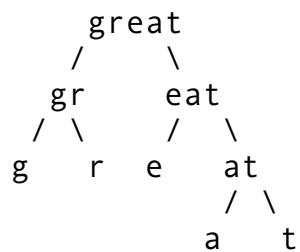
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Welcome to Subscribe On Youtube:

87. Scramble String

Given a string $s1$, we may represent it as a binary tree by partitioning it to two non-empty substrings recursively.

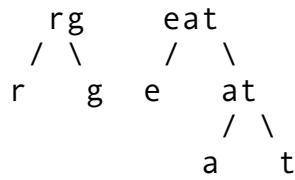
Below is one possible representation of $s1 = "great"$:



To scramble the string, we may choose any non-leaf node and swap its two children.

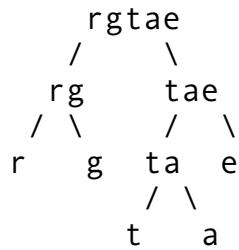
For example, if we choose the node "gr" and swap its two children, it produces a scrambled string "rgeat" .





We say that "rgeat" is a scrambled string of "great" .

Similarly, if we continue to swap the children of nodes "eat" and "at" , it produces a scrambled string "rgtae" .



We say that "rgtae" is a scrambled string of "great" .

Given two strings s_1 and s_2 of the same length, determine if s_2 is a scrambled string of s_1 .

Example 1:

Input: $s_1 = \text{"great"}$, $s_2 = \text{"rgeat"}$
 Output: true

Example 2:

Input: $s_1 = \text{"abcde"}$, $s_2 = \text{"caebd"}$
 Output: false

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[87-Scramble-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

88. Merge Sorted Array

Given two sorted integer arrays $nums1$ and $nums2$, merge $nums2$ into $nums1$ as one sorted array.

Note:

- The number of elements initialized in $nums1$ and $nums2$ are m and n respectively.
- You may assume that $nums1$ has enough space (size that is greater or equal to $m + n$) to hold additional elements from $nums2$.

Example:

Input:
 $nums1 = [1, 2, 3, 0, 0, 0]$, $m = 3$
 $nums2 = [2, 5, 6]$, $n = 3$

Output: $[1, 2, 2, 3, 5, 6]$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[88-Merge-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

89. Gray Code

The gray code is a binary numeral system where two successive values differ in only one bit.

Given a non-negative integer n representing the total number of bits in the code, print the sequence of gray code. A gray code sequence must begin with 0.

Example 1:

Input: 2
Output: [0,1,3,2]
Explanation:
00 - 0
01 - 1
11 - 3
10 - 2

For a given n , a gray code sequence may not be uniquely defined.
For example, [0,2,3,1] is also a valid gray code sequence.

00 - 0
10 - 2
11 - 3
01 - 1

Example 2:

Input: 0
Output: [0]
Explanation: We define the gray code sequence to begin with 0.
A gray code sequence of n has size = 2^n , which for $n=0$ is 1.
Therefore, for $n=0$ the gray code sequence is [0].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[89-Gray-Code](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

90. Subsets II

Given a collection of integers that might contain duplicates, **nums** , return all possible subsets (the power set).

Note: The solution set must not contain duplicate subsets.

Example:

```
Input: [1,2,2]
Output:
[
    [2],
    [1],
    [1,2,2],
    [2,2],
    [1,2],
    []
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[90-Subsets-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

91. Decode Ways

A message containing letters from A-Z is being encoded to numbers using the following mapping:

'A' -> 1
'B' -> 2
...
'Z' -> 26

Given a **non-empty** string containing only digits, determine the total number of ways to decode it.

Example 1:

Input: "12"

Output: 2

Explanation: It could be decoded as "AB" (1 2) or "L" (12).

Example 2:

Input: "226"
Output: 3
Explanation: It could be decoded as "BZ" (2 26), "VF" (22 6), or

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[91-Decode-Ways](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

92. Reverse Linked List II

Reverse a linked list from position m to n . Do it in one-pass.

Note: $1 \leq m \leq n \leq \text{length of list}$.

Example:

Input: 1->2->3->4->5->NULL , $m = 2$, $n = 4$
Output: 1->4->3->2->5->NULL

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[92-Reverse-Linked-List-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

93. Restore IP Addresses

Given a string containing only digits, restore it by returning all possible valid IP address combinations.

Example:

Input: "25525511135"
Output: ["255.255.11.135", "255.255.111.35"]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[93-Restore-IP-Addresses](#)

All Problems:

[Link to All Problems](#)

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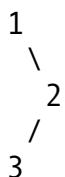
Welcome to Subscribe On Youtube:

94. Binary Tree Inorder Traversal

Given a binary tree, return the *inorder* traversal of its nodes' values.

Example:

Input: [1, null, 2, 3]



Output: [1, 3, 2]

Follow up: Recursive solution is trivial, could you do it iteratively?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[94-Binary-Tree-Inorder-Traversals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

95. Unique Binary Search Trees II

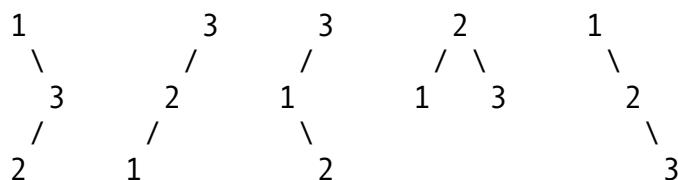
Given an integer n , generate all structurally unique BST's (binary search trees) that store values $1 \dots n$.

Example:

Input: 3
Output:
[
 [1,null,3,2],
 [3,2,null,1],
 [3,1,null,null,2],
 [2,1,3],
 [1,null,2,null,3]
]

Explanation:

The above output corresponds to the 5 unique BST's shown below:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[95-Unique-Binary-Search-Trees-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

96. Unique Binary Search Trees

Given n , how many structurally unique BST's (binary search trees) that store values $1 \dots n$?

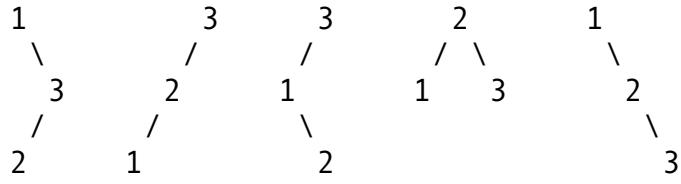
Example:

Input: 3

Output: 5

Explanation:

Given $n = 3$, there are a total of 5 unique BST's:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[96-Unique-Binary-Search-Trees](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

97. Interleaving String

Given s_1 , s_2 , s_3 , find whether s_3 is formed by the interleaving of s_1 and s_2 .

Example 1:

Input: $s_1 = "aabcc"$, $s_2 = "dbbca"$, $s_3 = "aadbcbcbcac"$
Output: true

Example 2:

Input: $s_1 = "aabcc"$, $s_2 = "dbbca"$, $s_3 = "aadbcccac"$
Output: false

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[97-Interleaving-String](#)

All Problems:

[Link to All Problems](#)

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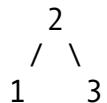
98. Validate Binary Search Tree

Given a binary tree, determine if it is a valid binary search tree (BST).

Assume a BST is defined as follows:

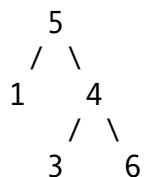
- The left subtree of a node contains only nodes with keys **less than** the node's key.
- The right subtree of a node contains only nodes with keys **greater than** the node's key.
- Both the left and right subtrees must also be binary search trees.

Example 1:



Input: [2,1,3]
Output: true

Example 2:



Input: [5,1,4,null,null,3,6]

Output: false

Explanation: The root node's value is 5 but its right child's va

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[98-Validate-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

99. Recover Binary Search Tree

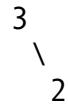
Two elements of a binary search tree (BST) are swapped by mistake.

Recover the tree without changing its structure.

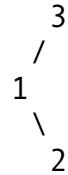
Example 1:

Input: [1,3,null,null,2]

1
/

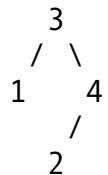


Output: [3,1,null,null,2]

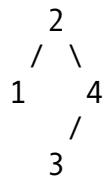


Example 2:

Input: [3,1,4,null,null,2]



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



Follow up:

- A solution using $O(n)$ space is pretty straight forward.
- Could you devise a constant space solution?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[99-Recover-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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100. Same Tree

Given two binary trees, write a function to check if they are the same or not.

Two binary trees are considered the same if they are structurally identical and the nodes have the same value.

Example 1:

Input: 
 / \ / \
 2 3 2 3
[1, 2, 3], [1, 2, 3]

Output: true

Example 2:

Input: 
 / \ \ \
 2 1 2

[1, 2], [1, null, 2]
Output: false

Example 3:

Input: 1 1
 / \ / \
 2 1 1 2
[1, 2, 1], [1, 1, 2]

Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[100-Same-Tree](#)

All Problems:

[Link to All Problems](#)

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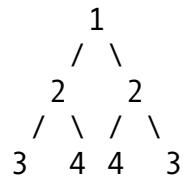
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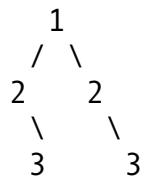
101. Symmetric Tree

Given a binary tree, check whether it is a mirror of itself (ie, symmetric around its center).

For example, this binary tree [1, 2, 2, 3, 4, 4, 3] is symmetric:



But the following [1, 2, 2, null, 3, null, 3] is not:



Note:

Bonus points if you could solve it both recursively and iteratively.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[101-Symmetric-Tree](#)

All Problems:

[Link to All Problems](#)

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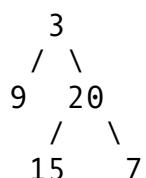
Welcome to Subscribe On Youtube:

102. Binary Tree Level Order Traversal

Given a binary tree, return the *level order* traversal of its nodes' values. (ie, from left to right, level by level).

For example:

Given binary tree [3,9,20,null,null,15,7] ,



return its level order traversal as:

```
[  
  [3],  
  [9, 20],  
  [15, 7]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[102-Binary-Tree-Level-Order-Traversal](#)**All Problems:**[Link to All Problems](#)

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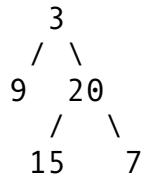
Welcome to Subscribe On Youtube:

103. Binary Tree Zigzag Level Order Traversal

Given a binary tree, return the *zigzag level order* traversal of its nodes' values. (ie, from left to right, then right to left for the next level and alternate between).

For example:

Given binary tree [3,9,20,null,null,15,7] ,



return its zigzag level order traversal as:

```
[
  [3],
  [20, 9],
  [15, 7]
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[103-Binary-Tree-Zigzag-Level-Order-Traversal](#)

All Problems:

[Link to All Problems](#)

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104. Maximum Depth of Binary Tree

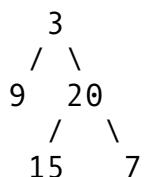
Given a binary tree, find its maximum depth.

The maximum depth is the number of nodes along the longest path from the root node down to the farthest leaf node.

Note: A leaf is a node with no children.

Example:

Given binary tree [3, 9, 20, null, null, 15, 7] ,



return its depth = 3.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[104-Maximum-Depth-of-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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105. Construct Binary Tree from Preorder and Inorder Traversal

Given preorder and inorder traversal of a tree, construct the binary tree.

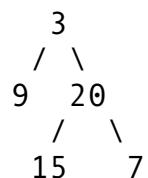
Note:

You may assume that duplicates do not exist in the tree.

For example, given

```
preorder = [3,9,20,15,7]
inorder = [9,3,15,20,7]
```

Return the following binary tree:



Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[105-Construct-Binary-Tree-from-Preorder-and-Inorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

106. Construct Binary Tree from Inorder and Postorder Traversal

Given inorder and postorder traversal of a tree, construct the binary tree.

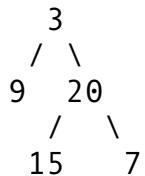
Note:

You may assume that duplicates do not exist in the tree.

For example, given

```
inorder = [9, 3, 15, 20, 7]
postorder = [9, 15, 7, 20, 3]
```

Return the following binary tree:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[106-Construct-Binary-Tree-from-Inorder-and-Postorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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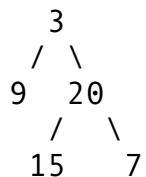
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107. Binary Tree Level Order Traversal II

Given a binary tree, return the *bottom-up level order* traversal of its nodes' values. (ie, from left to right, level by level from leaf to root).

For example:

Given binary tree [3,9,20,null,null,15,7] ,



return its bottom-up level order traversal as:

```
[  
  [15, 7],  
  [9, 20],  
  [3]  
]
```

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[107-Binary-Tree-Level-Order-Traversal-II](#)

All Problems:

[Link to All Problems](#)

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108. Convert Sorted Array to Binary Search Tree

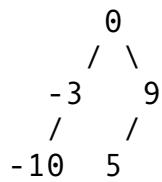
Given an array where elements are sorted in ascending order, convert it to a height balanced BST.

For this problem, a height-balanced binary tree is defined as a binary tree in which the depth of the two subtrees of *every* node never differ by more than 1.

Example:

Given the sorted array: [-10,-3,0,5,9],

One possible answer is: [0,-3,9,-10,null,5], which represents the binary search tree below:



Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[108-Convert-Sorted-Array-to-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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109. Convert Sorted List to Binary Search Tree

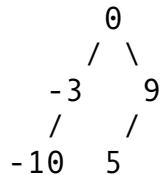
Given a singly linked list where elements are sorted in ascending order, convert it to a height balanced BST.

For this problem, a height-balanced binary tree is defined as a binary tree in which the depth of the two subtrees of every node never differ by more than 1.

Example:

Given the sorted linked list: [-10,-3,0,5,9],

One possible answer is: [0,-3,9,-10,null,5], which represents the following height-balanced BST:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[109-Convert-Sorted-List-to-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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110. Balanced Binary Tree

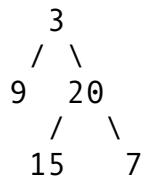
Given a binary tree, determine if it is height-balanced.

For this problem, a height-balanced binary tree is defined as:

a binary tree in which the depth of the two subtrees of *every* node never differ by more than 1.

Example 1:

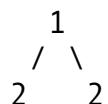
Given the following tree [3, 9, 20, null, null, 15, 7] :

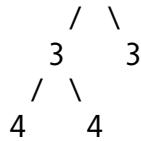


Return true.

Example 2:

Given the following tree
[1, 2, 2, 3, 3, null, null, 4, 4] :





Return false.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[110-Balanced-Binary-Tree](#)

All Problems:

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Welcome to Subscribe On Youtube:

111. Minimum Depth of Binary Tree

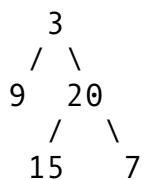
Given a binary tree, find its minimum depth.

The minimum depth is the number of nodes along the shortest path from the root node down to the nearest leaf node.

Note: A leaf is a node with no children.

Example:

Given binary tree [3, 9, 20, null, null, 15, 7] ,



return its minimum depth = 2.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[111-Minimum-Depth-of-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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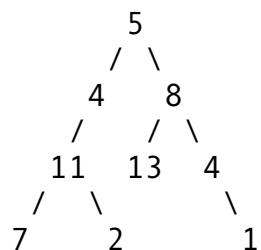
112. Path Sum

Given a binary tree and a sum, determine if the tree has a root-to-leaf path such that adding up all the values along the path equals the given sum.

Note: A leaf is a node with no children.

Example:

Given the below binary tree and sum = 22 ,



return true, as there exist a root-to-leaf path 5->4->11->2 which sum is 22.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[112-Path-Sum](#)

All Problems:

[Link to All Problems](#)

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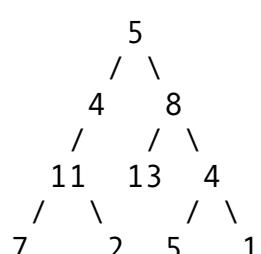
113. Path Sum II

Given a binary tree and a sum, find all root-to-leaf paths where each path's sum equals the given sum.

Note: A leaf is a node with no children.

Example:

Given the below binary tree and `sum = 22` ,



Return:

```
[  
    [5,4,11,2],  
    [5,8,4,5]  
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[113-Path-Sum-II](#)

All Problems:

[Link to All Problems](#)

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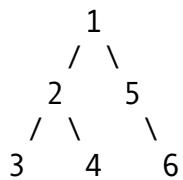
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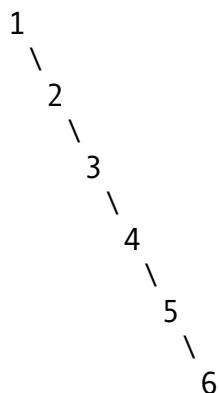
114. Flatten Binary Tree to Linked List

Given a binary tree, flatten it to a linked list in-place.

For example, given the following tree:



The flattened tree should look like:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[114-Flatten-Binary-Tree-to-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

115. Distinct Subsequences

Given a string **S** and a string **T** , count the number of distinct subsequences of **S** which equals **T** .

A subsequence of a string is a new string which is formed from the original string by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (ie, "ACE" is a subsequence of "ABCDE" while "AEC" is not).

Example 1:

Input: S = "rabbbit", T = "rabbit"

Output: 3

Explanation:

As shown below, there are 3 ways you can generate "rabbit" from (The caret symbol ^ means the chosen letters)

```
rabbbit  
^^^^^ ^  
rabbbit  
^ ^ ^ ^  
rabbbit  
^ ^ ^ ^
```

Example 2:

Input: S = "babgbag", T = "bag"
Output: 5
Explanation:

As shown below, there are 5 ways you can generate "bag" from S.
(The caret symbol ^ means the chosen letters)

babgbag
^ ^ ^
babgbag
^ ^ ^
babgbag
^ ^ ^
babgbag
^ ^ ^
babgbag
^ ^ ^

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[115-Distinct-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

116. Populating Next Right Pointers in Each Node

You are given a **perfect binary tree** where all leaves are on the same level, and every parent has two children. The binary tree has the following definition:

```
struct Node {  
    int val;  
    Node *left;  
    Node *right;  
    Node *next;  
}
```

Populate each next pointer to point to its next right node. If there is no next right node, the next pointer should be set to `NULL`.

Initially, all next pointers are set to `NULL`.

Example:

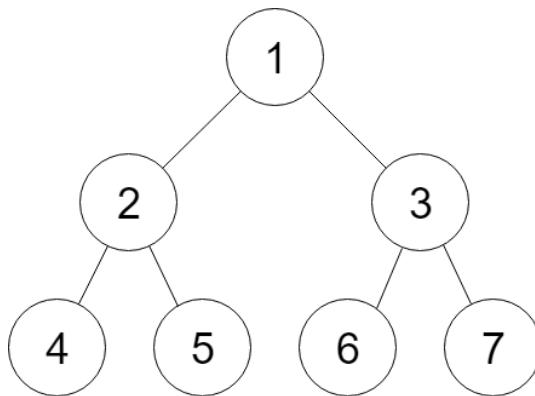


Figure A

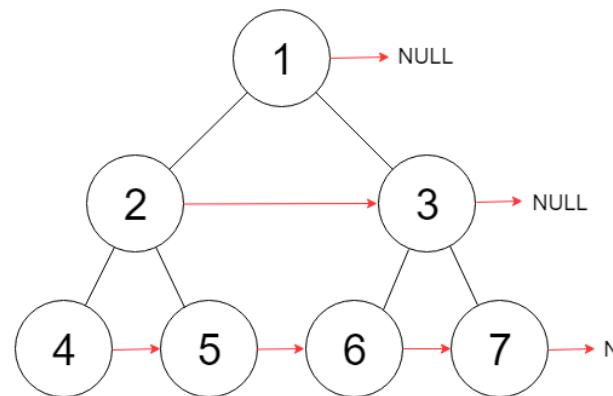


Figure B

Input: `{"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": null, "next": null}, "right": {"$id": "4", "left": {"$id": "5", "left": null, "next": null}, "right": {"$id": "6", "left": {"$id": "7", "left": null, "next": null}, "right": null}}`

Output: `{"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": null, "next": {"$id": "4", "left": {"$id": "5", "left": null, "next": {"$id": "6", "left": {"$id": "7", "left": null, "next": null}, "right": null}}}, "right": {"$id": "4", "left": {"$id": "5", "left": null, "next": {"$id": "6", "left": {"$id": "7", "left": null, "next": null}, "right": null}}, "right": null}}`

Explanation: Given the above perfect binary tree (Figure A), you

Note:

- You may only use constant extra space.
- Recursive approach is fine, implicit stack space does not count as extra space for this problem.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[116-Populating-Next-Right-Pointers-in-Each-Node](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

117. Populating Next Right Pointers in Each Node II

Given a binary tree

```
struct Node {  
    int val;  
    Node *left;  
    Node *right;  
    Node *next;  
}
```

Populate each next pointer to point to its next right node.
If there is no next right node, the next pointer should be set to `NULL`.

Initially, all next pointers are set to `NULL`.

Example:

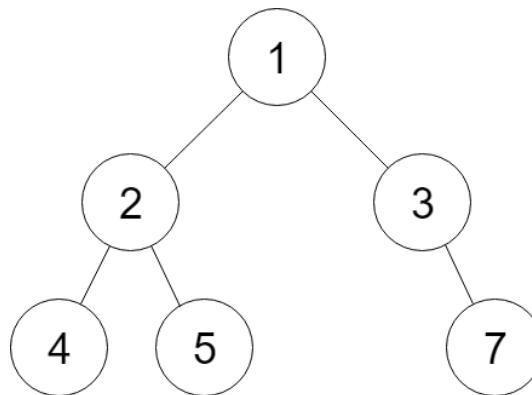


Figure A

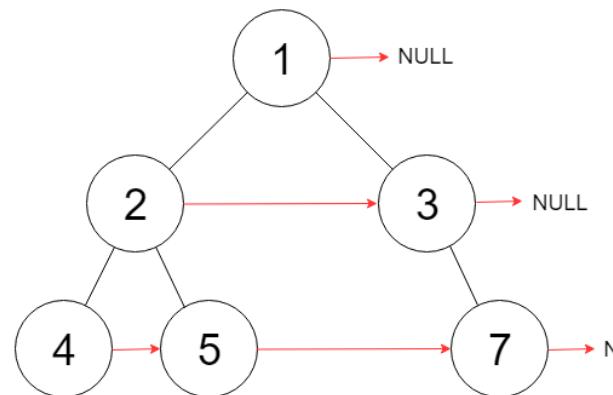


Figure B

Input: `{"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": null, "next": null}, "right": {"$id": "4", "left": {"$id": "5", "left": null, "next": null}, "right": {"$id": "7", "left": null, "next": null}}}`

Output: `{"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": null, "next": {"$id": "4", "left": {"$id": "5", "left": null, "next": {"$id": "7", "left": null, "next": null}}}}, "right": {"$id": "4", "left": {"$id": "5", "left": null, "next": {"$id": "7", "left": null, "next": null}}}}`

Explanation: Given the above binary tree (Figure A), your function should populate each next pointer to its next right node. In Figure B, the tree structure remains the same, but the next pointers are now correctly populated.

Note:

- You may only use constant extra space.
- Recursive approach is fine, implicit stack space does not count as extra space for this problem.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[117-Populating-Next-Right-Pointers-in-Each-Node-II](#)

All Problems:

[Link to All Problems](#)

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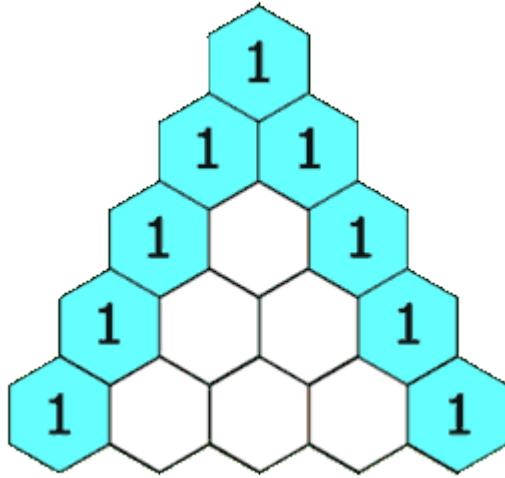
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Welcome to Subscribe On Youtube:

118. Pascal's Triangle

Given a non-negative integer *numRows* , generate the first *numRows* of Pascal's triangle.



In Pascal's triangle, each number is the sum of the two numbers directly above it.

Example:

```
Input: 5
Output:
[
    [1],
    [1, 1],
    [1, 2, 1],
    [1, 3, 3, 1],
    [1, 4, 6, 4, 1]
]
```

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[118-Pascal's-Triangle/](#)

All Problems:

[Link to All Problems](#)

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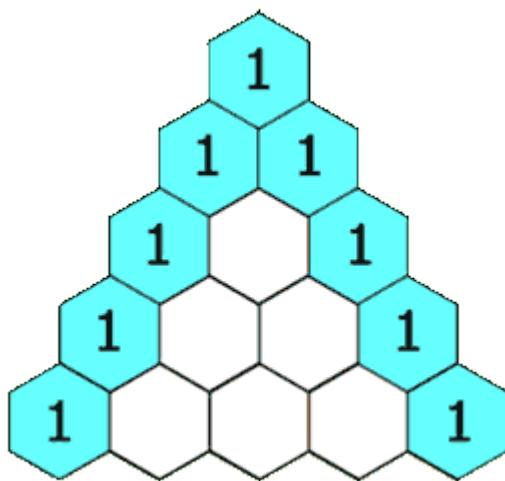
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119. Pascal's Triangle II

Given a non-negative index k where $k \leq 33$, return the k^{th} index row of the Pascal's triangle.

Note that the row index starts from 0.



In Pascal's triangle, each number is the sum of the two numbers directly above it.

Example:

Input: 3
Output: [1, 3, 3, 1]

Follow up:

Could you optimize your algorithm to use only $O(k)$ extra space?

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[119-Pascal](#)**All Problems:**[Link to All Problems](#)

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120. Triangle

Given a triangle, find the minimum path sum from top to bottom. Each step you may move to adjacent numbers on the row below.

For example, given the following triangle

```
[  
    [2],  
    [3, 4],  
    [6, 5, 7],  
    [4, 1, 8, 3]  
]
```

The minimum path sum from top to bottom is 11 (i.e., **2 + 3 + 5 + 1 = 11**).

Note:

Bonus point if you are able to do this using only $O(n)$ extra space, where n is the total number of rows in the triangle.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[120-Triangle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

121. Best Time to Buy and Sell Stock

Say you have an array for which the i^{th} element is the price of a given stock on day i .

If you were only permitted to complete at most one transaction (i.e., buy one and sell one share of the stock), design an algorithm to find the maximum profit.

Note that you cannot sell a stock before you buy one.

Example 1:

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

Output: 5

Explanation: Buy on day 2 (price = 1) and sell on day 5 (price = 6). Not $7-1 = 6$, as selling price needs to be larger than buying price.

Example 2:

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

Output: 0

Explanation: In this case, no transaction is done, i.e. max profit is 0.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[121-Best-Time-to-Buy-and-Sell-Stock](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

122. Best Time to Buy and Sell Stock II

Say you have an array for which the i^{th} element is the price of a given stock on day i .

Design an algorithm to find the maximum profit. You may complete as many transactions as you like (i.e., buy one and sell one share of the stock multiple times).

Note: You may not engage in multiple transactions at the same time (i.e., you must sell the stock before you buy again).

Example 1:

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

Output: 7

Explanation: Buy on day 2 (price = 1) and sell on day 3 (price = 5). Then buy on day 4 (price = 3) and sell on day 5 (price = 6).

Example 2:

Input: [1,2,3,4,5]

Output: 4

Explanation: Buy on day 1 (price = 1) and sell on day 5 (price = 5). Note that you cannot buy on day 1, buy on day 2 and engaging multiple transactions at the same time. You can only buy once.

Example 3:

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

Output: 0

Explanation: In this case, no transaction is done, i.e. max profit = 0.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[122-Best-Time-to-Buy-and-Sell-Stock-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

123. Best Time to Buy and Sell Stock III

Say you have an array for which the i^{th} element is the price of a given stock on day i .

Design an algorithm to find the maximum profit. You may complete at most *two* transactions.

Note: You may not engage in multiple transactions at the same time (i.e., you must sell the stock before you buy again).

Example 1:

Input: [3,3,5,0,0,3,1,4]

Output: 6

Explanation: Buy on day 4 (price = 0) and sell on day 6 (price = 3). Then buy on day 7 (price = 1) and sell on day 8 (price = 4).

Example 2:

Input: [1,2,3,4,5]

Output: 4

Explanation: Buy on day 1 (price = 1) and sell on day 5 (price = 5). Note that you cannot buy on day 1, buy on day 2 and engaging multiple transactions at the same time. You can only buy once.

Example 3:

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

Output: 0

Explanation: In this case, no transaction is done, i.e. max profit = 0.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[123-Best-Time-to-Buy-and-Sell-Stock-III](#)

All Problems:

[Link to All Problems](#)

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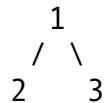
124. Binary Tree Maximum Path Sum

Given a **non-empty** binary tree, find the maximum path sum.

For this problem, a path is defined as any sequence of nodes from some starting node to any node in the tree along the parent-child connections. The path must contain **at least one node** and does not need to go through the root.

Example 1:

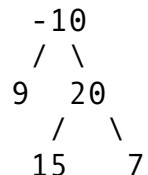
Input: [1, 2, 3]



Output: 6

Example 2:

Input: [-10, 9, 20, null, null, 15, 7]



Output: 42

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[124-Binary-Tree-Maximum-Path-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

125. Valid Palindrome

Given a string, determine if it is a palindrome, considering only alphanumeric characters and ignoring cases.

Note: For the purpose of this problem, we define empty string as valid palindrome.

Example 1:

Input: "A man, a plan, a canal: Panama"
Output: true

Example 2:

Input: "race a car"
Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[125-Valid-Palindrome](#)

All Problems:

[Link to All Problems](#)

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126. Word Ladder II

Given two words (*beginWord* and *endWord*), and a dictionary's word list, find all shortest transformation sequence(s) from *beginWord* to *endWord*, such that:

1. Only one letter can be changed at a time
2. Each transformed word must exist in the word list.
Note that *beginWord* is *not* a transformed word.

Note:

- Return an empty list if there is no such transformation sequence.
- All words have the same length.

- All words contain only lowercase alphabetic characters.
- You may assume no duplicates in the word list.
- You may assume *beginWord* and *endWord* are non-empty and are not the same.

Example 1:

Input:

```
beginWord = "hit",
endWord = "cog",
wordList = ["hot", "dot", "dog", "lot", "log", "cog"]
```

Output:

```
[
  ["hit", "hot", "dot", "dog", "cog"],
  ["hit", "hot", "lot", "log", "cog"]
]
```

Example 2:

Input:

```
beginWord = "hit"
endWord = "cog"
wordList = ["hot", "dot", "dog", "lot", "log"]
```

Output: []

Explanation: The endWord "cog" is not in wordList, therefore no

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[126-Word-Ladder-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

127. Word Ladder

Given two words (*beginWord* and *endWord*), and a dictionary's word list, find the length of shortest transformation sequence from *beginWord* to *endWord*, such that:

1. Only one letter can be changed at a time.
2. Each transformed word must exist in the word list.
Note that *beginWord* is *not* a transformed word.

Note:

- Return 0 if there is no such transformation sequence.
- All words have the same length.
- All words contain only lowercase alphabetic characters.
- You may assume no duplicates in the word list.
- You may assume *beginWord* and *endWord* are non-empty and are not the same.

Example 1:

Input:
beginWord = "hit",

```
endWord = "cog",
wordList = ["hot", "dot", "dog", "lot", "log", "cog"]
```

Output: 5

Explanation: As one shortest transformation is "hit" -> "hot" -> return its length 5.

Example 2:

Input:

```
beginWord = "hit"
endWord = "cog"
wordList = ["hot", "dot", "dog", "lot", "log"]
```

Output: 0

Explanation: The endWord "cog" is not in wordList, therefore no

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[127-Word-Ladder](#)

All Problems:

[Link to All Problems](#)

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128. Longest Consecutive Sequence

Given an unsorted array of integers, find the length of the longest consecutive elements sequence.

Your algorithm should run in $O(n)$ complexity.

Example:

Input: [100, 4, 200, 1, 3, 2]
Output: 4

Explanation: The longest consecutive elements sequence is [1, 2,

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[128-Longest-Consecutive-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

129. Sum Root to Leaf Numbers

Given a binary tree containing digits from 0 - 9 only, each root-to-leaf path could represent a number.

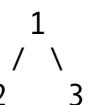
An example is the root-to-leaf path 1->2->3 which represents the number 123 .

Find the total sum of all root-to-leaf numbers.

Note: A leaf is a node with no children.

Example:

Input: [1, 2, 3]



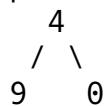
Output: 25

Explanation:

The root-to-leaf path 1->2 represents the number 12.
The root-to-leaf path 1->3 represents the number 13.
Therefore, sum = 12 + 13 = 25.

Example 2:

Input: [4, 9, 0, 5, 1]



```
      / \
     5   1
Output: 1026
Explanation:
The root-to-leaf path 4->9->5 represents the number 495.
The root-to-leaf path 4->9->1 represents the number 491.
The root-to-leaf path 4->0 represents the number 40.
Therefore, sum = 495 + 491 + 40 = 1026.
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[129-Sum-Root-to-Leaf-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

130. Surrounded Regions

Given a 2D board containing 'X' and '0' (the letter O), capture all regions surrounded by 'X'.

A region is captured by flipping all '0' s into 'X' s in that surrounded region.

Example:

```
X X X X  
X 0 0 X  
X X 0 X  
X 0 X X
```

After running your function, the board should be:

```
X X X X  
X X X X  
X X X X  
X 0 X X
```

Explanation:

Surrounded regions shouldn't be on the border, which means that any '0' on the border of the board are not flipped to 'X'. Any '0' that is not on the border and it is not connected to an '0' on the border will be flipped to 'X'. Two cells are connected if they are adjacent cells connected horizontally or vertically.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[130-Surrounded-Regions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

131. Palindrome Partitioning

Given a string s , partition s such that every substring of the partition is a palindrome.

Return all possible palindrome partitioning of s .

Example:

```
Input: "aab"
Output:
[
    ["aa", "b"],
    ["a", "a", "b"]
]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[131-Palindrome-Partitioning](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

132. Palindrome Partitioning II

Given a string s , partition s such that every substring of the partition is a palindrome.

Return the minimum cuts needed for a palindrome partitioning of s .

Example:

Input: "aab"

Output: 1

Explanation: The palindrome partitioning ["aa", "b"] could be produced with one cut.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**132-Palindrome-Partitioning-II**](#)**All Problems:**[**Link to All Problems**](#)

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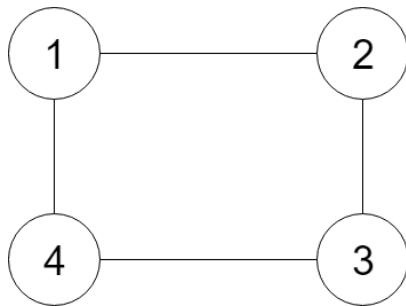
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Welcome to Subscribe On Youtube:

133. Clone Graph

Given a reference of a node in a [connected](#) undirected graph, return a [deep copy](#) (clone) of the graph. Each node in the graph contains a val (int) and a list (List[Node]) of its neighbors.

Example:



Input:

```
{"$id": "1", "neighbors": [{"$id": "2", "neighbors": [{"$ref": "1"}, {"$ref": "4"}]}]}
```

Explanation:

Node 1's value is 1, and it has two neighbors: Node 2 and 4.
 Node 2's value is 2, and it has two neighbors: Node 1 and 3.
 Node 3's value is 3, and it has two neighbors: Node 2 and 4.
 Node 4's value is 4, and it has two neighbors: Node 1 and 3.

Note:

1. The number of nodes will be between 1 and 100.
2. The undirected graph is a [simple graph](#), which means no repeated edges and no self-loops in the graph.
3. Since the graph is undirected, if node p has node q as neighbor, then node q must have node p as neighbor too.
4. You must return the **copy of the given node** as a reference to the cloned graph.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[133-Clone-Graph](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

134. Gas Station

There are N gas stations along a circular route, where the amount of gas at station i is $\text{gas}[i]$.

You have a car with an unlimited gas tank and it costs $\text{cost}[i]$ of gas to travel from station i to its next station ($i+1$). You begin the journey with an empty tank at one of the gas stations.

Return the starting gas station's index if you can travel around the circuit once in the clockwise direction, otherwise return -1.

Note:

- If there exists a solution, it is guaranteed to be unique.
- Both input arrays are non-empty and have the same length.
- Each element in the input arrays is a non-negative integer.

Example 1:

Input:

```
gas = [1,2,3,4,5]
cost = [3,4,5,1,2]
```

Output: 3

Explanation:

```
Start at station 3 (index 3) and fill up with 4 unit of gas. You
Travel to station 4. Your tank = 4 - 1 + 5 = 8
Travel to station 0. Your tank = 8 - 2 + 1 = 7
Travel to station 1. Your tank = 7 - 3 + 2 = 6
Travel to station 2. Your tank = 6 - 4 + 3 = 5
Travel to station 3. The cost is 5. Your gas is just enough to t
Therefore, return 3 as the starting index.
```

Example 2:

Input:

```
gas = [2,3,4]
cost = [3,4,3]
```

Output: -1

Explanation:

```
You can't start at station 0 or 1, as there is not enough gas to
Let's start at station 2 and fill up with 4 unit of gas. Your ta
Travel to station 0. Your tank = 4 - 3 + 2 = 3
Travel to station 1. Your tank = 3 - 3 + 3 = 3
You cannot travel back to station 2, as it requires 4 unit of ga
Therefore, you can't travel around the circuit once no matter wh
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[134-Gas-Station](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

135. Candy

There are N children standing in a line. Each child is assigned a rating value.

You are giving candies to these children subjected to the following requirements:

- Each child must have at least one candy.
- Children with a higher rating get more candies than their neighbors.

What is the minimum candies you must give?

Example 1:

Input: [1, 0, 2]

Output: 5

Explanation: You can allocate to the first, second and third chi

Example 2:

Input: [1, 2, 2]

Output: 4

Explanation: You can allocate to the first, second and third chi
The third child gets 1 candy because it satisfies t

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[135-Candy](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

136. Single Number

Given a **non-empty** array of integers, every element appears *twice* except for one. Find that single one.

Note:

Your algorithm should have a linear runtime complexity. Could you implement it without using extra memory?

Example 1:

Input: [2,2,1]
Output: 1

Example 2:

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

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[136-Single-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

137. Single Number II

Given a **non-empty** array of integers, every element appears *three* times except for one, which appears exactly once. Find that single one.

Note:

Your algorithm should have a linear runtime complexity.
Could you implement it without using extra memory?

Example 1:

Input: [2, 2, 3, 2]
Output: 3

Example 2:

Input: [0, 1, 0, 1, 0, 1, 99]
Output: 99

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[137-Single-Number-II](#)

All Problems:

[Link to All Problems](#)

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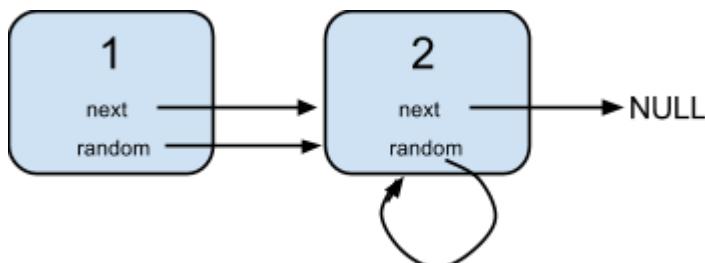
Welcome to Subscribe On Youtube:

138. Copy List with Random Pointer

A linked list is given such that each node contains an additional random pointer which could point to any node in the list or null.

Return a deep copy of the list.

Example 1:



Input:

```
{"$id": "1", "next": {"$id": "2", "next": null, "random": {"$ref": "2"}}, "random": {"$ref": "2"}}
```

Explanation:

Node 1's value is 1, both of its next and random pointer points to Node 2.
Node 2's value is 2, its next pointer points to null and its random pointer points back to Node 1.

Note:

1. You must return the **copy of the given head** as a reference to the cloned list.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[138-Copy-List-with-Random-Pointer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

139. Word Break

Given a **non-empty** string s and a dictionary $wordDict$ containing a list of **non-empty** words, determine if s can be segmented into a space-separated sequence of one or more dictionary words.

Note:

- The same word in the dictionary may be reused multiple times in the segmentation.

- You may assume the dictionary does not contain duplicate words.

Example 1:

Input: s = "leetcode", wordDict = ["leet", "code"]

Output: true

Explanation: Return true because "leetcode" can be segmented as

Example 2:

Input: s = "applepenapple", wordDict = ["apple", "pen"]

Output: true

Explanation: Return true because "applepenapple" can be segmented as

Note that you are allowed to reuse a dictionary word.

Example 3:

Input: s = "catsandog", wordDict = ["cats", "dog", "sand", "and"]

Output: false

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[139-Word-Break](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

140. Word Break II

Given a **non-empty** string s and a dictionary $wordDict$ containing a list of **non-empty** words, add spaces in s to construct a sentence where each word is a valid dictionary word. Return all such possible sentences.

Note:

- The same word in the dictionary may be reused multiple times in the segmentation.
- You may assume the dictionary does not contain duplicate words.

Example 1:

Input:
 $s = \text{"catsanddog"}$
 $\text{wordDict} = [\text{"cat"}, \text{"cats"}, \text{"and"}, \text{"sand"}, \text{"dog"}]$
Output:
[
 "cats and dog",
 "cat sand dog"
]

Example 2:

Input:
 $s = \text{"pineapplepenapple"}$
 $\text{wordDict} = [\text{"apple"}, \text{"pen"}, \text{"applepen"}, \text{"pine"}, \text{"pineapple"}]$
Output:
[
 "pine apple pen apple",
 "pineapple pen apple",
 "pine applepen apple"

]
Explanation: Note that you are allowed to reuse a dictionary word.

Example 3:

Input:

s = "catsandog"

wordDict = ["cats", "dog", "sand", "and", "cat"]

Output:

[]

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[140-Word-Break-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

141. Linked List Cycle

Given a linked list, determine if it has a cycle in it.

To represent a cycle in the given linked list, we use an integer `pos` which represents the position (0-indexed) in the linked list where tail connects to. If `pos` is -1 , then there is no cycle in the linked list.

Example 1:

Input: head = [3, 2, 0, -4], pos = 1

Output: true

Explanation: There is a cycle in the linked list, where tail connects to node index 1.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[141-Linked-List-Cycle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

142. Linked List Cycle II

Given a linked list, return the node where the cycle begins. If there is no cycle, return `null`.

To represent a cycle in the given linked list, we use an integer `pos` which represents the position (0-indexed) in the linked list where tail connects to. If `pos` is `-1`, then there is no cycle in the linked list.

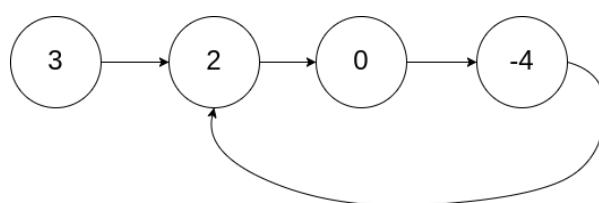
Note: Do not modify the linked list.

Example 1:

Input: head = [3,2,0,-4], pos = 1

Output: tail connects to node index 1

Explanation: There is a cycle in the linked list, where tail connects to node index 1.

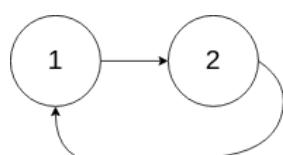


Example 2:

Input: head = [1,2], pos = 0

Output: tail connects to node index 0

Explanation: There is a cycle in the linked list, where tail connects to node index 0.



Example 3:

Input: head = [1], pos = -1

Output: no cycle

Explanation: There is no cycle in the linked list.



Follow-up :

Can you solve it without using extra space?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[142-Linked-List-Cycle-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

143. Reorder List

Given a singly linked list $L : L_0 \rightarrow L_1 \rightarrow \dots \rightarrow L_{n-1} \rightarrow L_n$,
reorder it to: $L_0 \rightarrow L_n \rightarrow L_1 \rightarrow L_{n-1} \rightarrow L_2 \rightarrow L_{n-2} \rightarrow \dots$

You may **not** modify the values in the list's nodes, only
nodes itself may be changed.

Example 1:

Given $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$, reorder it to $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$.

Example 2:

Given $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5$, reorder it to $1 \rightarrow 5 \rightarrow 2 \rightarrow 4 \rightarrow 3$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[143-Reorder-List](#)

All Problems:

[Link to All Problems](#)

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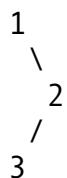
Welcome to Subscribe On Youtube:

144. Binary Tree Preorder Traversal

Given a binary tree, return the *preorder* traversal of its nodes' values.

Example:

Input: [1, null, 2, 3]



Output: [1, 2, 3]

Follow up: Recursive solution is trivial, could you do it iteratively?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[144-Binary-Tree-Preorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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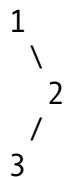
Welcome to Subscribe On Youtube:

145. Binary Tree Postorder Traversal

Given a binary tree, return the *postorder* traversal of its nodes' values.

Example:

Input: [1,null,2,3]



Output: [3,2,1]

Follow up: Recursive solution is trivial, could you do it iteratively?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[145-Binary-Tree-Postorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

146. LRU Cache

Design and implement a data structure for [Least Recently Used \(LRU\) cache](#). It should support the following operations: get and put .

get(key) - Get the value (will always be positive) of the key if the key exists in the cache, otherwise return -1.

put(key, value) - Set or insert the value if the key is not already present. When the cache reached its capacity, it should invalidate the least recently used item before inserting a new item.

The cache is initialized with a **positive** capacity.

Follow up:

Could you do both operations in **O(1)** time complexity?

Example:

```
LRUCache cache = new LRUCache( 2 /* capacity */ );  
  
cache.put(1, 1);  
cache.put(2, 2);  
cache.get(1);      // returns 1  
cache.put(3, 3);  
cache.get(2);      // returns -1 (not found)  
cache.put(4, 4);  
cache.get(1);      // returns -1 (not found)  
cache.get(3);  
cache.get(4);
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[146-LRU-Cache](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

147. Insertion Sort List

Sort a linked list using insertion sort.

6 5 3 1 8 7 2 4

A graphical example of insertion sort. The partial sorted list (black) initially contains only the first element in the list. With each iteration one element (red) is removed from the input data and inserted in-place into the sorted list

Algorithm of Insertion Sort:

1. Insertion sort iterates, consuming one input element each repetition, and growing a sorted output list.
2. At each iteration, insertion sort removes one element from the input data, finds the location it belongs within the sorted list, and inserts it there.
3. It repeats until no input elements remain.

Example 1:

Input: 4->2->1->3
Output: 1->2->3->4

Example 2:

Input: -1->5->3->4->0
Output: -1->0->3->4->5

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[147-Insertion-Sort-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

148. Sort List

Sort a linked list in $O(n \log n)$ time using constant space complexity.

Example 1:

Input: 4->2->1->3
Output: 1->2->3->4

Example 2:

Input: -1->5->3->4->0
Output: -1->0->3->4->5

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[148-Sort-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

149. Max Points on a Line

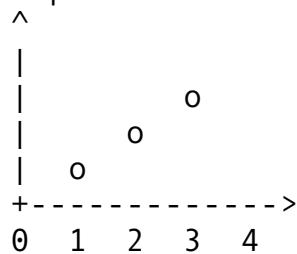
Given n points on a 2D plane, find the maximum number of points that lie on the same straight line.

Example 1:

Input: `[[1,1],[2,2],[3,3]]`

Output: 3

Explanation:

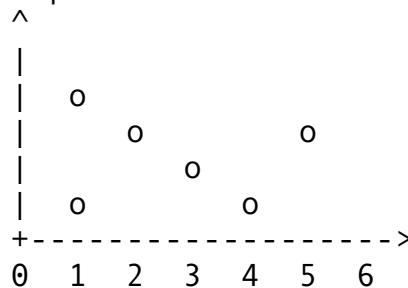


Example 2:

Input: `[[1,1],[3,2],[5,3],[4,1],[2,3],[1,4]]`

Output: 4

Explanation:



NOTE: input types have been changed on April 15, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[149-Max-Points-on-a-Line](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

150. Evaluate Reverse Polish Notation

Evaluate the value of an arithmetic expression in [Reverse Polish Notation](#).

Valid operators are + , - , * , / . Each operand may be an integer or another expression.

Note:

- Division between two integers should truncate toward zero.
- The given RPN expression is always valid. That means the expression would always evaluate to a result and there won't be any divide by zero operation.

Example 1:

Input: ["2", "1", "+", "3", "*"]
Output: 9
Explanation: $((2 + 1) * 3) = 9$

Example 2:

Input: ["4", "13", "5", "/", "+"]
Output: 6
Explanation: $(4 + (13 / 5)) = 6$

Example 3:

Input: ["10", "6", "9", "3", "+", "-11", "*", "/", "*", "17", "+"]
Output: 22
Explanation:
$$\begin{aligned} & ((10 * (6 / ((9 + 3) * -11))) + 17) + 5 \\ &= ((10 * (6 / (12 * -11))) + 17) + 5 \\ &= ((10 * (6 / -132)) + 17) + 5 \\ &= ((10 * 0) + 17) + 5 \\ &= (0 + 17) + 5 \\ &= 17 + 5 \\ &= 22 \end{aligned}$$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[150-Evaluate-Reverse-Polish-Notation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

151. Reverse Words in a String

Given an input string, reverse the string word by word.

Example 1:

Input: "the sky is blue"
Output: "blue is sky the"

Example 2:

Input: " hello world! "
Output: "world! hello"

Explanation: Your reversed string should not contain leading or trailing spaces.

Example 3:

Input: "a good example"
Output: "example good a"

Explanation: You need to reduce multiple spaces between two words.

Note:

- A word is defined as a sequence of non-space characters.
- Input string may contain leading or trailing spaces. However, your reversed string should not contain leading or trailing spaces.
- You need to reduce multiple spaces between two words to a single space in the reversed string.

Follow up:

For C programmers, try to solve it *in-place* in $O(1)$ extra space.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[151-Reverse-Words-in-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

152. Maximum Product Subarray

Given an integer array `nums` , find the contiguous subarray within an array (containing at least one number) which has the largest product.

Example 1:

Input: [2,3,-2,4]

Output: 6

Explanation: [2,3] has the largest product 6.

Example 2:

Input: [-2,0,-1]

Output: 0

Explanation: The result cannot be 2, because [-2,-1] is not a su

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[152-Maximum-Product-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

153. Find Minimum in Rotated Sorted Array

Suppose an array sorted in ascending order is rotated at some pivot unknown to you beforehand.

(i.e., [0, 1, 2, 4, 5, 6, 7] might become [4, 5, 6, 7, 0, 1, 2]).

Find the minimum element.

You may assume no duplicate exists in the array.

Example 1:

Input: [3, 4, 5, 1, 2]
Output: 1

Example 2:

Input: [4, 5, 6, 7, 0, 1, 2]
Output: 0

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[153-Find-Minimum-in-Rotated-Sorted-Array](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

154. Find Minimum in Rotated Sorted Array II

Suppose an array sorted in ascending order is rotated at some pivot unknown to you beforehand.

(i.e., [0,1,2,4,5,6,7] might become [4,5,6,7,0,1,2]).

Find the minimum element.

The array may contain duplicates.

Example 1:

Input: [1, 3, 5]
Output: 1

Example 2:

Input: [2, 2, 2, 0, 1]
Output: 0

Note:

- This is a follow up problem to [Find Minimum in Rotated Sorted Array](#).
- Would allow duplicates affect the run-time complexity? How and why?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[154-Find-Minimum-in-Rotated-Sorted-Array-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

155. Min Stack

Design a stack that supports push, pop, top, and retrieving the minimum element in constant time.

- `push(x)` -- Push element `x` onto stack.
- `pop()` -- Removes the element on top of the stack.
- `top()` -- Get the top element.
- `getMin()` -- Retrieve the minimum element in the stack.

Example:

```
MinStack minStack = new MinStack();
minStack.push(-2);
minStack.push(0);
minStack.push(-3);
minStack.getMin();    --> Returns -3.
minStack.pop();
minStack.top();       --> Returns 0.
minStack.getMin();   --> Returns -2.
```

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[155-Min-Stack](#)

All Problems:

[Link to All Problems](#)

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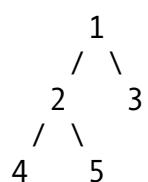
Welcome to Subscribe On Youtube:

156. Binary Tree Upside Down

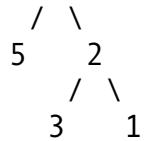
Given a binary tree where all the right nodes are either leaf nodes with a sibling (a left node that shares the same parent node) or empty, flip it upside down and turn it into a tree where the original right nodes turned into left leaf nodes. Return the new root.

Example:

Input: [1, 2, 3, 4, 5]



Output: return the root of the binary tree [4, 5, 2, #, #, 3, 1]

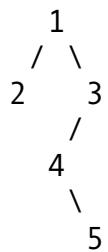


Clarification:

Confused what [4 , 5 , 2 , # , # , 3 , 1] means? Read more below on how binary tree is serialized on OJ.

The serialization of a binary tree follows a level order traversal, where '#' signifies a path terminator where no node exists below.

Here's an example:



The above binary tree is serialized as
[1 , 2 , 3 , # , # , 4 , # , # , 5] .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[156-Binary-Tree-Upside-Down](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

157. Read N Characters Given Read4

Given a file and assume that you can only read the file using a given method `read4` , implement a method to read n characters.

Method `read4`:

The API `read4` reads 4 consecutive characters from the file, then writes those characters into the buffer array `buf` .

The return value is the number of actual characters read.

Note that `read4()` has its own file pointer, much like `FILE *fp` in C.

Definition of `read4`:

Parameter: `char[] buf`
Returns: `int`

Note: `buf[]` is destination not source, the results from `read4` wi

Below is a high level example of how `read4` works:

```
File file("abcdefghijkl"); // File is "abcdefghijkl", initially fi  
char[] buf = new char[4]; // Create buffer with enough space to  
read4(buf); // read4 returns 4. Now buf = "abcd", fp points to 'c'
```

```
read4(buf); // read4 returns 4. Now buf = "efgh", fp points to 'e'  
read4(buf); // read4 returns 3. Now buf = "ijk", fp points to end
```

Method read:

By using the `read4` method, implement the method `read` that reads n characters from the file and store it in the buffer array `buf`. Consider that you **cannot** manipulate the file directly.

The return value is the number of actual characters read.

Definition of read:

```
Parameters: char[] buf, int n  
Returns:    int
```

Note: `buf[]` is destination not source, you will need to write the

Example 1:

Input: file = "abc", n = 4

Output: 3

Explanation: After calling your `read` method, `buf` should contain

Example 2:

Input: file = "abcde", n = 5

Output: 5

Explanation: After calling your `read` method, `buf` should contain

Example 3:

Input: file = "abcdABCD1234", n = 12

Output: 12

Explanation: After calling your `read` method, `buf` should contain

Example 4:

Input: file = "leetcode", n = 5

Output: 5

Explanation: After calling your `read` method, `buf` should contain

Note:

1. Consider that you **cannot** manipulate the file directly, the file is only accessible for `read4` but **not** for `read`.
2. The `read` function will only be called once for each test case.

3. You may assume the destination buffer array, `buf` , is guaranteed to have enough space for storing n characters.

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[157-Read-N-Characters-Given-Read](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

158. Read N Characters Given Read4 II - Call multiple times

Given a file and assume that you can only read the file using a given method `read4` , implement a method `read` to read n characters. **Your method `read` may be called multiple times.**

Method `read4`:

The API `read4` reads 4 consecutive characters from the file, then writes those characters into the buffer array `buf` .

The return value is the number of actual characters read.

Note that `read4()` has its own file pointer, much like `FILE *fp` in C.

Definition of `read4`:

Parameter: `char[] buf`
Returns: `int`

Note: `buf[]` is destination not source, the results from `read4` wi

Below is a high level example of how `read4` works:

```
File file("abcdefghijkl"); // File is "abcdefghijkl", initially fi  
char[] buf = new char[4]; // Create buffer with enough space to  
read4(buf); // read4 returns 4. Now buf = "abcd", fp points to 'c'  
read4(buf); // read4 returns 4. Now buf = "efgh", fp points to 'h'  
read4(buf); // read4 returns 3. Now buf = "ijk", fp points to end
```

Method `read`:

By using the `read4` method, implement the method `read` that reads n characters from the file and store it in the buffer array `buf` . Consider that you **cannot** manipulate the file directly.

The return value is the number of actual characters read.

Definition of `read`:

Parameters: char[] buf, int n
Returns: int

Note: buf[] is destination not source, you will need to write the characters back to the file.

Example 1:

```
File file("abc");
Solution sol;
// Assume buf is allocated and guaranteed to have enough space for 3 characters
sol.read(buf, 1); // After calling your read method, buf should contain "a"
sol.read(buf, 2); // Now buf should contain "bc". We read a total of 3 characters
sol.read(buf, 1); // We have reached the end of file, no more characters
```

Example 2:

```
File file("abc");
Solution sol;
sol.read(buf, 4); // After calling your read method, buf should contain "abc"
sol.read(buf, 1); // We have reached the end of file, no more characters
```

Note:

1. Consider that you **cannot** manipulate the file directly, the file is only accessible for `read4` but **not** for `read`.
2. The `read` function may be called **multiple times**.
3. Please remember to **RESET** your class variables declared in `Solution`, as static/class variables are **persisted across multiple test cases**. Please see [here](#) for more details.
4. You may assume the destination buffer array, `buf`, is guaranteed to have enough space for storing n characters.
5. It is guaranteed that in a given test case the same buffer `buf` is called by `read`.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[158-Read-N-Characters-Given-Read4-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

159. Longest Substring with At Most Two Distinct Characters

Given a string **s** , find the length of the longest substring **t** that contains **at most** 2 distinct characters.

Example 1:

Input: "eceba"

Output: 3

Explanation: t is "ece" which its length is 3.

Example 2:

Input: "ccaabbb"
Output: 5
Explanation: t is "aabbb" which its length is 5.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[159-Longest-Substring-with-At-Most-Two-Distinct-Characters](#)

All Problems:

[Link to All Problems](#)

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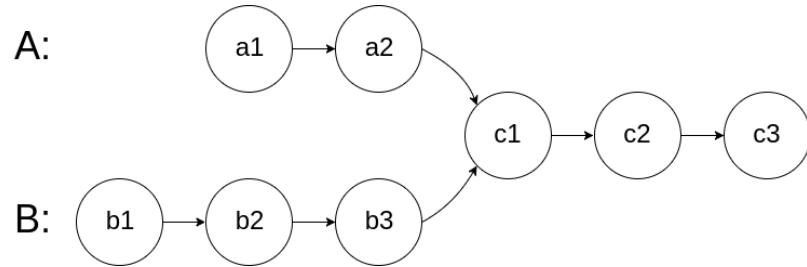
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Welcome to Subscribe On Youtube:

160. Intersection of Two Linked Lists

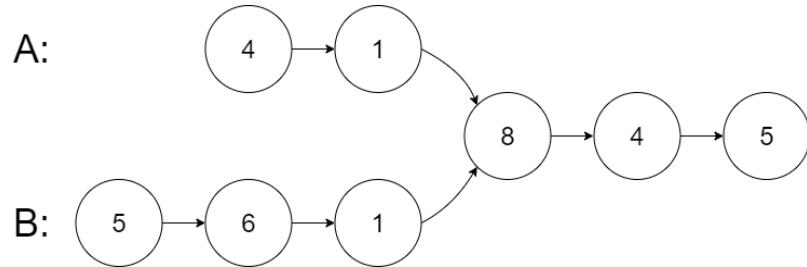
Write a program to find the node at which the intersection of two singly linked lists begins.

For example, the following two linked lists:



begin to intersect at node c1.

Example 1:

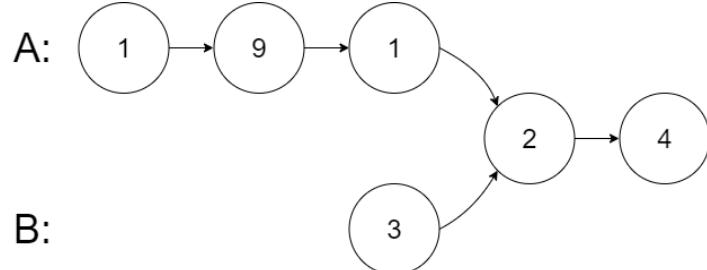


Input: intersectVal = 8, listA = [4,1,8,4,5], listB = [5,0,1,8,4]

Output: Reference of the node with value = 8

Input Explanation: The intersected node's value is 8 (note that

Example 2:

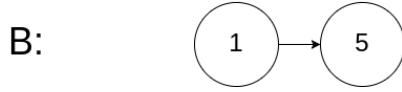
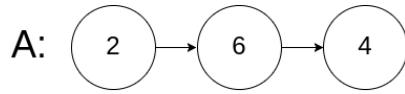


Input: intersectVal = 2, listA = [0,9,1,2,4], listB = [3,2,4], s

Output: Reference of the node with value = 2

Input Explanation: The intersected node's value is 2 (note that

Example 3:



Input: intersectVal = 0, listA = [2,6,4], listB = [1,5], skipA = 0
Output: null

Input Explanation: From the head of A, it reads as [2,6,4]. From
Explanation: The two lists do not intersect, so return null.

Notes:

- If the two linked lists have no intersection at all, return null .
- The linked lists must retain their original structure after the function returns.
- You may assume there are no cycles anywhere in the entire linked structure.
- Your code should preferably run in O(n) time and use only O(1) memory.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[160-Intersection-of-Two-Linked-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

161. One Edit Distance

Given two strings s and t , determine if they are both one edit distance apart.

Note:

There are 3 possiblities to satisify one edit distance apart:

1. Insert a character into s to get t
2. Delete a character from s to get t
3. Replace a character of s to get t

Example 1:

Input: $s = "ab"$, $t = "acb"$

Output: true

Explanation: We can insert 'c' into s to get t .

Example 2:

Input: $s = "cab"$, $t = "ad"$

Output: false

Explanation: We cannot get t from s by only one step.

Example 3:

```
Input: s = "1203", t = "1213"
Output: true
Explanation: We can replace '0' with '1' to get t.
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[161-One-Edit-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

162. Find Peak Element

A peak element is an element that is greater than its neighbors.

Given an input array `nums` , where `nums[i] ≠ nums[i+1]` , find a peak element and return its index.

The array may contain multiple peaks, in that case return the index to any one of the peaks is fine.

You may imagine that `nums[-1] = nums[n] = -∞` .

Example 1:

Input: `nums = [1, 2, 3, 1]`

Output: 2

Explanation: 3 is a peak element and your function should return

Example 2:

Input: `nums = [1, 2, 1, 3, 5, 6, 4]`

Output: 1 or 5

Explanation: Your function can return either index number 1 where the peak element is 2 or index number 5 where the peak element is 6.

Note:

Your solution should be in logarithmic complexity.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[162-Find-Peak-Element](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

163. Missing Ranges

Given a sorted integer array **nums** , where the range of elements are in the **inclusive range [lower , upper]** , return its missing ranges.

Example:

Input: `nums = [0, 1, 3, 50, 75]` , `lower = 0` and `upper = 99`,
Output: `["2", "4->49", "51->74", "76->99"]`

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[163-Missing-Ranges](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

164. Maximum Gap

Given an unsorted array, find the maximum difference between the successive elements in its sorted form.

Return 0 if the array contains less than 2 elements.

Example 1:

Input: [3, 6, 9, 1]

Output: 3

Explanation: The sorted form of the array is [1, 3, 6, 9], either (3, 6) or (6, 9) has the maximum difference 3.

Example 2:

Input: [10]

Output: 0

Explanation: The array contains less than 2 elements, therefore

Note:

- You may assume all elements in the array are non-negative integers and fit in the 32-bit signed integer range.
- Try to solve it in linear time/space.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[164-Maximum-Gap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

165. Compare Version Numbers

Compare two version numbers *version1* and *version2* .
If *version1* > *version2* return 1; if *version1* < *version2* return -1; otherwise return 0 .

You may assume that the version strings are non-empty and contain only digits and the . character.

The . character does not represent a decimal point and is used to separate number sequences.

For instance, 2.5 is not "two and a half" or "half way to version three", it is the fifth second-level revision of the second first-level revision.

You may assume the default revision number for each level of a version number to be 0. For example, version number 3.4 has a revision number of 3 and 4 for its first and second level revision number. Its third and fourth level revision number are both 0.

Example 1:

Input: version1 = "0.1", version2 = "1.1"
Output: -1

Example 2:

Input: version1 = "1.0.1", version2 = "1"
Output: 1

Example 3:

Input: version1 = "7.5.2.4", version2 = "7.5.3"
Output: -1

Example 4:

Input: version1 = "1.01", version2 = "1.001"
Output: 0
Explanation: Ignoring leading zeroes, both 01 and 001

Example 5:

Input: version1 = "1.0", version2 = "1.0.0"
Output: 0
Explanation: The first version number does not have a third level

Note:

1. Version strings are composed of numeric strings separated by dots . and this numeric strings **may** have leading zeroes.
2. Version strings do not start or end with dots, and they will not be two consecutive dots.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[165-Compare-Version-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

166. Fraction to Recurring Decimal

Given two integers representing the numerator and denominator of a fraction, return the fraction in string format.

If the fractional part is repeating, enclose the repeating part in parentheses.

Example 1:

Input: numerator = 1, denominator = 2
Output: "0.5"

Example 2:

Input: numerator = 2, denominator = 1
Output: "2"

Example 3:

Input: numerator = 2, denominator = 3
Output: "0.(6)"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[166-Fraction-to-Recurring-Decimal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

167. Two Sum II - Input array is sorted

Given an array of integers that is already ***sorted in ascending order***, find two numbers such that they add up to a specific target number.

The function twoSum should return indices of the two numbers such that they add up to the target, where index1 must be less than index2.

Note:

- Your returned answers (both index1 and index2) are not zero-based.
- You may assume that each input would have *exactly* one solution and you may not use the *same* element twice.

Example:

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

Output: [1,2]

Explanation: The sum of 2 and 7 is 9. Therefore index1 = 1, index2 = 2.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[167-Two-Sum-II-Input-array-is-sorted](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

168. Excel Sheet Column Title

Given a positive integer, return its corresponding column title as appear in an Excel sheet.

For example:

```
1 -> A  
2 -> B  
3 -> C  
...  
26 -> Z  
27 -> AA  
28 -> AB  
...
```

Example 1:

Input: 1
Output: "A"

Example 2:

Input: 28
Output: "AB"

Example 3:

Input: 701
Output: "ZY"

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[168-Excel-Sheet-Column-Title](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

169. Majority Element

Given an array of size n , find the majority element. The majority element is the element that appears **more than $\lfloor n/2 \rfloor$** times.

You may assume that the array is non-empty and the majority element always exist in the array.

Example 1:

Input: [3, 2, 3]
Output: 3

Example 2:

Input: [2, 2, 1, 1, 1, 2, 2]
Output: 2

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[169-Majority-Element](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

170. Two Sum III - Data structure design

Design and implement a TwoSum class. It should support the following operations: add and find .

add - Add the number to an internal data structure.

find - Find if there exists any pair of numbers which sum is equal to the value.

Example 1:

```
add(1); add(3); add(5);
find(4) -> true
find(7) -> false
```

Example 2:

```
add(3); add(1); add(2);
find(3) -> true
find(6) -> false
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[170-Two-Sum-III-Data-structure-design](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

171. Excel Sheet Column Number

Given a column title as appear in an Excel sheet, return its corresponding column number.

For example:

```
A -> 1  
B -> 2  
C -> 3  
...  
Z -> 26  
AA -> 27  
AB -> 28  
...
```

Example 1:

Input: "A"
Output: 1

Example 2:

Input: "AB"
Output: 28

Example 3:

Input: "ZY"
Output: 701

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[171-Excel-Sheet-Column-Number](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

172. Factorial Trailing Zeroes

Given an integer n , return the number of trailing zeroes in $n!$.

Example 1:

Input: 3
Output: 0
Explanation: $3! = 6$, no trailing zero.

Example 2:

Input: 5
Output: 1
Explanation: $5! = 120$, one trailing zero.

Note: Your solution should be in logarithmic time complexity.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[172-Factorial-Trailing-Zeroes](#)

All Problems:

[Link to All Problems](#)

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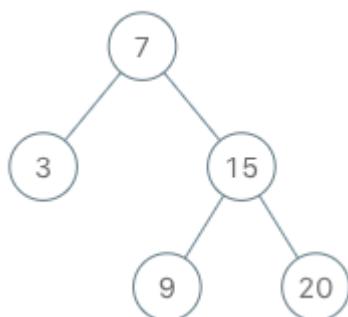
Welcome to Subscribe On Youtube:

173. Binary Search Tree Iterator

Implement an iterator over a binary search tree (BST). Your iterator will be initialized with the root node of a BST.

Calling `next()` will return the next smallest number in the BST.

Example:



```
BSTIterator iterator = new BSTIterator(root);
iterator.next();    // return 3
iterator.next();    // return 7
iterator.hasNext(); // return true
iterator.next();    // return 9
iterator.hasNext(); // return true
iterator.next();    // return 15
iterator.hasNext(); // return true
iterator.next();    // return 20
iterator.hasNext(); // return false
```

Note:

- `next()` and `hasNext()` should run in average $O(1)$ time and uses $O(h)$ memory, where h is the height of the tree.
- You may assume that `next()` call will always be valid, that is, there will be at least a next smallest number in the BST when `next()` is called.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[173-Binary-Search-Tree-Iterator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

174. Dungeon Game

The demons had captured the princess (**P**) and imprisoned her in the bottom-right corner of a dungeon. The dungeon consists of $M \times N$ rooms laid out in a 2D grid. Our valiant knight (**K**) was initially positioned in the top-left room and must fight his way through the dungeon to rescue the princess.

The knight has an initial health point represented by a positive integer. If at any point his health point drops to 0 or below, he dies immediately.

Some of the rooms are guarded by demons, so the knight loses health (*negative integers*) upon entering these rooms; other rooms are either empty (0's) or contain magic orbs that increase the knight's health (*positive integers*).

In order to reach the princess as quickly as possible, the knight decides to move only rightward or downward in each step.

Write a function to determine the knight's minimum initial health so that he is able to rescue the princess.

For example, given the dungeon below, the initial health of the knight must be at least 7 if he follows the optimal path RIGHT -> RIGHT -> DOWN -> DOWN .

-2 (K)	-3	3
-5	-10	1
10	30	-5 (P)

Note:

- The knight's health has no upper bound.

- Any room can contain threats or power-ups, even the first room the knight enters and the bottom-right room where the princess is imprisoned.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[174-Dungeon-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

175. Combine Two Tables

Table: Person

Column Name	Type
PersonId	int
FirstName	varchar
LastName	varchar

PersonId is the primary key column for this table.

Table: Address

Column Name	Type
AddressId	int
PersonId	int
City	varchar
State	varchar

AddressId is the primary key column for this table.

Write a SQL query for a report that provides the following information for each person in the Person table, regardless if there is an address for each of those people:

FirstName, LastName, City, State

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[175-Combine-Two-Tables](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

176. Second Highest Salary

Write a SQL query to get the second highest salary from the Employee table.

Id	Salary
1	100
2	200
3	300

For example, given the above Employee table, the query should return 200 as the second highest salary. If there is no second highest salary, then the query should return null .

SecondHighestSalary
200

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[176-Second-Highest-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

177. Nth Highest Salary

Write a SQL query to get the n^{th} highest salary from the Employee table.

Id	Salary
1	100
2	200
3	300

For example, given the above Employee table, the n^{th} highest salary where $n = 2$ is 200 . If there is no n^{th} highest salary, then the query should return null .

```
+-----+
| getNthHighestSalary(2) |
+-----+
| 200
+-----+
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[177-Nth-Highest-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

178. Rank Scores

Write a SQL query to rank scores. If there is a tie between two scores, both should have the same ranking. Note that after a tie, the next ranking number should be the next consecutive integer value. In other words, there should be no "holes" between ranks.

Id	Score
1	3.50
2	3.65
3	4.00
4	3.85
5	4.00
6	3.65

For example, given the above `Scores` table, your query should generate the following report (order by highest score):

Score	Rank
4.00	1
4.00	1
3.85	2
3.65	3
3.65	3
3.50	4

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[178-Rank-Scores](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

179. Largest Number

Given a list of non negative integers, arrange them such that they form the largest number.

Example 1:

Input: [10, 2]
Output: "210"

Example 2:

Input: [3, 30, 34, 5, 9]
Output: "9534330"

Note: The result may be very large, so you need to return a string instead of an integer.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[179-Largest-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

180. Consecutive Numbers

Write a SQL query to find all numbers that appear at least three times consecutively.

Id	Num
1	1
2	1
3	1
4	2
5	1

6	2
7	2
<hr/>	

For example, given the above `Logs` table, 1 is the only number that appears consecutively for at least three times.

ConsecutiveNums
1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[180-Consecutive-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

181. Employees Earning More Than Their Managers

The Employee table holds all employees including their managers. Every employee has an Id, and there is also a column for the manager Id.

Id	Name	Salary	ManagerId
1	Joe	70000	3
2	Henry	80000	4
3	Sam	60000	NULL
4	Max	90000	NULL

Given the Employee table, write a SQL query that finds out employees who earn more than their managers. For the above table, Joe is the only employee who earns more than his manager.

Employee
Joe

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[181-Employees-Earning-More-Than-Their-Managers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

182. Duplicate Emails

Write a SQL query to find all duplicate emails in a table named Person .

Id	Email
1	a@b.com
2	c@d.com
3	a@b.com

For example, your query should return the following for the above table:

Email
a@b.com

Note : All emails are in lowercase.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[182-Duplicate-Emails](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

183. Customers Who Never Order

Suppose that a website contains two tables, the `Customers` table and the `Orders` table. Write a SQL query to find all customers who never order anything.

Table: Customers .

Id	Name
1	Joe
2	Henry
3	Sam
4	Max

Table: Orders .

Id	CustomerId
1	3
2	1

Using the above tables as example, return the following:

Customers
Henry
Max

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[183-Customers-Who-Never-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

184. Department Highest Salary

The Employee table holds all employees. Every employee has an Id, a salary, and there is also a column for the department Id.

Id	Name	Salary	DepartmentId
1	Joe	70000	1
2	Jim	90000	1
3	Henry	80000	2
4	Sam	60000	2
5	Max	90000	1

The Department table holds all departments of the company.

Id	Name
1	IT
2	Sales

Write a SQL query to find employees who have the highest salary in each of the departments. For the above

tables, your SQL query should return the following rows (order of rows does not matter).

Department	Employee	Salary
IT	Max	90000
IT	Jim	90000
Sales	Henry	80000

Explanation:

Max and Jim both have the highest salary in the IT department and Henry has the highest salary in the Sales department.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[184-Department-Highest-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

185. Department Top Three Salaries

The `Employee` table holds all employees. Every employee has an Id, and there is also a column for the department Id.

Id	Name	Salary	DepartmentId
1	Joe	85000	1
2	Henry	80000	2
3	Sam	60000	2
4	Max	90000	1
5	Janet	69000	1
6	Randy	85000	1
7	Will	70000	1

The `Department` table holds all departments of the company.

Id	Name
1	IT
2	Sales

Write a SQL query to find employees who earn the top three salaries in each of the department. For the above tables, your SQL query should return the following rows (order of rows does not matter).

Department	Employee	Salary
IT	Max	90000
IT	Randy	85000
IT	Joe	85000
IT	Will	70000

Sales	Henry	80000
Sales	Sam	60000

Explanation:

In IT department, Max earns the highest salary, both Randy and Joe earn the second highest salary, and Will earns the third highest salary. There are only two employees in the Sales department, Henry earns the highest salary while Sam earns the second highest salary.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[185-Department-Top-Three-Salaries](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

186. Reverse Words in a String II

Given an input string , reverse the string word by word.

Example:

Input: ["t", "h", "e", " ", "s", "k", "y", " ", "i", "s", " ", "b", "l", "u"]
Output: ["b", "l", "u", "e", " ", "i", "s", " ", "s", "k", "y", " ", "t", "h"]

Note:

- A word is defined as a sequence of non-space characters.
- The input string does not contain leading or trailing spaces.
- The words are always separated by a single space.

Follow up: Could you do it *in-place* without allocating extra space?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[186-Reverse-Words-in-a-String-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

187. Repeated DNA Sequences

All DNA is composed of a series of nucleotides abbreviated as A, C, G, and T, for example: "ACGAATTCCG". When studying DNA, it is sometimes useful to identify repeated sequences within the DNA.

Write a function to find all the 10-letter-long sequences (substrings) that occur more than once in a DNA molecule.

Example:

Input: s = "AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT"

Output: ["AAAAACCCCC", "CCCCCAAAAA"]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[187-Repeated-DNA-Sequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

188. Best Time to Buy and Sell Stock IV

Say you have an array for which the i -th element is the price of a given stock on day i .

Design an algorithm to find the maximum profit. You may complete at most k transactions.

Note:

You may not engage in multiple transactions at the same time (ie, you must sell the stock before you buy again).

Example 1:

Input: [2,4,1], k = 2
Output: 2

Explanation: Buy on day 1 (price = 2) and sell on day 2 (price = 4)

Example 2:

Input: [3,2,6,5,0,3], k = 2

Output: 7

Explanation: Buy on day 2 (price = 2) and sell on day 3 (price = 6)
Then buy on day 5 (price = 0) and sell on day 6 (price = 3)

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[188-Best-Time-to-Buy-and-Sell-Stock-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

189. Rotate Array

Given an array, rotate the array to the right by k steps, where k is non-negative.

Example 1:

Input: [1,2,3,4,5,6,7] and k = 3

Output: [5,6,7,1,2,3,4]

Explanation:

rotate 1 steps to the right: [7,1,2,3,4,5,6]

rotate 2 steps to the right: [6,7,1,2,3,4,5]

rotate 3 steps to the right: [5,6,7,1,2,3,4]

Example 2:

Input: [-1,-100,3,99] and k = 2

Output: [3,99,-1,-100]

Explanation:

rotate 1 steps to the right: [99,-1,-100,3]

rotate 2 steps to the right: [3,99,-1,-100]

Note:

- Try to come up as many solutions as you can, there are at least 3 different ways to solve this problem.
- Could you do it in-place with O(1) extra space?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[189-Rotate-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

190. Reverse Bits

Reverse bits of a given 32 bits unsigned integer.

Example 1:

Input: 00000010100101000001111010011100

Output: 00111001011110000010100101000000

Explanation: The input binary string 000000101001010000011110100

Example 2:

Input: 1111111111111111111111111111111101

Output: 1011111111111111111111111111111111

Explanation: The input binary string 11111111111111111111111111111111

Note:

- Note that in some languages such as Java, there is no unsigned integer type. In this case, both input and output will be given as signed integer type and should not affect your implementation, as the internal binary representation of the integer is the same whether it is signed or unsigned.
- In Java, the compiler represents the signed integers using [2's complement notation](#). Therefore, in **Example 2** above the input represents the signed integer -3 and the output represents the signed integer -1073741825 .

Follow up :

If this function is called many times, how would you optimize it?

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[190-Reverse-Bits](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:**191. Number of 1 Bits**

Write a function that takes an unsigned integer and return the number of '1' bits it has (also known as the [Hamming weight](#)).

Example 1:

Input: 000000000000000000000000000000001011
Output: 3
Explanation: The input binary string 000000000000000000000000000000001011

Example 2:

Input: 0000000000000000000000000000000010000000
Output: 1
Explanation: The input binary string 0000000000000000000000000000000010000000

Example 3:

Input: 1111111111111111111111111111111101
Output: 31
Explanation: The input binary string 1111111111111111111111111111111101

Note:

- Note that in some languages such as Java, there is no unsigned integer type. In this case, the input will be given as signed integer type and should not affect your implementation, as the internal binary representation of the integer is the same whether it is signed or unsigned.
- In Java, the compiler represents the signed integers using [2's complement notation](#). Therefore, in **Example 3** above the input represents the signed integer -3 .

Follow up :

If this function is called many times, how would you optimize it?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[191-Number-of-1-Bits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

192. Word Frequency

Write a bash script to calculate the frequency of each word in a text file `words.txt` .

For simplicity sake, you may assume:

- `words.txt` contains only lowercase characters and space ' ' characters.
- Each word must consist of lowercase characters only.
- Words are separated by one or more whitespace characters.

Example:

Assume that `words.txt` has the following content:

```
the day is sunny the the  
the sunny is is
```

Your script should output the following, sorted by descending frequency:

```
the 4
is 3
sunny 2
day 1
```

Note:

- Don't worry about handling ties, it is guaranteed that each word's frequency count is unique.
- Could you write it in one-line using [Unix pipes](#) ?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**192-Word-Frequency**](#)

All Problems:

[**Link to All Problems**](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

193. Valid Phone Numbers

Given a text file `file.txt` that contains list of phone numbers (one per line), write a one liner bash script to print all valid phone numbers.

You may assume that a valid phone number must appear in one of the following two formats: (xxx) xxx-xxxx or xxx-xxx-xxxx. (x means a digit)

You may also assume each line in the text file must not contain leading or trailing white spaces.

Example:

Assume that `file.txt` has the following content:

```
987-123-4567  
123 456 7890  
(123) 456-7890
```

Your script should output the following valid phone numbers:

```
987-123-4567  
(123) 456-7890
```

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[193-Valid-Phone-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

194. Transpose File

Given a text file `file.txt` , transpose its content.

You may assume that each row has the same number of columns and each field is separated by the ' ' character.

Example:

If `file.txt` has the following content:

```
name age
alice 21
ryan 30
```

Output the following:

```
name alice ryan
age 21 30
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[194-Transpose-File](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

195. Tenth Line

Given a text file `file.txt` , print just the 10th line of the file.

Example:

Assume that `file.txt` has the following content:

```
Line 1  
Line 2  
Line 3  
Line 4  
Line 5
```

```
Line 6  
Line 7  
Line 8  
Line 9  
Line 10
```

Your script should output the tenth line, which is:

Line 10

Note:

1. If the file contains less than 10 lines, what should you output?
2. There's at least three different solutions. Try to explore all possibilities.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[195-Tenth-Line](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

196. Delete Duplicate Emails

Write a SQL query to **delete** all duplicate email entries in a table named `Person` , keeping only unique emails based on its *smallest Id* .

```
+----+-----+
| Id | Email      |
+----+-----+
| 1  | john@example.com |
| 2  | bob@example.com |
| 3  | john@example.com |
+----+-----+
Id is the primary key column for this table.
```

For example, after running your query, the above `Person` table should have the following rows:

```
+----+-----+
| Id | Email      |
+----+-----+
| 1  | john@example.com |
| 2  | bob@example.com |
+----+-----+
```

Note:

Your output is the whole `Person` table after executing your sql. Use `delete` statement.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[196-Delete-Duplicate-Emails](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

197. Rising Temperature

Given a Weather table, write a SQL query to find all dates' Ids with higher temperature compared to its previous (yesterday's) dates.

Id (INT)	RecordDate (DATE)	Temperature (INT)
1	2015-01-01	10
2	2015-01-02	25
3	2015-01-03	20
4	2015-01-04	30

For example, return the following Ids for the above Weather table:

Id
2

| 4 |
+---+

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[197-Rising-Temperature](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

198. House Robber

You are a professional robber planning to rob houses along a street. Each house has a certain amount of money stashed, the only constraint stopping you from robbing each of them is that adjacent houses have security system

connected and it will automatically contact the police if two adjacent houses were broken into on the same night .

Given a list of non-negative integers representing the amount of money of each house, determine the maximum amount of money you can rob tonight **without alerting the police** .

Example 1:

Input: [1,2,3,1]

Output: 4

Explanation: Rob house 1 (money = 1) and then rob house 3 (money = 3).
Total amount you can rob = 1 + 3 = 4.

Example 2:

Input: [2,7,9,3,1]

Output: 12

Explanation: Rob house 1 (money = 2), rob house 3 (money = 9) and then rob house 5 (money = 1).
Total amount you can rob = 2 + 9 + 1 = 12.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[198-House-Robber](#)

All Problems:

[Link to All Problems](#)

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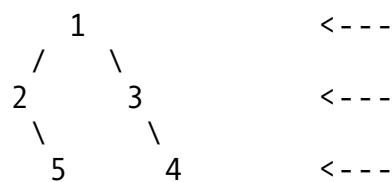
Welcome to Subscribe On Youtube:

199. Binary Tree Right Side View

Given a binary tree, imagine yourself standing on the *right* side of it, return the values of the nodes you can see ordered from top to bottom.

Example:

Input: [1,2,3,null,5,null,4]
Output: [1, 3, 4]
Explanation:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[199-Binary-Tree-Right-Side-View](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

200. Number of Islands

Given a 2d grid map of '1' s (land) and '0' s (water), count the number of islands. An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.

Example 1:

Input:
11110
11010
11000
00000

Output: 1

Example 2:

Input:
11000
11000

00100
00011

Output: 3

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[200-Number-of-Islands](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

201. Bitwise AND of Numbers Range

Given a range $[m, n]$ where $0 \leq m \leq n \leq 2147483647$, return the bitwise AND of all numbers in this range, inclusive.

Example 1:

Input: [5, 7]
Output: 4

Example 2:

Input: [0, 1]
Output: 0

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[201-Bitwise-AND-of-Numbers-Range](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

202. Happy Number

Write an algorithm to determine if a number is "happy".

A happy number is a number defined by the following process: Starting with any positive integer, replace the number by the sum of the squares of its digits, and repeat the process until the number equals 1 (where it will stay), or it loops endlessly in a cycle which does not include 1. Those numbers for which this process ends in 1 are happy numbers.

Example:

Input: 19
Output: true
Explanation:
 $1^2 + 9^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[202-Happy-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

203. Remove Linked List Elements

Remove all elements from a linked list of integers that have value *val* .

Example:

Input: 1->2->6->3->4->5->6 , val = 6
Output: 1->2->3->4->5

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[203-Remove-Linked-List-Elements](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:**204. Count Primes**

Count the number of prime numbers less than a non-negative number, n .

Example:

Input: 10

Output: 4

Explanation: There are 4 prime numbers less than 10, they are 2, 3, 5, 7.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[204-Count-Primes](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

205. Isomorphic Strings

Given two strings s and t , determine if they are isomorphic.

Two strings are isomorphic if the characters in s can be replaced to get t .

All occurrences of a character must be replaced with another character while preserving the order of characters. No two characters may map to the same character but a character may map to itself.

Example 1:

Input: s = "egg", t = "add"
Output: true

Example 2:

Input: s = "foo", t = "bar"
Output: false

Example 3:

Input: s = "paper", t = "title"
Output: true

Note:

You may assume both **s** and **t** have the same length.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[205-Isomorphic-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

206. Reverse Linked List

Reverse a singly linked list.

Example:

Input: 1->2->3->4->5->NULL
Output: 5->4->3->2->1->NULL

Follow up:

A linked list can be reversed either iteratively or recursively. Could you implement both?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[206-Reverse-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

207. Course Schedule

There are a total of n courses you have to take, labeled from 0 to $n-1$.

Some courses may have prerequisites, for example to take course 0 you have to first take course 1 , which is expressed as a pair: $[0, 1]$

Given the total number of courses and a list of prerequisite **pairs**, is it possible for you to finish all courses?

Example 1:

Input: 2 , [[1, 0]]

Output: true

Explanation: There are a total of 2 courses to take.

To take course 1 you should have finished course 0 .

Example 2:

Input: 2, [[1,0],[0,1]]

Output: false

Explanation: There are a total of 2 courses to take.

To take course 1 you should have finished course 0, also have finished course 1. So it is impossible.

Note:

1. The input prerequisites is a graph represented by a **list of edges**, not adjacency matrices. Read more about [how a graph is represented](#).
2. You may assume that there are no duplicate edges in the input prerequisites.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[207-Course-Schedule](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

208. Implement Trie (Prefix Tree)

Implement a trie with `insert` , `search` , and `startsWith` methods.

Example:

```
Trie trie = new Trie();

trie.insert("apple");
trie.search("apple");    // returns true
trie.search("app");     // returns false
trie.startsWith("app"); // returns true
trie.insert("app");
trie.search("app");     // returns true
```

Note:

- You may assume that all inputs are consist of lowercase letters a-z .
- All inputs are guaranteed to be non-empty strings.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

208-Implement-Trie-Prefix-Tree-

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

209. Minimum Size Subarray Sum

Given an array of **n** positive integers and a positive integer **s** , find the minimal length of a **contiguous** subarray of which the sum $\geq s$. If there isn't one, return 0 instead.

Example:

Input: $s = 7$, $\text{nums} = [2, 3, 1, 2, 4, 3]$

Output: 2

Explanation: the subarray $[4, 3]$ has the minimal length under the

Follow up:

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[209-Minimum-Size-Subarray-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

210. Course Schedule II

There are a total of n courses you have to take, labeled from 0 to $n - 1$.

Some courses may have prerequisites, for example to take course 0 you have to first take course 1 , which is expressed as a pair: $[0, 1]$

Given the total number of courses and a list of prerequisite **pairs**, return the ordering of courses you should take to finish all courses.

There may be multiple correct orders, you just need to return one of them. If it is impossible to finish all courses, return an empty array.

Example 1:

Input: 2, [[1,0]]

Output: [0,1]

Explanation: There are a total of 2 courses to take. To take course 1, you must first take course 0. So the correct course order is [0,1] .

Example 2:

Input: 4, [[1,0],[2,0],[3,1],[3,2]]

Output: [0,1,2,3] or [0,2,1,3]

Explanation: There are a total of 4 courses to take. To take course 3, you must first take courses 1 and 2. Both courses 1 and 2 should be taken before course 3. So one correct course order is [0,1,2,3]. Another correct order is [0,2,1,3].

Note:

1. The input prerequisites is a graph represented by a **list of edges**, not adjacency matrices. Read more about [how a graph is represented](#).
2. You may assume that there are no duplicate edges in the input prerequisites.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[210-Course-Schedule-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

211. Add and Search Word - Data structure design

Design a data structure that supports the following two operations:

```
void addWord(word)
bool search(word)
```

search(word) can search a literal word or a regular expression string containing only letters a-z or . . A . means it can represent any one letter.

Example:

```
addWord("bad")
addWord("dad")
addWord("mad")
search("pad") -> false
search("bad") -> true
search(".ad") -> true
search("b..") -> true
```

Note:

You may assume that all words are consist of lowercase letters a-z .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[211-Design-Add-and-Search-Words-Data-Structure](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

212. Word Search II

Given a 2D board and a list of words from the dictionary, find all words in the board.

Each word must be constructed from letters of sequentially adjacent cell, where "adjacent" cells are those horizontally or vertically neighboring. The same letter cell may not be used more than once in a word.

Example:

Input:
board = [
 ['o', 'a', 'a', 'n'],
 ['e', 't', 'a', 'e'],
 ['i', 'h', 'k', 'r'],
 ['i', 'f', 'l', 'v']
]
words = ["oath", "pea", "eat", "rain"]

Output: ["eat", "oath"]

Note:

1. All inputs are consist of lowercase letters a-z .
2. The values of words are distinct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[212-Word-Search-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

213. House Robber II

You are a professional robber planning to rob houses along a street. Each house has a certain amount of money stashed. All houses at this place are **arranged in a circle**. That means the first house is the neighbor of the last one. Meanwhile, adjacent houses have security system connected and **it will automatically contact the police if two adjacent houses were broken into on the same night**.

Given a list of non-negative integers representing the amount of money of each house, determine the maximum amount of money you can rob tonight **without alerting the police**.

Example 1:

Input: [2,3,2]

Output: 3

Explanation: You cannot rob house 1 (money = 2) and then rob house 2 because they are adjacent houses.

Example 2:

Input: [1,2,3,1]

Output: 4

Explanation: Rob house 1 (money = 1) and then rob house 3 (money = 3). Total amount you can rob = 1 + 3 = 4.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[213-House-Robber-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

214. Shortest Palindrome

Given a string **s** , you are allowed to convert it to a palindrome by adding characters in front of it. Find and return the shortest palindrome you can find by performing this transformation.

Example 1:

Input: "aacecaaa"
Output: "aaacecaaa"

Example 2:

Input: "abcd"
Output: "dcbabcd"

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[214-Shortest-Palindrome](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

215. Kth Largest Element in an Array

Find the k th largest element in an unsorted array. Note that it is the k th largest element in the sorted order, not the k th distinct element.

Example 1:

Input: [3, 2, 1, 5, 6, 4] and $k = 2$

Output: 5

Example 2:

Input: [3, 2, 3, 1, 2, 4, 5, 5, 6] and $k = 4$

Output: 4

Note:

You may assume k is always valid, $1 \leq k \leq$ array's length.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[215-Kth-Largest-Element-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

216. Combination Sum III

Find all possible combinations of k numbers that add up to a number n , given that only numbers from 1 to 9 can be used and each combination should be a unique set of numbers.

Note:

- All numbers will be positive integers.
- The solution set must not contain duplicate combinations.

Example 1:

Input: $k = 3$, $n = 7$
Output: $[[1, 2, 4]]$

Example 2:

Input: $k = 3$, $n = 9$
Output: $[[1, 2, 6], [1, 3, 5], [2, 3, 4]]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[216-Combination-Sum-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

217. Contains Duplicate

Given an array of integers, find if the array contains any duplicates.

Your function should return true if any value appears at least twice in the array, and it should return false if every element is distinct.

Example 1:

Input: [1, 2, 3, 1]
Output: true

Example 2:

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

Example 3:

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

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[217-Contains-Duplicate](#)

All Problems:

[Link to All Problems](#)

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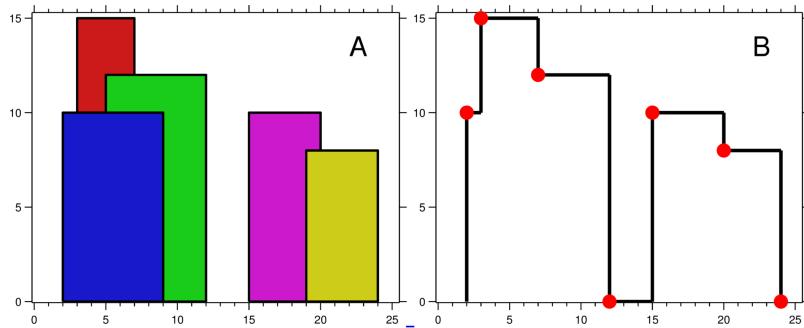
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Welcome to Subscribe On Youtube:

218. The Skyline Problem

A city's skyline is the outer contour of the silhouette formed by all the buildings in that city when viewed from a distance. Now suppose you are **given the locations and height of all the buildings** as shown on a cityscape photo (Figure A), write a program to **output the skyline** formed by these buildings collectively (Figure B).



The geometric information of each building is represented by a triplet of integers $[L_i, R_i, H_i]$, where L_i and R_i are the x coordinates of the left and right edge of the i th building, respectively, and H_i is its height. It is guaranteed that $0 \leq L_i, R_i \leq \text{INT_MAX}$, $0 < H_i \leq \text{INT_MAX}$, and $R_i - L_i > 0$. You may assume all buildings are perfect rectangles grounded on an absolutely flat surface at height 0.

For instance, the dimensions of all buildings in Figure A are recorded as: $[[2 \ 9 \ 10], [3 \ 7 \ 15], [5 \ 12 \ 12], [15 \ 20 \ 10], [19 \ 24 \ 8]]$.

The output is a list of "key points" (red dots in Figure B) in the format of $[[x_1, y_1], [x_2, y_2], [x_3, y_3], \dots]$ that uniquely defines a skyline. **A key point is the left endpoint of a horizontal line segment**. Note that the last key point, where the rightmost building ends, is merely used to mark the termination of the skyline, and always has zero height. Also, the ground in between any two adjacent buildings should be considered part of the skyline contour.

For instance, the skyline in Figure B should be represented as: $[[2 \ 10], [3 \ 15], [7 \ 12], [12 \ 0], [15 \ 10], [20 \ 8], [24, 0]]$.

Notes:

- The number of buildings in any input list is guaranteed to be in the range [0, 10000] .
- The input list is already sorted in ascending order by the left x position L_i .
- The output list must be sorted by the x position.
- There must be no consecutive horizontal lines of equal height in the output skyline. For instance, $[\dots [2\ 3], [4\ 5], [7\ 5], [11\ 5], [12\ 7] \dots]$ is not acceptable; the three lines of height 5 should be merged into one in the final output as such: $[\dots [2\ 3], [4\ 5], [12\ 7], \dots]$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**218-The-Skyline-Problem**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

219. Contains Duplicate II

Given an array of integers and an integer k , find out whether there are two distinct indices i and j in the array such that **nums[i] = nums[j]** and the **absolute** difference between i and j is at most k .

Example 1:

Input: `nums = [1,2,3,1]`, $k = 3$
Output: true

Example 2:

Input: `nums = [1,0,1,1]`, $k = 1$
Output: true

Example 3:

Input: `nums = [1,2,3,1,2,3]`, $k = 2$
Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[219-Contains-Duplicate-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

220. Contains Duplicate III

Given an array of integers, find out whether there are two distinct indices i and j in the array such that the **absolute** difference between **nums[i]** and **nums[j]** is at most t and the **absolute** difference between i and j is at most k .

Example 1:

Input: nums = [1,2,3,1], k = 3, t = 0
Output: true

Example 2:

Input: nums = [1,0,1,1], k = 1, t = 2
Output: true

Example 3:

Input: nums = [1,5,9,1,5,9], k = 2, t = 3
Output: false

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**220-Contains-Duplicate-III**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:**221. Maximal Square**

Given a 2D binary matrix filled with 0's and 1's, find the largest square containing only 1's and return its area.

Example:

Input:

1	0	1	0	0
1	0	1	1	1
1	1	1	1	1
1	0	0	1	0

Output: 4

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[221-Maximal-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

222. Count Complete Tree Nodes

Given a **complete** binary tree, count the number of nodes.

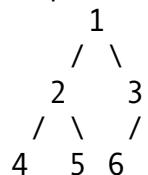
Note:

Definition of a complete binary tree from Wikipedia :

In a complete binary tree every level, except possibly the last, is completely filled, and all nodes in the last level are as far left as possible. It can have between 1 and 2^h nodes inclusive at the last level h.

Example:

Input:



Output: 6

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[222-Count-Complete-Tree-Nodes](#)

All Problems:

[Link to All Problems](#)

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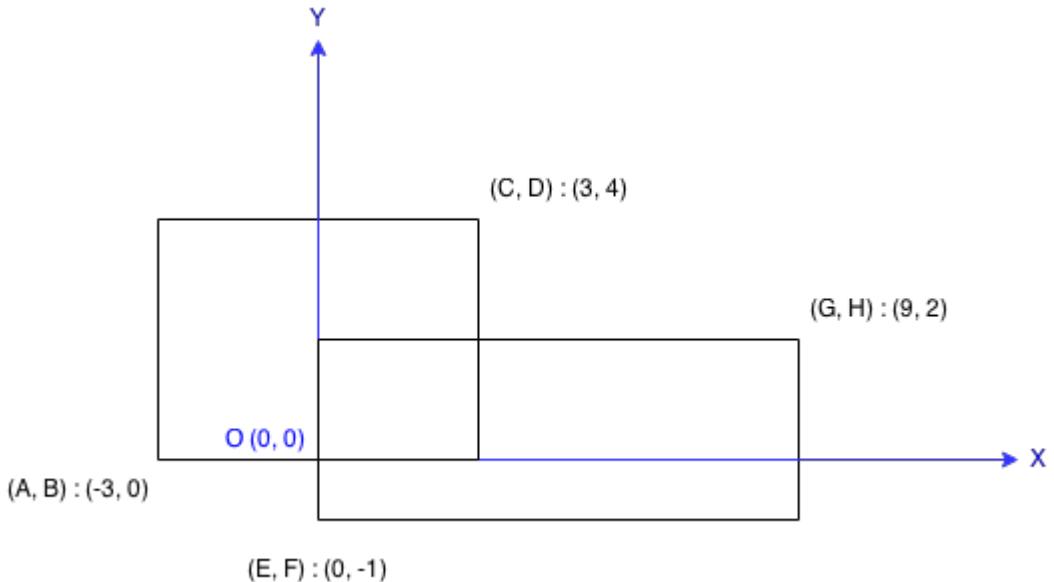
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Welcome to Subscribe On Youtube:

223. Rectangle Area

Find the total area covered by two **rectilinear** rectangles in a **2D** plane.

Each rectangle is defined by its bottom left corner and top right corner as shown in the figure.



Example:

Input: A = -3, B = 0, C = 3, D = 4, E = 0, F = -1, G = 9, H = 2
Output: 45

Note:

Assume that the total area is never beyond the maximum possible value of **int** .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[223-Rectangle-Area](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

224. Basic Calculator

Implement a basic calculator to evaluate a simple expression string.

The expression string may contain open (and closing parentheses) , the plus + or minus sign - , **non-negative** integers and empty spaces .

Example 1:

Input: "1 + 1"
Output: 2

Example 2:

Input: " 2-1 + 2 "
Output: 3

Example 3:

Input: "(1+(4+5+2)-3)+(6+8)"
Output: 23

Note:

- You may assume that the given expression is always valid.
- **Do not** use the eval built-in library function.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[224-Basic-Calculator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

225. Implement Stack using Queues

Implement the following operations of a stack using queues.

- `push(x)` -- Push element `x` onto stack.
- `pop()` -- Removes the element on top of the stack.
- `top()` -- Get the top element.
- `empty()` -- Return whether the stack is empty.

Example:

```
MyStack stack = new MyStack();

stack.push(1);
stack.push(2);
stack.top();    // returns 2
stack.pop();   // returns 2
stack.empty(); // returns false
```

Notes:

- You must use *only* standard operations of a queue -- which means only `push to back`, `peek/pop from front`, `size`, and `is empty` operations are valid.
- Depending on your language, queue may not be supported natively. You may simulate a queue by

using a list or deque (double-ended queue), as long as you use only standard operations of a queue.

- You may assume that all operations are valid (for example, no pop or top operations will be called on an empty stack).

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[225-Implement-Stack-using-Queues](#)

All Problems:

[Link to All Problems](#)

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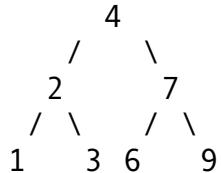
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226. Invert Binary Tree

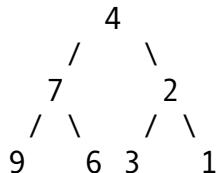
Invert a binary tree.

Example:

Input:



Output:



Trivia:

This problem was inspired by [this original tweet](#) by [Max Howell](#):

Google: 90% of our engineers use the software you wrote (Homebrew), but you can't invert a binary tree on a whiteboard so f*** off.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[226-Invert-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

227. Basic Calculator II

Implement a basic calculator to evaluate a simple expression string.

The expression string contains only **non-negative** integers, + , - , * , / operators and empty spaces . The integer division should truncate toward zero.

Example 1:

Input: "3+2*2"
Output: 7

Example 2:

Input: " 3/2 "
Output: 1

Example 3:

Input: " 3+5 / 2 "
Output: 5

Note:

- You may assume that the given expression is always valid.

- **Do not** use the `eval` built-in library function.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[227-Basic-Calculator-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

228. Summary Ranges

Given a sorted integer array without duplicates, return the summary of its ranges.

Example 1:

Input: [0,1,2,4,5,7]

Output: ["0->2", "4->5", "7"]

Explanation: 0,1,2 form a continuous range; 4,5 form a continuous range.

Example 2:

Input: [0,2,3,4,6,8,9]

Output: ["0", "2->4", "6", "8->9"]

Explanation: 2,3,4 form a continuous range; 8,9 form a continuous range.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[228-Summary-Ranges](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

229. Majority Element II

Given an integer array of size n , find all elements that appear more than $\lfloor n/3 \rfloor$ times.

Note: The algorithm should run in linear time and in $O(1)$ space.

Example 1:

Input: [3, 2, 3]
Output: [3]

Example 2:

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

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[229-Majority-Element-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

230. Kth Smallest Element in a BST

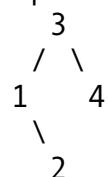
Given a binary search tree, write a function `kthSmallest` to find the k th smallest element in it.

Note:

You may assume k is always valid, $1 \leq k \leq \text{BST's total elements}$.

Example 1:

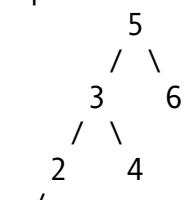
Input: `root = [3,1,4,null,2], k = 1`



Output: 1

Example 2:

Input: `root = [5,3,6,2,4,null,null,1], k = 3`



Output: 3

Follow up:

What if the BST is modified (insert/delete operations)

often and you need to find the kth smallest frequently?
How would you optimize the kthSmallest routine?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[230-Kth-Smallest-Element-in-a-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

231. Power of Two

Given an integer, write a function to determine if it is a power of two.

Example 1:

Input: 1
Output: true
Explanation: $2^0 = 1$

Example 2:

Input: 16
Output: true
Explanation: $2^4 = 16$

Example 3:

Input: 218
Output: false

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[231-Power-of-Two](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

232. Implement Queue using Stacks

Implement the following operations of a queue using stacks.

- `push(x)` -- Push element `x` to the back of queue.
- `pop()` -- Removes the element from in front of queue.
- `peek()` -- Get the front element.
- `empty()` -- Return whether the queue is empty.

Example:

```
MyQueue queue = new MyQueue();

queue.push(1);
queue.push(2);
queue.peek(); // returns 1
queue.pop(); // returns 1
queue.empty(); // returns false
```

Notes:

- You must use *only* standard operations of a stack -- which means only `push` to `top`, `peek/pop` from `top`, `size`, and `is empty` operations are valid.
- Depending on your language, stack may not be supported natively. You may simulate a stack by using a list or deque (double-ended queue), as long as you use only standard operations of a stack.
- You may assume that all operations are valid (for example, no `pop` or `peek` operations will be called on an empty queue).

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[232-Implement-Queue-using-Stacks](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

233. Number of Digit One

Given an integer n, count the total number of digit 1 appearing in all non-negative integers less than or equal to n.

Example:

Input: 13

Output: 6

Explanation: Digit 1 occurred in the following numbers: 1, 10, 11, 12, 13.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**233-Number-of-Digit-One**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

234. Palindrome Linked List

Given a singly linked list, determine if it is a palindrome.

Example 1:

Input: 1->2
Output: false

Example 2:

Input: 1->2->2->1
Output: true

Follow up:

Could you do it in O(n) time and O(1) space?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[234-Palindrome-Linked-List](#)

All Problems:

[Link to All Problems](#)

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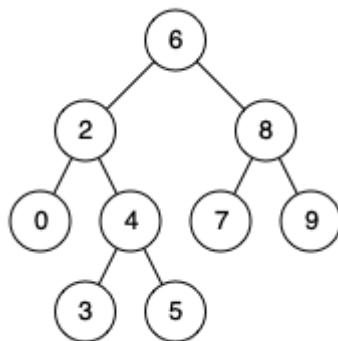
Welcome to Subscribe On Youtube:

235. Lowest Common Ancestor of a Binary Search Tree

Given a binary search tree (BST), find the lowest common ancestor (LCA) of two given nodes in the BST.

According to the [definition of LCA on Wikipedia](#) : “The lowest common ancestor is defined between two nodes p and q as the lowest node in T that has both p and q as descendants (where we allow **a node to be a descendant of itself**).”

Given binary search tree: root
= [6,2,8,0,4,7,9,null,null,3,5]



Example 1:

Input: root = [6,2,8,0,4,7,9,null,null,3,5], p = 2, q = 8
Output: 6

Explanation: The LCA of nodes 2 and 8 is 6.

Example 2:

Input: root = [6,2,8,0,4,7,9,null,null,3,5], p = 2, q = 4
Output: 2

Explanation: The LCA of nodes 2 and 4 is 2, since a node can be its own ancestor.

Note:

- All of the nodes' values will be unique.
- p and q are different and both values will exist in the BST.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[235-Lowest-Common-Ancestor-of-a-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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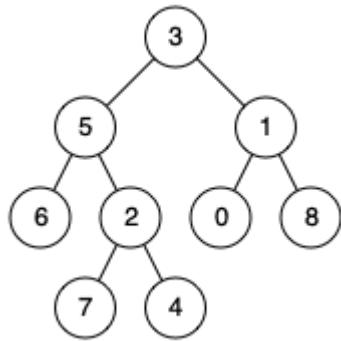
Welcome to Subscribe On Youtube:

236. Lowest Common Ancestor of a Binary Tree

Given a binary tree, find the lowest common ancestor (LCA) of two given nodes in the tree.

According to the [definition of LCA on Wikipedia](#): “The lowest common ancestor is defined between two nodes p and q as the lowest node in T that has both p and q as descendants (where we allow a node to be a descendant of itself).”

Given the following binary tree: root = [3,5,1,6,2,0,8,null,null,7,4]



Example 1:

Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 1
Output: 3

Explanation: The LCA of nodes 5 and 1 is 3.

Example 2:

Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 4
Output: 5

Explanation: The LCA of nodes 5 and 4 is 5, since a node can be its own ancestor.

Note:

- All of the nodes' values will be unique.
- p and q are different and both values will exist in the binary tree.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[236-Lowest-Common-Ancestor-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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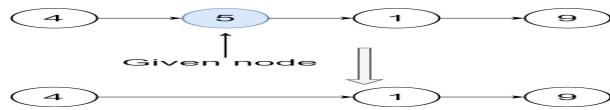
Welcome to Subscribe On Youtube:

237. Delete Node in a Linked List

Write a function to delete a node (except the tail) in a singly linked list, given only access to that node.

Given linked list -- head = [4,5,1,9], which looks like following:

Example 1:

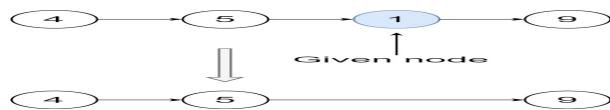


Input: head = [4,5,1,9], node = 5

Output: [4,1,9]

Explanation: You are given the second node with value 5, the link to the next node is removed.

Example 2:



Input: head = [4,5,1,9], node = 1

Output: [4,5,9]

Explanation: You are given the third node with value 1, the link to the next node is removed.

Note:

- The linked list will have at least two elements.
- All of the nodes' values will be unique.
- The given node will not be the tail and it will always be a valid node of the linked list.
- Do not return anything from your function.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[237-Delete-Node-in-a-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

238. Product of Array Except Self

Given an array `nums` of n integers where $n > 1$, return an array `output` such that `output[i]` is equal to the product of all the elements of `nums` except `nums[i]`.

Example:

Input: [1, 2, 3, 4]
Output: [24, 12, 8, 6]

Note: Please solve it **without division** and in $O(n)$.

Follow up:

Could you solve it with constant space complexity? (The output array **does not** count as extra space for the purpose of space complexity analysis.)

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[238-Product-of-Array-Except-Self](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

239. Sliding Window Maximum

Given an array $nums$, there is a sliding window of size k which is moving from the very left of the array to the very right. You can only see the k numbers in the window. Each time the sliding window moves right by one position. Return the max sliding window.

Example:

Input: `nums = [1,3,-1,-3,5,3,6,7]`, and `k = 3`
Output: `[3,3,5,5,6,7]`
Explanation:

Window position	Max
[1 3 -1] -3 5 3 6 7	3
1 [3 -1 -3] 5 3 6 7	3
1 3 [-1 -3 5] 3 6 7	5
1 3 -1 [-3 5 3] 6 7	5
1 3 -1 -3 [5 3 6] 7	6
1 3 -1 -3 5 [3 6 7]	7

Note:

You may assume k is always valid, $1 \leq k \leq$ input array's size for non-empty array.

Follow up:

Could you solve it in linear time?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[239-Sliding-Window-Maximum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

240. Search a 2D Matrix II

Write an efficient algorithm that searches for a value in an $m \times n$ matrix. This matrix has the following properties:

- Integers in each row are sorted in ascending from left to right.
- Integers in each column are sorted in ascending from top to bottom.

Example:

Consider the following matrix:

```
[  
    [1,    4,    7,   11,  15],  
     [2,    5,    8,   12,  19],  
     [3,    6,    9,   16,  22],  
     [10,  13,  14,  17,  24],  
     [18,  21,  23,  26,  30]  
]
```

Given target = 5 , return true .

Given target = 20 , return false .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[2016-07-27-240-Search-a-2D-Matrix-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

241. Different Ways to Add Parentheses

Given a string of numbers and operators, return all possible results from computing all the different possible ways to group numbers and operators. The valid operators are + , - and * .

Example 1:

Input: "2-1-1"
Output: [0, 2]
Explanation:
 $((2-1)-1) = 0$
 $(2-(1-1)) = 2$

Example 2:

```
Input: "2*3-4*5"
Output: [-34, -14, -10, -10, 10]
Explanation:
(2*(3-(4*5))) = -34
((2*3)-(4*5)) = -14
((2*(3-4))*5) = -10
(2*((3-4)*5)) = -10
(((2*3)-4)*5) = 10
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[241-Different-Ways-to-Add-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

242. Valid Anagram

Given two strings s and t , write a function to determine if t is an anagram of s .

Example 1:

Input: $s = \text{"anagram"}$, $t = \text{"nagaram"}$
Output: true

Example 2:

Input: $s = \text{"rat"}$, $t = \text{"car"}$
Output: false

Note:

You may assume the string contains only lowercase alphabets.

Follow up:

What if the inputs contain unicode characters? How would you adapt your solution to such case?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[242-Valid-Anagram](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

243. Shortest Word Distance

Given a list of words and two words $word1$ and $word2$, return the shortest distance between these two words in the list.

Example:

Assume that words = ["practice", "makes", "perfect", "coding", "makes"] .

Input: word1 = "coding", word2 = "practice"
Output: 3

Input: word1 = "makes", word2 = "coding"
Output: 1

Note:

You may assume that $word1$ does not equal to $word2$, and $word1$ and $word2$ are both in the list.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[243-Shortest-Word-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

244. Shortest Word Distance II

Design a class which receives a list of words in the constructor, and implements a method that takes two words *word1* and *word2* and return the shortest distance between these two words in the list. Your method will be called *repeatedly* many times with different parameters.

Example:

Assume that words = ["practice", "makes", "perfect", "coding", "makes"] .

Input: word1 = “coding”, word2 = “practice”
Output: 3

```
Input: word1 = "makes", word2 = "coding"
Output: 1
```

Note:

You may assume that *word1* does not equal to *word2* , and *word1* and *word2* are both in the list.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[244-Shortest-Word-Distance-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

245. Shortest Word Distance III

Given a list of words and two words $word1$ and $word2$, return the shortest distance between these two words in the list.

$word1$ and $word2$ may be the same and they represent two individual words in the list.

Example:

Assume that words = ["practice", "makes", "perfect", "coding", "makes"] .

Input: word1 = "makes", word2 = "coding"
Output: 1

Input: word1 = "makes", word2 = "makes"
Output: 3

Note:

You may assume $word1$ and $word2$ are both in the list.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[245-Shortest-Word-Distance-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

246. Strobogrammatic Number

A strobogrammatic number is a number that looks the same when rotated 180 degrees (looked at upside down).

Write a function to determine if a number is strobogrammatic. The number is represented as a string.

Example 1:

Input: "69"
Output: true

Example 2:

Input: "88"
Output: true

Example 3:

Input: "962"
Output: false

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[246-Strobogrammatic-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

247. Strobogrammatic Number II

A strobogrammatic number is a number that looks the same when rotated 180 degrees (looked at upside down).

Find all strobogrammatic numbers that are of length = n.

Example:

```
Input:  n = 2
Output: ["11", "69", "88", "96"]
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[247-Strobogrammatic-Number-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

248. Strobogrammatic Number III

A strobogrammatic number is a number that looks the same when rotated 180 degrees (looked at upside down).

Write a function to count the total strobogrammatic numbers that exist in the range of low <= num <= high.

Example:

```
Input: low = "50", high = "100"
Output: 3
Explanation: 69, 88, and 96 are three strobogrammatic numbers.
```

Note:

Because the range might be a large number, the *low* and *high* numbers are represented as string.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[248-Strobogrammatic-Number-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

249. Group Shifted Strings

Given a string, we can "shift" each of its letter to its successive letter, for example: "abc" -> "bcd" . We can keep "shifting" which forms the sequence:

"abc" -> "bcd" -> . . . -> "xyz"

Given a list of strings which contains only lowercase alphabets, group all strings that belong to the same shifting sequence.

Example:

Input: ["abc", "bcd", "acef", "xyz", "az", "ba", "a", "z"],
Output:
[
 ["abc", "bcd", "xyz"],
 ["az", "ba"],
 ["acef"],
 ["a", "z"]
]

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[249-Group-Shifted-Strings](#)

All Problems:

[Link to All Problems](#)

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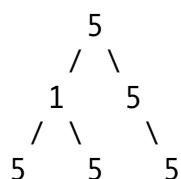
250. Count Univalue Subtrees

Given a binary tree, count the number of uni-value subtrees.

A Uni-value subtree means all nodes of the subtree have the same value.

Example :

Input: root = [5,1,5,5,5,null,5]



Output: 4

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[250-Count-Univalue-Subtrees](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

251. Flatten 2D Vector

Design and implement an iterator to flatten a 2d vector. It should support the following operations: `next` and `hasNext`.

Example:

```
Vector2D iterator = new Vector2D([[1,2],[3],[4]]);  
  
iterator.next(); // return 1  
iterator.next(); // return 2  
iterator.next(); // return 3  
iterator.hasNext(); // return true  
iterator.hasNext(); // return true  
iterator.next(); // return 4  
iterator.hasNext(); // return false
```

Notes:

1. Please remember to **RESET** your class variables declared in `Vector2D`, as static/class variables are

persisted across multiple test cases . Please see [here](#) for more details.

2. You may assume that `next()` call will always be valid, that is, there will be at least a next element in the 2d vector when `next()` is called.

Follow up:

As an added challenge, try to code it using only [iterators in C++](#) or [iterators in Java](#).

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[251-Flatten-2D-Vector-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

252. Meeting Rooms

Given an array of meeting time intervals consisting of start and end times $[[s_1, e_1], [s_2, e_2], \dots]$ ($s_i < e_i$), determine if a person could attend all meetings.

Example 1:

Input: $[[0, 30], [5, 10], [15, 20]]$
Output: false

Example 2:

Input: $[[7, 10], [2, 4]]$
Output: true

NOTE: input types have been changed on April 15, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[252-Meeting-Rooms](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

253. Meeting Rooms II

Given an array of meeting time intervals consisting of start and end times $[[s_1, e_1], [s_2, e_2], \dots]$ ($s_i < e_i$), find the minimum number of conference rooms required.

Example 1:

Input: $[[0, 30], [5, 10], [15, 20]]$
Output: 2

Example 2:

Input: $[[7, 10], [2, 4]]$
Output: 1

NOTE: input types have been changed on April 15, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[253-Meeting-Rooms-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

254. Factor Combinations

Numbers can be regarded as product of its factors. For example,

$$\begin{aligned} 8 &= 2 \times 2 \times 2; \\ &= 2 \times 4. \end{aligned}$$

Write a function that takes an integer n and return all possible combinations of its factors.

Note:

1. You may assume that n is always positive.

2. Factors should be greater than 1 and less than n .

Example 1:

Input: 1
Output: []

Example 2:

Input: 37
Output: []

Example 3:

Input: 12
Output:
[
 [2, 6],
 [2, 2, 3],
 [3, 4]
]

Example 4:

Input: 32
Output:
[
 [2, 16],
 [2, 2, 8],
 [2, 2, 2, 4],
 [2, 2, 2, 2, 2],
 [2, 4, 4],
 [4, 8]
]

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[254-Factor-Combinations](#)

All Problems:

[Link to All Problems](#)

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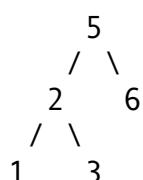
Welcome to Subscribe On Youtube:

255. Verify Preorder Sequence in Binary Search Tree

Given an array of numbers, verify whether it is the correct preorder traversal sequence of a binary search tree.

You may assume each number in the sequence is unique.

Consider the following binary search tree:



Example 1:

Input: [5, 2, 6, 1, 3]
Output: false

Example 2:

Input: [5,2,1,3,6]
Output: true

Follow up:

Could you do it using only constant space complexity?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[255-Verify-Preorder-Sequence-in-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

256. Paint House

There are a row of n houses, each house can be painted with one of the three colors: red, blue or green. The cost of painting each house with a certain color is different. You have to paint all the houses such that no two adjacent houses have the same color.

The cost of painting each house with a certain color is represented by a $n \times 3$ cost matrix. For example, `costs[0][0]` is the cost of painting house 0 with color red; `costs[1][2]` is the cost of painting house 1 with color green, and so on... Find the minimum cost to paint all houses.

Note:

All costs are positive integers.

Example:

Input: `[[17, 2, 17], [16, 16, 5], [14, 3, 19]]`

Output: 10

Explanation: Paint house 0 into blue, paint house 1 into green,

Minimum cost: $2 + 5 + 3 = 10$.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[256-Paint-House](#)

All Problems:

[Link to All Problems](#)

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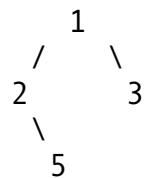
257. Binary Tree Paths

Given a binary tree, return all root-to-leaf paths.

Note: A leaf is a node with no children.

Example:

Input:



Output: ["1->2->5", "1->3"]

Explanation: All root-to-leaf paths are: 1->2->5, 1->3

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[257-Binary-Tree-Paths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

258. Add Digits

Given a non-negative integer `num` , repeatedly add all its digits until the result has only one digit.

Example:

`Input: 38`

`Output: 2`

`Explanation: The process is like: 3 + 8 = 11, 1 + 1 = 2.
Since 2 has only one digit, return it.`

Follow up:

Could you do it without any loop/recursion in O(1) runtime?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[258-Add-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

259. 3Sum Smaller

Given an array of n integers $nums$ and a $target$, find the number of index triplets i, j, k with $0 \leq i < j < k < n$ that satisfy the condition $nums[i] + nums[j] + nums[k] < target$.

Example:

Input: $nums = [-2, 0, 1, 3]$, and $target = 2$

Output: 2

Explanation: Because there are two triplets which sums are less
[-2, 0, 1]
[-2, 0, 3]

Follow up: Could you solve it in $O(n^2)$ runtime?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[259-3Sum-Smaller](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

260. Single Number III

Given an array of numbers `nums` , in which exactly two elements appear only once and all the other elements appear exactly twice. Find the two elements that appear only once.

Example:

Input: [1,2,1,3,2,5]
Output: [3,5]

Note :

1. The order of the result is not important. So in the above example, [5, 3] is also correct.
2. Your algorithm should run in linear runtime complexity. Could you implement it using only constant space complexity?

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[260-Single-Number-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

261. Graph Valid Tree

Given n nodes labeled from 0 to $n-1$ and a list of undirected edges (each edge is a pair of nodes), write a function to check whether these edges make up a valid tree.

Example 1:

Input: $n = 5$, and edges = $\[[0,1], [0,2], [0,3], [1,4]\]$
Output: true

Example 2:

Input: $n = 5$, and edges = $\[[0,1], [1,2], [2,3], [1,3], [1,4]\]$
Output: false

Note : you can assume that no duplicate edges will appear in edges . Since all edges are undirected, $[0,1]$ is the same as $[1,0]$ and thus will not appear together in edges .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[261-Graph-Valid-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

262. Trips and Users

The `Trips` table holds all taxi trips. Each trip has a unique Id, while `Client_Id` and `Driver_Id` are both foreign keys to the `Users_Id` at the `Users` table. Status is an ENUM type of ('completed', 'cancelled_by_driver', 'cancelled_by_client').

Id	Client_Id	Driver_Id	City_Id	Status	Reqd
1	1	10	1	completed	201
2	2	11	1	cancelled_by_driver	201
3	3	12	6	completed	201
4	4	13	6	cancelled_by_client	201
5	1	10	1	completed	201
6	2	11	6	completed	201
7	3	12	6	completed	201
8	2	12	12	completed	201
9	3	10	12	completed	201
10	4	13	12	cancelled_by_driver	201

The `Users` table holds all users. Each user has an unique `Users_Id`, and `Role` is an ENUM type of ('client', 'driver', 'partner').

Users_Id	Banned	Role
1	No	client
2	Yes	client

3	No	client
4	No	client
10	No	driver
11	No	driver
12	No	driver
13	No	driver

Write a SQL query to find the cancellation rate of requests made by unbanned users (both client and driver must be unbanned) between **Oct 1, 2013** and **Oct 3, 2013**. The cancellation rate is computed by dividing the number of canceled (by client or driver) requests made by unbanned users by the total number of requests made by unbanned users.

For the above tables, your SQL query should return the following rows with the cancellation rate being rounded to *two* decimal places.

Day	Cancellation Rate
2013-10-01	0.33
2013-10-02	0.00
2013-10-03	0.50

Credits:

Special thanks to [@cak1erlizhou](#) for contributing this question, writing the problem description and adding part of the test cases.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[262-Trips-and-Users](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

263. Ugly Number

Write a program to check whether a given number is an ugly number.

Ugly numbers are **positive numbers** whose prime factors only include 2, 3, 5 .

Example 1:

Input: 6
Output: true
Explanation: $6 = 2 \times 3$

Example 2:

Input: 8
Output: true
Explanation: $8 = 2 \times 2 \times 2$

Example 3:

Input: 14
Output: false
Explanation: 14 is not ugly since it includes another prime factor

Note:

1. 1 is typically treated as an ugly number.
2. Input is within the 32-bit signed integer range: $[-2^{31}, 2^{31} - 1]$.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[263-Ugly-Number](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

264. Ugly Number II

Write a program to find the n -th ugly number.

Ugly numbers are **positive numbers** whose prime factors only include 2, 3, 5 .

Example:

Input: n = 10

Output: 12

Explanation: 1, 2, 3, 4, 5, 6, 8, 9, 10, 12 is the sequence of t

Note:

1. 1 is typically treated as an ugly number.
2. n **does not exceed 1690** .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[264-Ugly-Number-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

265. Paint House II

There are a row of n houses, each house can be painted with one of the k colors. The cost of painting each house with a certain color is different. You have to paint all the houses such that no two adjacent houses have the same color.

The cost of painting each house with a certain color is represented by a $n \times k$ cost matrix. For example, $\text{costs}[0][0]$ is the cost of painting house 0 with color 0; $\text{costs}[1][2]$ is the cost of painting house 1 with color 2, and so on... Find the minimum cost to paint all houses.

Note:

All costs are positive integers.

Example:

Input: $[[1, 5, 3], [2, 9, 4]]$

Output: 5

Explanation: Paint house 0 into color 0, paint house 1 into color 1
Or paint house 0 into color 2, paint house 1 into color 0

Follow up:

Could you solve it in $O(nk)$ runtime?

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[265-Paint-House-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

266. Palindrome Permutation

Given a string, determine if a permutation of the string could form a palindrome.

Example 1:

Input: "code"
Output: false

Example 2:

Input: "aab"
Output: true

Example 3:

Input: "carerac"
Output: true

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**[266-Palindrome-Permutation](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

267. Palindrome Permutation II

Given a string s , return all the palindromic permutations (without duplicates) of it. Return an empty list if no palindromic permutation could be formed.

Example 1:

Input: "aabb"
Output: ["abba", "baab"]

Example 2:

Input: "abc"
Output: []

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[267-Palindrome-Permutation-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

268. Missing Number

Given an array containing n distinct numbers taken from $0, 1, 2, \dots, n$, find the one that is missing from the array.

Example 1:

Input: [3, 0, 1]
Output: 2

Example 2:

Input: [9, 6, 4, 2, 3, 5, 7, 0, 1]
Output: 8

Note :

Your algorithm should run in linear runtime complexity.
Could you implement it using only constant extra space complexity?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[268-Missing-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

269. Alien Dictionary

There is a new alien language which uses the latin alphabet. However, the order among letters are unknown to you. You receive a list of **non-empty** words from the dictionary, where **words are sorted lexicographically by the rules of this new language** . Derive the order of letters in this language.

Example 1:

Input:

```
[  
    "wrt",  
    "wrf",  
    "er",  
    "ett",  
    "rftt"  
]
```

Output: "wertf"

Example 2:

Input:

```
[  
    "z",  
    "x"  
]
```

Output: "zx"

Example 3:

Input:

```
[
```

```
"z",
"x",
"z"
]

Output: ""
```

Explanation: The order is invalid, so return "".

Note:

1. You may assume all letters are in lowercase.
2. You may assume that if a is a prefix of b, then a must appear before b in the given dictionary.
3. If the order is invalid, return an empty string.
4. There may be multiple valid order of letters, return any one of them is fine.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[269-Alien-Dictionary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

270. Closest Binary Search Tree Value

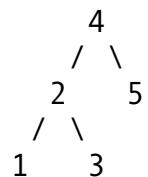
Given a non-empty binary search tree and a target value, find the value in the BST that is closest to the target.

Note:

- Given target value is a floating point.
- You are guaranteed to have only one unique value in the BST that is closest to the target.

Example:

Input: root = [4,2,5,1,3], target = 3.714286



Output: 4

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[270-Closest-Binary-Search-Tree-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

271. Encode and Decode Strings

Design an algorithm to encode **a list of strings** to a **string**. The encoded string is then sent over the network and is decoded back to the original list of strings.

Machine 1 (sender) has the function:

```
string encode(vector<string> strs) {  
    // ... your code  
    return encoded_string;  
}
```

Machine 2 (receiver) has the function:

```
vector<string> decode(string s) {  
    //... your code  
    return strs;  
}
```

So Machine 1 does:

```
string encoded_string = encode(strs);
```

and Machine 2 does:

```
vector<string> strs2 = decode(encoded_string);
```

strs2 in Machine 2 should be the same as strs in Machine 1.

Implement the encode and decode methods.

Note:

- The string may contain any possible characters out of 256 valid ascii characters. Your algorithm should be generalized enough to work on any possible characters.
- Do not use class member/global/static variables to store states. Your encode and decode algorithms should be stateless.
- Do not rely on any library method such as eval or serialize methods. You should implement your own encode/decode algorithm.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[271-Encode-and-Decode-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

272. Closest Binary Search Tree Value II

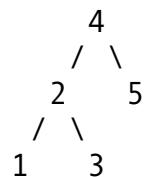
Given a non-empty binary search tree and a target value, find k values in the BST that are closest to the target.

Note:

- Given target value is a floating point.
- You may assume k is always valid, that is: $k \leq$ total nodes.
- You are guaranteed to have only one unique set of k values in the BST that are closest to the target.

Example:

Input: root = [4,2,5,1,3], target = 3.714286, and k = 2



Output: [4,3]

Follow up:

Assume that the BST is balanced, could you solve it in less than $O(n)$ runtime (where n = total nodes)?

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[272-Closest-Binary-Search-Tree-Value-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

273. Integer to English Words

Convert a non-negative integer to its english words representation. Given input is guaranteed to be less than $2^{31} - 1$.

Example 1:

Input: 123

Output: "One Hundred Twenty Three"

Example 2:

Input: 12345

Output: "Twelve Thousand Three Hundred Forty Five"

Example 3:

Input: 1234567

Output: "One Million Two Hundred Thirty Four Thousand Five Hundred Sixty Seven"

Example 4:

Input: 1234567891

Output: "One Billion Two Hundred Thirty Four Million Five Hundred Sixty Seven Thousand Eight Hundred Ninety One"

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[273-Integer-to-English-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

274. H-Index

Given an array of citations (each citation is a non-negative integer) of a researcher, write a function to compute the researcher's h-index.

According to the [definition of h-index on Wikipedia](#) : "A scientist has index h if h of his/her N papers have **at least** h citations each, and the other $N - h$ papers have **no more than** h citations each."

Example:

Input: citations = [3,0,6,1,5]

Output: 3

Explanation: [3,0,6,1,5] means the researcher has 5 papers in total received 3, 0, 6, 1, 5 citations respectively.
Since the researcher has 3 papers with at least 3 citations each, her h-index is 3.

Note: If there are several possible values for h , the maximum one is taken as the h-index.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[274-H-Index](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

275. H-Index II

Given an array of citations **sorted in ascending order** (each citation is a non-negative integer) of a researcher, write a function to compute the researcher's h-index.

According to the [definition of h-index on Wikipedia](#) : "A scientist has index h if h of his/her N papers have **at least** h citations each, and the other $N - h$ papers have **no more than** h citations each."

Example:

Input: citations = [0,1,3,5,6]

Output: 3

Explanation: [0,1,3,5,6] means the researcher has 5 papers in total received 0, 1, 3, 5, 6 citations respectively. Since the researcher has 3 papers with at least 3 citations each, and the other 2 with no more than 3 citations each, her h-index is 3.

Note:

If there are several possible values for h , the maximum one is taken as the h-index.

Follow up:

- This is a follow up problem to [H-Index](#), where citations is now guaranteed to be sorted in ascending order.
- Could you solve it in logarithmic time complexity?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[275-H-Index-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

276. Paint Fence

There is a fence with n posts, each post can be painted with one of the k colors.

You have to paint all the posts such that no more than two adjacent fence posts have the same color.

Return the total number of ways you can paint the fence.

Note:

n and k are non-negative integers.

Example:

Input: $n = 3$, $k = 2$

Output: 6

Explanation: Take c_1 as color 1, c_2 as color 2. All possible ways are:

	post1	post2	post3
1	c_1	c_1	c_2
2	c_1	c_2	c_1
3	c_1	c_2	c_2
4	c_2	c_1	c_1
5	c_2	c_1	c_2
6	c_2	c_2	c_1

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[276-Paint-Fence](#)

All Problems:

[Link to All Problems](#)

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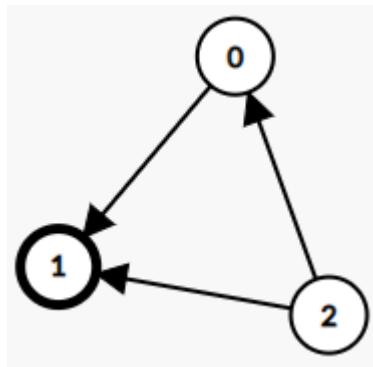
277. Find the Celebrity

Suppose you are at a party with n people (labeled from 0 to $n - 1$) and among them, there may exist one celebrity. The definition of a celebrity is that all the other $n - 1$ people know him/her but he/she does not know any of them.

Now you want to find out who the celebrity is or verify that there is not one. The only thing you are allowed to do is to ask questions like: "Hi, A. Do you know B?" to get information of whether A knows B. You need to find out the celebrity (or verify there is not one) by asking as few questions as possible (in the asymptotic sense).

You are given a helper function `bool knows(a, b)` which tells you whether A knows B. Implement a function `int findCelebrity(n)`. There will be exactly one celebrity if he/she is in the party. Return the celebrity's label if there is a celebrity in the party. If there is no celebrity, return -1 .

Example 1:

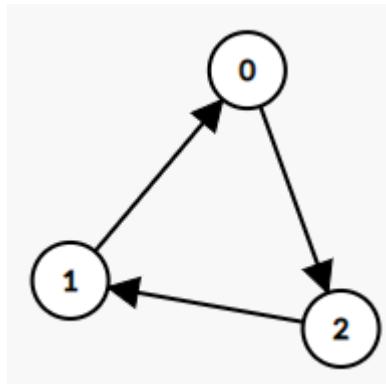


```
Input: graph = [
    [1,1,0],
    [0,1,0],
    [1,1,1]
]
```

Output: 1

Explanation: There are three persons labeled with 0, 1 and 2. g

Example 2:



```
Input: graph = [
    [1,0,1],
    [1,1,0],
    [0,1,1]
]
```

Output: -1

Explanation: There is no celebrity.

Note:

1. The directed graph is represented as an adjacency matrix, which is an $n \times n$ matrix where $a[i][j] = 1$ means person i knows person j while $a[i][j] = 0$ means the contrary.
2. Remember that you won't have direct access to the adjacency matrix.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[277-Find-the-Celebrity](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

278. First Bad Version

You are a product manager and currently leading a team to develop a new product. Unfortunately, the latest version of your product fails the quality check. Since each version is developed based on the previous version, all the versions after a bad version are also bad.

Suppose you have n versions $[1, 2, \dots, n]$ and you want to find out the first bad one, which causes all the following ones to be bad.

You are given an API `bool isBadVersion(version)` which will return whether `version` is bad. Implement a function to find the first bad version. You should minimize the number of calls to the API.

Example:

Given $n = 5$, and `version = 4` is the first bad version.

```
call isBadVersion(3) -> false
call isBadVersion(5) -> true
call isBadVersion(4) -> true
```

Then 4 is the first bad version.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[278-First-Bad-Version](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

279. Perfect Squares

Given a positive integer n , find the least number of perfect square numbers (for example, 1, 4, 9, 16, ...) which sum to n .

Example 1:

Input: $n = 12$
Output: 3
Explanation: $12 = 4 + 4 + 4$.

Example 2:

Input: $n = 13$
Output: 2
Explanation: $13 = 4 + 9$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[279-Perfect-Squares](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

280. Wiggle Sort

Given an unsorted array `nums` , reorder it **in-place** such that `nums[0] <= nums[1] >= nums[2] <= nums[3] . . .` .

Example:

Input: `nums = [3,5,2,1,6,4]`
Output: One possible answer is `[3,5,1,6,2,4]`

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

280-Wiggle-Sort

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

281. Zigzag Iterator

Given two 1d vectors, implement an iterator to return their elements alternately.

Example:

Input:

v1 = [1, 2]
v2 = [3, 4, 5, 6]

Output: [1, 3, 2, 4, 5, 6]

Explanation: By calling next repeatedly until hasNext returns false, the order of elements returned by next should be: [1, 3, 2, 4, 5, 6]

Follow up : What if you are given k 1d vectors? How well can your code be extended to such cases?

Clarification for the follow up question :

The "Zigzag" order is not clearly defined and is ambiguous for $k > 2$ cases. If "Zigzag" does not look right to you, replace "Zigzag" with "Cyclic". For example:

Input:
[1,2,3]
[4,5,6,7]
[8,9]

Output: [1,4,8,2,5,9,3,6,7].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[281-Zigzag-Iterator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

282. Expression Add Operators

Given a string that contains only digits 0-9 and a target value, return all possibilities to add **binary** operators (not unary) + , - , or * between the digits so they evaluate to the target value.

Example 1:

Input: num = "123", target = 6
Output: ["1+2+3", "1*2*3"]

Example 2:

Input: num = "232", target = 8
Output: ["2*3+2", "2+3*2"]

Example 3:

Input: num = "105", target = 5
Output: ["1*0+5", "10-5"]

Example 4:

Input: num = "00", target = 0
Output: ["0+0", "0-0", "0*0"]

Example 5:

Input: num = "3456237490", target = 9191
Output: []

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[282-Expression-Add-Operators](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

283. Move Zeroes

Given an array `nums` , write a function to move all `0` 's to the end of it while maintaining the relative order of the non-zero elements.

Example:

Input: [0,1,0,3,12]
Output: [1,3,12,0,0]

Note :

1. You must do this **in-place** without making a copy of the array.
2. Minimize the total number of operations.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[283-Move-Zeroes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

284. Peeking Iterator

Given an Iterator class interface with methods: `next()` and `hasNext()` , design and implement a `PeekingIterator` that support the `peek()` operation -- it essentially `peek()` at the element that will be returned by the next call to `next()`.

Example:

Assume that the iterator is initialized to the beginning of the list. Call next() gets you 1, the first element in the list. Now you call peek() and it returns 2, the next element. Calling peek() again returns 2. You call next() the final time and it returns 3, the last element. Calling hasNext() after that should return false.

Follow up : How would you extend your design to be generic and work with all types, not just integer?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[284-Peeking-Iterator](#)

All Problems:

[Link to All Problems](#)

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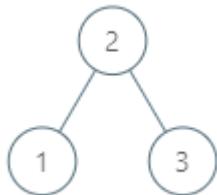
Welcome to Subscribe On Youtube:

285. Inorder Successor in BST

Given a binary search tree and a node in it, find the in-order successor of that node in the BST.

The successor of a node p is the node with the smallest key greater than $p.val$.

Example 1:

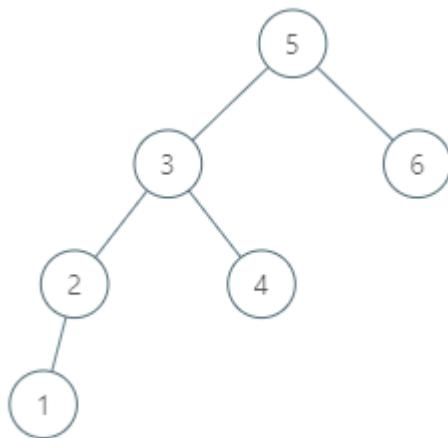


Input: `root = [2,1,3]`, $p = 1$

Output: 2

Explanation: 1's in-order successor node is 2. Note that both p and 2 are leaf nodes.

Example 2:



Input: `root = [5,3,6,2,4,null,null,1]`, $p = 6$

Output: null

Explanation: There is no in-order successor of the current node, which is 6.

Note:

1. If the given node has no in-order successor in the tree, return null.
2. It's guaranteed that the values of the tree are unique.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[285-Inorder-Successor-in-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

286. Walls and Gates

You are given a $m \times n$ 2D grid initialized with these three possible values.

1. -1 - A wall or an obstacle.
2. 0 - A gate.

3. INF - Infinity means an empty room. We use the value $2^{31} - 1 = 2147483647$ to represent INF as you may assume that the distance to a gate is less than 2147483647 .

Fill each empty room with the distance to its *nearest* gate. If it is impossible to reach a gate, it should be filled with INF .

Example:

Given the 2D grid:

```
INF -1 0 INF
INF INF INF -1
INF -1 INF -1
0 -1 INF INF
```

After running your function, the 2D grid should be:

```
3 -1 0 1
2 2 1 -1
1 -1 2 -1
0 -1 3 4
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[286-Walls-and-Gates](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

287. Find the Duplicate Number

Given an array $nums$ containing $n + 1$ integers where each integer is between 1 and n (inclusive), prove that at least one duplicate number must exist. Assume that there is only one duplicate number, find the duplicate one.

Example 1:

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

Example 2:

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

Note:

1. You **must not** modify the array (assume the array is read only).
2. You must use only constant, $O(1)$ extra space.
3. Your runtime complexity should be less than $O(n^2)$.
4. There is only one duplicate number in the array, but it could be repeated more than once.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[287-Find-the-Duplicate-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

288. Unique Word Abbreviation

An abbreviation of a word follows the form <first letter><number><last letter>. Below are some examples of word abbreviations:

a) it --> it (no abbreviation)

b) d[↓]o|g --> d1g

c) i|nternationalizatio|n --> i18n

d) l|ocalizatio|n --> l10n

Assume you have a dictionary and given a word, find whether its abbreviation is unique in the dictionary. A word's abbreviation is unique if no *other* word from the dictionary has the same abbreviation.

Example:

Given dictionary = ["deer", "door", "cake", "card"]

```
isUnique("dear") -> false  
isUnique("cart") -> true  
isUnique("cane") -> false  
isUnique("make") -> true
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[288-Unique-Word-Abbreviation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

289. Game of Life

According to the [Wikipedia's article](#) : "The **Game of Life** , also known simply as **Life** , is a cellular automaton devised by the British mathematician John Horton Conway in 1970."

Given a *board* with m by n cells, each cell has an initial state *live* (1) or *dead* (0). Each cell interacts with its [eight neighbors](#) (horizontal, vertical, diagonal) using the following four rules (taken from the above Wikipedia article):

1. Any live cell with fewer than two live neighbors dies, as if caused by under-population.
2. Any live cell with two or three live neighbors lives on to the next generation.
3. Any live cell with more than three live neighbors dies, as if by over-population..
4. Any dead cell with exactly three live neighbors becomes a live cell, as if by reproduction.

Write a function to compute the next state (after one update) of the board given its current state. The next state is created by applying the above rules simultaneously to every cell in the current state, where births and deaths occur simultaneously.

Example:

```
Input:  
[  
    [0,1,0],  
    [0,0,1],  
    [1,1,1],  
    [0,0,0]  
]  
Output:  
[  
    [0,0,0],  
    [1,0,1],  
    [0,1,1],  
    [0,1,0]  
]
```

Follow up :

1. Could you solve it in-place? Remember that the board needs to be updated at the same time: You cannot update some cells first and then use their updated values to update other cells.
2. In this question, we represent the board using a 2D array. In principle, the board is infinite, which would cause problems when the active area encroaches the border of the array. How would you address these problems?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[289-Game-of-Life](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

290. Word Pattern

Given a pattern and a string str , find if str follows the same pattern.

Here **follow** means a full match, such that there is a bijection between a letter in pattern and a **non-empty** word in str .

Example 1:

Input: pattern = "abba", str = "dog cat cat dog"
Output: true

Example 2:

Input:pattern = "abba", str = "dog cat cat fish"
Output: false

Example 3:

Input: pattern = "aaaa", str = "dog cat cat dog"
Output: false

Example 4:

Input: pattern = "abba", str = "dog dog dog dog"
Output: false

Notes:

You may assume pattern contains only lowercase letters, and str contains lowercase letters that may be separated by a single space.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[290-Word-Pattern](#)

All Problems:

[Link to All Problems](#)

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291. Word Pattern II

Given a pattern and a string str , find if str follows the same pattern.

Here **follow** means a full match, such that there is a bijection between a letter in pattern and a **non-empty** substring in str .

Example 1:

Input: pattern = "abab", str = "redblueredblue"
Output: true

Example 2:

Input: pattern = pattern = "aaaa", str = "asdadasdasd"
Output: true

Example 3:

Input: pattern = "aabb", str = "xyzabcxzyabc"
Output: false

Notes:

You may assume both pattern and str contains only lowercase letters.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[291-Word-Pattern-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

292. Nim Game

You are playing the following Nim Game with your friend: There is a heap of stones on the table, each time one of you take turns to remove 1 to 3 stones. The one who removes the last stone will be the winner. You will take the first turn to remove the stones.

Both of you are very clever and have optimal strategies for the game. Write a function to determine whether you can win the game given the number of stones in the heap.

Example:

Input: 4

Output: false

Explanation: If there are 4 stones in the heap, then you will never win. No matter 1, 2, or 3 stones you remove, the last stone will be removed by your friend.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[292-Nim-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

293. Flip Game

You are playing the following Flip Game with your friend: Given a string that contains only these two characters: + and - , you and your friend take turns to flip two **consecutive** "++" into "--" . The game ends when a person can no longer make a move and therefore the other person will be the winner.

Write a function to compute all possible states of the string after one valid move.

Example:

Input: s = "++++"

Output:

```
[  
    "--++",  
    "+-++",  
    "++--"]
```

Note: If there is no valid move, return an empty list [] .

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[293-Flip-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

294. Flip Game II

You are playing the following Flip Game with your friend: Given a string that contains only these two characters: + and - , you and your friend take turns to flip two **consecutive** "++" into "--" . The game ends

when a person can no longer make a move and therefore the other person will be the winner.

Write a function to determine if the starting player can guarantee a win.

Example:

Input: s = "++++"

Output: true

Explanation: The starting player can guarantee a win by flipping

Follow up:

Derive your algorithm's runtime complexity.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[294-Flip-Game-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

295. Find Median from Data Stream

Median is the middle value in an ordered integer list. If the size of the list is even, there is no middle value. So the median is the mean of the two middle value.

For example,

[2, 3, 4] , the median is 3

[2, 3] , the median is $(2 + 3) / 2 = 2.5$

Design a data structure that supports the following two operations:

- void addNum(int num) - Add a integer number from the data stream to the data structure.
- double findMedian() - Return the median of all elements so far.

Example:

```
addNum(1)
addNum(2)
findMedian() -> 1.5
addNum(3)
findMedian() -> 2
```

Follow up:

1. If all integer numbers from the stream are between 0 and 100, how would you optimize it?
2. If 99% of all integer numbers from the stream are between 0 and 100, how would you optimize it?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[295-Find-Median-from-Data-Stream](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

296. Best Meeting Point

A group of two or more people wants to meet and minimize the total travel distance. You are given a 2D grid of values 0 or 1, where each 1 marks the home of someone in the group. The distance is calculated using [Manhattan Distance](#), where $\text{distance}(p1, p2) = |p2.x - p1.x| + |p2.y - p1.y|$.

Example:

Input:

```
1 - 0 - 0 - 0 - 1  
|   |   |   |  
0 - 0 - 0 - 0 - 0  
|   |   |   |  
0 - 0 - 1 - 0 - 0
```

Output: 6

Explanation: Given three people living at $(0,0)$, $(0,4)$, and $(2,2)$.
The point $(0,2)$ is an ideal meeting point, as the total distance of $2+2+2=6$ is minimal. So return 6.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[296-Best-Meeting-Point](#)

All Problems:

[Link to All Problems](#)

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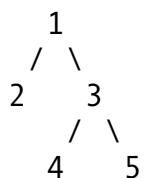
297. Serialize and Deserialize Binary Tree

Serialization is the process of converting a data structure or object into a sequence of bits so that it can be stored in a file or memory buffer, or transmitted across a network connection link to be reconstructed later in the same or another computer environment.

Design an algorithm to serialize and deserialize a binary tree. There is no restriction on how your serialization/deserialization algorithm should work. You just need to ensure that a binary tree can be serialized to a string and this string can be deserialized to the original tree structure.

Example:

You may serialize the following tree:



as "[1,2,3,null,null,4,5]"

Clarification: The above format is the same as [how LeetCode serializes a binary tree](#). You do not necessarily need to follow this format, so please be creative and come up with different approaches yourself.

Note: Do not use class member/global/static variables to store states. Your serialize and deserialize algorithms should be stateless.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**297-Serialize-and-Deserialize-Binary-Tree**](#)**All Problems:**[**Link to All Problems**](#)

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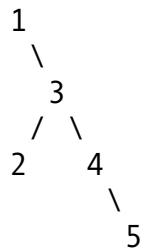
298. Binary Tree Longest Consecutive Sequence

Given a binary tree, find the length of the longest consecutive sequence path.

The path refers to any sequence of nodes from some starting node to any node in the tree along the parent-child connections. The longest consecutive path need to be from parent to child (cannot be the reverse).

Example 1:

Input:

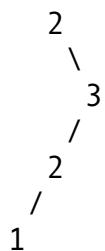


Output: 3

Explanation: Longest consecutive sequence path is 3-4-5, so return 3.

Example 2:

Input:



Output: 2

Explanation: Longest consecutive sequence path is 2-3, not 3-2-1, so return 2.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[298-Binary-Tree-Longest-Consecutive-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

299. Bulls and Cows

You are playing the following [Bulls and Cows](#) game with your friend: You write down a number and ask your friend to guess what the number is. Each time your friend makes a guess, you provide a hint that indicates how many digits in said guess match your secret number exactly in both digit and position (called "bulls") and how many digits match the secret number but locate in the wrong position (called "cows"). Your friend will use successive guesses and hints to eventually derive the secret number.

Write a function to return a hint according to the secret number and friend's guess, use A to indicate the bulls and B to indicate the cows.

Please note that both secret number and friend's guess may contain duplicate digits.

Example 1:

Input: secret = "1807", guess = "7810"

Output: "1A3B"

Explanation: 1 bull and 3 cows. The bull is 8, the cows are 0, 1 and 7.

Example 2:

Input: secret = "1123", guess = "0111"

Output: "1A1B"

Explanation: The 1st 1 in friend's guess is a bull, the 2nd or 3rd 1 is a cow.

Note: You may assume that the secret number and your friend's guess only contain digits, and their lengths are always equal.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[299-Bulls-and-Cows](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

300. Longest Increasing Subsequence

Given an unsorted array of integers, find the length of longest increasing subsequence.

Example:

Input: [10, 9, 2, 5, 3, 7, 101, 18]

Output: 4

Explanation: The longest increasing subsequence is [2, 3, 7, 101].

Note:

- There may be more than one LIS combination, it is only necessary for you to return the length.
- Your algorithm should run in $O(n^2)$ complexity.

Follow up: Could you improve it to $O(n \log n)$ time complexity?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[300-Longest-Increasing-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

301. Remove Invalid Parentheses

Remove the minimum number of invalid parentheses in order to make the input string valid. Return all possible results.

Note: The input string may contain letters other than the parentheses (and) .

Example 1:

Input: "()())()"
Output: ["()()", "(())()"]

Example 2:

Input: "(a)())()"
Output: ["(a)()", "(a())()"]

Example 3:

Input: ")()"
Output: [""]

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[301-Remove-Invalid-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

302. Smallest Rectangle Enclosing Black Pixels

An image is represented by a binary matrix with 0 as a white pixel and 1 as a black pixel. The black pixels are connected, i.e., there is only one black region. Pixels are connected horizontally and vertically. Given the location (x, y) of one of the black pixels, return the area of the smallest (axis-aligned) rectangle that encloses all black pixels.

Example:

Input:
[
 "0010",
 "0110",
 "0100"
]
and x = 0, y = 2

Output: 6

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[302-Smallest-Rectangle-Enclosing-Black-Pixels](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

303. Range Sum Query - Immutable

Given an integer array *nums* , find the sum of the elements between indices *i* and *j* (*i* ≤ *j*), inclusive.

Example:

Given *nums* = [-2, 0, 3, -5, 2, -1]

```
sumRange(0, 2) -> 1  
sumRange(2, 5) -> -1  
sumRange(0, 5) -> -3
```

Note:

1. You may assume that the array does not change.
2. There are many calls to *sumRange* function.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[303-Range-Sum-Query-Immutable](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

304. Range Sum Query 2D - Immutable

Given a 2D matrix $matrix$, find the sum of the elements inside the rectangle defined by its upper left corner ($row 1, col 1$) and lower right corner ($row 2, col 2$).

3	0	1	4	2
5	6	3	2	1
1	2	0	1	5
4	1	0	1	7
1	0	3	0	5

The above rectangle (with the red border) is defined by $(row1, col1) = (2, 1)$ and $(row2, col2) = (4, 3)$, which contains sum = 8 .

Example:

```
Given matrix = [
    [3, 0, 1, 4, 2],
```

```
[5, 6, 3, 2, 1],  
[1, 2, 0, 1, 5],  
[4, 1, 0, 1, 7],  
[1, 0, 3, 0, 5]  
  
]  
  
sumRegion(2, 1, 4, 3) -> 8  
sumRegion(1, 1, 2, 2) -> 11  
sumRegion(1, 2, 2, 4) -> 12
```

Note:

1. You may assume that the matrix does not change.
2. There are many calls to *sumRegion* function.
3. You may assume that *row 1 ≤ row 2* and *col 1 ≤ col 2*.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[304-Range-Sum-Query-2D-Immutable/-](#)

All Problems:

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Welcome to Subscribe On Youtube:

305. Number of Islands II

A 2d grid map of m rows and n columns is initially filled with water. We may perform an *addLand* operation which turns the water at position (row, col) into a land. Given a list of positions to operate, **count the number of islands after each *addLand* operation**. An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.

Example:

Input: $m = 3$, $n = 3$, positions = $[[0,0], [0,1], [1,2], [2,1]]$
Output: $[1,1,2,3]$

Explanation:

Initially, the 2d grid `grid` is filled with water. (Assume 0 represents water and 1 represents land).

```
0 0 0  
0 0 0  
0 0 0
```

Operation #1: `addLand(0, 0)` turns the water at `grid[0][0]` into a land.

```
1 0 0  
0 0 0    Number of islands = 1  
0 0 0
```

Operation #2: `addLand(0, 1)` turns the water at `grid[0][1]` into a land.

```
1 1 0  
0 0 0    Number of islands = 1  
0 0 0
```

Operation #3: `addLand(1, 2)` turns the water at `grid[1][2]` into a land.

```
1 1 0  
0 0 1    Number of islands = 2  
0 0 0
```

Operation #4: addLand(2, 1) turns the water at grid[2][1] into a land.

```
1 1 0  
0 0 1    Number of islands = 3  
0 1 0
```

Follow up:

Can you do it in time complexity $O(k \log mn)$, where k is the length of the positions ?

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[305-Number-of-Islands-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

306. Additive Number

Additive number is a string whose digits can form additive sequence.

A valid additive sequence should contain **at least** three numbers. Except for the first two numbers, each subsequent number in the sequence must be the sum of the preceding two.

Given a string containing only digits '0' - '9', write a function to determine if it's an additive number.

Note: Numbers in the additive sequence **cannot** have leading zeros, so sequence 1, 2, 03 or 1, 02, 3 is invalid.

Example 1:

Input: "112358"

Output: true

Explanation: The digits can form an additive sequence: 1, 1, 2,
 $1 + 1 = 2$, $1 + 2 = 3$, $2 + 3 = 5$, $3 + 5 = 8$

Example 2:

Input: "199100199"

Output: true

Explanation: The additive sequence is: 1, 99, 100, 199.
 $1 + 99 = 100$, $99 + 100 = 199$

Constraints:

- num consists only of digits '0' - '9' .
- $1 \leq \text{num.length} \leq 35$

Follow up:

How would you handle overflow for very large input integers?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[306-Additive-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

307. Range Sum Query - Mutable

Given an integer array *nums* , find the sum of the elements between indices *i* and *j* (*i* ≤ *j*), inclusive.

The *update(i, val)* function modifies *nums* by updating the element at index *i* to *val* .

Example:

```
Given nums = [1, 3, 5]
```

```
sumRange(0, 2) -> 9  
update(1, 2)  
sumRange(0, 2) -> 8
```

Note:

1. The array is only modifiable by the *update* function.
2. You may assume the number of calls to *update* and *sumRange* function is distributed evenly.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[307-Range-Sum-Query-Mutable](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

308. Range Sum Query 2D - Mutable

Given a 2D matrix *matrix* , find the sum of the elements inside the rectangle defined by its upper left corner (*row 1, col 1*) and lower right corner (*row 2, col 2*).

3	0	1	4	2
5	6	3	2	1
1	2	0	1	5
4	1	0	1	7
1	0	3	0	5

The above rectangle (with the red border) is defined by (row1, col1) = (2, 1) and (row2, col2) = (4, 3) , which contains sum = 8 .

Example:

```
Given matrix = [
    [3, 0, 1, 4, 2],
    [5, 6, 3, 2, 1],
    [1, 2, 0, 1, 5],
    [4, 1, 0, 1, 7],
    [1, 0, 3, 0, 5]
]

sumRegion(2, 1, 4, 3) -> 8
update(3, 2, 2)
sumRegion(2, 1, 4, 3) -> 10
```

Note:

1. The matrix is only modifiable by the *update* function.
2. You may assume the number of calls to *update* and *sumRegion* function is distributed evenly.
3. You may assume that *row 1 ≤ row 2* and *col 1 ≤ col 2*.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[308-Range-Sum-Query-2D-Mutable-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

309. Best Time to Buy and Sell Stock with Cooldown

Say you have an array for which the i^{th} element is the price of a given stock on day i .

Design an algorithm to find the maximum profit. You may complete as many transactions as you like (ie, buy

one and sell one share of the stock multiple times) with the following restrictions:

- You may not engage in multiple transactions at the same time (ie, you must sell the stock before you buy again).
- After you sell your stock, you cannot buy stock on next day. (ie, cooldown 1 day)

Example:

Input: [1, 2, 3, 0, 2]

Output: 3

Explanation: transactions = [buy, sell, cooldown, buy, sell]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[309-Best-Time-to-Buy-and-Sell-Stock-with-Cooldown](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

310. Minimum Height Trees

For an undirected graph with tree characteristics, we can choose any node as the root. The result graph is then a rooted tree. Among all possible rooted trees, those with minimum height are called minimum height trees (MHTs). Given such a graph, write a function to find all the MHTs and return a list of their root labels.

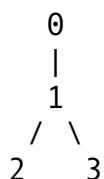
Format

The graph contains n nodes which are labeled from 0 to $n - 1$. You will be given the number n and a list of undirected edges (each edge is a pair of labels).

You can assume that no duplicate edges will appear in edges . Since all edges are undirected, $[0, 1]$ is the same as $[1, 0]$ and thus will not appear together in edges .

Example 1 :

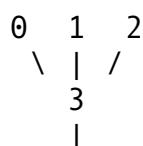
Input: $n = 4$, $\text{edges} = [[1, 0], [1, 2], [1, 3]]$



Output: [1]

Example 2 :

Input: $n = 6$, $\text{edges} = [[0, 3], [1, 3], [2, 3], [4, 3], [5, 4]]$



```
4  
|  
5
```

Output: [3, 4]

Note :

- According to the [definition of tree on Wikipedia](#): “a tree is an undirected graph in which any two vertices are connected by *exactly* one path. In other words, any connected graph without simple cycles is a tree.”
- The height of a rooted tree is the number of edges on the longest downward path between the root and a leaf.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**310-Minimum-Height-Trees**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

311. Sparse Matrix Multiplication

Given two [sparse matrices](#) **A** and **B** , return the result of **AB** .

You may assume that **A** 's column number is equal to **B** 's row number.

Example:

Input:

```
A = [
    [ 1, 0, 0] ,
    [-1, 0, 3]
]
```

```
B = [
    [ 7, 0, 0 ] ,
    [ 0, 0, 0 ] ,
    [ 0, 0, 1 ]
]
```

Output:

$$AB = \begin{vmatrix} 1 & 0 & 0 \\ -1 & 0 & 3 \end{vmatrix} \times \begin{vmatrix} 7 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 7 & 0 & 0 \\ -7 & 0 & 3 \end{vmatrix}$$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[311-Sparse-Matrix-Multiplication](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

312. Burst Balloons

Given n balloons, indexed from 0 to $n-1$. Each balloon is painted with a number on it represented by array nums . You are asked to burst all the balloons. If you burst balloon i you will get $\text{nums}[\text{left}] * \text{nums}[i] * \text{nums}[\text{right}]$ coins. Here left and right are adjacent indices of i . After the burst, the left and right then becomes adjacent.

Find the maximum coins you can collect by bursting the balloons wisely.

Note:

- You may imagine `nums[-1] = nums[n] = 1` .
They are not real therefore you can not burst them.
- $0 \leq n \leq 500$, $0 \leq \text{nums}[i] \leq 100$

Example:

Input: [3,1,5,8]

Output: 167

Explanation: $\text{nums} = [3,1,5,8] \rightarrow [3,5,8] \rightarrow [3,8] \rightarrow [8]$
 $\text{coins} = 3*1*5 + 3*5*8 + 1*3*8 + 1*8$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[312-Burst-Balloons](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

313. Super Ugly Number

Write a program to find the n^{th} super ugly number.

Super ugly numbers are positive numbers whose all prime factors are in the given prime list `primes` of size k .

Example:

Input: $n = 12$, `primes = [2, 7, 13, 19]`

Output: 32

Explanation: $[1, 2, 4, 7, 8, 13, 14, 16, 19, 26, 28, 32]$ is the sequence of super ugly numbers given `primes = [2, 7, 13, 19]` of size $k = 4$.

Note:

- 1 is a super ugly number for any given `primes`.
- The given numbers in `primes` are in ascending order.
- $0 < k \leq 100$, $0 < n \leq 10^6$, $0 < \text{primes}[i] < 1000$.
- The n^{th} super ugly number is guaranteed to fit in a 32-bit signed integer.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[313-Super-Ugly-Number](#)

All Problems:

[Link to All Problems](#)

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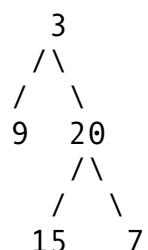
314. Binary Tree Vertical Order Traversal

Given a binary tree, return the *vertical order* traversal of its nodes' values. (ie, from top to bottom, column by column).

If two nodes are in the same row and column, the order should be from **left to right**.

Examples 1:

Input: [3,9,20,null,null,15,7]



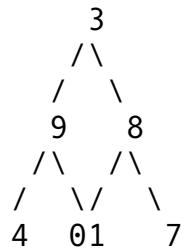
Output:

```
[  
 [9],  
 [3,15],
```

```
[20],  
[7]  
]
```

Examples 2:

Input: [3, 9, 8, 4, 0, 1, 7]

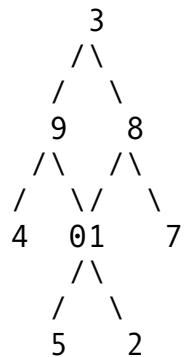


Output:

```
[  
  [4],  
  [9],  
  [3, 0, 1],  
  [8],  
  [7]  
]
```

Examples 3:

Input: [3, 9, 8, 4, 0, 1, 7, null, null, null, 2, 5] (0's right child is 2)



Output:

```
[  
  [4],  
  [9, 5],  
  [3, 0, 1],  
  [8, 2],  
  [7]  
]
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[314-Binary-Tree-Vertical-Order-Traversal](#)

All Problems:

[Link to All Problems](#)

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315. Count of Smaller Numbers After Self

You are given an integer array *nums* and you have to return a new *counts* array. The *counts* array has the

property where `counts[i]` is the number of smaller elements to the right of `nums[i]`.

Example:

Input: [5,2,6,1]
Output: [2,1,1,0]

Explanation:

To the right of 5 there are 2 smaller elements (2 and 1).
To the right of 2 there is only 1 smaller element (1).
To the right of 6 there is 1 smaller element (1).
To the right of 1 there is 0 smaller element.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[315-Count-of-Smaller-Numbers-After-Self](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

316. Remove Duplicate Letters

Given a string which contains only lowercase letters, remove duplicate letters so that every letter appears once and only once. You must make sure your result is the smallest in lexicographical order among all possible results.

Example 1:

Input: "bcabc"
Output: "abc"

Example 2:

Input: "cbacdcbc"
Output: "acdb"

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[316-Remove-Duplicate-Letters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

317. Shortest Distance from All Buildings

You want to build a house on an *empty* land which reaches all buildings in the shortest amount of distance. You can only move up, down, left and right. You are given a 2D grid of values **0**, **1** or **2**, where:

- Each **0** marks an empty land which you can pass by freely.
- Each **1** marks a building which you cannot pass through.
- Each **2** marks an obstacle which you cannot pass through.

Example:

Input: `[[1,0,2,0,1],[0,0,0,0,0],[0,0,1,0,0]]`

```
1 - 0 - 2 - 0 - 1  
|   |   |   |  
0 - 0 - 0 - 0 - 0  
|   |   |   |  
0 - 0 - 1 - 0 - 0
```

Output: 7

Explanation: Given three buildings at $(0,0)$, $(0,4)$, $(2,2)$, and a point $(1,2)$ is an ideal empty land to build a house. The travel distance of $3+3+1=7$ is minimal. So return 7.

Note:

There will be at least one building. If it is not possible to build such house according to the above rules, return -1.

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[317-Shortest-Distance-from-All-Buildings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

318. Maximum Product of Word Lengths

Given a string array `words`, find the maximum value of `length(word[i]) * length(word[j])` where the two words do not share common letters. You may assume that each word will contain only lower case letters. If no such two words exist, return 0.

Example 1:

Input: ["abcw", "baz", "foo", "bar", "xtfn", "abcdef"]

Output: 16

Explanation: The two words can be "abcw", "xtfn".

Example 2:

Input: ["a", "ab", "abc", "d", "cd", "bcd", "abcd"]

Output: 4

Explanation: The two words can be "ab", "cd".

Example 3:

Input: ["a", "aa", "aaa", "aaaa"]

Output: 0

Explanation: No such pair of words.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[318-Maximum-Product-of-Word-Lengths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

319. Bulb Switcher

There are n bulbs that are initially off. You first turn on all the bulbs. Then, you turn off every second bulb. On the third round, you toggle every third bulb (turning on if it's off or turning off if it's on). For the i -th round, you toggle every i bulb. For the n -th round, you only toggle the last bulb. Find how many bulbs are on after n rounds.

Example:

Input: 3

Output: 1

Explanation:

At first, the three bulbs are [off, off, off].

After first round, the three bulbs are [on, on, on].

After second round, the three bulbs are [on, off, on].

After third round, the three bulbs are [on, off, off].

So you should return 1, because there is only one bulb is on.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[319-Bulb-Switcher](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

320. Generalized Abbreviation

Write a function to generate the generalized abbreviations of a word.

Note: The order of the output does not matter.

Example:

Input: "word"

Output:

["word", "1ord", "w1rd", "wo1d", "wor1", "2rd", "w2d", "wo2", "1o1d"]

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[320-Generalized-Abbreviation](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

321. Create Maximum Number

Given two arrays of length m and n with digits 0-9 representing two numbers. Create the maximum number of length $k \leq m + n$ from digits of the two. The

relative order of the digits from the same array must be preserved. Return an array of the k digits.

Note: You should try to optimize your time and space complexity.

Example 1:

Input:
nums1 = [3, 4, 6, 5]
nums2 = [9, 1, 2, 5, 8, 3]
k = 5
Output:
[9, 8, 6, 5, 3]

Example 2:

Input:
nums1 = [6, 7]
nums2 = [6, 0, 4]
k = 5
Output:
[6, 7, 6, 0, 4]

Example 3:

Input:
nums1 = [3, 9]
nums2 = [8, 9]
k = 3
Output:
[9, 8, 9]

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[321-Create-Maximum-Number](#)

All Problems:

[Link to All Problems](#)

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322. Coin Change

You are given coins of different denominations and a total amount of money *amount* . Write a function to compute the fewest number of coins that you need to make up that amount. If that amount of money cannot be made up by any combination of the coins, return -1 .

Example 1:

Input: coins = [1, 2, 5], amount = 11
Output: 3
Explanation: 11 = 5 + 5 + 1

Example 2:

Input: coins = [2], amount = 3
Output: -1

Note :

You may assume that you have an infinite number of each kind of coin.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[322-Coin-Change](#)

All Problems:

[Link to All Problems](#)

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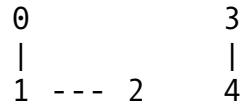
323. Number of Connected Components in an Undirected Graph

Given n nodes labeled from 0 to $n - 1$ and a list of undirected edges (each edge is a pair of nodes), write a

function to find the number of connected components in an undirected graph.

Example 1:

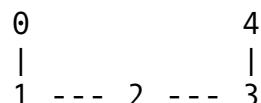
Input: $n = 5$ and edges = $[[0, 1], [1, 2], [3, 4]]$



Output: 2

Example 2:

Input: $n = 5$ and edges = $[[0, 1], [1, 2], [2, 3], [3, 4]]$



Output: 1

Note:

You can assume that no duplicate edges will appear in edges . Since all edges are undirected, $[0, 1]$ is the same as $[1, 0]$ and thus will not appear together in edges .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[323-Number-of-Connected-Components-in-an-Undirected-Graph](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

324. Wiggle Sort II

Given an unsorted array `nums` , reorder it such that
`nums[0] < nums[1] > nums[2] < nums[3] . . .`.

Example 1:

Input: `nums = [1, 5, 1, 1, 6, 4]`
Output: One possible answer is `[1, 4, 1, 5, 1, 6]`.

Example 2:

Input: `nums = [1, 3, 2, 2, 3, 1]`
Output: One possible answer is `[2, 3, 1, 3, 1, 2]`.

Note:

You may assume all input has valid answer.

Follow Up:

Can you do it in $O(n)$ time and/or in-place with $O(1)$ extra space?

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[324-Wiggle-Sort-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

325. Maximum Size Subarray Sum Equals k

Given an array *nums* and a target value *k* , find the maximum length of a subarray that sums to *k* . If there isn't one, return 0 instead.

Note:

The sum of the entire *nums* array is guaranteed to fit within the 32-bit signed integer range.

Example 1:

Input: nums = [1, -1, 5, -2, 3], k = 3
Output: 4
Explanation: The subarray [1, -1, 5, -2] sums to 3 and is the longest.

Example 2:

Input: nums = [-2, -1, 2, 1], k = 1
Output: 2
Explanation: The subarray [-1, 2] sums to 1 and is the longest.

Follow Up:

Can you do it in $O(n)$ time?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[325-Maximum-Size-Subarray-Sum-Equals-k](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

326. Power of Three

Given an integer, write a function to determine if it is a power of three.

Example 1:

Input: 27
Output: true

Example 2:

Input: 0
Output: false

Example 3:

Input: 9
Output: true

Example 4:

Input: 45
Output: false

Follow up:

Could you do it without using any loop / recursion?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[326-Power-of-Three](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

327. Count of Range Sum

Given an integer array `nums` , return the number of range sums that lie in `[lower, upper]` inclusive.

Range sum $S(i, j)$ is defined as the sum of the elements in `nums` between indices i and j ($i \leq j$), inclusive.

Note:

A naive algorithm of $O(n^2)$ is trivial. You MUST do better than that.

Example:

Input: `nums = [-2,5,-1]`, `lower = -2`, `upper = 2`,
Output: 3

Explanation: The three ranges are : `[0,0]`, `[2,2]`, `[0,2]` and thei

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[327-Count-of-Range-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

328. Odd Even Linked List

Given a singly linked list, group all odd nodes together followed by the even nodes. Please note here we are talking about the node number and not the value in the nodes.

You should try to do it in place. The program should run in O(1) space complexity and O(nodes) time complexity.

Example 1:

Input: 1->2->3->4->5->NULL
Output: 1->3->5->2->4->NULL

Example 2:

Input: 2->1->3->5->6->4->7->NULL
Output: 2->3->6->7->1->5->4->NULL

Note:

- The relative order inside both the even and odd groups should remain as it was in the input.
- The first node is considered odd, the second node even and so on ...

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[328-Odd-Even-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

329. Longest Increasing Path in a Matrix

Given an integer matrix, find the length of the longest increasing path.

From each cell, you can either move to four directions: left, right, up or down. You may NOT move diagonally or move outside of the boundary (i.e. wrap-around is not allowed).

Example 1:

```
Input: nums =  
[  
    [9,9,4],  
    [6,6,8],  
    [2,1,1]  
]  
Output: 4  
Explanation: The longest increasing path is [1, 2, 6, 9].
```

Example 2:

```
Input: nums =  
[  
    [3,4,5],  
    [3,2,6],  
    [2,2,1]  
]  
Output: 4  
Explanation: The longest increasing path is [3, 4, 5, 6]. Moving
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[329-Longest-Increasing-Path-in-a-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

330. Patching Array

Given a sorted positive integer array *nums* and an integer *n* , add/patch elements to the array such that any number in range [1, *n*] inclusive can be formed by the sum of some elements in the array. Return the minimum number of patches required.

Example 1:

Input: *nums* = [1,3] , *n* = 6

Output: 1

Explanation:

Combinations of *nums* are [1], [3], [1,3], which form possible sums. Now if we add/patch 2 to *nums*, the combinations are: [1], [2], [3], [1,2], [1,3], [2,3], [1,2,3]. Possible sums are 1, 2, 3, 4, 5, 6, which now covers the range [1, 6]. So we only need 1 patch.

Example 2:

Input: *nums* = [1,5,10] , *n* = 20

Output: 2

Explanation: The two patches can be [2, 4].

Example 3:

Input: nums = [1,2,2], n = 5
Output: 0

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[330-Patching-Array](#)

All Problems:

[Link to All Problems](#)

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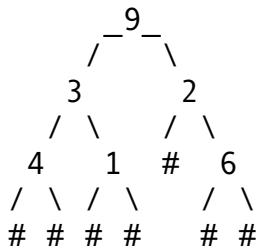
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Welcome to Subscribe On Youtube:

331. Verify Preorder Serialization of a Binary Tree

One way to serialize a binary tree is to use pre-order traversal. When we encounter a non-null node, we record the node's value. If it is a null node, we record using a sentinel value such as # .



For example, the above binary tree can be serialized to the string "9,3,4,#,#,1,#,#,2,#,6,#,#" , where # represents a null node.

Given a string of comma separated values, verify whether it is a correct preorder traversal serialization of a binary tree. Find an algorithm without reconstructing the tree.

Each comma separated value in the string must be either an integer or a character '#' representing null pointer.

You may assume that the input format is always valid, for example it could never contain two consecutive commas such as "1,,3" .

Example 1:

Input: "9,3,4,#,#,1,#,#,2,#,6,#,#"
Output: true

Example 2:

Input: "1,#"
Output: false

Example 3:

Input: "9,#,#,1"
Output: false

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[331-Verify-Preorder-Serialization-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

332. Reconstruct Itinerary

Given a list of airline tickets represented by pairs of departure and arrival airports [from, to] , reconstruct the itinerary in order. All of the tickets belong to a man

who departs from JFK . Thus, the itinerary must begin with JFK .

Note:

1. If there are multiple valid itineraries, you should return the itinerary that has the smallest lexical order when read as a single string. For example, the itinerary ["JFK", "LGA"] has a smaller lexical order than ["JFK", "LGB"] .
2. All airports are represented by three capital letters (IATA code).
3. You may assume all tickets form at least one valid itinerary.

Example 1:

Input: [["MUC", "LHR"], ["JFK", "MUC"], ["SFO", "SJC"], ["LHR",
Output: ["JFK", "MUC", "LHR", "SFO", "SJC"]

Example 2:

Input: [["JFK", "SFO"], ["JFK", "ATL"], ["SFO", "ATL"], ["ATL", "JFK"],
Output: ["JFK", "ATL", "JFK", "SFO", "ATL", "SFO"]
Explanation: Another possible reconstruction is ["JFK", "SFO", "ATL"].
But it is larger in lexical order.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[332-Reconstruct-Itinerary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

333. Largest BST Subtree

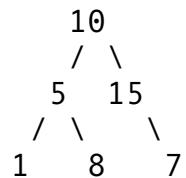
Given a binary tree, find the largest subtree which is a Binary Search Tree (BST), where largest means subtree with largest number of nodes in it.

Note:

A subtree must include all of its descendants.

Example:

Input: [10,5,15,1,8,null,7]



Output: 3

Explanation: The Largest BST Subtree in this case is the highlighted subtree. The return value is the subtree's size, which is 3.

Follow up:

Can you figure out ways to solve it with O(n) time complexity?

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[333-Largest-BST-Subtree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

334. Increasing Triplet Subsequence

Given an unsorted array return whether an increasing subsequence of length 3 exists or not in the array.

Formally the function should:

Return true if there exists i, j, k
such that $arr[i] < arr[j] < arr[k]$ given $0 \leq i < j < k \leq n - 1$ else return false.

Note: Your algorithm should run in $O(n)$ time complexity and $O(1)$ space complexity.

Example 1:

Input: [1, 2, 3, 4, 5]
Output: true

Example 2:

Input: [5, 4, 3, 2, 1]
Output: false

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[334-Increasing-Triplet-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

335. Self Crossing

You are given an array x of n positive numbers. You start at point $(0, 0)$ and moves $x[0]$ metres to the north, then $x[1]$ metres to the west, $x[2]$ metres to the south, $x[3]$ metres to the east and so on. In other words, after each move your direction changes counter-clockwise.

Write a one-pass algorithm with $O(1)$ extra space to determine, if your path crosses itself, or not.

Example 1:

```
â  â  â  â  â  
â      â  
â  â  â  â  â %â  â  >  
â
```

Input: [2, 1, 1, 2]
Output: true

Example 2:

```
â  â  â  â  â  â  â  â  
â          â  
â  
â  
â  â  â  â  â  â  â  â  â  â  â  >
```

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

Example 3:

```
â  â  â  â  â  
â      â  
â  â  â  â  â %>
```

Input: [1, 1, 1, 1]
Output: true

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[335-Self-Crossing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

336. Palindrome Pairs

Given a list of **unique** words, find all pairs of **distinct** indices (*i*, *j*) in the given list, so that the concatenation of the two words, i.e. `words[i] + words[j]` is a palindrome.

Example 1:

Input: ["abcd", "dcba", "lls", "s", "sssll"]
Output: [[0,1], [1,0], [3,2], [2,4]]
Explanation: The palindromes are ["dcbaabcd", "abcddcba", "slls", "ssssll"]

Example 2:

Input: ["bat", "tab", "cat"]
Output: [[0,1], [1,0]]
Explanation: The palindromes are ["battab", "tabbat"]

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

337. House Robber III

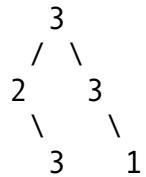
The thief has found himself a new place for his thievery again. There is only one entrance to this area, called the

"root." Besides the root, each house has one and only one parent house. After a tour, the smart thief realized that "all houses in this place forms a binary tree". It will automatically contact the police if two directly-linked houses were broken into on the same night.

Determine the maximum amount of money the thief can rob tonight without alerting the police.

Example 1:

Input: [3, 2, 3, null, 3, null, 1]

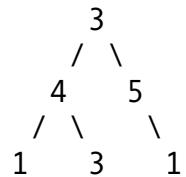


Output: 7

Explanation: Maximum amount of money the thief can rob = 3 + 3 + 1 = 7

Example 2:

Input: [3, 4, 5, 1, 3, null, 1]



Output: 9

Explanation: Maximum amount of money the thief can rob = 4 + 5 = 9

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[337-House-Robber-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

338. Counting Bits

Given a non negative integer number **num** . For every numbers **i** in the range $0 \leq i \leq \text{num}$ calculate the number of 1's in their binary representation and return them as an array.

Example 1:

Input: 2
Output: [0,1,1]

Example 2:

Input: 5
Output: [0,1,1,2,1,2]

Follow up:

- It is very easy to come up with a solution with run time **O(n*sizeof(integer))** . But can you do it in linear time **O(n)** /possibly in a single pass?

- Space complexity should be **O(n)** .
- Can you do it like a boss? Do it without using any builtin function like `__builtin_popcount` in c++ or in any other language.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[338-Counting-Bits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

339. Nested List Weight Sum

Given a nested list of integers, return the sum of all integers in the list weighted by their depth.

Each element is either an integer, or a list -- whose elements may also be integers or other lists.

Example 1:

Input: [[1,1],2,[1,1]]

Output: 10

Explanation: Four 1's at depth 2, one 2 at depth 1.

Example 2:

Input: [1,[4,[6]]]

Output: 27

Explanation: One 1 at depth 1, one 4 at depth 2, and one 6 at depth 3.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[339-Nested-List-Weight-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

340. Longest Substring with At Most K Distinct Characters

Given a string, find the length of the longest substring T that contains at most k distinct characters.

Example 1:

Input: s = "eceba", k = 2

Output: 3

Explanation: T is "ece" which its length is 3.

Example 2:

Input: s = "aa", k = 1

Output: 2

Explanation: T is "aa" which its length is 2.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[340-Longest-Substring-with-At-Most-K-Distinct-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

341. Flatten Nested List Iterator

Given a nested list of integers, implement an iterator to flatten it.

Each element is either an integer, or a list -- whose elements may also be integers or other lists.

Example 1:

Input: [[1,1],2,[1,1]]

Output: [1,1,2,1,1]

Explanation: By calling next repeatedly until hasNext returns false, the order of elements returned by next should be: [1,1,2,1,1]

Example 2:

Input: [1,[4,[6]]]

Output: [1,4,6]

Explanation: By calling next repeatedly until hasNext returns false, the order of elements returned by next should be: [

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[341-Flatten-Nested-List-Iterator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

342. Power of Four

Given an integer (signed 32 bits), write a function to check whether it is a power of 4.

Example 1:

Input: 16
Output: true

Example 2:

Input: 5
Output: false

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[342-Power-of-Four](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

343. Integer Break

Given a positive integer n , break it into the sum of **at least** two positive integers and maximize the product of those integers. Return the maximum product you can get.

Example 1:

Input: 2
Output: 1
Explanation: $2 = 1 + 1$, $1 \times 1 = 1$.

Example 2:

Input: 10
Output: 36
Explanation: $10 = 3 + 3 + 4$, $3 \times 3 \times 4 = 36$.

Note : You may assume that n is not less than 2 and not larger than 58.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

344. Reverse String

Write a function that reverses a string. The input string is given as an array of characters `char[]` .

Do not allocate extra space for another array, you must do this by **modifying the input array in-place** with O(1) extra memory.

You may assume all the characters consist of [printable ascii characters](#) .

Example 1:

Input: `["h", "e", "l", "l", "o"]`
Output: `["o", "l", "l", "e", "h"]`

Example 2:

Input: `["H", "a", "n", "n", "a", "h"]`
Output: `["h", "a", "n", "n", "a", "H"]`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[344-Reverse-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

345. Reverse Vowels of a String

Write a function that takes a string as input and reverse only the vowels of a string.

Example 1:

Input: "hello"
Output: "holle"

Example 2:

Input: "leetcode"
Output: "leotcede"

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[345-Reverse-Vowels-of-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

346. Moving Average from Data Stream

Given a stream of integers and a window size, calculate the moving average of all integers in the sliding window.

Example:

```
MovingAverage m = new MovingAverage(3);
m.next(1) = 1
m.next(10) = (1 + 10) / 2
m.next(3) = (1 + 10 + 3) / 3
m.next(5) = (10 + 3 + 5) / 3
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[346-Moving-Average-from-Data-Stream](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

347. Top K Frequent Elements

Given a non-empty array of integers, return the **k** most frequent elements.

Example 1:

Input: nums = [1,1,1,2,2,3], k = 2
Output: [1,2]

Example 2:

Input: nums = [1], k = 1
Output: [1]

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[347-Top-K-Frequent-Elements](#)**All Problems:**[Link to All Problems](#)

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348. Design Tic-Tac-Toe

Design a Tic-tac-toe game that is played between two players on a $n \times n$ grid.

You may assume the following rules:

1. A move is guaranteed to be valid and is placed on an empty block.
2. Once a winning condition is reached, no more moves is allowed.
3. A player who succeeds in placing n of their marks in a horizontal, vertical, or diagonal row wins the game.

Example:

Given $n = 3$, assume that player 1 is "X" and player 2 is "O" in

```
TicTacToe toe = new TicTacToe(3);
```

```
toe.move(0, 0, 1); -> Returns 0 (no one wins)
|X| | |
| | | // Player 1 makes a move at (0, 0).
| | |
```

```
toe.move(0, 2, 2); -> Returns 0 (no one wins)
|X| |O|
| | | // Player 2 makes a move at (0, 2).
| | |
```

```
toe.move(2, 2, 1); -> Returns 0 (no one wins)
|X| |O|
| | | // Player 1 makes a move at (2, 2).
| | |X|
```

```
toe.move(1, 1, 2); -> Returns 0 (no one wins)
|X| |O|
| |O| // Player 2 makes a move at (1, 1).
| | |X|
```

```
toe.move(2, 0, 1); -> Returns 0 (no one wins)
|X| |O|
| |O| // Player 1 makes a move at (2, 0).
|X| |X|
```

```
toe.move(1, 0, 2); -> Returns 0 (no one wins)
|X| |O|
|O|O| // Player 2 makes a move at (1, 0).
|X| |X|
```

```
toe.move(2, 1, 1); -> Returns 1 (player 1 wins)
|X| |0|
|0|0| |    // Player 1 makes a move at (2, 1).
|X|X|X|
```

Follow up:

Could you do better than $O(n^2)$ per move() operation?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[348-Design-Tic-Tac-Toe](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

349. Intersection of Two Arrays

Given two arrays, write a function to compute their intersection.

Example 1:

Input: `nums1 = [1,2,2,1]`, `nums2 = [2,2]`
Output: `[2]`

Example 2:

Input: `nums1 = [4,9,5]`, `nums2 = [9,4,9,8,4]`
Output: `[9,4]`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[349-Intersection-of-Two-Arrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

350. Intersection of Two Arrays II

Given two arrays, write a function to compute their intersection.

Example 1:

Input: `nums1 = [1,2,2,1]`, `nums2 = [2,2]`
Output: `[2,2]`

Example 2:

Input: `nums1 = [4,9,5]`, `nums2 = [9,4,9,8,4]`
Output: `[4,9]`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[350-Intersection-of-Two-Arrays-II](#)

All Problems:

[Link to All Problems](#)

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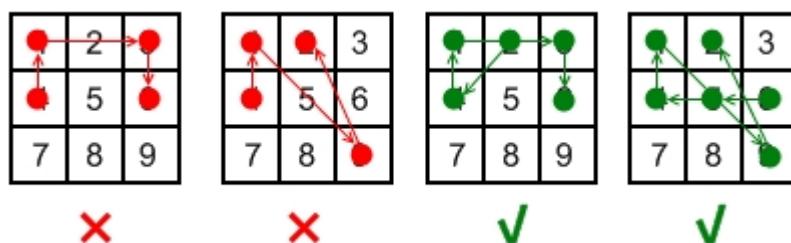
Welcome to Subscribe On Youtube:

351. Android Unlock Patterns

Given an Android 3×3 key lock screen and two integers m and n , where $1 \leq m \leq n \leq 9$, count the total number of unlock patterns of the Android lock screen, which consist of minimum of m keys and maximum n keys.

Rules for a valid pattern:

1. Each pattern must connect at least m keys and at most n keys.
2. All the keys must be distinct.
3. If the line connecting two consecutive keys in the pattern passes through any other keys, the other keys must have previously selected in the pattern.
No jumps through non selected key is allowed.
4. The order of keys used matters.



Explanation:

	1		2		3	
	4		5		6	
	7		8		9	

Invalid move: 4 - 1 - 3 - 6

Line 1 - 3 passes through key 2 which had not been selected in the pattern.

Invalid move: 4 - 1 - 9 - 2

Line 1 - 9 passes through key 5 which had not been selected in the pattern.

Valid move: 2 - 4 - 1 - 3 - 6

Line 1 - 3 is valid because it passes through key 2, which had been selected in the pattern

Valid move: 6 - 5 - 4 - 1 - 9 - 2

Line 1 - 9 is valid because it passes through key 5, which had been selected in the pattern.

Example:

Input: $m = 1$, $n = 1$
Output: 9

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[351-Android-Unlock-Patterns](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

352. Data Stream as Disjoint Intervals

Given a data stream input of non-negative integers $a_1, a_2, \dots, a_n, \dots$, summarize the numbers seen so far as a list of disjoint intervals.

For example, suppose the integers from the data stream are 1, 3, 7, 2, 6, ..., then the summary will be:

```
[1, 1]
[1, 1], [3, 3]
[1, 1], [3, 3], [7, 7]
[1, 3], [7, 7]
[1, 3], [6, 7]
```

Follow up:

What if there are lots of merges and the number of disjoint intervals are small compared to the data stream's size?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[352-Data-Stream-as-Disjoint-Intervals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

353. Design Snake Game

Design a [Snake game](#) that is played on a device with screen size = $width \times height$. [Play the game online](#) if you are not familiar with the game.

The snake is initially positioned at the top left corner (0,0) with length = 1 unit.

You are given a list of food's positions in row-column order. When a snake eats the food, its length and the game's score both increase by 1.

Each food appears one by one on the screen. For example, the second food will not appear until the first food was eaten by the snake.

When a food does appear on the screen, it is guaranteed that it will not appear on a block occupied by the snake.

Example:

Given width = 3, height = 2, and food = [[1,2], [0,1]].

Snake snake = new Snake(width, height, food);

Initially the snake appears at position (0,0) and the food at (1,0).

```
|S| | |  
| | |F|
```

snake.move("R"); -> Returns 0

```
| |S| |  
| | |F|
```

snake.move("D"); -> Returns 0

```
| | | |  
| |S|F|
```

snake.move("R"); -> Returns 1 (Snake eats the first food and right)

```
| |F| |  
| |S|S|
```

snake.move("U"); -> Returns 1

```
| |F|S|  
| | |S|
```

snake.move("L"); -> Returns 2 (Snake eats the second food)

```
| |S|S|  
| | |S|
```

snake.move("U"); -> Returns -1 (Game over because snake collides with itself)

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[353-Design-Snake-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

354. Russian Doll Envelopes

You have a number of envelopes with widths and heights given as a pair of integers (w, h) . One envelope can fit into another if and only if both the width and height of

one envelope is greater than the width and height of the other envelope.

What is the maximum number of envelopes can you Russian doll? (put one inside other)

Note:

Rotation is not allowed.

Example:

Input: [[5,4],[6,4],[6,7],[2,3]]

Output: 3

Explanation: The maximum number of envelopes you can Russian dol

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[354-Russian-Doll-Envelopes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

355. Design Twitter

Design a simplified version of Twitter where users can post tweets, follow/unfollow another user and is able to see the 10 most recent tweets in the user's news feed.

Your design should support the following methods:

1. **postTweet(userId, tweetId)** : Compose a new tweet.
2. **getNewsFeed(userId)** : Retrieve the 10 most recent tweet ids in the user's news feed. Each item in the news feed must be posted by users who the user followed or by the user herself. Tweets must be ordered from most recent to least recent.
3. **follow(followerId, followeeId)** : Follower follows a followee.
4. **unfollow(followerId, followeeId)** : Follower unfollows a followee.

Example:

```
Twitter twitter = new Twitter();

// User 1 posts a new tweet (id = 5).
twitter.postTweet(1, 5);

// User 1's news feed should return a list with 1 tweet id -> [5]
twitter.getNewsFeed(1);

// User 1 follows user 2.
twitter.follow(1, 2);

// User 2 posts a new tweet (id = 6).
twitter.postTweet(2, 6);

// User 1's news feed should return a list with 2 tweet ids -> [6, 5]
// Tweet id 6 should precede tweet id 5 because it is posted after.
twitter.getNewsFeed(1);

// User 1 unfollows user 2.
twitter.unfollow(1, 2);

// User 1's news feed should return a list with 1 tweet id -> [5]
// since user 1 is no longer following user 2.
twitter.getNewsFeed(1);
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[355-Design-Twitter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

356. Line Reflection

Given n points on a 2D plane, find if there is such a line parallel to y-axis that reflect the given points.

Example 1:

Input: [[1,1], [-1,1]]
Output: true

Example 2:

Input: [[1,1],[-1,-1]]
Output: false

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[356-Line-Reflection](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

357. Count Numbers with Unique Digits

Given a **non-negative** integer n , count all numbers with unique digits, x , where $0 \leq x < 10^n$.

Example:

Input: 2

Output: 91

Explanation: The answer should be the total numbers in the range excluding 11,22,33,44,55,66,77,88,99

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[357-Count-Numbers-with-Unique-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

358. Rearrange String k Distance Apart

Given a non-empty string **s** and an integer **k** , rearrange the string such that the same characters are at least distance **k** from each other.

All input strings are given in lowercase letters. If it is not possible to rearrange the string, return an empty string " " .

Example 1:

Input: s = "aabbcc" , k = 3

Output: "abcabc"

Explanation: The same letters are at least distance 3 from each other.

Example 2:

Input: s = "aaabc" , k = 3

Output: ""

Explanation: It is not possible to rearrange the string.

Example 3:

Input: s = "aaadbbcc" , k = 2

Output: "abacabcd"

Explanation: The same letters are at least distance 2 from each other.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[358-Rearrange-String-k-Distance-Apart](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

359. Logger Rate Limiter

Design a logger system that receive stream of messages along with its timestamps, each message should be printed if and only if it is **not printed in the last 10 seconds**.

Given a message and a timestamp (in seconds granularity), return true if the message should be printed in the given timestamp, otherwise returns false.

It is possible that several messages arrive roughly at the same time.

Example:

```
Logger logger = new Logger();

// logging string "foo" at timestamp 1
logger.shouldPrintMessage(1, "foo"); returns true;

// logging string "bar" at timestamp 2
```

```
logger.shouldPrintMessage(2,"bar"); returns true;  
// logging string "foo" at timestamp 3  
logger.shouldPrintMessage(3,"foo"); returns false;  
// logging string "bar" at timestamp 8  
logger.shouldPrintMessage(8,"bar"); returns false;  
// logging string "foo" at timestamp 10  
logger.shouldPrintMessage(10,"foo"); returns false;  
// logging string "foo" at timestamp 11  
logger.shouldPrintMessage(11,"foo"); returns true;
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[359-Logger-Rate-Limiter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

360. Sort Transformed Array

Given a **sorted** array of integers $nums$ and integer values a , b and c . Apply a quadratic function of the form $f(x) = ax^2 + bx + c$ to each element x in the array.

The returned array must be in **sorted order**.

Expected time complexity: **O(n)**

Example 1:

Input: $nums = [-4, -2, 2, 4]$, $a = 1$, $b = 3$, $c = 5$
Output: $[3, 9, 15, 33]$

Example 2:

Input: $nums = [-4, -2, 2, 4]$, $a = -1$, $b = 3$, $c = 5$
Output: $[-23, -5, 1, 7]$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[360-Sort-Transformed-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

361. Bomb Enemy

Given a 2D grid, each cell is either a wall 'W' , an enemy 'E' or empty '0' (the number zero), return the maximum enemies you can kill using one bomb.

The bomb kills all the enemies in the same row and column from the planted point until it hits the wall since the wall is too strong to be destroyed.

Note: You can only put the bomb at an empty cell.

Example:

Input: [["0" , "E" , "0" , "0"] , ["E" , "0" , "W" , "E"] , ["0" , "E" , "0" , "0"]]
Output: 3
Explanation: For the given grid,

```
0 E 0 0
E 0 W E
0 E 0 0
```

Placing a bomb at (1,1) kills 3 enemies.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[**361-Bomb-Enemy**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

362. Design Hit Counter

Design a hit counter which counts the number of hits received in the past 5 minutes.

Each function accepts a timestamp parameter (in seconds granularity) and you may assume that calls are being made to the system in chronological order (ie, the timestamp is monotonically increasing). You may assume that the earliest timestamp starts at 1.

It is possible that several hits arrive roughly at the same time.

Example:

```
HitCounter counter = new HitCounter();
```

```
// hit at timestamp 1.  
counter.hit(1);  
  
// hit at timestamp 2.  
counter.hit(2);  
  
// hit at timestamp 3.  
counter.hit(3);  
  
// get hits at timestamp 4, should return 3.  
counter.getHits(4);  
  
// hit at timestamp 300.  
counter.hit(300);  
  
// get hits at timestamp 300, should return 4.  
counter.getHits(300);  
  
// get hits at timestamp 301, should return 3.  
counter.getHits(301);
```

Follow up:

What if the number of hits per second could be very large? Does your design scale?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[362-Design-Hit-Counter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

363. Max Sum of Rectangle No Larger Than K

Given a non-empty 2D matrix *matrix* and an integer *k* , find the max sum of a rectangle in the *matrix* such that its sum is no larger than *k* .

Example:

Input: matrix = [[1,0,1],[0,-2,3]], k = 2
Output: 2

Explanation: Because the sum of rectangle [[0, 1], [-2, 3]] is 2 and 2 is the max number no larger than k (k = 2).

Note:

1. The rectangle inside the matrix must have an area > 0.
2. What if the number of rows is much larger than the number of columns?

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[363-Max-Sum-of-Rectangle-No-Larger-Than-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

364. Nested List Weight Sum II

Given a nested list of integers, return the sum of all integers in the list weighted by their depth.

Each element is either an integer, or a list -- whose elements may also be integers or other lists.

Different from the [previous question](#) where weight is increasing from root to leaf, now the weight is defined from bottom up. i.e., the leaf level integers have weight 1, and the root level integers have the largest weight.

Example 1:

Input: [[1,1],2,[1,1]]
Output: 8
Explanation: Four 1's at depth 1, one 2 at depth 2.

Example 2:

Input: [1,[4,[6]]]
Output: 17
Explanation: One 1 at depth 3, one 4 at depth 2, and one 6 at de

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[364-Nested-List-Weight-Sum-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

365. Water and Jug Problem

You are given two jugs with capacities x and y litres. There is an infinite amount of water supply available. You need to determine whether it is possible to measure exactly z litres using these two jugs.

If z liters of water is measurable, you must have z liters of water contained within **one or both buckets** by the end.

Operations allowed:

- Fill any of the jugs completely with water.
- Empty any of the jugs.
- Pour water from one jug into another till the other jug is completely full or the first jug itself is empty.

Example 1: (From the famous "[Die Hard](#)" example)

Input: $x = 3$, $y = 5$, $z = 4$
Output: True

Example 2:

Input: $x = 2$, $y = 6$, $z = 5$
Output: False

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[365-Water-and-Jug-Problem](#)

All Problems:

[Link to All Problems](#)

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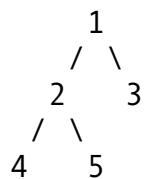
Welcome to Subscribe On Youtube:

366. Find Leaves of Binary Tree

Given a binary tree, collect a tree's nodes as if you were doing this: Collect and remove all leaves, repeat until the tree is empty.

Example:

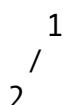
Input: [1, 2, 3, 4, 5]



Output: [[4, 5, 3], [2], [1]]

Explanation:

1. Removing the leaves [4, 5, 3] would result in this tree:



2. Now removing the leaf [2] would result in this tree:

1

3. Now removing the leaf [1] would result in the empty tree:

[]

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[366-Find-Leaves-of-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

367. Valid Perfect Square

Given a positive integer num , write a function which returns True if num is a perfect square else False.

Note: Do not use any built-in library function such as `sqrt`.

Example 1:

Input: 16
Output: true

Example 2:

Input: 14
Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[367-Valid-Perfect-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

368. Largest Divisible Subset

Given a set of **distinct** positive integers, find the largest subset such that every pair (S_i, S_j) of elements in this subset satisfies:

$$S_i \% S_j = 0 \text{ or } S_j \% S_i = 0.$$

If there are multiple solutions, return any subset is fine.

Example 1:

Input: [1, 2, 3]

Output: [1, 2] (of course, [1, 3] will also be ok)

Example 2:

Input: [1, 2, 4, 8]

Output: [1, 2, 4, 8]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[368-Largest-Divisible-Subset](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

369. Plus One Linked List

Given a non-negative integer represented as **non-empty** a singly linked list of digits, plus one to the integer.

You may assume the integer do not contain any leading zero, except the number 0 itself.

The digits are stored such that the most significant digit is at the head of the list.

Example :

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

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[369-Plus-One-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

370. Range Addition

Assume you have an array of length ***n*** initialized with all **0**'s and are given ***k*** update operations.

Each operation is represented as a triplet: **[startIndex, endIndex, inc]** which increments each element of subarray **A[startIndex ... endIndex]** (startIndex and endIndex inclusive) with **inc**.

Return the modified array after all ***k*** operations were executed.

Example:

Input: length = 5, updates = [[1,3,2],[2,4,3],[0,2,-2]]
Output: [-2,0,3,5,3]

Explanation:

Initial state:
[0,0,0,0,0]

After applying operation [1,3,2]:
[0,2,2,2,0]

After applying operation [2,4,3]:
[0,2,5,5,3]

After applying operation [0,2,-2]:
[-2,0,3,5,3]

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[370-Range-Addition](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

371. Sum of Two Integers

Calculate the sum of two integers a and b , but you are **not allowed** to use the operator + and - .

Example 1:

Input: $a = 1$, $b = 2$
Output: 3

Example 2:

Input: $a = -2$, $b = 3$
Output: 1

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[371-Sum-of-Two-Integers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

372. Super Pow

Your task is to calculate $a^b \text{ mod } 1337$ where a is a positive integer and b is an extremely large positive integer given in the form of an array.

Example 1:

Input: a = 2, b = [3]
Output: 8

Example 2:

Input: a = 2, b = [1, 0]
Output: 1024

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

373. Find K Pairs with Smallest Sums

You are given two integer arrays **nums1** and **nums2** sorted in ascending order and an integer **k**.

Define a pair **(u,v)** which consists of one element from the first array and one element from the second array.

Find the **k** pairs **(u₁,v₁),(u₂,v₂)...(u_k,v_k)** with the smallest sums.

Example 1:

Input: **nums1 = [1,7,11], nums2 = [2,4,6], k = 3**

Output: **[[1,2],[1,4],[1,6]]**

Explanation: The first 3 pairs are returned from the sequence:
[1,2],[1,4],[1,6],[7,2],[7,4],[11,2],[7,6],[11,4],[11,2]

Example 2:

Input: **nums1 = [1,1,2], nums2 = [1,2,3], k = 2**

Output: **[1,1],[1,1]**

Explanation: The first 2 pairs are returned from the sequence:
[1,1],[1,1],[1,2],[2,1],[1,2],[2,2],[1,3],[1,3],[2,3]

Example 3:

Input: nums1 = [1,2], nums2 = [3], k = 3

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

Explanation: All possible pairs are returned from the sequence:

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[373-Find-K-Pairs-with-Smallest-Sums](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

374. Guess Number Higher or Lower

We are playing the Guess Game. The game is as follows:

I pick a number from **1** to **n** . You have to guess which number I picked.

Every time you guess wrong, I'll tell you whether the number is higher or lower.

You call a pre-defined API `guess(int num)` which returns 3 possible results (-1 , 1 , or 0):

```
-1 : My number is lower  
1 : My number is higher  
0 : Congrats! You got it!
```

Example :

Input: n = 10, pick = 6
Output: 6

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**374-Guess-Number-Higher-or-Lower**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

375. Guess Number Higher or Lower II

We are playing the Guess Game. The game is as follows:

I pick a number from **1** to **n**. You have to guess which number I picked.

Every time you guess wrong, I'll tell you whether the number I picked is higher or lower.

However, when you guess a particular number **x**, and you guess wrong, you pay **\$x**. You win the game when you guess the number I picked.

Example:

$n = 10$, I pick 8.

First round: You guess 5, I tell you that it's higher. You pay \$5.
Second round: You guess 7, I tell you that it's higher. You pay \$7.
Third round: You guess 9, I tell you that it's lower. You pay \$9.

Game over. 8 is the number I picked.

You end up paying $\$5 + \$7 + \$9 = \21 .

Given a particular $n \geq 1$, find out how much money you need to have to guarantee a **win**.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[375-Guess-Number-Higher-or-Lower-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

376. Wiggle Subsequence

A sequence of numbers is called a **wiggle sequence** if the differences between successive numbers strictly alternate between positive and negative. The first difference (if one exists) may be either positive or negative. A sequence with fewer than two elements is trivially a wiggle sequence.

For example, [1, 7, 4, 9, 2, 5] is a wiggle sequence because the differences (6, -3, 5, -7, 3) are alternately positive and negative. In contrast, [1, 4, 7, 2, 5] and [1, 7, 4, 5, 5] are not wiggle sequences, the first because its first two differences are positive and the second because its last difference is zero.

Given a sequence of integers, return the length of the longest subsequence that is a wiggle sequence. A subsequence is obtained by deleting some number of elements (eventually, also zero) from the original sequence, leaving the remaining elements in their original order.

Example 1:

Input: [1, 7, 4, 9, 2, 5]

Output: 6

Explanation: The entire sequence is a wiggle sequence.

Example 2:

Input: [1, 17, 5, 10, 13, 15, 10, 5, 16, 8]

Output: 7

Explanation: There are several subsequences that achieve this length. One is [1, 17, 10, 13, 10, 16, 8].

Example 3:

Input: [1, 2, 3, 4, 5, 6, 7, 8, 9]

Output: 2

Follow up:

Can you do it in $O(n)$ time?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[376-Wiggle-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

377. Combination Sum IV

Given an integer array with all positive numbers and no duplicates, find the number of possible combinations that add up to a positive integer target.

Example:

```
nums = [1, 2, 3]
target = 4
```

The possible combination ways are:
(1, 1, 1, 1)
(1, 1, 2)
(1, 2, 1)
(1, 3)
(2, 1, 1)
(2, 2)
(3, 1)

Note that different sequences are counted as different combinations.

Therefore the output is 7.

Follow up:

What if negative numbers are allowed in the given array?

How does it change the problem?

What limitation we need to add to the question to allow negative numbers?

Credits:

Special thanks to [@pbrother](#) for adding this problem and creating all test cases.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[377-Combination-Sum-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

378. Kth Smallest Element in a Sorted Matrix

Given a $n \times n$ matrix where each of the rows and columns are sorted in ascending order, find the k th smallest element in the matrix.

Note that it is the k th smallest element in the sorted order, not the k th distinct element.

Example:

```
matrix = [
    [1, 5, 9],
    [10, 11, 13],
    [12, 13, 15]
],
k = 8,
return 13.
```

Note:

You may assume k is always valid, $1 \leq k \leq n^2$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[378-Kth-Smallest-Element-in-a-Sorted-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

379. Design Phone Directory

Design a Phone Directory which supports the following operations:

1. `get` : Provide a number which is not assigned to anyone.
2. `check` : Check if a number is available or not.
3. `release` : Recycle or release a number.

Example:

```
// Init a phone directory containing a total of 3 numbers: 0, 1, 2.  
PhoneDirectory directory = new PhoneDirectory(3);  
  
// It can return any available phone number. Here we assume it returns 1.  
directory.get();  
  
// Assume it returns 1.  
directory.get();  
  
// The number 2 is available, so return true.  
directory.check(2);  
  
// It returns 2, the only number that is left.  
directory.get();  
  
// The number 2 is no longer available, so return false.  
directory.check(2);
```

```
// Release number 2 back to the pool.  
directory.release(2);  
  
// Number 2 is available again, return true.  
directory.check(2);
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[379-Design-Phone-Directory](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

380. Insert Delete GetRandom O(1)

Design a data structure that supports all following operations in *average O(1)* time.

1. `insert(val)` : Inserts an item `val` to the set if not already present.
2. `remove(val)` : Removes an item `val` from the set if present.
3. `getRandom` : Returns a random element from current set of elements. Each element must have the **same probability** of being returned.

Example:

```
// Init an empty set.  
RandomizedSet randomizedSet = new RandomizedSet();  
  
// Inserts 1 to the set. Returns true as 1 was inserted successfully.  
randomizedSet.insert(1);  
  
// Returns false as 2 does not exist in the set.  
randomizedSet.remove(2);  
  
// Inserts 2 to the set, returns true. Set now contains [1,2].  
randomizedSet.insert(2);  
  
// getRandom should return either 1 or 2 randomly.  
randomizedSet.getRandom();  
  
// Removes 1 from the set, returns true. Set now contains [2].  
randomizedSet.remove(1);  
  
// 2 was already in the set, so return false.  
randomizedSet.insert(2);  
  
// Since 2 is the only number in the set, getRandom always returns 2.  
randomizedSet.getRandom();
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[380-Insert-Delete-GetRandom-O1](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

381. Insert Delete GetRandom O(1) - Duplicates allowed

Design a data structure that supports all following operations in *average O(1)* time.

Note: Duplicate elements are allowed.

1. `insert(val)` : Inserts an item val to the collection.

2. `remove(val)` : Removes an item `val` from the collection if present.
3. `getRandom` : Returns a random element from current collection of elements. The probability of each element being returned is **linearly related** to the number of same value the collection contains.

Example:

```
// Init an empty collection.
RandomizedCollection collection = new RandomizedCollection();

// Inserts 1 to the collection. Returns true as the collection did not contain 1.
collection.insert(1);

// Inserts another 1 to the collection. Returns false as the collection contained 1.
collection.insert(1);

// Inserts 2 to the collection, returns true. Collection now contains [1, 2].
collection.insert(2);

// getRandom should return 1 with the probability 2/3, and return 2 with the probability 1/3.
collection.getRandom();

// Removes 1 from the collection, returns true. Collection now contains [2].
collection.remove(1);

// getRandom should return 1 and 2 both equally likely.
collection.getRandom();
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[381-Insert-Delete-GetRandom-O\(1\)-Duplicates-allowed](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

382. Linked List Random Node

Given a singly linked list, return a random node's value from the linked list. Each node must have the **same probability** of being chosen.

Follow up:

What if the linked list is extremely large and its length is unknown to you? Could you solve this efficiently without using extra space?

Example:

```
// Init a singly linked list [1,2,3].  
ListNode head = new ListNode(1);  
head.next = new ListNode(2);  
head.next.next = new ListNode(3);  
Solution solution = new Solution(head);  
  
// getRandom() should return either 1, 2, or 3 randomly. Each el...
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[382-Linked-List-Random-Node](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

383. Ransom Note

Given an arbitrary ransom note string and another string containing letters from all the magazines, write a function that will return true if the ransom note can be constructed from the magazines ; otherwise, it will return false.

Each letter in the magazine string can only be used once in your ransom note.

Note:

You may assume that both strings contain only lowercase letters.

```
canConstruct("a", "b") -> false  
canConstruct("aa", "ab") -> false  
canConstruct("aa", "aab") -> true
```

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[383-Ransom-Note](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

384. Shuffle an Array

Shuffle a set of numbers without duplicates.

Example:

```
// Init an array with set 1, 2, and 3.  
int[] nums = {1,2,3};  
Solution solution = new Solution(nums);  
  
// Shuffle the array [1,2,3] and return its result. Any permutat  
solution.shuffle();  
  
// Resets the array back to its original configuration [1,2,3].  
solution.reset();  
  
// Returns the random shuffling of array [1,2,3].  
solution.shuffle();
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[384-Shuffle-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

385. Mini Parser

Given a nested list of integers represented as a string, implement a parser to deserialize it.

Each element is either an integer, or a list -- whose elements may also be integers or other lists.

Note: You may assume that the string is well-formed:

- String is non-empty.
- String does not contain white spaces.
- String contains only digits 0-9 , [, - , ,] .

Example 1:

Given s = "324",

You should return a NestedInteger object which contains a single

Example 2:

Given s = "[123,[456,[789]]]",

Return a NestedInteger object containing a nested list with 2 el

1. An integer containing value 123.
2. A nested list containing two elements:
 - i. An integer containing value 456.
 - ii. A nested list with one element:
 - a. An integer containing value 789.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**385-Mini-Parser**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

386. Lexicographical Numbers

Given an integer n , return $1 - n$ in lexicographical order.

For example, given 13, return:
[1,10,11,12,13,2,3,4,5,6,7,8,9].

Please optimize your algorithm to use less time and space. The input size may be as large as 5,000,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[386-Lexicographical-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

387. First Unique Character in a String

Given a string, find the first non-repeating character in it and return its index. If it doesn't exist, return -1.

Examples:

```
s = "leetcode"
return 0.
```

```
s = "loveleetcode",
return 2.
```

Note: You may assume the string contain only lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[387-First-Unique-Character-in-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

388. Longest Absolute File Path

Suppose we abstract our file system by a string in the following manner:

The string

"dir\n\tsubdir1\n\tsubdir2\n\t\tfile.ext"

represents:

```
dir
  subdir1
  subdir2
    file.ext
```

The directory `dir` contains an empty sub-directory `subdir1` and a sub-directory `subdir2` containing a file `file.ext`.

The string

"dir\n\tsubdir1\n\t\tfile1.ext\n\t\tsubsubdir1\n\t\tsubdir2\n\t\t\tsubsubdir2\n\t\t\t\tfile2.ext"

represents:

```
dir
  subdir1
    file1.ext
    subsubdir1
  subdir2
    subsubdir2
      file2.ext
```

The directory `dir` contains two sub-directories `subdir1` and `subdir2`. `subdir1` contains a file `file1.ext` and an empty second-level sub-directory `subsubdir1`. `subdir2` contains a second-level sub-directory `subsubdir2` containing a file `file2.ext`.

We are interested in finding the longest (number of characters) absolute path to a file within our file system. For example, in the second example above, the longest absolute path is "`dir/subdir2/subsubdir2/file2.ext`", and its length is 32 (not including the double quotes).

Given a string representing the file system in the above format, return the length of the longest absolute path to

file in the abstracted file system. If there is no file in the system, return 0 .

Note:

- The name of a file contains at least a . and an extension.
- The name of a directory or sub-directory will not contain a ..

Time complexity required: $O(n)$ where n is the size of the input string.

Notice that a/aa/aaa/file1.txt is not the longest file path, if there is another pathaaaaaaaaaaaaaaaaaaaa/sth.png .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[388-Longest-Absolute-File-Path](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

389. Find the Difference

Given two strings s and t which consist of only lowercase letters.

String t is generated by random shuffling string s and then add one more letter at a random position.

Find the letter that was added in t .

Example:

Input:

$s = "abcd"$
 $t = "abcde"$

Output:

e

Explanation:

'e' is the letter that was added.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[389-Find-the-Difference](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

390. Elimination Game

There is a list of sorted integers from 1 to n . Starting from left to right, remove the first number and every other number afterward until you reach the end of the list.

Repeat the previous step again, but this time from right to left, remove the right most number and every other number from the remaining numbers.

We keep repeating the steps again, alternating left to right and right to left, until a single number remains.

Find the last number that remains starting with a list of length n .

Example:

Input:

$n = 9$,

$\underline{1} \ 2 \ \underline{3} \ 4 \ \underline{5} \ 6 \ \underline{7} \ 8 \ \underline{9}$
 $\underline{2} \ \underline{4} \ 6 \ \underline{8}$
 $\underline{\underline{2}} \ 6$
6

Output:
6

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[390-Elimination-Game](#)

All Problems:

[Link to All Problems](#)

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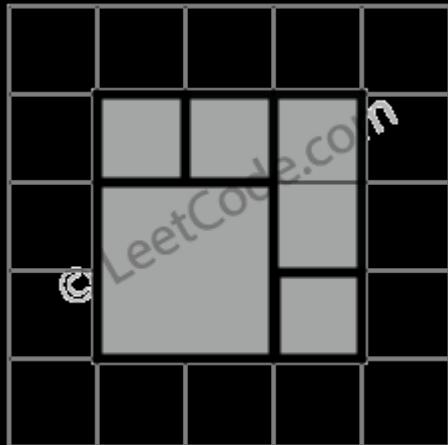
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Welcome to Subscribe On Youtube:

391. Perfect Rectangle

Given N axis-aligned rectangles where $N > 0$, determine if they all together form an exact cover of a rectangular region.

Each rectangle is represented as a bottom-left point and a top-right point. For example, a unit square is represented as [1,1,2,2]. (coordinate of bottom-left point is (1, 1) and top-right point is (2, 2)).



[Apple](#) [Google](#) [Uber](#)

[391-Perfect-Rectangle](#)

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

392. Is Subsequence

Given a string **s** and a string **t**, check if **s** is subsequence of **t**.

You may assume that there is only lower case English letters in both **s** and **t**. **t** is potentially a very long (length $\approx 500,000$) string, and **s** is a short string (≤ 100).

A subsequence of a string is a new string which is formed from the original string by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (ie, "ace" is a subsequence of "abcde" while "aec" is not).

Example 1:

s = "abc" , **t** = "ahbgdc"

Return true .

Example 2:

s = "axc" , **t** = "ahbgdc"

Return false .

Follow up:

If there are lots of incoming S, say S₁, S₂, ..., S_k where k $\geq 1B$, and you want to check one by one to see if T has its subsequence. In this scenario, how would you change your code?

Credits:

Special thanks to [@pbrother](#) for adding this problem and creating all test cases.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[392-Is-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

393. UTF-8 Validation

A character in UTF8 can be from **1 to 4 bytes** long, subjected to the following rules:

1. For 1-byte character, the first bit is a 0, followed by its unicode code.

- For n-bytes character, the first n-bits are all one's, the n+1 bit is 0, followed by n-1 bytes with most significant 2 bits being 10.

This is how the UTF-8 encoding would work:

Char. number range (hexadecimal)	UTF-8 octet sequence (binary)
0000 0000-0000 007F	0xxxxxxx
0000 0080-0000 07FF	110xxxxx 10xxxxxx
0000 0800-0000 FFFF	1110xxxx 10xxxxxx 10xxxxxx
0001 0000-0010 FFFF	11110xxx 10xxxxxx 10xxxxxx 10xxxxxx

Given an array of integers representing the data, return whether it is a valid utf-8 encoding.

Note:

The input is an array of integers. Only the **least significant 8 bits** of each integer is used to store the data.
This means each integer represents only 1 byte of data.

Example 1:

data = [197, 130, 1], which represents the octet sequence: 11000

Return true.

It is a valid utf-8 encoding for a 2-bytes character followed by

Example 2:

data = [235, 140, 4], which represented the octet sequence: 1110

Return false.

The first 3 bits are all one's and the 4th bit is 0 means it is .
The next byte is a continuation byte which starts with 10 and the .
But the second continuation byte does not start with 10, so it i

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[393-UTF-8-Validation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

394. Decode String

Given an encoded string, return its decoded string.

The encoding rule is: $k[\text{encoded_string}]$, where the *encoded_string* inside the square brackets is being repeated exactly k times. Note that k is guaranteed to be a positive integer.

You may assume that the input string is always valid; No extra white spaces, square brackets are well-formed, etc.

Furthermore, you may assume that the original data does not contain any digits and that digits are only for those repeat numbers, k . For example, there won't be input like 3a or 2[4] .

Examples:

```
s = "3[a]2[bc]", return "aaabcbc".
s = "3[a2[c]]", return "accaccacc".
s = "2[abc]3[cd]ef", return "abcabcccdcdcdef".
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[394-Decode-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

395. Longest Substring with At Least K Repeating Characters

Find the length of the longest substring T of a given string (consists of lowercase letters only) such that every character in T appears no less than k times.

Example 1:

Input:
 $s = "aaabb"$, $k = 3$

Output:
3

The longest substring is "aaa", as 'a' is repeated 3 times.

Example 2:

Input:
 $s = "ababbc"$, $k = 2$

Output:
5

The longest substring is "ababb", as 'a' is repeated 2 times and 'b' is repeated 3 times.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[395-Longest-Substring-with-At-Least-K-Repeating-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

396. Rotate Function

Given an array of integers A and let n to be its length.

Assume B_k to be an array obtained by rotating the array A k positions clock-wise, we define a "rotation function" F on A as follow:

$$F(k) = 0 * B_k[0] + 1 * B_k[1] + \dots + (n-1) * B_k[n-1].$$

Calculate the maximum value of $F(0)$, $F(1)$, \dots , $F(n-1)$.

Note:

n is guaranteed to be less than 10^5 .

Example:

$A = [4, 3, 2, 6]$

$$\begin{aligned} F(0) &= (0 * 4) + (1 * 3) + (2 * 2) + (3 * 6) = 0 + 3 + 4 + 18 = 25 \\ F(1) &= (0 * 6) + (1 * 4) + (2 * 3) + (3 * 2) = 0 + 4 + 6 + 6 = 16 \\ F(2) &= (0 * 2) + (1 * 6) + (2 * 4) + (3 * 3) = 0 + 6 + 8 + 9 = 23 \\ F(3) &= (0 * 3) + (1 * 2) + (2 * 6) + (3 * 4) = 0 + 2 + 12 + 12 = 26 \end{aligned}$$

So the maximum value of $F(0)$, $F(1)$, $F(2)$, $F(3)$ is $F(3) = 26$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[396-Rotate-Function](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

397. Integer Replacement

Given a positive integer n and you can do operations as follow:

1. If n is even, replace n with $n / 2$.

2. If n is odd, you can replace n with either $n + 1$ or $n - 1$.

What is the minimum number of replacements needed for n to become 1?

Example 1:

Input:
8

Output:
3

Explanation:
8 -> 4 -> 2 -> 1

Example 2:

Input:
7

Output:
4

Explanation:
7 -> 8 -> 4 -> 2 -> 1
or
7 -> 6 -> 3 -> 2 -> 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[397-Integer-Replacement](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

398. Random Pick Index

Given an array of integers with possible duplicates, randomly output the index of a given target number. You can assume that the given target number must exist in the array.

Note:

The array size can be very large. Solution that uses too much extra space will not pass the judge.

Example:

```
int[] nums = new int[] {1,2,3,3,3};  
Solution solution = new Solution(nums);  
  
// pick(3) should return either index 2, 3, or 4 randomly. Each  
solution.pick(3);  
  
// pick(1) should return 0. Since in the array only nums[0] is e  
solution.pick(1);
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[398-Random-Pick-Index](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

399. Evaluate Division

Equations are given in the format $A / B = k$, where A and B are variables represented as strings, and k is a real number (floating point number). Given some queries, return the answers. If the answer does not exist, return -1.0 .

Example:

Given $a / b = 2.0$, $b / c = 3.0$.
queries are: $a / c = ?$, $b / a = ?$, $a / e = ?$,
 $a / a = ?$, $x / x = ?$.
return [6.0, 0.5, -1.0, 1.0, -1.0].

The input is: `vector<pair<string, string>> equations, vector<double>& values, vector<pair<string, string>> queries`, where

```
equations.size() == values.size() , and the  
values are positive. This represents the equations. Return  
vector<double> .
```

According to the example above:

```
equations = [ ["a", "b"], ["b", "c"] ],  
values = [2.0, 3.0],  
queries = [ ["a", "c"], ["b", "a"], ["a", "e"], ["a", "a"], ["x",
```

The input is always valid. You may assume that evaluating the queries will result in no division by zero and there is no contradiction.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[399-Evaluate-Division](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

400. Nth Digit

Find the n^{th} digit of the infinite integer sequence 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, ...

Note:

n is positive and will fit within the range of a 32-bit signed integer ($n < 2^{31}$).

Example 1:

Input:
3

Output:
3

Example 2:

Input:
11

Output:
0

Explanation:

The 11th digit of the sequence 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[400-Nth-Digit](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

401. Binary Watch

A binary watch has 4 LEDs on the top which represent the **hours** (0-11), and the 6 LEDs on the bottom represent the **minutes** (0-59).

Each LED represents a zero or one, with the least significant bit on the right.



For example, the above binary watch reads "3:25".

Given a non-negative integer n which represents the number of LEDs that are currently on, return all possible times the watch could represent.

Example:

Input: $n = 1$

Return: ["1:00", "2:00", "4:00", "8:00", "0:01", "0:02", "0:04",

Note:

- The order of output does not matter.
- The hour must not contain a leading zero, for example "01:00" is not valid, it should be "1:00".
- The minute must be consist of two digits and may contain a leading zero, for example "10:2" is not valid, it should be "10:02".

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[401-Binary-Watch](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

402. Remove K Digits

Given a non-negative integer num represented as a string, remove k digits from the number so that the new number is the smallest possible.

Note:

- The length of num is less than 10002 and will be $\geq k$.
- The given num does not contain any leading zero.

Example 1:

Input: num = "1432219", k = 3

Output: "1219"

Explanation: Remove the three digits 4, 3, and 2 to form the new

Example 2:

Input: num = "10200", k = 1

Output: "200"

Explanation: Remove the leading 1 and the number is 200. Note th

Example 3:

Input: num = "10", k = 2

Output: "0"

Explanation: Remove all the digits from the number and it is lef

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[402-Remove-K-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

403. Frog Jump

A frog is crossing a river. The river is divided into x units and at each unit there may or may not exist a stone. The frog can jump on a stone, but it must not jump into the water.

Given a list of stones' positions (in units) in sorted ascending order, determine if the frog is able to cross the river by landing on the last stone. Initially, the frog is on the first stone and assume the first jump must be 1 unit.

If the frog's last jump was k units, then its next jump must be either $k - 1$, k , or $k + 1$ units. Note that the frog can only jump in the forward direction.

Note:

- The number of stones is ≥ 2 and is $< 1,100$.
- Each stone's position will be a non-negative integer $< 2^{31}$.
- The first stone's position is always 0.

Example 1:

[0,1,3,5,6,8,12,17]

There are a total of 8 stones.

The first stone at the 0th unit, second stone at the 1st unit, third stone at the 3rd unit, and so on...
The last stone at the 17th unit.

Return true. The frog can jump to the last stone by jumping 1 unit to the 2nd stone, then 2 units to the 3rd stone, then 2 units to the 4th stone, then 3 units to the 6th stone, 4 units to the 7th stone, and 5 units to the 8th stone.

Example 2:

[0,1,2,3,4,8,9,11]

Return false. There is no way to jump to the last stone as the gap between the 5th and 6th stone is too large.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[403-Frog-Jump](#)

All Problems:

[Link to All Problems](#)

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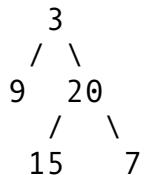
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Welcome to Subscribe On Youtube:

404. Sum of Left Leaves

Find the sum of all left leaves in a given binary tree.

Example:



There are two left leaves in the binary tree, with values 9 and

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[404-Sum-of-Left-Leaves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

405. Convert a Number to Hexadecimal

Given an integer, write an algorithm to convert it to hexadecimal. For negative integer, [two's complement](#) method is used.

Note:

1. All letters in hexadecimal (a - f) must be in lowercase.
2. The hexadecimal string must not contain extra leading 0's. If the number is zero, it is represented by a single zero character '0' ; otherwise, the first character in the hexadecimal string will not be the zero character.
3. The given number is guaranteed to fit within the range of a 32-bit signed integer.

4. You **must not use any method provided by the library** which converts/formats the number to hex directly.

Example 1:

Input:
26

Output:
"1a"

Example 2:

Input:
-1

Output:
"ffffffff"

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[405-Convert-a-Number-to-Hexadecimal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

406. Queue Reconstruction by Height

Suppose you have a random list of people standing in a queue. Each person is described by a pair of integers (h , k) , where h is the height of the person and k is the number of people in front of this person who have a height greater than or equal to h . Write an algorithm to reconstruct the queue.

Note:

The number of people is less than 1,100.

Example

Input:

`[[7,0], [4,4], [7,1], [5,0], [6,1], [5,2]]`

Output:

`[[5,0], [7,0], [5,2], [6,1], [4,4], [7,1]]`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[406-Queue-Reconstruction-by-Height](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

407. Trapping Rain Water II

Given an $m \times n$ matrix of positive integers representing the height of each unit cell in a 2D elevation map, compute the volume of water it is able to trap after raining.

Note:

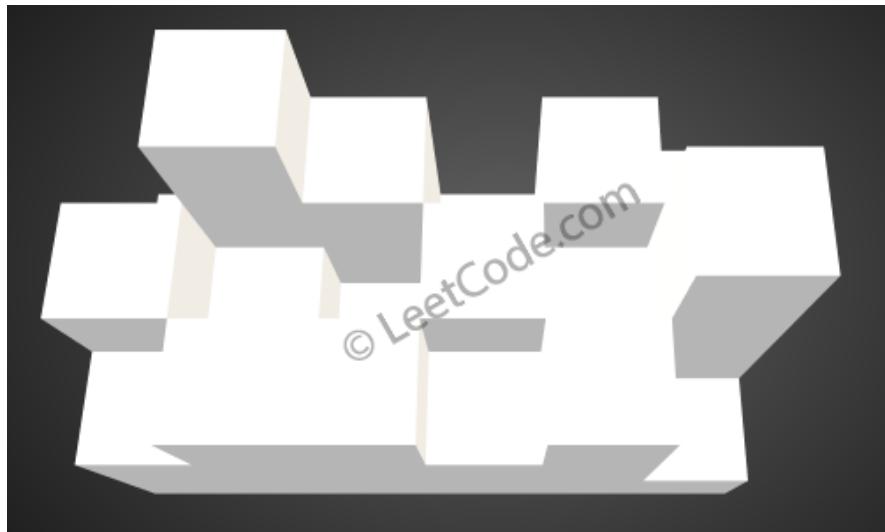
Both m and n are less than 110. The height of each unit cell is greater than 0 and is less than 20,000.

Example:

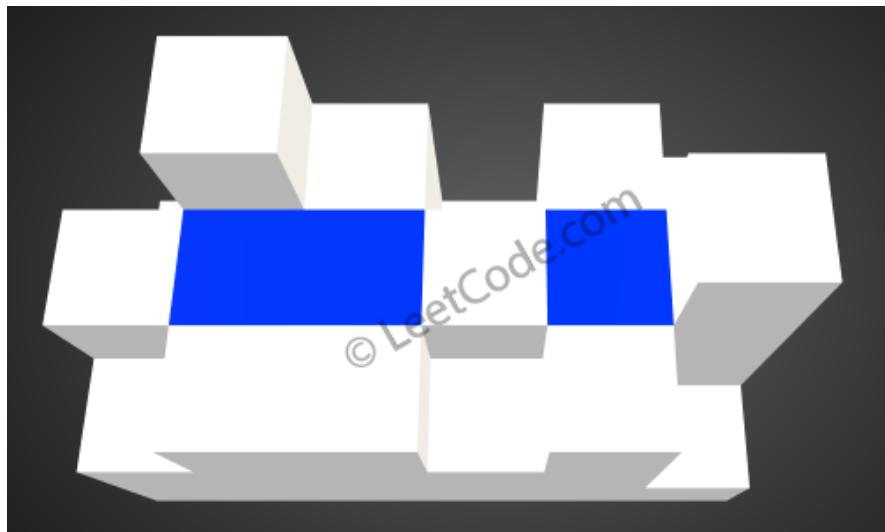
Given the following 3x6 height map:

```
[  
    [1,4,3,1,3,2],  
    [3,2,1,3,2,4],  
    [2,3,3,2,3,1]  
]
```

Return 4.



The above image represents the elevation map
[[1,4,3,1,3,2],[3,2,1,3,2,4],[2,3,3,2,3,1]]
before the rain.



After the rain, water is trapped between the blocks. The total volume of water trapped is 4.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[407-Trapping-Rain-Water-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

408. Valid Word Abbreviation

Given a **non-empty** string `s` and an abbreviation `abbr` , return whether the string matches with the given abbreviation.

A string such as "word" contains only the following valid abbreviations:

```
[ "word", "1ord", "w1rd", "wo1d", "wor1", "2rd", "w2d", "wo2", "1o
```

Notice that only the above abbreviations are valid abbreviations of the string "word" . Any other string is not a valid abbreviation of "word" .

Note:

Assume s contains only lowercase letters and abbr contains only lowercase letters and digits.

Example 1:

Given s = "internationalization", abbr = "i12iz4n":
Return true.

Example 2:

Given s = "apple", abbr = "a2e":
Return false.

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**[408-Valid-Word-Abbreviation](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

409. Longest Palindrome

Given a string which consists of lowercase or uppercase letters, find the length of the longest palindromes that can be built with those letters.

This is case sensitive, for example "Aa" is not considered a palindrome here.

Note:

Assume the length of given string will not exceed 1,010.

Example:

Input:
"abccccdd"

Output:
7

Explanation:

One longest palindrome that can be built is "dccaccd", whose length is 7.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[409-Longest-Palindrome](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

410. Split Array Largest Sum

Given an array which consists of non-negative integers and an integer m , you can split the array into m non-empty continuous subarrays. Write an algorithm to minimize the largest sum among these m subarrays.

Note:

If n is the length of array, assume the following constraints are satisfied:

- $1 \leq n \leq 1000$
- $1 \leq m \leq \min(50, n)$

Examples:

Input:

```
nums = [7, 2, 5, 10, 8]  
m = 2
```

Output:

```
18
```

Explanation:

There are four ways to split nums into two subarrays. The best way is to split it into [7, 2, 5] and [10, 8], where the largest sum among the two subarrays is only 18.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[410-Split-Array-Largest-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

411. Minimum Unique Word Abbreviation

A string such as "word" contains the following abbreviations:

["word", "1ord", "w1rd", "wo1d", "wor1", "2rd", "w2d", "wo2", "1o"]

Given a target string and a set of strings in a dictionary, find an abbreviation of this target string with the ***smallest possible*** length such that it does not conflict with abbreviations of the strings in the dictionary.

Each **number** or letter in the abbreviation is considered length = 1. For example, the abbreviation "a32bc" has length = 4.

Note:

- In the case of multiple answers as shown in the second example below, you may return any one of them.
- Assume length of target string = **m** , and dictionary size = **n** . You may assume that **$m \leq 21$** , **$n \leq 1000$** , and **$\log_2(n) + m \leq 20$** .

Examples:

"apple", ["blade"] -> "a4" (because "5" or "4e" conflicts with "blade")

"apple", ["plain", "amber", "blade"] -> "1p3" (other valid answers include "ap3", "1an3", "1am3", "1bl3", "1pl3", "1plm3")

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[411-Minimum-Unique-Word-Abbreviation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

412. Fizz Buzz

Write a program that outputs the string representation of numbers from 1 to n .

But for multiples of three it should output "Fizz" instead of the number and for the multiples of five output "Buzz". For numbers which are multiples of both three and five output "FizzBuzz".

Example:

$n = 15,$

Return:

```
[  
    "1",  
    "2",  
    "Fizz",  
    "4",  
    "Buzz",  
    "Fizz",  
    "7",  
    "8",  
    "Fizz",  
    "Buzz",  
    "11",  
    "Fizz",  
    "13",  
    "14",  
    "FizzBuzz"  
]
```

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[412-Fizz-Buzz](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

413. Arithmetic Slices

A sequence of number is called arithmetic if it consists of at least three elements and if the difference between any two consecutive elements is the same.

For example, these are arithmetic sequence:

```
1, 3, 5, 7, 9  
7, 7, 7, 7  
3, -1, -5, -9
```

The following sequence is not arithmetic.

```
1, 1, 2, 5, 7
```

A zero-indexed array A consisting of N numbers is given.
A slice of that array is any pair of integers (P, Q) such that
 $0 \leq P < Q < N$.

A slice (P, Q) of array A is called arithmetic if the sequence:

$A[P], A[p + 1], \dots, A[Q - 1], A[Q]$ is arithmetic. In particular, this means that $P + 1 < Q$.

The function should return the number of arithmetic slices in the array A.

Example:

```
A = [1, 2, 3, 4]
```

```
return: 3, for 3 arithmetic slices in A: [1, 2, 3], [2, 3, 4] and [1, 2, 3, 4]
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[413-Arithmetic-Slices](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

414. Third Maximum Number

Given a **non-empty** array of integers, return the **third** maximum number in this array. If it does not exist, return the maximum number. The time complexity must be in O(n).

Example 1:

Input: [3, 2, 1]

Output: 1

Explanation: The third maximum is 1.

Example 2:

Input: [1, 2]

Output: 2

Explanation: The third maximum does not exist, so the maximum (2)

Example 3:

Input: [2, 2, 3, 1]

Output: 1

Explanation: Note that the third maximum here means the third largest number. Both numbers with value 2 are both considered as second maximum.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**414-Third-Maximum-Number**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

415. Add Strings

Given two non-negative integers `num1` and `num2` represented as string, return the sum of `num1` and `num2` .

Note:

1. The length of both `num1` and `num2` is < 5100.
2. Both `num1` and `num2` contains only digits 0-9 .
3. Both `num1` and `num2` does not contain any leading zero.
4. You **must not use any built-in BigInteger library or convert the inputs to integer** directly.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[415-Add-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

416. Partition Equal Subset Sum

Given a **non-empty** array containing **only positive integers**, find if the array can be partitioned into two subsets such that the sum of elements in both subsets is equal.

Note:

1. Each of the array element will not exceed 100.
2. The array size will not exceed 200.

Example 1:

Input: [1, 5, 11, 5]

Output: true

Explanation: The array can be partitioned as [1, 5, 5] and [11].

Example 2:

Input: [1, 2, 3, 5]

Output: false

Explanation: The array cannot be partitioned into equal sum subsets.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[416-Partition-Equal-Subset-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

417. Pacific Atlantic Water Flow

Given an $m \times n$ matrix of non-negative integers representing the height of each unit cell in a continent, the "Pacific ocean" touches the left and top edges of the matrix and the "Atlantic ocean" touches the right and bottom edges.

Water can only flow in four directions (up, down, left, or right) from a cell to another one with height equal or lower.

Find the list of grid coordinates where water can flow to both the Pacific and Atlantic ocean.

Note:

1. The order of returned grid coordinates does not matter.
2. Both m and n are less than 150.

Example:

Given the following 5x5 matrix:

Pacific	~	~	~	~	~	*
~	1	2	2	3	(5)	*
~	3	2	3	(4)	(4)	*
~	2	4	(5)	3	1	*
~	(6)	(7)	1	4	5	*
~	(5)	1	1	2	4	*
*	*	*	*	*	*	Atlantic

Return:

`[[0, 4], [1, 3], [1, 4], [2, 2], [3, 0], [3, 1], [4, 0]]` (position)

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[417-Pacific-Atlantic-Water-Flow](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

418. Sentence Screen Fitting

Given a `rows x cols` screen and a sentence represented by a list of **non-empty** words, find **how many times** the given sentence can be fitted on the screen.

Note:

1. A word cannot be split into two lines.
2. The order of words in the sentence must remain unchanged.
3. Two consecutive words **in a line** must be separated by a single space.
4. Total words in the sentence won't exceed 100.
5. Length of each word is greater than 0 and won't exceed 10.
6. $1 \leq \text{rows}, \text{cols} \leq 20,000$.

Example 1:

Input:

```
rows = 2, cols = 8, sentence = ["hello", "world"]
```

Output:

```
1
```

Explanation:

```
hello---  
world---
```

The character '-' signifies an empty space on the screen.

Example 2:

Input:

```
rows = 3, cols = 6, sentence = ["a", "bcd", "e"]
```

Output:

```
2
```

Explanation:

```
a-bcd-
```

```
e-a---
```

```
bcd-e-
```

The character '-' signifies an empty space on the screen.

Example 3:

Input:

```
rows = 4, cols = 5, sentence = ["I", "had", "apple", "pie"]
```

Output:

```
1
```

Explanation:

```
I-had
```

```
apple
```

```
pie-I
```

```
had--
```

The character '-' signifies an empty space on the screen.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[418-Sentence-Screen-Fitting](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

419. Battleships in a Board

Given an 2D board, count how many battleships are in it. The battleships are represented with 'X' s, empty slots are represented with ' .' s. You may assume the following rules:

- You receive a valid board, made of only battleships or empty slots.
- Battleships can only be placed horizontally or vertically. In other words, they can only be made of the shape $1 \times N$ (1 row, N columns) or $N \times 1$ (N rows, 1 column), where N can be of any size.
- At least one horizontal or vertical cell separates between two battleships - there are no adjacent battleships.

Example:

X . . X
. . . X
. . . X

In the above board there are 2 battleships.

Invalid Example:

. . . X
XXXX
. . . X

This is an invalid board that you will not receive - as battleships will always have a cell separating between them.

Follow up:

Could you do it in **one-pass** , using only **O(1) extra memory** and **without modifying** the value of the board?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[419-Battleships-in-a-Board](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

420. Strong Password Checker

A password is considered strong if below conditions are all met:

1. It has at least 6 characters and at most 20 characters.
2. It must contain at least one lowercase letter, at least one uppercase letter, and at least one digit.
3. It must NOT contain three repeating characters in a row ("...aaa..." is weak, but "...aa...a..." is strong, assuming other conditions are met).

Write a function `strongPasswordChecker(s)`, that takes a string `s` as input, and return the **MINIMUM** change required to make `s` a strong password. If `s` is already strong, return 0.

Insertion, deletion or replace of any one character are all considered as one change.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[420-Strong-Password-Checker](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

421. Maximum XOR of Two Numbers in an Array

Given a **non-empty** array of numbers, $a_0, a_1, a_2, \dots, a_{n-1}$, where $0 \leq a_i < 2^{31}$.

Find the maximum result of $a_i \text{XOR } a_j$, where $0 \leq i, j < n$.

Could you do this in $O(n)$ runtime?

Example:

Input: [3, 10, 5, 25, 2, 8]

Output: 28

Explanation: The maximum result is $5 \wedge 25 = 28$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[421-Maximum-XOR-of-Two-Numbers-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

422. Valid Word Square

Given a sequence of words, check whether it forms a valid word square.

A sequence of words forms a valid word square if the k^{th} row and column read the exact same string, where $0 \leq k < \max(\text{numRows}, \text{numColumns})$.

Note:

1. The number of words given is at least 1 and does not exceed 500.
2. Word length will be at least 1 and does not exceed 500.
3. Each word contains only lowercase English alphabet a - z .

Example 1:

Input:
[
 "abcd",
 "bnrt",
 "crmy",
 "dtye"
]

Output:
true

Explanation:

The first row and first column both read "abcd".
The second row and second column both read "bnrt".
The third row and third column both read "crmy".
The fourth row and fourth column both read "dtye".

Therefore, it is a valid word square.

Example 2:

Input:
[
 "abcd",
 "bnrt",
 "crm",
 "dt"
]

Output:
true

Explanation:

The first row and first column both read "abcd".
The second row and second column both read "bnrt".
The third row and third column both read "crm".
The fourth row and fourth column both read "dt".

Therefore, it is a valid word square.

Example 3:

Input:
[
 "ball",
 "area",
 "read",
 "lady"
]

Output:
false

Explanation:

The third row reads "read" while the third column reads "lead". Therefore, it is NOT a valid word square.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[422-Valid-Word-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

423. Reconstruct Original Digits from English

Given a **non-empty** string containing an out-of-order English representation of digits 0 - 9 , output the digits in ascending order.

Note:

1. Input contains only lowercase English letters.
2. Input is guaranteed to be valid and can be transformed to its original digits. That means invalid inputs such as "abc" or "zerone" are not permitted.
3. Input length is less than 50,000.

Example 1:

Input: "owoztneoer"

Output: "012"

Example 2:

Input: "fviefuro"

Output: "45"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[423-Reconstruct-Original-Digits-from-English](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

424. Longest Repeating Character Replacement

Given a string s that consists of only uppercase English letters, you can perform at most k operations on that string.

In one operation, you can choose **any** character of the string and change it to any other uppercase English character.

Find the length of the longest sub-string containing all repeating letters you can get after performing the above operations.

Note:

Both the string's length and k will not exceed 10^4 .

Example 1:

Input:
 $s = "ABAB"$, $k = 2$

Output:
4

Explanation:

Replace the two 'A's with two 'B's or vice versa.

Example 2:

Input:

s = "AABABBA", k = 1

Output:

4

Explanation:

Replace the one 'A' in the middle with 'B' and form "AABBBA". The substring "BBBB" has the longest repeating letters, which is

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[424-Longest-Repeating-Character-Replacement](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

425. Word Squares

Given a set of words (**without duplicates**) , find all [word squares](#) you can build from them.

A sequence of words forms a valid word square if the k^{th} row and column read the exact same string, where $0 \leq k < \max(\text{numRows}, \text{numColumns})$.

For example, the word sequence

`["ball", "area", "lead", "lady"]` forms a word square because each word reads the same both horizontally and vertically.

```
b a l l  
a r e a  
l e a d  
l a d y
```

Note:

1. There are at least 1 and at most 1000 words.
2. All words will have the exact same length.
3. Word length is at least 1 and at most 5.
4. Each word contains only lowercase English alphabet a-z .

Example 1:

Input:

```
[ "area", "lead", "wall", "lady", "ball" ]
```

Output:

```
[  
  [ "wall",  
    "area",  
    "lead",  
    "lady"  
  ],  
  [ "ball",  
    "area",  
    "lead",  
    "lady"  
  ]  
]
```

```
    "lead",
    "lady"
]
]
```

Explanation:

The output consists of two word squares. The order of output doe

Example 2:

Input:

```
["abat", "baba", "atan", "atal"]
```

Output:

```
[
  [
    "baba",
    "abat",
    "baba",
    "atan"
  ],
  [
    "baba",
    "abat",
    "baba",
    "atal"
  ]
]
```

Explanation:

The output consists of two word squares. The order of output doe

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[425-Word-Squares](#)

All Problems:

[Link to All Problems](#)

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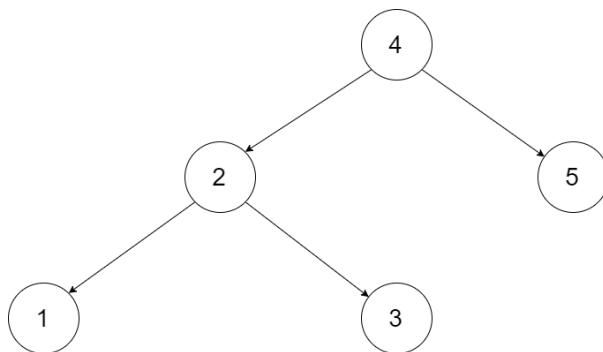
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Welcome to Subscribe On Youtube:

426. Convert Binary Search Tree to Sorted Doubly Linked List

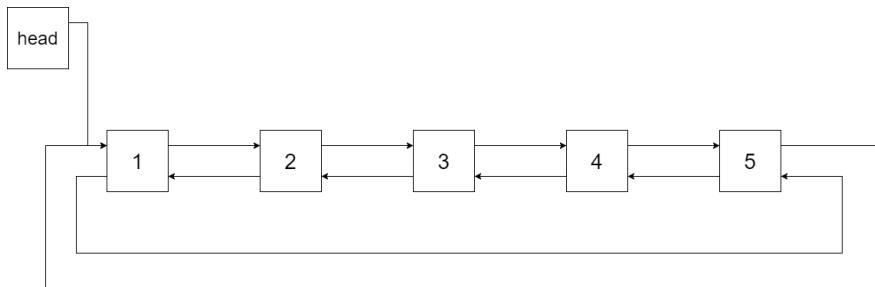
Convert a BST to a sorted circular doubly-linked list in-place. Think of the left and right pointers as synonymous to the previous and next pointers in a doubly-linked list.

Let's take the following BST as an example, it may help you understand the problem better:



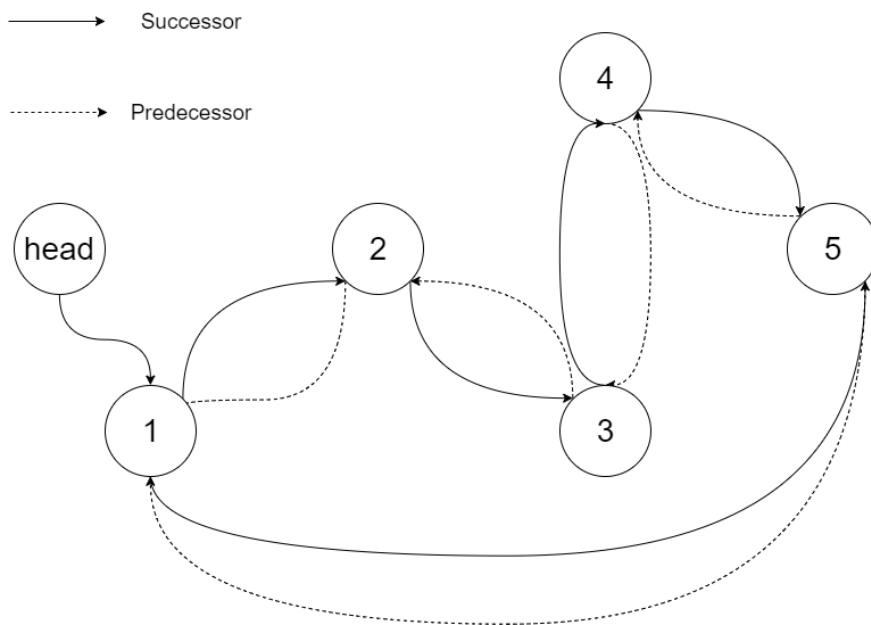
We want to transform this BST into a circular doubly linked list. Each node in a doubly linked list has a predecessor and successor. For a circular doubly linked list, the predecessor of the first element is the last element, and the successor of the last element is the first element.

The figure below shows the circular doubly linked list for the BST above. The "head" symbol means the node it points to is the smallest element of the linked list.



Specifically, we want to do the transformation in place. After the transformation, the left pointer of the tree node should point to its predecessor, and the right pointer should point to its successor. We should return the pointer to the first element of the linked list.

The figure below shows the transformed BST. The solid line indicates the successor relationship, while the dashed line means the predecessor relationship.



Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[426-Convert-Binary-Search-Tree-to-Sorted-Doubly-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

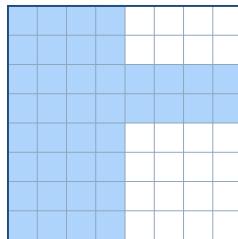
427. Construct Quad Tree

We want to use quad trees to store an $N \times N$ boolean grid. Each cell in the grid can only be true or false. The root node represents the whole grid. For each node, it will be subdivided into four children nodes **until the values in the region it represents are all the same**.

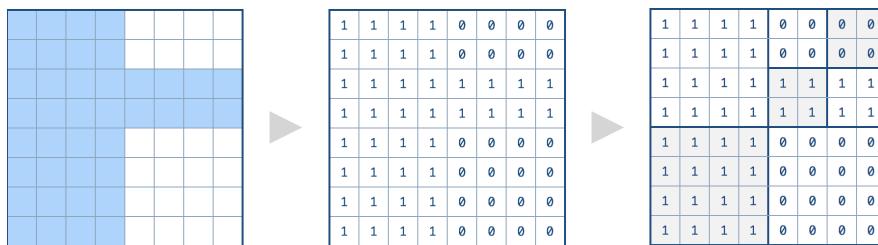
Each node has another two boolean attributes : `isLeaf` and `val` . `isLeaf` is true if and only if the node is a leaf node. The `val` attribute for a leaf node contains the value of the region it represents.

Your task is to use a quad tree to represent a given grid. The following example may help you understand the problem better:

Given the 8×8 grid below, we want to construct the corresponding quad tree:

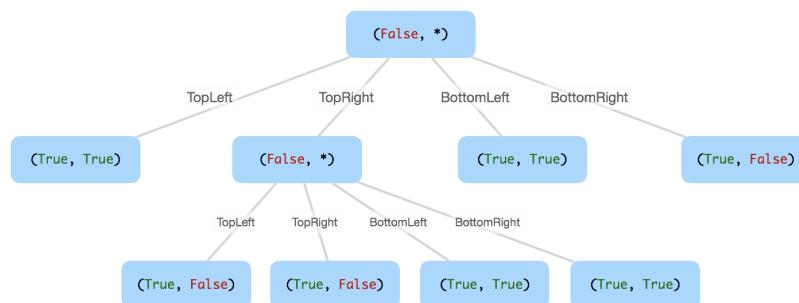


It can be divided according to the definition above:



The corresponding quad tree should be as following, where each node is represented as a (`isLeaf`, `val`) pair.

For the non-leaf nodes, `val` can be arbitrary, so it is represented as `*`.



Note:

1. N is less than 1000 and guaranteed to be a power of 2.
2. If you want to know more about the quad tree, you can refer to its [wiki](#).

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[427-Construct-Quad-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

428. Serialize and Deserialize N-ary Tree

Serialization is the process of converting a data structure or object into a sequence of bits so that it can be stored in a file or memory buffer, or transmitted across a network

connection link to be reconstructed later in the same or another computer environment.

Design an algorithm to serialize and deserialize an N-ary tree. An N-ary tree is a rooted tree in which each node has no more than N children. There is no restriction on how your serialization/deserialization algorithm should work. You just need to ensure that an N-ary tree can be serialized to a string and this string can be deserialized to the original tree structure.

For example, you may serialize the following 3-ary tree

as [1 [3 [5 6] 2 4]] . You do not necessarily need to follow this format, so please be creative and come up with different approaches yourself.

Note:

1. N is in the range of [1, 1000]
2. Do not use class member/global/static variables to store states. Your serialize and deserialize algorithms should be stateless.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[428-Serialize-and-Deserialize-N-ary-Tree](#)

All Problems:

[Link to All Problems](#)

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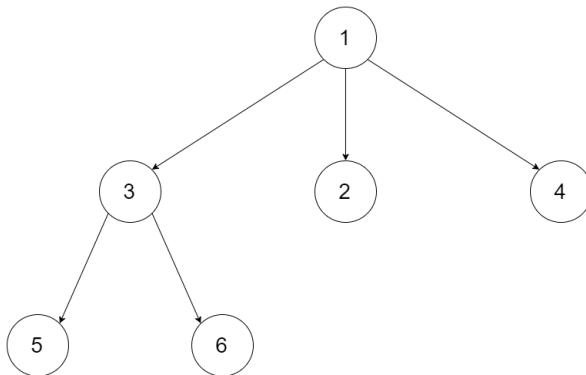
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Welcome to Subscribe On Youtube:

429. N-ary Tree Level Order Traversal

Given an n-ary tree, return the level order traversal of its nodes' values. (ie, from left to right, level by level).

For example, given a 3-ary tree:



We should return its level order traversal:

```
[  
    [1],  
    [3, 2, 4],  
    [5, 6]  
]
```

Note:

1. The depth of the tree is at most 1000 .

2. The total number of nodes is at most 5000 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[429-N-ary-Tree-Level-Order-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

430. Flatten a Multilevel Doubly Linked List

You are given a doubly linked list which in addition to the next and previous pointers, it could have a child pointer, which may or may not point to a separate doubly

linked list. These child lists may have one or more children of their own, and so on, to produce a multilevel data structure, as shown in the example below.

Flatten the list so that all the nodes appear in a single-level, doubly linked list. You are given the head of the first level of the list.

Example:

Input:

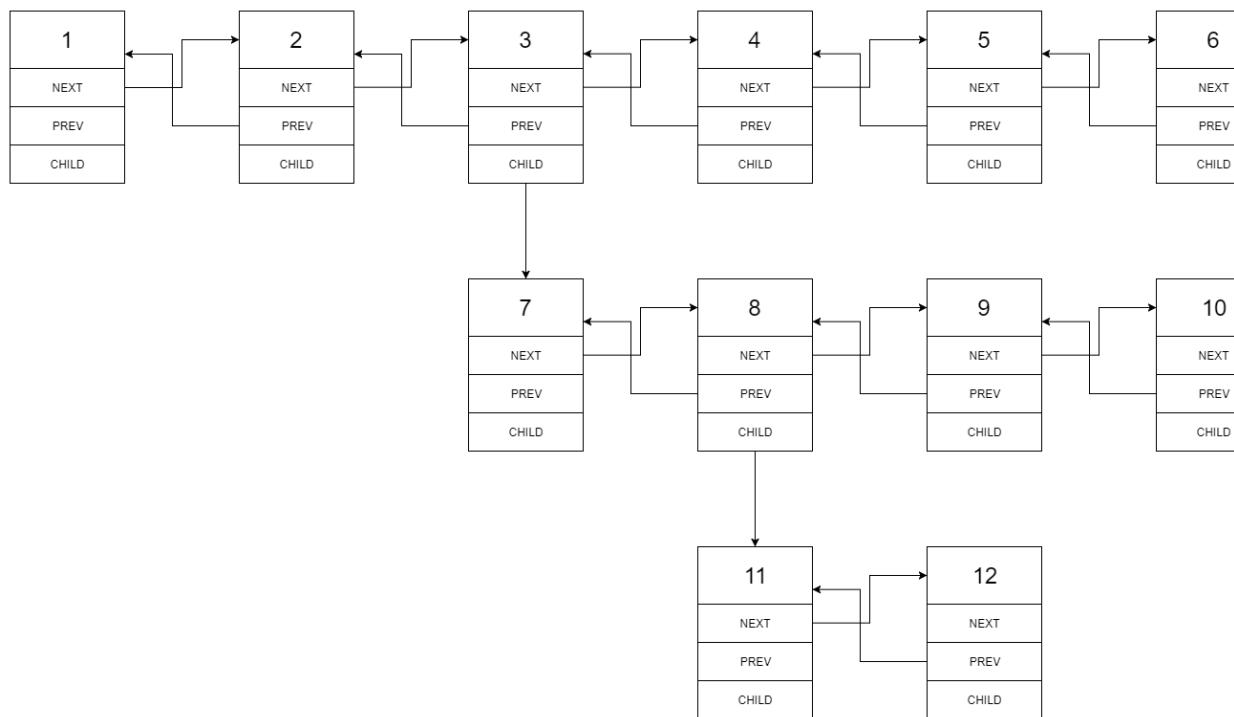
```
1---2---3---4---5---6---NULL  
|  
7---8---9---10---NULL  
|  
11---12---NULL
```

Output:

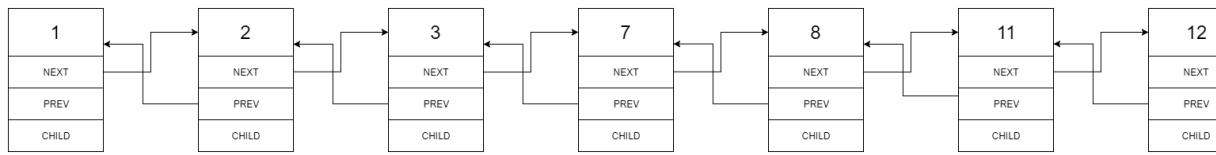
```
1-2-3-7-8-11-12-9-10-4-5-6-NUL
```

Explanation for the above example:

Given the following multilevel doubly linked list:



We should return the following flattened doubly linked list:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[430-Flatten-a-Multilevel-Doubly-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

431. Encode N-ary Tree to Binary Tree

Design an algorithm to encode an N-ary tree into a binary tree and decode the binary tree to get the original N-ary tree. An N-ary tree is a rooted tree in which each node has no more than N children. Similarly, a binary tree is a rooted tree in which each node has no more than 2 children. There is no restriction on how your encode/decode algorithm should work. You just need to ensure that an N-ary tree can be encoded to a binary tree and this binary tree can be decoded to the original N-nary tree structure.

For example, you may encode the following 3-ary tree to a binary tree in this way:

Note that the above is just an example which *might or might not* work. You do not necessarily need to follow this format, so please be creative and come up with different approaches yourself.

Note:

1. N is in the range of [1, 1000]
2. Do not use class member/global/static variables to store states. Your encode and decode algorithms should be stateless.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[431-Encode-N-ary-Tree-to-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

432. All O`one Data Structure

Implement a data structure supporting the following operations:

1. Inc(Key) - Inserts a new key with value 1. Or increments an existing key by 1. Key is guaranteed to be a **non-empty** string.
2. Dec(Key) - If Key's value is 1, remove it from the data structure. Otherwise decrements an existing key by 1. If the key does not exist, this function does nothing. Key is guaranteed to be a **non-empty** string.
3. GetMaxKey() - Returns one of the keys with maximal value. If no element exists, return an empty string " " .

4. GetMinKey() - Returns one of the keys with minimal value. If no element exists, return an empty string
" " .

Challenge: Perform all these in O(1) time complexity.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[432-All-O-one-Data-Structure](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

433. Minimum Genetic Mutation

A gene string can be represented by an 8-character long string, with choices from "A" , "C" , "G" , "T" .

Suppose we need to investigate about a mutation (mutation from "start" to "end"), where ONE mutation is defined as ONE single character changed in the gene string.

For example, "AACCGGTT" -> "AACCGGTA" is 1 mutation.

Also, there is a given gene "bank", which records all the valid gene mutations. A gene must be in the bank to make it a valid gene string.

Now, given 3 things - start, end, bank, your task is to determine what is the minimum number of mutations needed to mutate from "start" to "end". If there is no such a mutation, return -1.

Note:

1. Starting point is assumed to be valid, so it might not be included in the bank.
2. If multiple mutations are needed, all mutations during in the sequence must be valid.
3. You may assume start and end string is not the same.

Example 1:

```
start: "AACCGGTT"
end:   "AACCGGTA"
bank:  ["AACCGGTA"]

return: 1
```

Example 2:

```
start: "AACCGGTT"
end:   "AAACGGTA"
bank:  ["AACCGGTA", "AACCGCTA", "AAACGGTA"]

return: 2
```

Example 3:

```
start: "AAAAACCC"
end:   "AACCCCCC"
bank: [ "AAAACCCC", "AAACCCCC", "AACCCCCC" ]

return: 3
```

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[433-Minimum-Genetic-Mutation](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

434. Number of Segments in a String

Count the number of segments in a string, where a segment is defined to be a contiguous sequence of non-space characters.

Please note that the string does not contain any **non-printable** characters.

Example:

Input: "Hello, my name is John"
Output: 5

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[434-Number-of-Segments-in-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

435. Non-overlapping Intervals

Given a collection of intervals, find the minimum number of intervals you need to remove to make the rest of the intervals non-overlapping.

Example 1:

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

Output: 1

Explanation: [1,3] can be removed and the rest of intervals are

Example 2:

Input: [[1,2],[1,2],[1,2]]

Output: 2

Explanation: You need to remove two [1,2] to make the rest of in

Example 3:

Input: [[1,2],[2,3]]

Output: 0

Explanation: You don't need to remove any of the intervals since

Note:

1. You may assume the interval's end point is always bigger than its start point.
2. Intervals like [1,2] and [2,3] have borders "touching" but they don't overlap each other.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[435-Non-overlapping-Intervals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

436. Find Right Interval

Given a set of intervals, for each of the interval i, check if there exists an interval j whose start point is bigger than or equal to the end point of the interval i, which can be called that j is on the "right" of i.

For any interval i, you need to store the minimum interval j's index, which means that the interval j has the minimum start point to build the "right" relationship for interval i. If the interval j doesn't exist, store -1 for the interval i. Finally, you need output the stored value of each interval as an array.

Note:

1. You may assume the interval's end point is always bigger than its start point.
2. You may assume none of these intervals have the same start point.

Example 1:

Input: [[1,2]]

Output: [-1]

Explanation: There is only one interval in the collection, so it

Example 2:

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

Output: [-1, 0, 1]

Explanation: There is no satisfied "right" interval for [3,4].
For [2,3], the interval [3,4] has minimum-"right" start point;
For [1,2], the interval [2,3] has minimum-"right" start point.

Example 3:

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

Output: [-1, 2, -1]

Explanation: There is no satisfied "right" interval for [1,4] and
For [2,3], the interval [3,4] has minimum-"right" start point.

NOTE: input types have been changed on April 15, 2019.

Please reset to default code definition to get new method
signature.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[436-Find-Right-Interval](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

437. Path Sum III

You are given a binary tree in which each node contains an integer value.

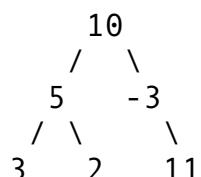
Find the number of paths that sum to a given value.

The path does not need to start or end at the root or a leaf, but it must go downwards (traveling only from parent nodes to child nodes).

The tree has no more than 1,000 nodes and the values are in the range -1,000,000 to 1,000,000.

Example:

```
root = [10,5,-3,3,2,null,11,3,-2,null,1], sum = 8
```



```
   / \   \
  3   -2   1
```

Return 3. The paths that sum to 8 are:

1. 5 -> 3
2. 5 -> 2 -> 1
3. -3 -> 11

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[437-Path-Sum-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

438. Find All Anagrams in a String

Given a string **s** and a **non-empty** string **p** , find all the start indices of **p** 's anagrams in **s** .

Strings consists of lowercase English letters only and the length of both strings **s** and **p** will not be larger than 20,100.

The order of output does not matter.

Example 1:

Input:

s: "cbaebabacd" p: "abc"

Output:

[0, 6]

Explanation:

The substring with start index = 0 is "cba", which is an anagram of "abc".

The substring with start index = 6 is "bac", which is an anagram of "abc".

Example 2:

Input:

s: "abab" p: "ab"

Output:

[0, 1, 2]

Explanation:

The substring with start index = 0 is "ab", which is an anagram of "ab".

The substring with start index = 1 is "ba", which is an anagram of "ab".

The substring with start index = 2 is "ab", which is an anagram of "ab".

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[438-Find-All-Anagrams-in-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

439. Ternary Expression Parser

Given a string representing arbitrarily nested ternary expressions, calculate the result of the expression. You can always assume that the given expression is valid and only consists of digits 0-9 , ? , : , T and F (T and F represent True and False respectively).

Note:

1. The length of the given string is ≤ 10000 .
2. Each number will contain only one digit.
3. The conditional expressions group right-to-left (as usual in most languages).

4. The condition will always be either T or F . That is, the condition will never be a digit.
5. The result of the expression will always evaluate to either a digit 0-9 , T or F .

Example 1:

Input: "T?2:3"

Output: "2"

Explanation: If true, then result is 2; otherwise result is 3.

Example 2:

Input: "F?1:T?4:5"

Output: "4"

Explanation: The conditional expressions group right-to-left. Us

" (F ? 1 : (T ? 4 : 5)) "	or	" (F ? 1 :
-> "(F ? 1 : 4)"	->	-> "(T ? 4 :
-> "4"		-> "4"

Example 3:

Input: "T?T?F:5:3"

Output: "F"

Explanation: The conditional expressions group right-to-left. Us

" (T ? (T ? F : 5) : 3) "	or	" (T ? (T :
-> "(T ? F : 3)"	->	-> "(T ? F :
-> "F"		-> "F"

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[439-Ternary-Expression-Parser](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

440. K-th Smallest in Lexicographical Order

Given integers n and k , find the lexicographically k -th smallest integer in the range from 1 to n .

Note: $1 \leq k \leq n \leq 10^9$.

Example:

Input:

$n: 13 \quad k: 2$

Output:

10

Explanation:

The lexicographical order is [1, 10, 11, 12, 13, 2, 3, 4, 5, 6, ...].

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[440-K-th-Smallest-in-Lexicographical-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

441. Arranging Coins

You have a total of n coins that you want to form in a staircase shape, where every k -th row must have exactly k coins.

Given n , find the total number of **full** staircase rows that can be formed.

n is a non-negative integer and fits within the range of a 32-bit signed integer.

Example 1:

$n = 5$

The coins can form the following rows:

 |x
 |x |x
 |x |x

Because the 3rd row is incomplete, we return 2.

Example 2:

$n = 8$

The coins can form the following rows:

 |x
 |x |x
 |x |x |x
 |x |x

Because the 4th row is incomplete, we return 3.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[441-Arranging-Coins](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

442. Find All Duplicates in an Array

Given an array of integers, $1 \leq a[i] \leq n$ ($n = \text{size of array}$), some elements appear **twice** and others appear **once**.

Find all the elements that appear **twice** in this array.

Could you do it without extra space and in $O(n)$ runtime?

Example:

Input:
[4, 3, 2, 7, 8, 2, 3, 1]

Output:
[2, 3]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[442-Find-All-Duplicates-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

443. String Compression

Given an array of characters, compress it [in-place](#).

The length after compression must always be smaller than or equal to the original array.

Every element of the array should be a **character** (not int) of length 1.

After you are done **modifying the input array in-place**, return the new length of the array.

Follow up:

Could you solve it using only O(1) extra space?

Example 1:

Input:

["a" , "a" , "b" , "b" , "c" , "c" , "c"]

Output:

Return 6, and the first 6 characters of the input array should be

Explanation:

"aa" is replaced by "a2". "bb" is replaced by "b2". "ccc" is rep

Example 2:

Input:

["a"]

Output:

Return 1, and the first 1 characters of the input array should be

Explanation:

Nothing is replaced.

Example 3:

Input:

["a", "b", "b"]

Output:

Return 4, and the first 4 characters of the input array should be

Explanation:

Since the character "a" does not repeat, it is not compressed. "

Notice each digit has its own entry in the array.

Note:

1. All characters have an ASCII value in [35, 126] .

2. $1 \leq \text{len(chars)} \leq 1000$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[443-String-Compression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

444. Sequence Reconstruction

Check whether the original sequence `org` can be uniquely reconstructed from the sequences in `seqs` . The `org` sequence is a permutation of the integers from 1 to n, with $1 \leq n \leq 10^4$. Reconstruction means building a shortest common supersequence of the sequences in `seqs` (i.e., a shortest sequence so that all sequences in `seqs` are subsequences of it). Determine whether there is only one sequence that can be reconstructed from `seqs` and it is the `org` sequence.

Example 1:

Input:

`org: [1,2,3], seqs: [[1,2],[1,3]]`

Output:

`false`

Explanation:

[1,2,3] is not the only one sequence that can be reconstructed.

Example 2:

Input:

org: [1,2,3], seqs: [[1,2]]

Output:

false

Explanation:

The reconstructed sequence can only be [1,2].

Example 3:

Input:

org: [1,2,3], seqs: [[1,2],[1,3],[2,3]]

Output:

true

Explanation:

The sequences [1,2], [1,3], and [2,3] can uniquely reconstruct the original sequence.

Example 4:

Input:

org: [4,1,5,2,6,3], seqs: [[5,2,6,3],[4,1,5,2]]

Output:

true

UPDATE (2017/1/8):

The *seqs* parameter had been changed to a list of list of strings (instead of a 2d array of strings). Please reload the code definition to get the latest changes.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

444-Sequence-Reconstruction

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

445. Add Two Numbers II

You are given two **non-empty** linked lists representing two non-negative integers. The most significant digit comes first and each of their nodes contain a single digit. Add the two numbers and return it as a linked list.

You may assume the two numbers do not contain any leading zero, except the number 0 itself.

Follow up:

What if you cannot modify the input lists? In other words, reversing the lists is not allowed.

Example:

Input: (7 → 2 → 4 → 3) + (5 → 6 → 4)
Output: 7 → 8 → 0 → 7

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[445-Add-Two-Numbers-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

446. Arithmetic Slices II - Subsequence

A sequence of numbers is called arithmetic if it consists of at least three elements and if the difference between any two consecutive elements is the same.

For example, these are arithmetic sequences:

```
1, 3, 5, 7, 9  
7, 7, 7, 7  
3, -1, -5, -9
```

The following sequence is not arithmetic.

```
1, 1, 2, 5, 7
```

A zero-indexed array A consisting of N numbers is given. A **subsequence** slice of that array is any sequence of integers (P_0, P_1, \dots, P_k) such that $0 \leq P_0 < P_1 < \dots < P_k < N$.

A **subsequence** slice (P_0, P_1, \dots, P_k) of array A is called arithmetic if the sequence $A[P_0], A[P_1], \dots, A[P_{k-1}], A[P_k]$ is arithmetic. In particular, this means that $k \geq 2$.

The function should return the number of arithmetic subsequence slices in the array A.

The input contains N integers. Every integer is in the range of -2^{31} and $2^{31}-1$ and $0 \leq N \leq 1000$. The output is guaranteed to be less than $2^{31}-1$.

Example:

Input: [2, 4, 6, 8, 10]

Output: 7

Explanation:

All arithmetic subsequence slices are:

```
[2,4,6]  
[4,6,8]  
[6,8,10]  
[2,4,6,8]  
[4,6,8,10]  
[2,4,6,8,10]  
[2,6,10]
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[446-Arithmetic-Slices-II-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

447. Number of Boomerangs

Given n points in the plane that are all pairwise distinct, a "boomerang" is a tuple of points (i, j, k) such that the distance between i and j equals the distance between i and k (**the order of the tuple matters**).

Find the number of boomerangs. You may assume that n will be at most **500** and coordinates of points are all in the range **[-10000, 10000]** (inclusive).

Example:

Input:
[[0,0],[1,0],[2,0]]

Output:

2

Explanation:

The two boomerangs are $[[1,0], [0,0], [2,0]]$ and $[[1,0], [2,0], [0,0]]$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[447-Number-of-Boomerangs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

448. Find All Numbers Disappeared in an Array

Given an array of integers where $1 \leq a[i] \leq n$ (n = size of array), some elements appear twice and others appear once.

Find all the elements of $[1, n]$ inclusive that do not appear in this array.

Could you do it without extra space and in $O(n)$ runtime? You may assume the returned list does not count as extra space.

Example:

Input:
[4, 3, 2, 7, 8, 2, 3, 1]

Output:
[5, 6]

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[448-Find-All-Numbers-Disappeared-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

449. Serialize and Deserialize BST

Serialization is the process of converting a data structure or object into a sequence of bits so that it can be stored in a file or memory buffer, or transmitted across a network connection link to be reconstructed later in the same or another computer environment.

Design an algorithm to serialize and deserialize a **binary search tree**. There is no restriction on how your serialization/deserialization algorithm should work. You just need to ensure that a binary search tree can be serialized to a string and this string can be deserialized to the original tree structure.

The encoded string should be as compact as possible.

Note: Do not use class member/global/static variables to store states. Your serialize and deserialize algorithms should be stateless.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[449-Serialize-and-Deserialize-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

450. Delete Node in a BST

Given a root node reference of a BST and a key, delete the node with the given key in the BST. Return the root node reference (possibly updated) of the BST.

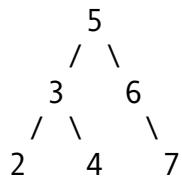
Basically, the deletion can be divided into two stages:

1. Search for a node to remove.
2. If the node is found, delete the node.

Note: Time complexity should be O(height of tree).

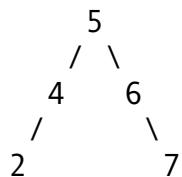
Example:

```
root = [5,3,6,2,4,null,7]
key = 3
```

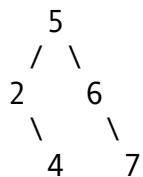


Given key to delete is 3. So we find the node with value 3 and do

One valid answer is [5,4,6,2,null,null,7], shown in the following



Another valid answer is [5,2,6,null,4,null,7].



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[450-Delete-Node-in-a-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

451. Sort Characters By Frequency

Given a string, sort it in decreasing order based on the frequency of characters.

Example 1:

Input:
"tree"

Output:
"eert"

Explanation:

'e' appears twice while 'r' and 't' both appear once.
So 'e' must appear before both 'r' and 't'. Therefore "eetr" is invalid.

Example 2:

Input:
"cccaaa"

Output:
"cccaaa"

Explanation:

Both 'c' and 'a' appear three times, so "aaaccc" is also a valid answer.
Note that "cacaca" is incorrect, as the same characters must be grouped together.

Example 3:

Input:
"Aabb"

Output:
"bbAa"

Explanation:
"bbaA" is also a valid answer, but "Aabb" is incorrect.
Note that 'A' and 'a' are treated as two different characters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[451-Sort-Characters-By-Frequency](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

452. Minimum Number of Arrows to Burst Balloons

There are a number of spherical balloons spread in two-dimensional space. For each balloon, provided input is the start and end coordinates of the horizontal diameter. Since it's horizontal, y-coordinates don't matter and hence the x-coordinates of start and end of the diameter suffice. Start is always smaller than end. There will be at most 10^4 balloons.

An arrow can be shot up exactly vertically from different points along the x-axis. A balloon with x_{start} and x_{end} bursts by an arrow shot at x if $x_{\text{start}} \leq x \leq x_{\text{end}}$. There is no limit to the number of arrows that can be shot. An arrow once shot keeps travelling up infinitely. The problem is to find the minimum number of arrows that must be shot to burst all balloons.

Example:

Input:

`[[10,16], [2,8], [1,6], [7,12]]`

Output:

`2`

Explanation:

One way is to shoot one arrow for example at $x = 6$ (bursting the balloons at [1,6] and [7,12]) and another at $x = 10$ (bursting the balloons at [10,16] and [2,8]).

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[452-Minimum-Number-of-Arrows-to-Burst-Balloons](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

453. Minimum Moves to Equal Array Elements

Given a **non-empty** integer array of size n , find the minimum number of moves required to make all array elements equal, where a move is incrementing $n - 1$ elements by 1.

Example:

Input:
[1, 2, 3]

Output:
3

Explanation:

Only three moves are needed (remember each move increments two elements)

[1, 2, 3] => [2, 3, 3] => [3, 4, 3] => [4, 4, 4]

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[453-Minimum-Moves-to-Equal-Array-Elements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

454. 4Sum II

Given four lists A, B, C, D of integer values, compute how many tuples (i, j, k, l) there are such that A[i] + B[j] + C[k] + D[l] is zero.

To make problem a bit easier, all A, B, C, D have same length of N where $0 \leq N \leq 500$. All integers are in the range of -2^{28} to $2^{28} - 1$ and the result is guaranteed to be at most $2^{31} - 1$.

Example:

Input:

```
A = [ 1, 2]
B = [-2, -1]
C = [-1, 2]
D = [ 0, 2]
```

Output:

```
2
```

Explanation:

The two tuples are:

1. $(0, 0, 0, 1) \rightarrow A[0] + B[0] + C[0] + D[1] = 1 + (-2) + (-1) + 2$
2. $(1, 1, 0, 0) \rightarrow A[1] + B[1] + C[0] + D[0] = 2 + (-1) + (-1) + 0$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[454-4Sum-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

455. Assign Cookies

Assume you are an awesome parent and want to give your children some cookies. But, you should give each child at most one cookie. Each child i has a greed factor g_i , which is the minimum size of a cookie that the child i will be content with; and each cookie j has a size s_j . If $s_j \geq g_i$, we can assign the cookie j to the child i , and the child i will be content. Your goal is to maximize the number of your content children and output the maximum number.

Note:

You may assume the greed factor is always positive.
You cannot assign more than one cookie to one child.

Example 1:

Input: [1, 2, 3], [1, 1]

Output: 1

Explanation: You have 3 children and 2 cookies. The greed factors are [1, 2, 3] and the cookie sizes are [1, 1]. Even though you have 2 cookies, since their size is both 1, you need to output 1.

Example 2:

Input: [1, 2], [1, 2, 3]

Output: 2

Explanation: You have 2 children and 3 cookies. The greed factors are [1, 2] and the cookie sizes are [1, 2, 3]. You have 3 cookies and their sizes are big enough to gratify all 2 children. Therefore, you need to output 2.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[**455-Assign-Cookies**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:**456. 132 Pattern**

Given a sequence of n integers a_1, a_2, \dots, a_n , a 132 pattern is a subsequence a_i, a_j, a_k such that $i < j < k$ and $a_i < a_k < a_j$. Design an algorithm that takes a list of n numbers as input and checks whether there is a 132 pattern in the list.

Note: n will be less than 15,000.

Example 1:

Input: [1, 2, 3, 4]

Output: False

Explanation: There is no 132 pattern in the sequence.

Example 2:

Input: [3, 1, 4, 2]

Output: True

Explanation: There is a 132 pattern in the sequence: [1, 4, 2].

Example 3:

Input: [-1, 3, 2, 0]

Output: True

Explanation: There are three 132 patterns in the sequence: [-1, 3, 2].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[132-Pattern](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

457. Circular Array Loop

You are given a **circular** array `nums` of positive and negative integers. If a number k at an index is positive, then move forward k steps. Conversely, if it's negative ($-k$), move backward k steps. Since the array is circular, you may assume that the last element's next element is the first element, and the first element's previous element is the last element.

Determine if there is a loop (or a cycle) in `nums`. A cycle must start and end at the same index and the cycle's length > 1 . Furthermore, movements in a cycle must all follow a single direction. In other words, a cycle must not consist of both forward and backward movements.

Example 1:

Input: [2, -1, 1, 2, 2]

Output: true

Explanation: There is a cycle, from index 0 \rightarrow 2 \rightarrow 3 \rightarrow 0. The

Example 2:

Input: [-1, 2]

Output: false

Explanation: The movement from index 1 \rightarrow 1 \rightarrow 1 ... is not a cy

Example 3:

Input: [-2, 1, -1, -2, -2]

Output: false

Explanation: The movement from index 1 \rightarrow 2 \rightarrow 1 \rightarrow ... is not a

Note:

1. $-1000 \leq \text{nums}[i] \leq 1000$
2. $\text{nums}[i] \neq 0$
3. $1 \leq \text{nums.length} \leq 5000$

Follow up:

Could you solve it in **O(n)** time complexity and **O(1)** extra space complexity?

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[457-Circular-Array-Loop](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

458. Poor Pigs

There are 1000 buckets, one and only one of them is poisonous, while the rest are filled with water. They all look identical. If a pig drinks the poison it will die within 15 minutes. What is the minimum amount of pigs you need to figure out which bucket is poisonous within one hour?

Answer this question, and write an algorithm for the general case.

General case:

If there are n buckets and a pig drinking poison will die within m minutes, how many pigs (x) you need to figure out the **poisonous** bucket within p minutes?
There is exactly one bucket with poison.

Note:

1. A pig can be allowed to drink simultaneously on as many buckets as one would like, and the feeding takes no time.
2. After a pig has instantly finished drinking buckets, there has to be a **cool down time** of m minutes.
During this time, only observation is allowed and no feedings at all.
3. Any given bucket can be sampled an infinite number of times (by an unlimited number of pigs).

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[458-Poor-Pigs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

459. Repeated Substring Pattern

Given a non-empty string check if it can be constructed by taking a substring of it and appending multiple copies of the substring together. You may assume the given string consists of lowercase English letters only and its length will not exceed 10000.

Example 1:

Input: "abab"

Output: True

Explanation: It's the substring "ab" twice.

Example 2:

Input: "aba"

Output: False

Example 3:

Input: "abcabcabcabc"

Output: True

Explanation: It's the substring "abc" four times. (And the subst

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[459-Repeated-Substring-Pattern](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

460. LFU Cache

Design and implement a data structure for [Least Frequently Used \(LFU\)](#) cache. It should support the following operations: get and put .

`get(key)` - Get the value (will always be positive) of the key if the key exists in the cache, otherwise return -1.
`put(key, value)` - Set or insert the value if the key is not already present. When the cache reaches its capacity, it should invalidate the least frequently used item before inserting a new item. For the purpose of this problem, when there is a tie (i.e., two or more keys that have the same frequency), the least **recently** used key would be evicted.

Note that the number of times an item is used is the number of calls to the `get` and `put` functions for that item since it was inserted. This number is set to zero when the item is removed.

Follow up:

Could you do both operations in **O(1)** time complexity?

Example:

```
LFUCache cache = new LFUCache( 2 /* capacity */ );  
  
cache.put(1, 1);  
cache.put(2, 2);  
cache.get(1);      // returns 1  
cache.put(3, 3);      // evicts key 2  
cache.get(2);      // returns -1 (not found)  
cache.get(3);      // returns 3.  
cache.put(4, 4);      // evicts key 1.  
cache.get(1);      // returns -1 (not found)  
cache.get(3);      // returns 3  
cache.get(4);      // returns 4
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

460-LFU-Cache

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

461. Hamming Distance

The [Hamming distance](#) between two integers is the number of positions at which the corresponding bits are different.

Given two integers x and y , calculate the Hamming distance.

Note:

$0 \leq x, y < 2^{31}$.

Example:

Input: $x = 1, y = 4$

Output: 2

Explanation:

1	(0 0 0 1)
4	(0 1 0 0)
	↑ ↑

The above arrows point to positions where the corresponding bits

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[461-Hamming-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

462. Minimum Moves to Equal Array Elements II

Given a **non-empty** integer array, find the minimum number of moves required to make all array elements

equal, where a move is incrementing a selected element by 1 or decrementing a selected element by 1.

You may assume the array's length is at most 10,000.

Example:

Input:

[1, 2, 3]

Output:

2

Explanation:

Only two moves are needed (remember each move increments or decrements one element).

[1, 2, 3] => [2, 2, 3] => [2, 2, 2]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[462-Minimum-Moves-to-Equal-Array-Elements-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

463. Island Perimeter

You are given a map in form of a two-dimensional integer grid where 1 represents land and 0 represents water.

Grid cells are connected horizontally/vertically (not diagonally). The grid is completely surrounded by water, and there is exactly one island (i.e., one or more connected land cells).

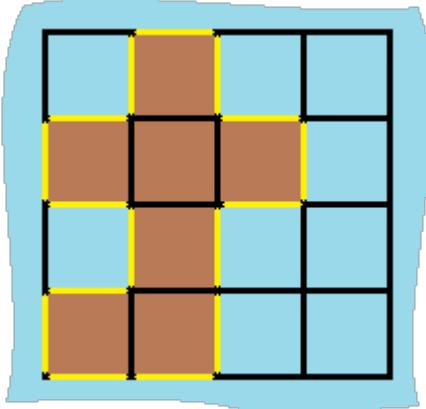
The island doesn't have "lakes" (water inside that isn't connected to the water around the island). One cell is a square with side length 1. The grid is rectangular, width and height don't exceed 100. Determine the perimeter of the island.

Example:

Input:
[[0,1,0,0],
 [1,1,1,0],
 [0,1,0,0],
 [1,1,0,0]]

Output: 16

Explanation: The perimeter is the 16 yellow stripes in the image



Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[463-Island-Perimeter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

464. Can I Win

In the "100 game," two players take turns adding, to a running total, any integer from 1..10. The player who first causes the running total to reach or exceed 100 wins.

What if we change the game so that players cannot re-use integers?

For example, two players might take turns drawing from a common pool of numbers of 1..15 without replacement until they reach a total ≥ 100 .

Given an integer `maxChoosableInteger` and another integer `desiredTotal`, determine if the first player to move can force a win, assuming both players play optimally.

You can always assume that `maxChoosableInteger` will not be larger than 20 and `desiredTotal` will not be larger than 300.

Example

Input:
`maxChoosableInteger = 10`
`desiredTotal = 11`

Output:
`false`

Explanation:

No matter which integer the first player choose, the first player can choose an integer from 1 up to 10. If the first player choose 1, the second player can only choose 10. The second player will win by choosing 10 and get a total = 11. Same with other integers chosen by the first player, the second

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[464-Can-I-Win](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

465. Optimal Account Balancing

A group of friends went on holiday and sometimes lent each other money. For example, Alice paid for Bill's lunch for \$10. Then later Chris gave Alice \$5 for a taxi ride. We can model each transaction as a tuple (x, y, z) which means person x gave person y z . Assuming Alice, Bill, and Chris are person 0, 1, and 2 respectively (0, 1, 2 are the person's ID), the transactions can be represented as $\text{[[0, 1, 10], [2, 0, 5]]}$.

Given a list of transactions between a group of people, return the minimum number of transactions required to settle the debt.

Note:

1. A transaction will be given as a tuple (x, y, z) . Note that $x \neq y$ and $z > 0$.
2. Person's IDs may not be linear, e.g. we could have the persons 0, 1, 2 or we could also have the persons 0, 2, 6.

Example 1:

Input:
[[0,1,10], [2,0,5]]

Output:
2

Explanation:
Person #0 gave person #1 \$10.
Person #2 gave person #0 \$5.

Two transactions are needed. One way to settle the debt is person

Example 2:

Input:
[[0,1,10], [1,0,1], [1,2,5], [2,0,5]]

Output:
1

Explanation:
Person #0 gave person #1 \$10.
Person #1 gave person #0 \$1.
Person #1 gave person #2 \$5.
Person #2 gave person #0 \$5.

Therefore, person #1 only need to give person #0 \$4, and all deb

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[465-Optimal-Account-Balancing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

466. Count The Repetitions

Define $S = [s, n]$ as the string S which consists of n connected strings s . For example, $["abc" , 3] = "abcabcabc"$.

On the other hand, we define that string s_1 can be obtained from string s_2 if we can remove some characters from s_2 such that it becomes s_1 . For example, abc can be obtained from abdbec based on our definition, but it can not be obtained from acbba .

You are given two non-empty strings s_1 and s_2 (each at most 100 characters long) and two integers $0 \leq n_1 \leq 10^6$ and $1 \leq n_2 \leq 10^6$. Now consider the strings S_1 and S_2 ,

where $S1=[s1, n1]$ and $S2=[s2, n2]$. Find the maximum integer M such that $[S2, M]$ can be obtained from $S1$.

Example:

Input:
 $s1="acb"$, $n1=4$
 $s2="ab"$, $n2=2$

Return:
2

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[466-Count-The-Repetitions](#)

All Problems:

[Link to All Problems](#)

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467. Unique Substrings in Wraparound String

Consider the string s to be the infinite wraparound string of "abcdefghijklmnopqrstuvwxyz", so s will look like this:

"...zabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd....".

Now we have another string p . Your job is to find out how many unique non-empty substrings of p are present in s . In particular, your input is the string p and you need to output the number of different non-empty substrings of p in the string s .

Note: p consists of only lowercase English letters and the size of p might be over 10000.

Example 1:

Input: "a"
Output: 1

Explanation: Only the substring "a" of string "a" is in the string s .

Example 2:

Input: "cac"
Output: 2

Explanation: There are two substrings "a", "c" of string "cac" in the string s .

Example 3:

Input: "zab"
Output: 6

Explanation: There are six substrings "z", "a", "b", "za", "ab", "zb" in the string s .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[467-Unique-Substrings-in-Wraparound-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

468. Validate IP Address

Write a function to check whether an input string is a valid IPv4 address or IPv6 address or neither.

IPv4 addresses are canonically represented in dot-decimal notation, which consists of four decimal numbers, each ranging from 0 to 255, separated by dots ("."), e.g., 172.16.254.1 ;

Besides, leading zeros in the IPv4 is invalid. For example, the address 172.16.254.01 is invalid.

IPv6 addresses are represented as eight groups of four hexadecimal digits, each group representing 16 bits. The groups are separated by colons (:). For example, the address 2001:0db8:85a3:0000:0000:8a2e:0370:7334

is a valid one. Also, we could omit some leading zeros among four hexadecimal digits and some low-case characters in the address to upper-case ones, so 2001:db8:85a3:0:0:8A2E:0370:7334 is also a valid IPv6 address(Omit leading zeros and using upper cases).

However, we don't replace a consecutive group of zero value with a single empty group using two consecutive colons (::) to pursue simplicity. For example, 2001:0db8:85a3::8A2E:0370:7334 is an invalid IPv6 address.

Besides, extra leading zeros in the IPv6 is also invalid. For example, the address 02001:0db8:85a3:0000:0000:8a2e:0370:7334 is invalid.

Note: You may assume there is no extra space or special characters in the input string.

Example 1:

Input: "172.16.254.1"

Output: "IPv4"

Explanation: This is a valid IPv4 address, return "IPv4".

Example 2:

Input: "2001:0db8:85a3:0:0:8A2E:0370:7334"

Output: "IPv6"

Explanation: This is a valid IPv6 address, return "IPv6".

Example 3:

Input: "256.256.256.256"

Output: "Neither"

Explanation: This is neither a IPv4 address nor a IPv6 address.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****468-Validate-IP-Address****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:**469. Convex Polygon**

Given a list of points that form a polygon when joined sequentially, find if this polygon is convex ([Convex polygon definition](#)).

Note:

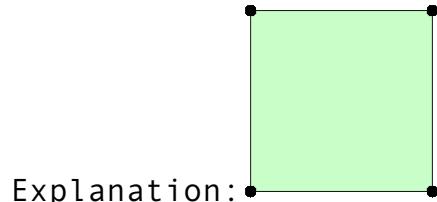
1. There are at least 3 and at most 10,000 points.
2. Coordinates are in the range -10,000 to 10,000.
3. You may assume the polygon formed by given points is always a simple polygon ([Simple polygon](#))

[definition](#)). In other words, we ensure that exactly two edges intersect at each vertex, and that edges otherwise **don't intersect each other**.

Example 1:

`[[0, 0], [0, 1], [1, 1], [1, 0]]`

Answer: True

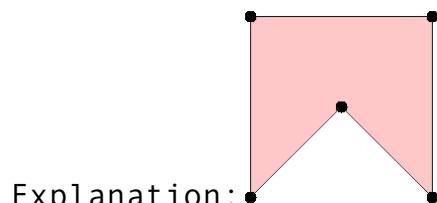


Explanation:

Example 2:

`[[0, 0], [0, 10], [10, 10], [10, 0], [5, 5]]`

Answer: False



Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[469-Convex-Polygon](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

470. Implement Rand10() Using Rand7()

Given a function `rand7` which generates a uniform random integer in the range 1 to 7, write a function `rand10` which generates a uniform random integer in the range 1 to 10.

Do NOT use system's `Math.random()`.

Example 1:

Input: 1
Output: [7]

Example 2:

Input: 2
Output: [8,4]

Example 3:

Input: 3
Output: [8,1,10]

Note:

1. `rand7` is predefined.
2. Each testcase has one argument: `n`, the number of times that `rand10` is called.

Follow up:

1. What is the [expected value](#) for the number of calls to `rand7()` function?
2. Could you minimize the number of calls to `rand7()` ?

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**470-Implement-Rand**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

471. Encode String with Shortest Length

Given a **non-empty** string, encode the string such that its encoded length is the shortest.

The encoding rule is: $k[\text{encoded_string}]$, where the *encoded_string* inside the square brackets is being repeated exactly k times.

Note:

1. k will be a positive integer and encoded string will not be empty or have extra space.
2. You may assume that the input string contains only lowercase English letters. The string's length is at most 160.
3. If an encoding process does not make the string shorter, then do not encode it. If there are several solutions, return any of them is fine.

Example 1:

Input: "aaa"

Output: "aaa"

Explanation: There is no way to encode it such that it is shorter.

Example 2:

Input: "aaaaa"

Output: "5[a]"

Explanation: "5[a]" is shorter than "aaaaa" by 1 character.

Example 3:

Input: "aaaaaaaaaa"

Output: "10[a]"

Explanation: "a9[a]" or "9[a]a" are also valid solutions, both of

Example 4:

Input: "aabcaabcd"

Output: "2[aabc]d"

Explanation: "aabc" occurs twice, so one answer can be "2[aabc]d".

Example 5:

Input: "abbbabbbcabbbabbbc"
Output: "2[2[abbb]c]"
Explanation: "abbbabbb" occurs twice, but "abbbabbb" can also

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[471-Encode-String-with-Shortest-Length](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

472. Concatenated Words

Given a list of words (**without duplicates**), please write a program that returns all concatenated words in the given list of words.

A concatenated word is defined as a string that is comprised entirely of at least two shorter words in the given array.

Example:

Input: ["cat", "cats", "catsdogcats", "dog", "dogcatsdog", "hippopotamuses", "ratcatdogcat"]

Output: ["catsdogcats", "dogcatsdog", "ratcatdogcat"]

Explanation: "catsdogcats" can be concatenated by "cats", "dog" and "cats".
"dogcatsdog" can be concatenated by "dog", "cats" and "dog";
"ratcatdogcat" can be concatenated by "rat", "cat", "dog" and "cat".

Note:

1. The number of elements of the given array will not exceed 10,000
2. The length sum of elements in the given array will not exceed 600,000 .
3. All the input string will only include lower case letters.
4. The returned elements order does not matter.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[472-Concatenated-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

473. Matchsticks to Square

Remember the story of Little Match Girl? By now, you know exactly what matchsticks the little match girl has, please find out a way you can make one square by using up all those matchsticks. You should not break any stick, but you can link them up, and each matchstick must be used **exactly** one time.

Your input will be several matchsticks the girl has, represented with their stick length. Your output will either be true or false, to represent whether you could make one square using all the matchsticks the little match girl has.

Example 1:

Input: [1,1,2,2,2]
Output: true

Explanation: You can form a square with length 2, one side of the

Example 2:

Input: [3,3,3,3,4]
Output: false

Explanation: You cannot find a way to form a square with all the

Note:

1. The length sum of the given matchsticks is in the range of 0 to 10^9 .

1. Given a matchstick array $matchsticks$ (represented by an integer array), return `true` if it is possible to form a square with all the matchsticks, or `false` otherwise.
2. The length of the given matchstick array will not exceed 15 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[473-Matchsticks-to-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

474. Ones and Zeroes

In the computer world, use restricted resource you have to generate maximum benefit is what we always want to pursue.

For now, suppose you are a dominator of **m** 0s and **n** 1s respectively. On the other hand, there is an array with strings consisting of only 0s and 1s .

Now your task is to find the maximum number of strings that you can form with given **m** 0s and **n** 1s . Each 0 and 1 can be used at most **once** .

Note:

1. The given numbers of 0s and 1s will both not exceed 100
2. The size of given string array won't exceed 600 .

Example 1:

Input: Array = {"10", "0001", "111001", "1", "0"}, m = 5, n = 3
Output: 4

Explanation: This are totally 4 strings can be formed by the using

Example 2:

Input: Array = {"10", "0", "1"}, m = 1, n = 1
Output: 2

Explanation: You could form "10", but then you'd have nothing left.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[474-Ones-and-Zeroes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

475. Heaters

Winter is coming! Your first job during the contest is to design a standard heater with fixed warm radius to warm all the houses.

Now, you are given positions of houses and heaters on a horizontal line, find out minimum radius of heaters so that all houses could be covered by those heaters.

So, your input will be the positions of houses and heaters separately, and your expected output will be the minimum radius standard of heaters.

Note:

1. Numbers of houses and heaters you are given are non-negative and will not exceed 25000.
2. Positions of houses and heaters you are given are non-negative and will not exceed 10^9 .
3. As long as a house is in the heaters' warm radius range, it can be warmed.
4. All the heaters follow your radius standard and the warm radius will be the same.

Example 1:

Input: [1, 2, 3], [2]

Output: 1

Explanation: The only heater was placed in the position 2, and it

Example 2:

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

Output: 1

Explanation: The two heater was placed in the position 1 and 4.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[475-Heaters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

476. Number Complement

Given a positive integer, output its complement number. The complement strategy is to flip the bits of its binary representation.

Note:

1. The given integer is guaranteed to fit within the range of a 32-bit signed integer.
2. You could assume no leading zero bit in the integer's binary representation.

Example 1:

Input: 5

Output: 2

Explanation: The binary representation of 5 is 101 (no leading zero)

Example 2:

Input: 1

Output: 0

Explanation: The binary representation of 1 is 1 (no leading zero)

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[476-Number-Complement](#)

All Problems:

[Link to All Problems](#)

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477. Total Hamming Distance

The [Hamming distance](#) between two integers is the number of positions at which the corresponding bits are different.

Now your job is to find the total Hamming distance between all pairs of the given numbers.

Example:

Input: 4, 14, 2

Output: 6

Explanation: In binary representation, the 4 is 0100, 14 is 1110 (showing the four bits relevant in this case). So the answer will be $\text{HammingDistance}(4, 14) + \text{HammingDistance}(4, 2) + \text{HammingDistance}(14, 2)$.

Note:

1. Elements of the given array are in the range of 0 to 10^9
2. Length of the array will not exceed 10^4 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[477-Total-Hamming-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

478. Generate Random Point in a Circle

Given the radius and x-y positions of the center of a circle, write a function `randPoint` which generates a uniform random point in the circle.

Note:

1. input and output values are in [floating-point](#).
2. radius and x-y position of the center of the circle is passed into the class constructor.
3. a point on the circumference of the circle is considered to be in the circle.

4. `randPoint` returns a size 2 array containing x-position and y-position of the random point, in that order.

Example 1:

Input:

```
["Solution","randPoint","randPoint","randPoint"]
```

```
[[1,0,0],[],[],[]]
```

Output: [null, [-0.72939, -0.65505], [-0.78502, -0.28626], [-0.83119,

Example 2:

Input:

```
["Solution","randPoint","randPoint","randPoint"]
```

```
[[10,5,-7.5],[],[],[]]
```

Output: [null, [11.52438, -8.33273], [2.46992, -16.21705], [11.13430,

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[478-Generate-Random-Point-in-a-Circle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

479. Largest Palindrome Product

Find the largest palindrome made from the product of two n-digit numbers.

Since the result could be very large, you should return the largest palindrome mod 1337.

Example:

Input: 2

Output: 987

Explanation: $99 \times 91 = 9009$, $9009 \% 1337 = 987$

Note:

The range of n is [1,8].

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[479-Largest-Palindrome-Product](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

480. Sliding Window Median

Median is the middle value in an ordered integer list. If the size of the list is even, there is no middle value. So the median is the mean of the two middle value.

Examples:

[2, 3, 4] , the median is 3

[2, 3] , the median is $(2 + 3) / 2 = 2.5$

Given an array $nums$, there is a sliding window of size k which is moving from the very left of the array to the very right. You can only see the k numbers in the window. Each time the sliding window moves right by one position. Your job is to output the median array for each window in the original array.

For example,

Given $nums = [1, 3, -1, -3, 5, 3, 6, 7]$, and $k = 3$.

Window position	Median
-----	-----

[1	3	-1]	-3	5	3	6	7		1
1	[3	-1	-3]	5	3	6	7		-1
1	3	[-1	-3	5]	3	6	7		-1
1	3	-1	[-3	5	3]	6	7		3
1	3	-1	-3	[5	3	6]	7		5
1	3	-1	-3	5	[3	6	7]		6

Therefore, return the median sliding window as

`[1, -1, -1, 3, 5, 6]` .

Note:

You may assume k is always valid, ie: k is always smaller than input array's size for non-empty array.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[480-Sliding-Window-Median](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

481. Magical String

A magical string **S** consists of only '1' and '2' and obeys the following rules:

The string **S** is magical because concatenating the number of contiguous occurrences of characters '1' and '2' generates the string **S** itself.

The first few elements of string **S** is the following: **S** = "1221121221221121122 | |"

If we group the consecutive '1's and '2's in **S** , it will be:

1 2 2 1 1 2 1 2 2 1 1 2 1 2 2
.....

and the occurrences of '1's or '2's in each group are:

1 2 2 1 1 2 1 2 2 1 2 2
.....

You can see that the occurrence sequence above is the **S** itself.

Given an integer N as input, return the number of '1's in the first N number in the magical string **S** .

Note: N will not exceed 100,000.

Example 1:

Input: 6

Output: 3

Explanation: The first 6 elements of magical string S is "12211"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**481-Magical-String**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

482. License Key Formatting

You are given a license key represented as a string S which consists only alphanumeric character and dashes. The string is separated into N+1 groups by N dashes.

Given a number K, we would want to reformat the strings such that each group contains *exactly* K characters, except for the first group which could be shorter than K, but still must contain at least one character. Furthermore, there must be a dash inserted between two groups and all lowercase letters should be converted to uppercase.

Given a non-empty string S and a number K, format the string according to the rules described above.

Example 1:

Input: S = "5F3Z-2e-9-w", K = 4

Output: "5F3Z-2E9W"

Explanation: The string S has been split into two parts, each part has length 4. Note that the two extra dashes are not needed and can be removed.

Example 2:

Input: S = "2-5g-3-J", K = 2

Output: "2-5G-3J"

Explanation: The string S has been split into three parts, each part has length 2.

Note:

1. The length of string S will not exceed 12,000, and K is a positive integer.
2. String S consists only of alphanumerical characters (a-z and/or A-Z and/or 0-9) and dashes(-).
3. String S is non-empty.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[482-License-Key-Formatting](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

483. Smallest Good Base

For an integer n, we call $k \geq 2$ a **good base** of n, if all digits of n base k are 1.

Now given a string representing n, you should return the smallest good base of n in string format.

Example 1:

Input: "13"
Output: "3"
Explanation: 13 base 3 is 111.

Example 2:

Input: "4681"
Output: "8"
Explanation: 4681 base 8 is 11111.

Example 3:

Input: "10000000000000000000"
Output: "9999999999999999999"
Explanation: 10000000000000000000 base 9999999999999999999 is 11.

Note:

1. The range of n is $[3, 10^{18}]$.
2. The string representing n is always valid and will not have leading zeros.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[483-Smallest-Good-Base](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

484. Find Permutation

By now, you are given a **secret signature** consisting of character 'D' and 'I'. 'D' represents a decreasing relationship between two numbers, 'I' represents an increasing relationship between two numbers. And our **secret signature** was constructed by a special integer array, which contains uniquely all the different number

from 1 to n (n is the length of the secret signature plus 1). For example, the secret signature "DI" can be constructed by array [2,1,3] or [3,1,2], but won't be constructed by array [3,2,4] or [2,1,3,4], which are both illegal constructing special string that can't represent the "DI" **secret signature**.

On the other hand, now your job is to find the lexicographically smallest permutation of [1, 2, ... n] could refer to the given **secret signature** in the input.

Example 1:

Input: "I"

Output: [1, 2]

Explanation: [1, 2] is the only legal initial special string can

Example 2:

Input: "DI"

Output: [2, 1, 3]

Explanation: Both [2, 1, 3] and [3, 1, 2] can construct the secret s

Note:

- The input string will only contain the character 'D' and 'I'.
- The length of input string is a positive integer and will not exceed 10,000

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[484-Find-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

485. Max Consecutive Ones

Given a binary array, find the maximum number of consecutive 1s in this array.

Example 1:

Input: [1,1,0,1,1,1]

Output: 3

Explanation: The first two digits or the last three digits are consecutive 1s. The maximum number of consecutive 1s is 3.

Note:

- The input array will only contain 0 and 1 .
- The length of input array is a positive integer and will not exceed 10,000

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[485-Max-Consecutive-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

486. Predict the Winner

Given an array of scores that are non-negative integers. Player 1 picks one of the numbers from either end of the array followed by the player 2 and then player 1 and so on. Each time a player picks a number, that number will not be available for the next player. This continues until all the scores have been chosen. The player with the maximum score wins.

Given an array of scores, predict whether player 1 is the winner. You can assume each player plays to maximize his score.

Example 1:

Input: [1, 5, 2]

Output: False

Explanation: Initially, player 1 can choose between 1 and 2. If he chooses 2 (or 1), then player 2 can choose from 1 (or 2) and 5. So, final score of player 1 is $1 + 2 = 3$, and player 2 is 5. Hence, player 1 will never be the winner and you need to return False.

Example 2:

Input: [1, 5, 233, 7]

Output: True

Explanation: Player 1 first chooses 1. Then player 2 have to choose between 5 and 233. Finally, player 1 has more score (234) than player 2 (12), so you need to return True.

Note:

1. $1 \leq \text{length of the array} \leq 20$.
2. Any scores in the given array are non-negative integers and will not exceed 10,000,000.
3. If the scores of both players are equal, then player 1 is still the winner.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[486-Predict-the-Winner](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

487. Max Consecutive Ones II

Given a binary array, find the maximum number of consecutive 1s in this array if you can flip at most one 0.

Example 1:

Input: [1,0,1,1,0]

Output: 4

Explanation: Flip the first zero will get the the maximum number
After flipping, the maximum number of consecutive 1s is 4.

Note:

- The input array will only contain 0 and 1 .
- The length of input array is a positive integer and will not exceed 10,000

Follow up:

What if the input numbers come in one by one as an **infinite stream** ? In other words, you can't store all numbers coming from the stream as it's too large to hold in memory. Could you solve it efficiently?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[**487-Max-Consecutive-Ones-II**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

488. Zuma Game

Think about Zuma Game. You have a row of balls on the table, colored red(R), yellow(Y), blue(B), green(G), and white(W). You also have several balls in your hand.

Each time, you may choose a ball in your hand, and insert it into the row (including the leftmost place and rightmost place). Then, if there is a group of 3 or more balls in the same color touching, remove these balls. Keep doing this until no more balls can be removed.

Find the minimal balls you have to insert to remove all the balls on the table. If you cannot remove all the balls, output -1.

Examples:

Input: "WRRBBW", "RB"

Output: -1

Explanation: WRRBBW -> WRR[R]BBW -> WBBW -> WBB[B]W -> WW

Input: "WWRRBBWW", "WRBRW"

Output: 2

Explanation: WWRRBBWW -> WWRR[R]BBWW -> WWBBWW -> WWBB[B]WW -> WW

Input: "G", "GGGGG"

Output: 2

Explanation: G -> G[G] -> GG[G] -> empty

Input: "RBYYBBRRB", "YRBGB"

Output: 3

Explanation: RBYYBBRRB -> RBYY[Y]BBRRB -> RBBBRRB -> RRRB -> B ->

Note:

1. You may assume that the initial row of balls on the table won't have any 3 or more consecutive balls with the same color.
2. The number of balls on the table won't exceed 20, and the string represents these balls is called "board" in the input.
3. The number of balls in your hand won't exceed 5, and the string represents these balls is called "hand" in the input.
4. Both input strings will be non-empty and only contain characters 'R','Y','B','G','W'.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[488-Zuma-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

489. Robot Room Cleaner

Given a robot cleaner in a room modeled as a grid.

Each cell in the grid can be empty or blocked.

The robot cleaner with 4 given APIs can move forward, turn left or turn right. Each turn it made is 90 degrees.

When it tries to move into a blocked cell, its bumper sensor detects the obstacle and it stays on the current cell.

Design an algorithm to clean the entire room using only the 4 given APIs shown below.

```
interface Robot {  
    // returns true if next cell is open and robot moves into the cell  
    // returns false if next cell is obstacle and robot stays on the current cell  
    boolean move();  
  
    // Robot will stay on the same cell after calling turnLeft/turnRight  
    // Each turn will be 90 degrees.  
    void turnLeft();  
    void turnRight();  
  
    // Clean the current cell.
```

```
    void clean();  
}
```

Example:

Input:

```
room = [  
    [1,1,1,1,1,0,1,1],  
    [1,1,1,1,1,0,1,1],  
    [1,0,1,1,1,1,1,1],  
    [0,0,0,1,0,0,0,0],  
    [1,1,1,1,1,1,1,1]  
],  
row = 1,  
col = 3
```

Explanation:

All grids in the room are marked by either 0 or 1. 0 means the cell is blocked, while 1 means the cell is accessible. The robot initially starts at the position of row=1, col=3. From the top left corner, its position is one row below and three columns to the right.

Notes:

1. The input is only given to initialize the room and the robot's position internally. You must solve this problem "blindfolded". In other words, you must control the robot using only the mentioned 4 APIs, without knowing the room layout and the initial robot's position.
2. The robot's initial position will always be in an accessible cell.
3. The initial direction of the robot will be facing up.
4. All accessible cells are connected, which means the all cells marked as 1 will be accessible by the robot.
5. Assume all four edges of the grid are all surrounded by wall.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[489-Robot-Room-Cleaner](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

490. The Maze

There is a **ball** in a maze with empty spaces and walls. The ball can go through empty spaces by rolling **up**, **down**, **left** or **right**, but it won't stop rolling until hitting a wall. When the ball stops, it could choose the next direction.

Given the ball's **start position**, the **destination** and the **maze**, determine whether the ball could stop at the destination.

The maze is represented by a binary 2D array. 1 means the wall and 0 means the empty space. You may assume that the borders of the maze are all walls. The start and destination coordinates are represented by row and column indexes.

Example 1:

Input 1: a maze represented by a 2D array

```

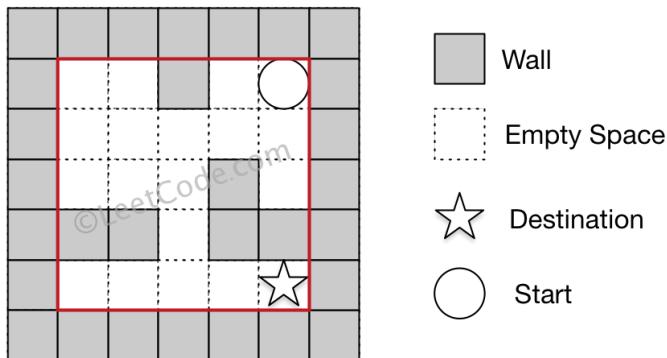
0 0 1 0 0
0 0 0 0 0
0 0 0 1 0
1 1 0 1 1
0 0 0 0 0

```

Input 2: start coordinate (rowStart, colStart) = (0, 4)
Input 3: destination coordinate (rowDest, colDest) = (4, 4)

Output: true

Explanation: One possible way is : left -> down -> left -> down



Example 2:

Input 1: a maze represented by a 2D array

```

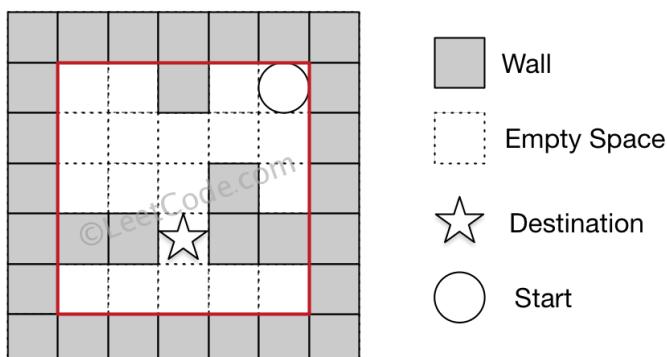
0 0 1 0 0
0 0 0 0 0
0 0 0 1 0
1 1 0 1 1
0 0 0 0 0

```

Input 2: start coordinate (rowStart, colStart) = (0, 4)
Input 3: destination coordinate (rowDest, colDest) = (3, 2)

Output: false

Explanation: There is no way for the ball to stop at the destination



Note:

1. There is only one ball and one destination in the maze.
2. Both the ball and the destination exist on an empty space, and they will not be at the same position initially.
3. The given maze does not contain border (like the red rectangle in the example pictures), but you could assume the border of the maze are all walls.
4. The maze contains at least 2 empty spaces, and both the width and height of the maze won't exceed 100.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[490-The-Maze](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

491. Increasing Subsequences

Given an integer array, your task is to find all the different possible increasing subsequences of the given array, and the length of an increasing subsequence should be at least 2.

Example:

Input: [4, 6, 7, 7]

Output: [[4, 6], [4, 7], [4, 6, 7], [4, 6, 7, 7], [6, 7], [6, 7, 7]]

Note:

1. The length of the given array will not exceed 15.
2. The range of integer in the given array is [-100,100].
3. The given array may contain duplicates, and two equal integers should also be considered as a special case of increasing sequence.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[491-Increasing-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

492. Construct the Rectangle

For a web developer, it is very important to know how to design a web page's size. So, given a specific rectangular web page's area, your job by now is to design a rectangular web page, whose length L and width W satisfy the following requirements:

1. The area of the rectangular web page you designed must equal
2. The width W should not be larger than the length L, which means $W \leq L$
3. The difference between length L and width W should be as small as possible.

You need to output the length L and the width W of the web page you designed in sequence.

Example:

Input: 4

Output: [2, 2]

Explanation: The target area is 4, and all the possible ways to get such area are [1,4], [2,2], [4,1]. But according to requirement 2, [1,4] is illegal; according to requirement 3, we need to return [2,2].

Note:

1. The given area won't exceed 10,000,000 and is a positive integer
2. The web page's width and length you designed must be positive integers.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[492-Construct-the-Rectangle](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

493. Reverse Pairs

Given an array `nums` , we call (i, j) an ***important reverse pair*** if $i < j$ and $\text{nums}[i] > 2 * \text{nums}[j]$.

You need to return the number of important reverse pairs in the given array.

Example1:

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

Example2:

Input: [2,4,3,5,1]
Output: 3

Note:

1. The length of the given array will not exceed 50,000 .
2. All the numbers in the input array are in the range of 32-bit integer.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[493-Reverse-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

494. Target Sum

You are given a list of non-negative integers, a_1, a_2, \dots, a_n , and a target, S . Now you have 2 symbols + and - . For each integer, you should choose one from + and - as its new symbol.

Find out how many ways to assign symbols to make sum of integers equal to target S .

Example 1:

Input: nums is [1, 1, 1, 1, 1], S is 3.

Output: 5

Explanation:

$$\begin{aligned}-1+1+1+1+1 &= 3 \\+1-1+1+1+1 &= 3 \\+1+1-1+1+1 &= 3 \\+1+1+1-1+1 &= 3 \\+1+1+1+1-1 &= 3\end{aligned}$$

There are 5 ways to assign symbols to make the sum of nums be ta

Note:

1. The length of the given array is positive and will not exceed 20.
2. The sum of elements in the given array will not exceed 1000.
3. Your output answer is guaranteed to be fitted in a 32-bit integer.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**494-Target-Sum**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:**495. Teemo Attacking**

In LOL world, there is a hero called Teemo and his attacking can make his enemy Ashe be in poisoned condition. Now, given the Teemo's attacking **ascending** time series towards Ashe and the poisoning time duration per Teemo's attacking, you need to output the total time that Ashe is in poisoned condition.

You may assume that Teemo attacks at the very beginning of a specific time point, and makes Ashe be in poisoned condition immediately.

Example 1:

Input: [1, 4], 2

Output: 4

Explanation: At time point 1, Teemo starts attacking Ashe and makes her poisoned. This poisoned status will last 2 seconds until the end of time point 3. And at time point 4, Teemo attacks Ashe again, and causes Ashe to be poisoned again. So you finally need to output 4.

Example 2:

Input: [1, 2], 2

Output: 3

Explanation: At time point 1, Teemo starts attacking Ashe and makes her poisoned. This poisoned status will last 2 seconds until the end of time point 3. However, at the beginning of time point 2, Teemo attacks Ashe again. Since the poisoned status won't add up together, though the second attack starts while the first one is still active. So you finally need to output 3.

Note:

1. You may assume the length of given time series array won't exceed 10000.
2. You may assume the numbers in the Teemo's attacking time series and his poisoning time duration per attacking are non-negative integers, which won't exceed 10,000,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

495-Teemo-Attacking

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

496. Next Greater Element

I

You are given two arrays (**without duplicates**) `nums1` and `nums2` where `nums1` 's elements are subset of `nums2` . Find all the next greater numbers for `nums1` 's elements in the corresponding places of `nums2` .

The Next Greater Number of a number `x` in `nums1` is the first greater number to its right in `nums2` . If it does not exist, output -1 for this number.

Example 1:

Input: `nums1 = [4,1,2]`, `nums2 = [1,3,4,2]`.

Output: `[-1,3,-1]`

Explanation:

For number 4 in the first array, you cannot find the next greater number.

For number 1 in the first array, the next greater number for 1 is 3.

For number 2 in the first array, there is no next greater number.

Example 2:

Input: `nums1 = [2,4]`, `nums2 = [1,2,3,4]`.

Output: `[3,-1]`

Explanation:

For number 2 in the first array, the next greater number for
For number 4 in the first array, there is no next greater nu

Note:

1. All elements in `nums1` and `nums2` are unique.
2. The length of both `nums1` and `nums2` would not exceed 1000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[496-Next-Greater-Element-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

497. Random Point in Non-overlapping Rectangles

Given a list of **non-overlapping** axis-aligned rectangles `rects` , write a function `pick` which randomly and uniformly picks an **integer point** in the space covered by the rectangles.

Note:

1. An **integer point** is a point that has integer coordinates.
2. A point on the perimeter of a rectangle is **included** in the space covered by the rectangles.
3. `i` th rectangle = `rects[i] = [x1, y1, x2, y2]` , where `[x1, y1]` are the integer coordinates of the bottom-left corner, and `[x2, y2]` are the integer coordinates of the top-right corner.
4. length and width of each rectangle does not exceed `2000` .
5. `1 <= rect.length <= 100`
6. `pick` return a point as an array of integer coordinates `[p_x, p_y]`
7. `pick` is called at most `10000` times.

Example 1:

Input:
["Solution","pick","pick","pick"]
[[[[1,1,5,5]],[],[],[]]
Output:
[null,[4,1],[4,1],[3,3]]

Example 2:

Input:
["Solution","pick","pick","pick","pick","pick"]
[[[-2,-2,-1,-1],[1,0,3,0]],[],[],[],[],[]]
Output:
[null,[-1,-2],[2,0],[-2,-1],[3,0],[-2,-2]]

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

498. Diagonal Traverse

Given a matrix of M x N elements (M rows, N columns), return all elements of the matrix in diagonal order as shown in the below image.

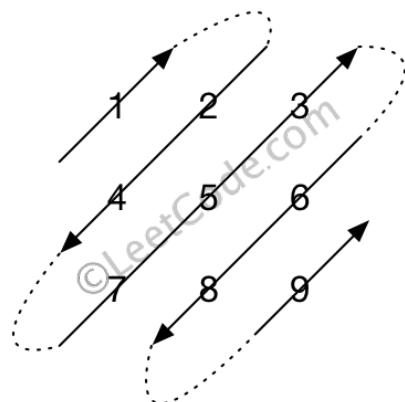
Example:

Input:

```
[  
    [ 1, 2, 3 ],  
    [ 4, 5, 6 ],  
    [ 7, 8, 9 ]  
]
```

Output: [1, 2, 4, 7, 5, 3, 6, 8, 9]

Explanation:



Note:

The total number of elements of the given matrix will not exceed 10,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[498-Diagonal-Traverse](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

499. The Maze III

There is a **ball** in a maze with empty spaces and walls. The ball can go through empty spaces by rolling **up** (u), **down** (d), **left** (l) or **right** (r), but it won't stop rolling until hitting a wall. When the ball stops, it could choose the next direction. There is also a **hole** in this maze. The ball will drop into the hole if it rolls on to the hole.

Given the **ball position**, the **hole position** and the **maze**, find out how the ball could drop into the hole by moving the **shortest distance**. The distance is defined by the number of **empty spaces** traveled by the ball from the start position (excluded) to the hole (included). Output the moving **directions** by using 'u', 'd', 'l' and 'r'. Since there could be several different shortest ways, you should output the **lexicographically smallest** way. If the ball cannot reach the hole, output "impossible".

The maze is represented by a binary 2D array. 1 means the wall and 0 means the empty space. You may assume that the borders of the maze are all walls. The ball and the hole coordinates are represented by row and column indexes.

Example 1:

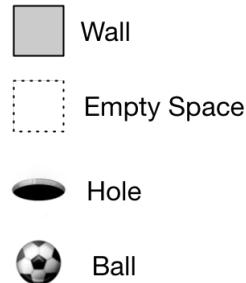
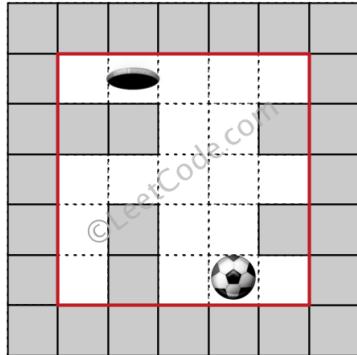
Input 1: a maze represented by a 2D array

```
0 0 0 0 0  
1 1 0 0 1  
0 0 0 0 0  
0 1 0 0 1  
0 1 0 0 0
```

Input 2: ball coordinate (rowBall, colBall) = (4, 3)
Input 3: hole coordinate (rowHole, colHole) = (0, 1)

Output: "lul"

Explanation: There are two shortest ways for the ball to drop in. The first way is left -> up -> left, represented by "lul". The second way is up -> left, represented by 'ul'. Both ways have shortest distance 6, but the first way is lexicographical.



Example 2:

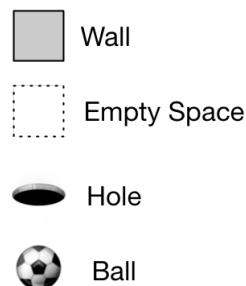
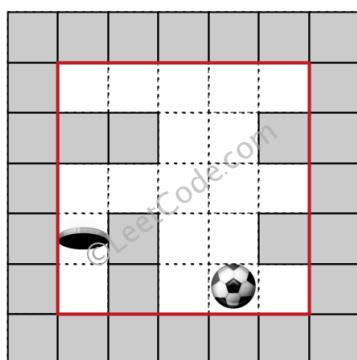
Input 1: a maze represented by a 2D array

```
0 0 0 0 0  
1 1 0 0 1  
0 0 0 0 0  
0 1 0 0 1  
0 1 0 0 0
```

Input 2: ball coordinate (rowBall, colBall) = (4, 3)
Input 3: hole coordinate (rowHole, colHole) = (3, 0)

Output: "impossible"

Explanation: The ball cannot reach the hole.



Note:

1. There is only one ball and one hole in the maze.
2. Both the ball and hole exist on an empty space, and they will not be at the same position initially.

3. The given maze does not contain border (like the red rectangle in the example pictures), but you could assume the border of the maze are all walls.
4. The maze contains at least 2 empty spaces, and the width and the height of the maze won't exceed 30.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[499-The-Maze-III](#)

All Problems:

[Link to All Problems](#)

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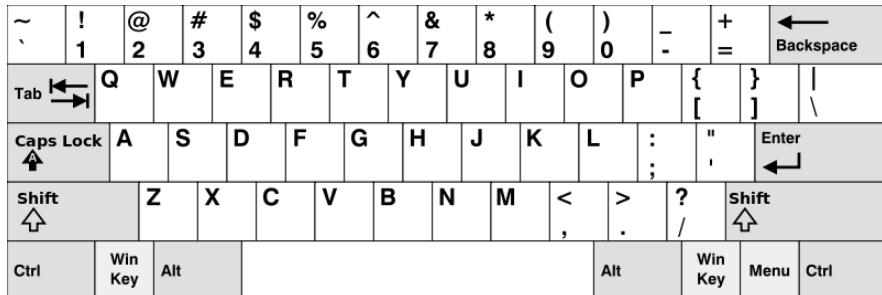
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Welcome to Subscribe On Youtube:

500. Keyboard Row

Given a List of words, return the words that can be typed using letters of **alphabet** on only one row's of American keyboard like the image below.



Example:

Input: ["Hello", "Alaska", "Dad", "Peace"]
Output: ["Alaska", "Dad"]

Note:

1. You may use one character in the keyboard more than once.
2. You may assume the input string will only contain letters of alphabet.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[500-Keyboard-Row](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

501. Find Mode in Binary Search Tree

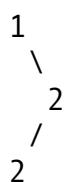
Given a binary search tree (BST) with duplicates, find all the mode(s) (the most frequently occurred element) in the given BST.

Assume a BST is defined as follows:

- The left subtree of a node contains only nodes with keys **less than or equal to** the node's key.
- The right subtree of a node contains only nodes with keys **greater than or equal to** the node's key.
- Both the left and right subtrees must also be binary search trees.

For example:

Given BST [1,null,2,2] ,



return [2] .

Note: If a tree has more than one mode, you can return them in any order.

Follow up: Could you do that without using any extra space? (Assume that the implicit stack space incurred due to recursion does not count).

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[501-Find-Mode-in-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

502. IPO

Suppose LeetCode will start its IPO soon. In order to sell a good price of its shares to Venture Capital, LeetCode would like to work on some projects to increase its

capital before the IPO. Since it has limited resources, it can only finish at most k distinct projects before the IPO. Help LeetCode design the best way to maximize its total capital after finishing at most k distinct projects.

You are given several projects. For each project i , it has a pure profit P_i and a minimum capital of C_i is needed to start the corresponding project. Initially, you have W capital. When you finish a project, you will obtain its pure profit and the profit will be added to your total capital.

To sum up, pick a list of at most k distinct projects from given projects to maximize your final capital, and output your final maximized capital.

Example 1:

Input: $k=2$, $W=0$, Profits=[1,2,3], Capital=[0,1,1].

Output: 4

Explanation: Since your initial capital is 0, you can only start project 0. After finishing it you will obtain profit 1 and you have capital 1. With capital 1, you can either start the project index 1 or 2. Since you can choose at most 2 projects, you need to choose both projects 0 and 1. Therefore, output the final maximized capital, which is 4.

Note:

1. You may assume all numbers in the input are non-negative integers.
2. The length of Profits array and Capital array will not exceed 50,000.
3. The answer is guaranteed to fit in a 32-bit signed integer.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[502-IPO](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

503. Next Greater Element II

Given a circular array (the next element of the last element is the first element of the array), print the Next Greater Number for every element. The Next Greater Number of a number x is the first greater number to its traversing-order next in the array, which means you could search circularly to find its next greater number. If it doesn't exist, output -1 for this number.

Example 1:

Input: [1, 2, 1]
Output: [2, -1, 2]

Explanation: The first 1's next greater number is 2; The number 2's next greater number is 4; The second 1's next greater number needs to search circularly, which is 3.

Note: The length of given array won't exceed 10000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**503-Next-Greater-Element-II**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

504. Base 7

Given an integer, return its base 7 string representation.

Example 1:

Input: 100
Output: "202"

Example 2:

Input: -7
Output: "-10"

Note: The input will be in range of [-1e7, 1e7].

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****504-Base-7****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:

505. The Maze II

There is a **ball** in a maze with empty spaces and walls. The ball can go through empty spaces by rolling **up**, **down**, **left** or **right**, but it won't stop rolling until hitting a wall. When the ball stops, it could choose the next direction.

Given the ball's **start position**, the **destination** and the **maze**, find the shortest distance for the ball to stop at the destination. The distance is defined by the number of **empty spaces** traveled by the ball from the start position (excluded) to the destination (included). If the ball cannot stop at the destination, return -1.

The maze is represented by a binary 2D array. 1 means the wall and 0 means the empty space. You may assume that the borders of the maze are all walls. The start and destination coordinates are represented by row and column indexes.

Example 1:

Input 1: a maze represented by a 2D array

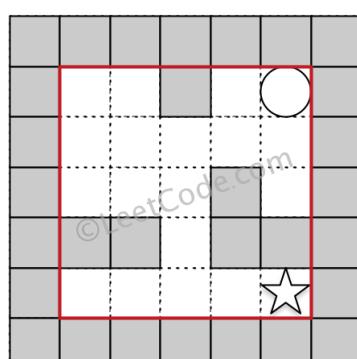
```
0 0 1 0 0  
0 0 0 0 0  
0 0 0 1 0  
1 1 0 1 1  
0 0 0 0 0
```

Input 2: start coordinate (rowStart, colStart) = (0, 4)

Input 3: destination coordinate (rowDest, colDest) = (4, 4)

Output: 12

Explanation: One shortest way is : left -> down -> left -> down
The total distance is $1 + 1 + 3 + 1 + 2 + 2 + 2 = 12$



- Wall
- Empty Space
- Destination
- Start

Example 2:

Input 1: a maze represented by a 2D array

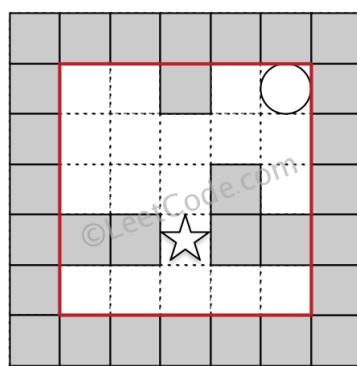
```
0 0 1 0 0  
0 0 0 0 0  
0 0 0 1 0  
1 1 0 1 1  
0 0 0 0 0
```

Input 2: start coordinate (rowStart, colStart) = (0, 4)

Input 3: destination coordinate (rowDest, colDest) = (3, 2)

Output: -1

Explanation: There is no way for the ball to stop at the destina



- Wall
- Empty Space
- ★ Destination
- Start

Note:

1. There is only one ball and one destination in the maze.
2. Both the ball and the destination exist on an empty space, and they will not be at the same position initially.
3. The given maze does not contain border (like the red rectangle in the example pictures), but you could assume the border of the maze are all walls.
4. The maze contains at least 2 empty spaces, and both the width and height of the maze won't exceed 100.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[505-The-Maze-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

506. Relative Ranks

Given scores of N athletes, find their relative ranks and the people with the top three highest scores, who will be awarded medals: "Gold Medal", "Silver Medal" and "Bronze Medal".

Example 1:

Input: [5, 4, 3, 2, 1]

Output: ["Gold Medal", "Silver Medal", "Bronze Medal", "4", "5"]

Explanation: The first three athletes got the top three highest. For the left two athletes, you just need to output their relative

Note:

1. N is a positive integer and won't exceed 10,000.

1. All the scores of athletes are guaranteed to be unique.
2. All the scores of athletes are guaranteed to be unique.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**506-Relative-Ranks**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

507. Perfect Number

We define the Perfect Number is a **positive** integer that is equal to the sum of all its **positive** divisors except itself.

Now, given an **integer** **n**, write a function that returns true when it is a perfect number and false when it is not.

Example:

Input: 28

Output: True

Explanation: $28 = 1 + 2 + 4 + 7 + 14$

Note: The input number **n** will not exceed 100,000,000.
($1e8$)

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[507-Perfect-Number](#)

All Problems:

[Link to All Problems](#)

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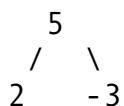
Welcome to Subscribe On Youtube:

508. Most Frequent Subtree Sum

Given the root of a tree, you are asked to find the most frequent subtree sum. The subtree sum of a node is defined as the sum of all the node values formed by the subtree rooted at that node (including the node itself). So what is the most frequent subtree sum value? If there is a tie, return all the values with the highest frequency in any order.

Examples 1

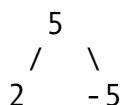
Input:



return [2, -3, 4], since all the values happen only once, return all of them in any order.

Examples 2

Input:



return [2], since 2 happens twice, however -5 only occur once.

Note: You may assume the sum of values in any subtree is in the range of 32-bit signed integer.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[508-Most-Frequent-Subtree-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

509. Fibonacci Number

The **Fibonacci numbers** , commonly denoted $F(n)$ form a sequence, called the **Fibonacci sequence** , such that each number is the sum of the two preceding ones, starting from 0 and 1 . That is,

$$F(0) = 0, \quad F(1) = 1 \\ F(N) = F(N - 1) + F(N - 2), \text{ for } N > 1.$$

Given N , calculate $F(N)$.

Example 1:

Input: 2
Output: 1

Explanation: $F(2) = F(1) + F(0) = 1 + 0 = 1$.

Example 2:

Input: 3
Output: 2

Explanation: $F(3) = F(2) + F(1) = 1 + 1 = 2$.

Example 3:

Input: 4

Output: 3

Explanation: $F(4) = F(3) + F(2) = 2 + 1 = 3$.

Note:

$0 \leq N \leq 30$.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****509-Fibonacci-Number****All Problems:****Link to All Problems**

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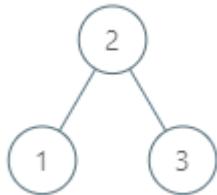
510. Inorder Successor in BST II

Given a binary search tree and a node in it, find the in-order successor of that node in the BST.

The successor of a node p is the node with the smallest key greater than $p.val$.

You will have direct access to the node but not to the root of the tree. Each node will have a reference to its parent node.

Example 1:



Input:

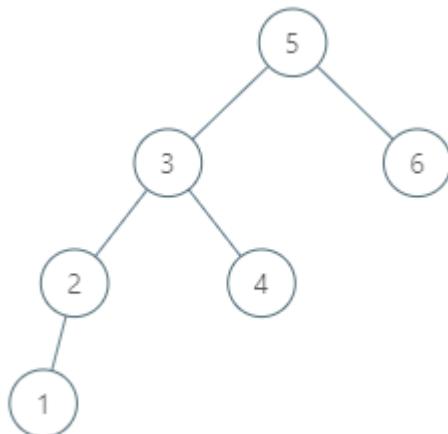
```
root = {"$id": "1", "left": {"$id": "2", "left": null, "parent": {"$ref": "
```

```
p = 1
```

```
Output: 2
```

```
Explanation: 1's in-order successor node is 2. Note that both p and 1 have parent references pointing to each other.
```

Example 2:



Input:

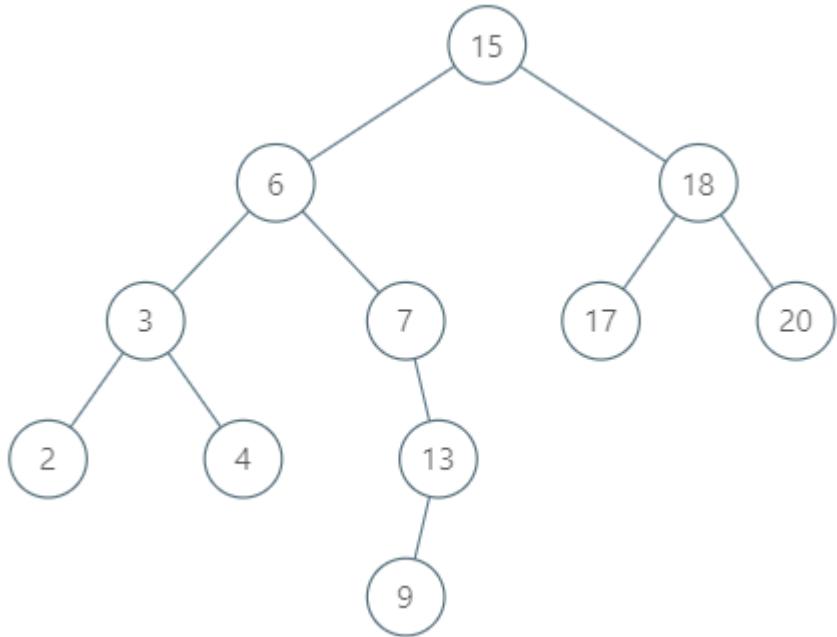
```
root = {"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": {"$id": "4", "left": null, "parent": {"$ref": "
```

```
p = 6
```

```
Output: null
```

```
Explanation: There is no in-order successor of the current node, because it is the rightmost node in the tree.
```

Example 3:

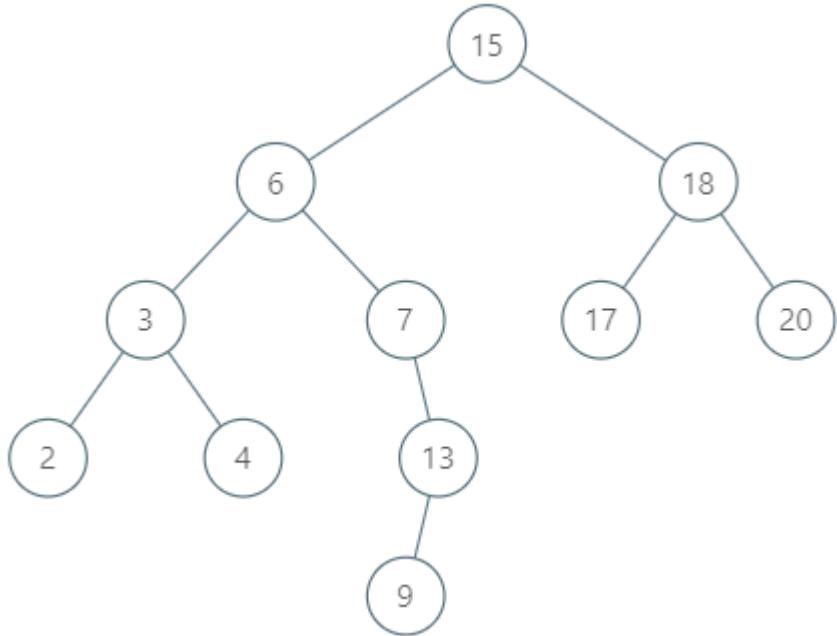


Input:

```
root = {"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": {"$id": "4", "left": null, "right": null}, "right": {"$id": "5", "left": {"$id": "6", "left": {"$id": "7", "left": {"$id": "8", "left": {"$id": "9", "left": null, "right": null}, "right": {"$id": "10", "left": null, "right": null}}, "right": {"$id": "11", "left": {"$id": "12", "left": {"$id": "13", "left": {"$id": "14", "left": {"$id": "15", "left": null, "right": null}, "right": {"$id": "16", "left": null, "right": null}}, "right": {"$id": "17", "left": {"$id": "18", "left": {"$id": "19", "left": {"$id": "20", "left": null, "right": null}, "right": {"$id": "21", "left": null, "right": null}}, "right": {"$id": "22", "left": null, "right": null}}}, "right": {"$id": "23", "left": null, "right": null}}
```

Output: 17

Example 4:



Input:

```
root = {"$id": "1", "left": {"$id": "2", "left": {"$id": "3", "left": {"$id": "4", "left": {"$id": "5", "left": {"$id": "6", "left": {"$id": "7", "left": {"$id": "8", "left": {"$id": "9", "left": null, "right": null}, "right": {"$id": "10", "left": null, "right": null}}, "right": {"$id": "11", "left": {"$id": "12", "left": {"$id": "13", "left": {"$id": "14", "left": {"$id": "15", "left": null, "right": null}, "right": {"$id": "16", "left": null, "right": null}}, "right": {"$id": "17", "left": {"$id": "18", "left": {"$id": "19", "left": {"$id": "20", "left": null, "right": null}, "right": {"$id": "21", "left": null, "right": null}}, "right": {"$id": "22", "left": null, "right": null}}}, "right": {"$id": "23", "left": null, "right": null}}
```

Output: 15

Note:

1. If the given node has no in-order successor in the tree, return `null`.
2. It's guaranteed that the values of the tree are unique.
3. Remember that we are using the `Node` type instead of `TreeNode` type so their string representation are different.

Follow up:

Could you solve it without looking up any of the node's values?

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution****[510-Inorder-Successor-in-BST-II](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

511. Game Play Analysis I

Table: Activity

Column Name	Type
player_id	int
device_id	int
event_date	date
games_played	int

(player_id, event_date) is the primary key of this table.
This table shows the activity of players of some game.
Each row is a record of a player who logged in and played a number

Write an SQL query that reports the **first login date** for each player.

The query result format is in the following example:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-05-02	6
2	3	2017-06-25	1
3	1	2016-03-02	0
3	4	2018-07-03	5

Result table:

player_id	first_login
1	2016-03-01
2	2017-06-25
3	2016-03-02

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[511-Game-Play-Analysis-I](#)

All Problems:

[Link to All Problems](#)

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512. Game Play Analysis II

Table: Activity

Column Name	Type
player_id	int
device_id	int
event_date	date
games_played	int

(player_id, event_date) is the primary key of this table.
This table shows the activity of players of some game.
Each row is a record of a player who logged in and played a number

Write a SQL query that reports the **device** that is first logged in for each player.

The query result format is in the following example:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-05-02	6
2	3	2017-06-25	1
3	1	2016-03-02	0
3	4	2018-07-03	5

Result table:

player_id	device_id
1	2
2	3
3	1

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[512-Game-Play-Analysis-II](#)

All Problems:

[Link to All Problems](#)

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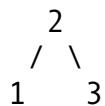
Welcome to Subscribe On Youtube:

513. Find Bottom Left Tree Value

Given a binary tree, find the leftmost value in the last row of the tree.

Example 1:

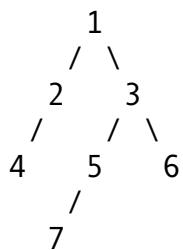
Input:



Output:
1

Example 2:

Input:



Output:
7

Note: You may assume the tree (i.e., the given root node) is not **NULL**.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[513-Find-Bottom-Left-Tree-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

514. Freedom Trail

In the video game Fallout 4, the quest "Road to Freedom" requires players to reach a metal dial called the "Freedom Trail Ring", and use the dial to spell a specific keyword in order to open the door.

Given a string **ring** , which represents the code engraved on the outer ring and another string **key** , which

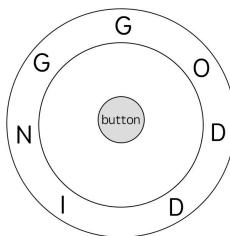
represents the keyword needs to be spelled. You need to find the **minimum** number of steps in order to spell all the characters in the keyword.

Initially, the first character of the **ring** is aligned at 12:00 direction. You need to spell all the characters in the string **key** one by one by rotating the ring clockwise or anticlockwise to make each character of the string **key** aligned at 12:00 direction and then by pressing the center button.

At the stage of rotating the ring to spell the key character **key[i]** :

1. You can rotate the **ring** clockwise or anticlockwise **one place** , which counts as 1 step. The final purpose of the rotation is to align one of the string **ring's** characters at the 12:00 direction, where this character must equal to the character **key[i]** .
2. If the character **key[i]** has been aligned at the 12:00 direction, you need to press the center button to spell, which also counts as 1 step. After the pressing, you could begin to spell the next character in the key (next stage), otherwise, you've finished all the spelling.

Example:



Input: ring = "godding", key = "gd"

Output: 4

Explanation:

For the first key character 'g', since it is already in place, we don't need to rotate the ring.

For the second key character 'd', we need to rotate the ring "god".

Also, we need 1 more step for spelling.

So the final output is 4.

Note:

1. Length of both ring and **key** will be in range 1 to 100.

2. There are only lowercase letters in both strings and might be some duplicate characters in both strings.
3. It's guaranteed that string **key** could always be spelled by rotating the string **ring**.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[514-Freedom-Trail](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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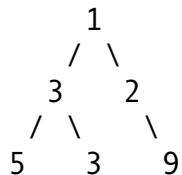
Welcome to Subscribe On Youtube:

515. Find Largest Value in Each Tree Row

You need to find the largest value in each row of a binary tree.

Example:

Input:



Output: [1, 3, 9]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[515-Find-Largest-Value-in-Each-Tree-Row](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

516. Longest Palindromic Subsequence

Given a string s, find the longest palindromic subsequence's length in s. You may assume that the maximum length of s is 1000.

Example 1:

Input:

"bbbab"

Output:

4

One possible longest palindromic subsequence is "bbbb".

Example 2:

Input:

"c bbd"

Output:

2

One possible longest palindromic subsequence is "bb".

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[516-Longest-Palindromic-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

517. Super Washing Machines

You have **n** super washing machines on a line. Initially, each washing machine has some dresses or is empty.

For each **move** , you could choose **any m** ($1 \leq m \leq n$) washing machines, and pass **one dress** of each washing machine to one of its adjacent washing machines **at the same time** .

Given an integer array representing the number of dresses in each washing machine from left to right on the line, you should find the **minimum number of moves** to

make all the washing machines have the same number of dresses. If it is not possible to do it, return -1.

Example1

Input: [1, 0, 5]

Output: 3

Explanation:

1st move:	1	0	<--	5	=>	1	1	4
2nd move:	1	1	<--	4	=>	2	1	3
3rd move:	2	1	<--	3	=>	2	2	2

Example2

Input: [0, 3, 0]

Output: 2

Explanation:

1st move:	0	<--	3	0	=>	1	2	0
2nd move:	1	2	-->	0	=>	1	1	1

Example3

Input: [0, 2, 0]

Output: -1

Explanation:

It's impossible to make all the three washing machines have the same number of dresses.

Note:

1. The range of n is [1, 10000].
2. The range of dresses number in a super washing machine is [0, 1e5].

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[517-Super-Washing-Machines](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

518. Coin Change 2

You are given coins of different denominations and a total amount of money. Write a function to compute the number of combinations that make up that amount. You may assume that you have infinite number of each kind of coin.

Example 1:

Input: amount = 5, coins = [1, 2, 5]

Output: 4

Explanation: there are four ways to make up the amount:

5=5

5=2+2+1

5=2+1+1+1

5=1+1+1+1+1

Example 2:

```
Input: amount = 3, coins = [2]
Output: 0
Explanation: the amount of 3 cannot be made up just with coins o
```

Example 3:

```
Input: amount = 10, coins = [10]
Output: 1
```

Note:

You can assume that

- $0 \leq \text{amount} \leq 5000$
- $1 \leq \text{coin} \leq 5000$
- the number of coins is less than 500
- the answer is guaranteed to fit into signed 32-bit integer

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[518-Coin-Chance-2](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

519. Random Flip Matrix

You are given the number of rows `n_rows` and number of columns `n_cols` of a 2D binary matrix where all values are initially 0. Write a function `flip` which chooses a 0 value [uniformly at random](#), changes it to 1, and then returns the position `[row.id, col.id]` of that value. Also, write a function `reset` which sets all values back to 0. **Try to minimize the number of calls to system's Math.random()** and optimize the time and space complexity.

Note:

1. `1 <= n_rows, n_cols <= 10000`
2. `0 <= row.id < n_rows` and `0 <= col.id < n_cols`
3. `flip` will not be called when the matrix has no 0 values left.
4. the total number of calls to `flip` and `reset` will not exceed 1000.

Example 1:

Input:
["Solution","flip","flip","flip","flip"]
[[2,3],[],[],[],[]]
Output: [null,[0,1],[1,2],[1,0],[1,1]]

Example 2:

Input:
["Solution","flip","flip","reset","flip"]
[[1,2],[],[],[],[]]
Output: [null,[0,0],[0,1],null,[0,0]]

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[519-Random-Flip-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

520. Detect Capital

Given a word, you need to judge whether the usage of capitals in it is right or not.

We define the usage of capitals in a word to be right when one of the following cases holds:

1. All letters in this word are capitals, like "USA".

2. All letters in this word are not capitals, like "leetcode".
3. Only the first letter in this word is capital, like "Google".

Otherwise, we define that this word doesn't use capitals in a right way.

Example 1:

Input: "USA"
Output: True

Example 2:

Input: "FlaG"
Output: False

Note: The input will be a non-empty word consisting of uppercase and lowercase latin letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[520-Detect-Capital](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

521. Longest Uncommon Subsequence I

Given a group of two strings, you need to find the longest uncommon subsequence of this group of two strings. The longest uncommon subsequence is defined as the longest subsequence of one of these strings and this subsequence should not be **any** subsequence of the other strings.

A **subsequence** is a sequence that can be derived from one sequence by deleting some characters without changing the order of the remaining elements. Trivially, any string is a subsequence of itself and an empty string is a subsequence of any string.

The input will be two strings, and the output needs to be the length of the longest uncommon subsequence. If the longest uncommon subsequence doesn't exist, return -1.

Example 1:

Input: "aba", "cdc"

Output: 3

Explanation: The longest uncommon subsequence is "aba" (or "cdc") because "aba" is a subsequence of "aba", but not a subsequence of any other strings in the group of two strings.

Note:

1. Both strings' lengths will not exceed 100.
2. Only letters from a ~ z will appear in input strings.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[521-Longest-Uncommon-Subsequence-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

522. Longest Uncommon Subsequence II

Given a list of strings, you need to find the longest uncommon subsequence among them. The longest uncommon subsequence is defined as the longest subsequence of one of these strings and this subsequence should not be **any** subsequence of the other strings.

A **subsequence** is a sequence that can be derived from one sequence by deleting some characters without changing the order of the remaining elements. Trivially,

any string is a subsequence of itself and an empty string is a subsequence of any string.

The input will be a list of strings, and the output needs to be the length of the longest uncommon subsequence. If the longest uncommon subsequence doesn't exist, return -1.

Example 1:

Input: "aba", "cdc", "eae"
Output: 3

Note:

1. All the given strings' lengths will not exceed 10.
2. The length of the given list will be in the range of [2, 50].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[522-Longest-Uncommon-Subsequence-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

523. Continuous Subarray Sum

Given a list of **non-negative** numbers and a target **integer** k, write a function to check if the array has a continuous subarray of size at least 2 that sums up to a multiple of k , that is, sums up to $n*k$ where n is also an **integer** .

Example 1:

Input: [23, 2, 4, 6, 7], k=6

Output: True

Explanation: Because [2, 4] is a continuous subarray of size 2 and

Example 2:

Input: [23, 2, 6, 4, 7], k=6

Output: True

Explanation: Because [23, 2, 6, 4, 7] is an continuous subarray of size 5 and

Note:

1. The length of the array won't exceed 10,000.
2. You may assume the sum of all the numbers is in the range of a signed 32-bit integer.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[523-Continuous-Subarray-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

524. Longest Word in Dictionary through Deleting

Given a string and a string dictionary, find the longest string in the dictionary that can be formed by deleting some characters of the given string. If there are more than one possible results, return the longest word with the smallest lexicographical order. If there is no possible result, return the empty string.

Example 1:

Input:

s = "abpcplea", d = ["ale", "apple", "monkey", "plea"]

Output:
"apple"

Example 2:

Input:
`s = "abpcplea", d = ["a", "b", "c"]`

Output:
"a"

Note:

1. All the strings in the input will only contain lower-case letters.
2. The size of the dictionary won't exceed 1,000.
3. The length of all the strings in the input won't exceed 1,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[524-Longest-Word-in-Dictionary-through-Deleting](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

525. Contiguous Array

Given a binary array, find the maximum length of a contiguous subarray with equal number of 0 and 1.

Example 1:

Input: [0, 1]

Output: 2

Explanation: [0, 1] is the longest contiguous subarray with equal number of 0 and 1.

Example 2:

Input: [0, 1, 0]

Output: 2

Explanation: [0, 1] (or [1, 0]) is a longest contiguous subarray with equal number of 0 and 1.

Note: The length of the given binary array will not exceed 50,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[525-Contiguous-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

526. Beautiful Arrangement

Suppose you have N integers from 1 to N . We define a beautiful arrangement as an array that is constructed by these N numbers successfully if one of the following is true for the i^{th} position ($1 \leq i \leq N$) in this array:

1. The number at the i^{th} position is divisible by i .
2. i is divisible by the number at the i^{th} position.

Now given N , how many beautiful arrangements can you construct?

Example 1:

Input: 2
Output: 2
Explanation:

The first beautiful arrangement is [1, 2]:

Number at the 1st position ($i=1$) is 1, and 1 is divisible by i (

Number at the 2nd position ($i=2$) is 2, and 2 is divisible by i (

The second beautiful arrangement is [2, 1]:

Number at the 1st position ($i=1$) is 2, and 2 is divisible by i (

Number at the 2nd position ($i=2$) is 1, and i ($i=2$) is divisible by 1

Note:

1. N is a positive integer and will not exceed 15.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[526-Beautiful-Arrangement](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

527. Word Abbreviation

Given an array of n distinct non-empty strings, you need to generate **minimal** possible abbreviations for every word following rules below.

1. Begin with the first character and then the number of characters abbreviated, which followed by the last character.
2. If there are any conflict, that is more than one words share the same abbreviation, a longer prefix is used instead of only the first character until making the map from word to abbreviation become unique. In other words, a final abbreviation cannot map to more than one original words.
3. If the abbreviation doesn't make the word shorter, then keep it as original.

Example:

Input: ["like", "god", "internal", "me", "internet", "interval",
Output: ["l2e", "god", "internal", "me", "i6t", "interval", "inte4n", "

Note:

1. Both n and the length of each word will not exceed 400.
2. The length of each word is greater than 1.
3. The words consist of lowercase English letters only.
4. The return answers should be **in the same order** as the original array.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[527-Word-Abbreviation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

528. Random Pick with Weight

Given an array `w` of positive integers, where `w[i]` describes the weight of index `i`, write a function `pickIndex` which randomly picks an index in proportion to its weight.

Note:

1. `1 <= w.length <= 10000`
2. `1 <= w[i] <= 10^5`
3. `pickIndex` will be called at most `10000` times.

Example 1:

Input:
["Solution","pickIndex"]
[[[1]],[]]
Output: [null,0]

Example 2:

Input:

```
["Solution","pickIndex","pickIndex","pickIndex","pickIndex","pickIndex"]
[[[1,3]],[],[],[],[],[]]
```

Output: [null,0,1,1,1,0]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**528-Random-Pick-with-Weight**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

529. Minesweeper

Let's play the minesweeper game ([Wikipedia](#), [online game](#))!

You are given a 2D char matrix representing the game board. 'M' represents an **unrevealed** mine, 'E' represents an **unrevealed** empty square, 'B' represents a **revealed** blank square that has no adjacent (above, below, left, right, and all 4 diagonals) mines, **digit** ('1' to '8') represents how many mines are adjacent to this **revealed** square, and finally 'X' represents a **revealed** mine.

Now given the next click position (row and column indices) among all the **unrevealed** squares ('M' or 'E'), return the board after revealing this position according to the following rules:

1. If a mine ('M') is revealed, then the game is over - change it to 'X' .
2. If an empty square ('E') with **no adjacent mines** is revealed, then change it to revealed blank ('B') and all of its adjacent **unrevealed** squares should be revealed recursively.
3. If an empty square ('E') with **at least one adjacent mine** is revealed, then change it to a digit ('1' to '8') representing the number of adjacent mines.
4. Return the board when no more squares will be revealed.

Example 1:

Input:

```
[[ 'E', 'E', 'E', 'E', 'E'],
 ['E', 'E', 'M', 'E', 'E'],
 ['E', 'E', 'E', 'E', 'E'],
 ['E', 'E', 'E', 'E', 'E']]
```

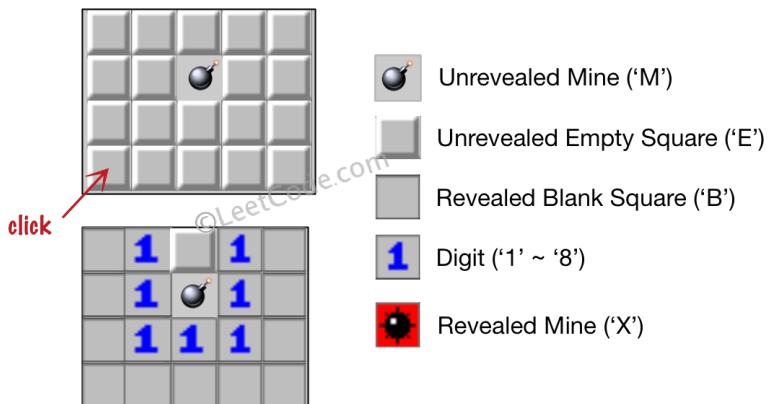
Click : [3,0]

Output:

```
[[ 'B', '1', 'E', '1', 'B'],
 ['B', '1', 'M', '1', 'B'],
 ['B', '1', '1', '1', 'B'],
```

```
[ 'B', 'B', 'B', 'B', 'B' ]
```

Explanation:



Example 2:

Input:

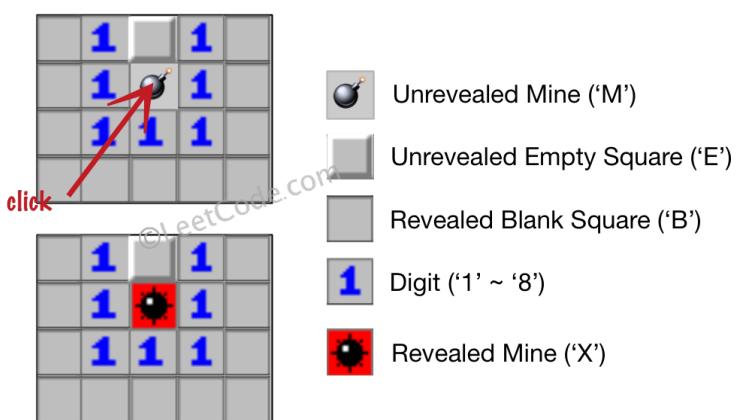
```
[[ 'B', '1', 'E', '1', 'B'],
 [ 'B', '1', 'M', '1', 'B'],
 [ 'B', '1', '1', '1', 'B'],
 [ 'B', 'B', 'B', 'B', 'B']]
```

Click : [1,2]

Output:

```
[[ 'B', '1', 'E', '1', 'B'],
 [ 'B', '1', 'X', '1', 'B'],
 [ 'B', '1', '1', '1', 'B'],
 [ 'B', 'B', 'B', 'B', 'B']]
```

Explanation:



Note:

1. The range of the input matrix's height and width is [1,50].

2. The click position will only be an unrevealed square ('M' or 'E'), which also means the input board contains at least one clickable square.
3. The input board won't be a stage when game is over (some mines have been revealed).
4. For simplicity, not mentioned rules should be ignored in this problem. For example, you **don't** need to reveal all the unrevealed mines when the game is over, consider any cases that you will win the game or flag any squares.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[529-Minesweeper](#)

All Problems:

[Link to All Problems](#)

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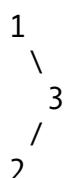
Welcome to Subscribe On Youtube:

530. Minimum Absolute Difference in BST

Given a binary search tree with non-negative values, find the minimum [absolute difference](#) between values of any two nodes.

Example:

Input:



Output:

1

Explanation:

The minimum absolute difference is 1, which is the difference between 2 and 3.

Note: There are at least two nodes in this BST.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[530-Minimum-Absolute-Difference-in-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

531. Lonely Pixel I

Given a picture consisting of black and white pixels, find the number of **black** lonely pixels.

The picture is represented by a 2D char array consisting of 'B' and 'W', which means black and white pixels respectively.

A black lonely pixel is character 'B' that located at a specific position where the same row and same column don't have any other black pixels.

Example:

Input:

```
[[ 'W', 'W', 'B'],
 [ 'W', 'B', 'W'],
 [ 'B', 'W', 'W']]
```

Output: 3

Explanation: All the three 'B's are black lonely pixels.

Note:

1. The range of width and height of the input 2D array is [1,500].

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[531-Lonely-Pixel-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

532. K-diff Pairs in an Array

Given an array of integers and an integer **k** , you need to find the number of **unique** k-diff pairs in the array. Here a **k-diff** pair is defined as an integer pair (i, j), where **i**

and j are both numbers in the array and their [absolute difference](#) is k .

Example 1:

Input: [3, 1, 4, 1, 5], $k = 2$

Output: 2

Explanation: There are two 2-diff pairs in the array, (1, 3) and (4, 2).

Example 2:

Input: [1, 2, 3, 4, 5], $k = 1$

Output: 4

Explanation: There are four 1-diff pairs in the array, (1, 2), (2, 3), (3, 4) and (4, 5).

Example 3:

Input: [1, 3, 1, 5, 4], $k = 0$

Output: 1

Explanation: There is one 0-diff pair in the array, (1, 1).

Note:

1. The pairs (i, j) and (j, i) count as the same pair.
2. The length of the array won't exceed 10,000.
3. All the integers in the given input belong to the range: $[-1e7, 1e7]$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[532-K-diff-Pairs-in-an-Array](#)

All Problems:

[Link to All Problems](#)

Leetcode Solutions Java Python C++

Welcome to Subscribe On Youtube:

533. Lonely Pixel II

Given a picture consisting of black and white pixels, and a positive integer N , find the number of black pixels located at some specific row R and column C that align with all the following rules:

1. Row R and column C both contain exactly N black pixels.
 2. For all rows that have a black pixel at column C, they should be exactly the same as row R

The picture is represented by a 2D char array consisting of 'B' and 'W', which means black and white pixels respectively.

Example:

Input:

```
[ [ 'W', 'B', 'W', 'B', 'B', 'W' ],
  [ 'W', 'B', 'W', 'B', 'B', 'W' ],
  [ 'W', 'B', 'W', 'B', 'B', 'W' ],
  [ 'W', 'W', 'B', 'W', 'B', 'W' ] ]
```

$$N = 3$$

Output: 6

Explanation: All the bold 'B' are the black pixels we need (all
0 1 2 3 4 5 column index)

```

0      [ [ 'W' , 'B' , 'W' , 'B' , 'B' , 'W' ] ,
1      [ 'W' , 'B' , 'W' , 'B' , 'B' , 'W' ] ,
2      [ 'W' , 'B' , 'W' , 'B' , 'B' , 'W' ] ,

```

```
3      ['W', 'W', 'B', 'W', 'B', 'W']]  
row index
```

Take 'B' at row R = 0 and column C = 1 as an example:

Rule 1, row R = 0 and column C = 1 both have exactly N = 3 black
Rule 2, the rows have black pixel at column C = 1 are row 0, row

Note:

1. The range of width and height of the input 2D array is [1,200].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[533-Lonely-Pixel-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

534. Game Play Analysis III

Table: Activity

Column Name	Type
player_id	int
device_id	int
event_date	date
games_played	int

(player_id, event_date) is the primary key of this table.
This table shows the activity of players of some game.
Each row is a record of a player who logged in and played a number

Write an SQL query that reports for each player and date, how many games played **so far** by the player. That is, the total number of games played by the player until that date. Check the example for clarity.

The query result format is in the following example:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-05-02	6
1	3	2017-06-25	1
3	1	2016-03-02	0
3	4	2018-07-03	5

Result table:

player_id	event_date	games_played_so_far
1	2016-03-01	5
1	2016-05-02	11
1	2017-06-25	12
3	2016-03-02	0
3	2018-07-03	5

For the player with id 1, $5 + 6 = 11$ games played by 2016-05-02,
For the player with id 3, $0 + 5 = 5$ games played by 2018-07-03.
Note that for each player we only care about the days when the p

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[534-Game-Play-Analysis-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

535. Encode and Decode TinyURL

Note: This is a companion problem to the [System Design](#) problem: [Design TinyURL](#).

TinyURL is a URL shortening service where you enter a URL such as <https://leetcode.com/problems/>

`design-tinyurl` and it returns a short URL such as <http://tinyurl.com/4e9iAk>.

Design the encode and decode methods for the TinyURL service. There is no restriction on how your encode/decode algorithm should work. You just need to ensure that a URL can be encoded to a tiny URL and the tiny URL can be decoded to the original URL.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[535-Encode-and-Decode-TinyURL](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

536. Construct Binary Tree from String

You need to construct a binary tree from a string consisting of parenthesis and integers.

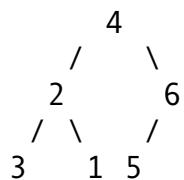
The whole input represents a binary tree. It contains an integer followed by zero, one or two pairs of parenthesis. The integer represents the root's value and a pair of parenthesis contains a child binary tree with the same structure.

You always start to construct the **left** child node of the parent first if it exists.

Example:

Input: "4(2(3)(1))(6(5))"

Output: return the tree root node representing the following tree



Note:

1. There will only be '(', ')' , '-' and '0' ~ '9' in the input string.
2. An empty tree is represented by "" instead of "()".

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[536-Construct-Binary-Tree-from-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

537. Complex Number Multiplication

Given two strings representing two [complex numbers](#).

You need to return a string representing their multiplication. Note $i^2 = -1$ according to the definition.

Example 1:

Input: "1+1i", "1+1i"
Output: "0+2i"

Explanation: $(1 + i) * (1 + i) = 1 + i^2 + 2 * i = 2i$, and you need to return the string "0+2i".

Example 2:

Input: "1+-1i", "1+-1i"
Output: "0+-2i"

Explanation: $(1 - i) * (1 - i) = 1 + i^2 - 2 * i = -2i$, and you need to return the string "0+-2i".

Note:

1. The input strings will not have extra blank.
2. The input strings will be given in the form of **a+bi** , where the integer **a** and **b** will both belong to the range of [-100, 100]. And **the output should be also in this form .**

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[537-Complex-Number-Multiplication](#)

All Problems:

[Link to All Problems](#)

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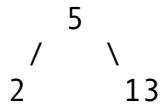
Welcome to Subscribe On Youtube:

538. Convert BST to Greater Tree

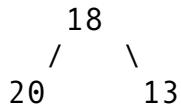
Given a Binary Search Tree (BST), convert it to a Greater Tree such that every key of the original BST is changed to the original key plus sum of all keys greater than the original key in BST.

Example:

Input: The root of a Binary Search Tree like this:



Output: The root of a Greater Tree like this:



Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[538-Convert-BST-to-Greater-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

539. Minimum Time Difference

Given a list of 24-hour clock time points in "Hour:Minutes" format, find the minimum **minutes** difference between any two time points in the list.

Example 1:

Input: ["23:59", "00:00"]
Output: 1

Note:

1. The number of time points in the given list is at least 2 and won't exceed 20000.
2. The input time is legal and ranges from 00:00 to 23:59.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[539-Minimum-Time-Difference](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

540. Single Element in a Sorted Array

You are given a sorted array consisting of only integers where every element appears exactly twice, except for one element which appears exactly once. Find this single element that appears only once.

Example 1:

Input: [1,1,2,3,3,4,4,8,8]
Output: 2

Example 2:

Input: [3,3,7,7,10,11,11]
Output: 10

Note: Your solution should run in $O(\log n)$ time and $O(1)$ space.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[540-Single-Element-in-a-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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541. Reverse String II

Given a string and an integer k, you need to reverse the first k characters for every 2k characters counting from the start of the string. If there are less than k characters left, reverse all of them. If there are less than 2k but greater than or equal to k characters, then reverse the first k characters and left the other as original.

Example:

Input: s = "abcdefg", k = 2
Output: "bacdfeg"

Restrictions:

1. The string consists of lower English letters only.
2. Length of the given string and k will in the range [1, 10000]

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[541-Reverse-String-II](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

542. 01 Matrix

Given a matrix consists of 0 and 1, find the distance of the nearest 0 for each cell.

The distance between two adjacent cells is 1.

Example 1:

Input:

```
[[0,0,0],  
 [0,1,0],  
 [0,0,0]]
```

Output:

```
[[0,0,0],  
 [0,1,0],  
 [0,0,0]]
```

Example 2:

Input:

```
[[0,0,0],  
 [0,1,0],  
 [1,1,1]]
```

Output:

```
[[0,0,0],  
 [0,1,0],  
 [1,2,1]]
```

Note:

1. The number of elements of the given matrix will not exceed 10,000.
2. There are at least one 0 in the given matrix.
3. The cells are adjacent in only four directions: up, down, left and right.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[542-01-Matrix](#)

All Problems:

[Link to All Problems](#)

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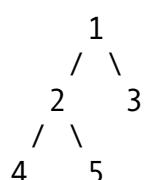
Welcome to Subscribe On Youtube:

543. Diameter of Binary Tree

Given a binary tree, you need to compute the length of the diameter of the tree. The diameter of a binary tree is the length of the **longest** path between any two nodes in a tree. This path may or may not pass through the root.

Example:

Given a binary tree



Return **3** , which is the length of the path [4,2,1,3] or [5,2,1,3].

Note: The length of path between two nodes is represented by the number of edges between them.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**543-Diameter-of-Binary-Tree**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

544. Output Contest Matches

During the NBA playoffs, we always arrange the rather strong team to play with the rather weak team, like make the rank 1 team play with the rank n_{th} team, which is a good strategy to make the contest more interesting. Now, you're given n teams, you need to output their **final** contest matches in the form of a string.

The n teams are given in the form of positive integers from 1 to n , which represents their initial rank. (Rank 1 is the strongest team and Rank n is the weakest team.) We'll use parentheses('(', ')') and commas(',') to represent the contest team pairing - parentheses('(', ')') for pairing and commas(',') for partition. During the pairing process in each round, you always need to follow the strategy of making the rather strong one pair with the rather weak one.

Example 1:

Input: 2

Output: (1,2)

Explanation:

Initially, we have the team 1 and the team 2, placed like: 1,2.
Then we pair the team (1,2) together with '(', ')' and ',', which

Example 2:

Input: 4

Output: ((1,4),(2,3))

Explanation:

In the first round, we pair the team 1 and 4, the team 2 and 3 to
And we got (1,4),(2,3).

In the second round, the winners of (1,4) and (2,3) need to play
And we got the final answer ((1,4),(2,3)).

Example 3:

Input: 8

Output: (((1,8),(4,5)),((2,7),(3,6)))

Explanation:

First round: (1,8),(2,7),(3,6),(4,5)

Second round: ((1,8),(4,5)),((2,7),(3,6))

Third round: (((1,8),(4,5)),((2,7),(3,6)))

Since the third round will generate the final winner, you need to

Note:

1. The **n** is in range $[2, 2^{12}]$.
2. We ensure that the input **n** can be converted into the form 2^k , where k is a positive integer.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[544-Output-Contest-Matches](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

545. Boundary of Binary Tree

Given a binary tree, return the values of its boundary in **anti-clockwise** direction starting from root. Boundary includes left boundary, leaves, and right boundary in order without duplicate **nodes**. (The values of the nodes may still be duplicates.)

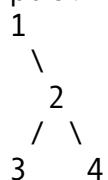
Left boundary is defined as the path from root to the **left-most** node. **Right boundary** is defined as the path from root to the **right-most** node. If the root doesn't have left subtree or right subtree, then the root itself is left boundary or right boundary. Note this definition only applies to the input binary tree, and not applies to any subtrees.

The **left-most** node is defined as a **leaf** node you could reach when you always firstly travel to the left subtree if exists. If not, travel to the right subtree. Repeat until you reach a leaf node.

The **right-most** node is also defined by the same way with left and right exchanged.

Example 1

Input:



Ouput:

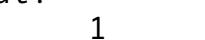
[1, 3, 4, 2]

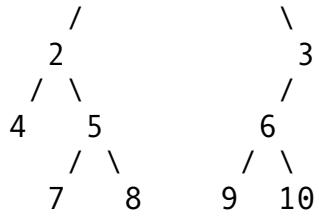
Explanation:

The root doesn't have left subtree, so the root itself is left boundary.
The leaves are node 3 and 4.
The right boundary are node 1,2,4. Note the anti-clockwise direction.
So order them in anti-clockwise without duplicates and we have [1, 3, 4, 2]

Example 2

Input:





Ouput:
[1,2,4,7,8,9,10,6,3]

Explanation:

The left boundary are node 1,2,4. (4 is the left-most node according to the diagram).

The leaves are node 4,7,8,9,10.

The right boundary are node 1,3,6,10. (10 is the right-most node according to the diagram).

So order them in anti-clockwise without duplicate nodes we have

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[545-Boundary-of-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

546. Remove Boxes

Given several boxes with different colors represented by different positive numbers.

You may experience several rounds to remove boxes until there is no box left. Each time you can choose some continuous boxes with the same color (composed of k boxes, $k \geq 1$), remove them and get $k*k$ points.

Find the maximum points you can get.

Example 1:

Input:

[1, 3, 2, 2, 2, 3, 4, 3, 1]

Output:

23

Explanation:

```
[1, 3, 2, 2, 2, 3, 4, 3, 1]
----> [1, 3, 3, 4, 3, 1] (3*3=9 points)
----> [1, 3, 3, 3, 1] (1*1=1 points)
----> [1, 1] (3*3=9 points)
----> [] (2*2=4 points)
```

Note: The number of boxes n would not exceed 100.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[546-Remove-Boxes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

547. Friend Circles

There are **N** students in a class. Some of them are friends, while some are not. Their friendship is transitive in nature. For example, if A is a **direct** friend of B, and B is a **direct** friend of C, then A is an **indirect** friend of C. And we defined a friend circle is a group of students who are direct or indirect friends.

Given a **N*N** matrix **M** representing the friend relationship between students in the class. If $M[i][j] = 1$, then the i^{th} and j^{th} students are **direct** friends with each other, otherwise not. And you have to output the total number of friend circles among all the students.

Example 1:

Input:

```
[[1,1,0],  
 [1,1,0],  
 [0,0,1]]
```

Output: 2

Explanation: The 0_{th} and 1_{st} students are direct friends, so they
The 2_{nd} student himself is in a friend circle. So return 2.

Example 2:

Input:

```
[[1,1,0],  
 [1,1,1],  
 [0,1,1]]
```

Output: 1

Explanation: The 0_{th} and 1_{st} students are direct friends, the 1_{st}
so the 0_{th} and 2_{nd} students are indirect friends. All of them are

Note:

1. N is in range [1,200].
2. M[i][i] = 1 for all students.
3. If M[i][j] = 1, then M[j][i] = 1.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[547-Friend-Circles](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

548. Split Array with Equal Sum

Given an array with n integers, you need to find if there are triplets (i, j, k) which satisfies following conditions:

1. $0 < i, i + 1 < j, j + 1 < k < n - 1$
2. Sum of subarrays $(0, i - 1), (i + 1, j - 1), (j + 1, k - 1)$ and $(k + 1, n - 1)$ should be equal.

where we define that subarray (L, R) represents a slice of the original array starting from the element indexed L to the element indexed R .

Example:

Input: [1, 2, 1, 2, 1, 2, 1]

Output: True

Explanation:

$i = 1, j = 3, k = 5$.
 $\text{sum}(0, i - 1) = \text{sum}(0, 0) = 1$
 $\text{sum}(i + 1, j - 1) = \text{sum}(2, 2) = 1$
 $\text{sum}(j + 1, k - 1) = \text{sum}(4, 4) = 1$
 $\text{sum}(k + 1, n - 1) = \text{sum}(6, 6) = 1$

Note:

1. $1 \leq n \leq 2000$.
2. Elements in the given array will be in range $[-1,000,000, 1,000,000]$.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[548-Split-Array-with-Equal-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

549. Binary Tree Longest Consecutive Sequence II

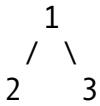
Given a binary tree, you need to find the length of Longest Consecutive Path in Binary Tree.

Especially, this path can be either increasing or decreasing. For example, [1,2,3,4] and [4,3,2,1] are both

considered valid, but the path [1,2,4,3] is not valid. On the other hand, the path can be in the child-Parent-child order, where not necessarily be parent-child order.

Example 1:

Input:

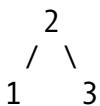


Output: 2

Explanation: The longest consecutive path is [1, 2] or [2, 1].

Example 2:

Input:



Output: 3

Explanation: The longest consecutive path is [1, 2, 3] or [3, 2].

Note: All the values of tree nodes are in the range of [-1e7, 1e7].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[549-Binary-Tree-Longest-Consecutive-Sequence-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

550. Game Play Analysis IV

Table: Activity

Column Name	Type
player_id	int
device_id	int
event_date	date
games_played	int

(player_id, event_date) is the primary key of this table.
This table shows the activity of players of some game.
Each row is a record of a player who logged in and played a number

Write an SQL query that reports the **fraction** of players that logged in again on the day after the day they first logged in, **rounded to 2 decimal places**. In other words, you need to count the number of players that logged in for at least two consecutive days starting from their first login date, then divide that number by the total number of players.

The query result format is in the following example:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-03-02	6
2	3	2017-06-25	1
3	1	2016-03-02	0

3	4	2018-07-03	5	
+-----+	+-----+	+-----+	+-----+	+-----+

Result table:

fraction
0.33

Only the player with id 1 logged back in after the first day he

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[550-Game-Play-Analysis-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

551. Student Attendance Record I

You are given a string representing an attendance record for a student. The record only contains the following three characters:

1. 'A' : Absent.
2. 'L' : Late.
3. 'P' : Present.

A student could be rewarded if his attendance record doesn't contain **more than one 'A' (absent)** or **more than two continuous 'L' (late)**.

You need to return whether the student could be rewarded according to his attendance record.

Example 1:

Input: "PPALLP"
Output: True

Example 2:

Input: "PPALLL"
Output: False

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[551-Student-Attendance-Record-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

552. Student Attendance Record II

Given a positive integer n , return the number of all possible attendance records with length n , which will be regarded as rewardable. The answer may be very large, return it after mod $10^9 + 7$.

A student attendance record is a string that only contains the following three characters:

1. 'A' : Absent.
2. 'L' : Late.
3. 'P' : Present.

A record is regarded as rewardable if it doesn't contain **more than one 'A' (absent) or more than two continuous 'L' (late)** .

Example 1:

Input: $n = 2$

Output: 8

Explanation:

There are 8 records with length 2 will be regarded as rewardable

"PP" , "AP", "PA", "LP", "PL", "AL", "LA", "LL"

Only "AA" won't be regarded as rewardable owing to more than one

Note: The value of **n** won't exceed 100,000.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[552-Student-Attendance-Record-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

553. Optimal Division

Given a list of **positive integers**, the adjacent integers will perform the float division. For example, [2,3,4] -> 2 / 3 / 4.

However, you can add any number of parenthesis at any position to change the priority of operations. You should find out how to add parenthesis to get the **maximum** result, and return the corresponding expression in string format. **Your expression should NOT contain redundant parenthesis.**

Example:

Input: [1000,100,10,2]

Output: "1000/(100/10/2)"

Explanation:

$$1000/(100/10/2) = 1000/((100/10)/2) = 200$$

However, the bold parenthesis in "1000/((100/10)/2)" are redundant since they don't influence the operation priority. So you should

Other cases:

$$1000/(100/10)/2 = 50$$

$$1000/(100/(10/2)) = 50$$

$$1000/100/10/2 = 0.5$$

$$1000/100/(10/2) = 2$$

Note:

1. The length of the input array is [1, 10].
2. Elements in the given array will be in range [2, 1000].
3. There is only one optimal division for each test case.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[553-Optimal-Division](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

554. Brick Wall

There is a brick wall in front of you. The wall is rectangular and has several rows of bricks. The bricks have the same height but different width. You want to draw a vertical line from the **top** to the **bottom** and cross the **least** bricks.

The brick wall is represented by a list of rows. Each row is a list of integers representing the width of each brick in this row from left to right.

If your line go through the edge of a brick, then the brick is not considered as crossed. You need to find out how to draw the line to cross the least bricks and return the number of crossed bricks.

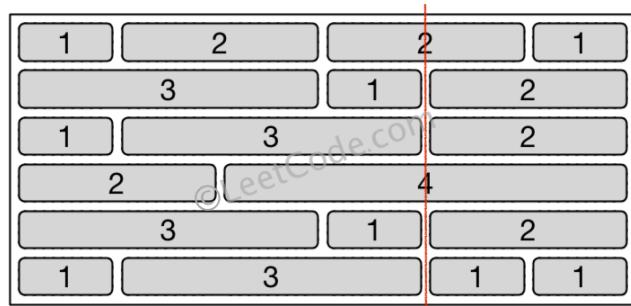
You cannot draw a line just along one of the two vertical edges of the wall, in which case the line will obviously cross no bricks.

Example:

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

Output: 2

Explanation:



Note:

1. The width sum of bricks in different rows are the same and won't exceed INT_MAX.
2. The number of bricks in each row is in range [1,10,000]. The height of wall is in range [1,10,000]. Total number of bricks of the wall won't exceed 20,000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[554-Brick-Wall](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

555. Split Concatenated Strings

Given a list of strings, you could concatenate these strings together into a loop, where for each string you could choose to reverse it or not. Among all the possible loops, you need to find the lexicographically biggest string after cutting the loop, which will make the looped string into a regular one.

Specifically, to find the lexicographically biggest string, you need to experience two phases:

1. Concatenate all the strings into a loop, where you can reverse some strings or not and connect them in the same order as given.
2. Cut and make one breakpoint in any place of the loop, which will make the looped string into a regular one starting from the character at the cutpoint.

And your job is to find the lexicographically biggest one among all the possible regular strings.

Example:

Input: "abc", "xyz"

Output: "zyxcba"

Explanation: You can get the looped string "-abcxyz-", "-abczyx-", where '-' represents the looped status.

The answer string came from the fourth looped one, where you could cut from the middle character 'a' and get "zyxcb".

Note:

1. The input strings will only contain lowercase letters.
2. The total length of all the strings will not over 1,000.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[555-Split-Concatenated-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

556. Next Greater Element III

Given a positive **32-bit** integer **n** , you need to find the smallest **32-bit** integer which has exactly the same digits existing in the integer **n** and is greater in value than n. If no such positive **32-bit** integer exists, you need to return -1.

Example 1:

Input: 12
Output: 21

Example 2:

Input: 21
Output: -1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[556-Next-Greater-Element-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

557. Reverse Words in a String III

Given a string, you need to reverse the order of characters in each word within a sentence while still preserving whitespace and initial word order.

Example 1:

Input: "Let's take LeetCode contest"
Output: "s'teL ekat edoCteeL tsetnoc"

Note: In the string, each word is separated by single space and there will not be any extra space in the string.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[557-Reverse-Words-in-a-String-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

558. Quad Tree Intersection

A quadtree is a tree data in which each internal node has exactly four children: `topLeft` , `topRight` , `bottomLeft` and `bottomRight` . Quad trees are often used to partition a two-dimensional space by recursively subdividing it into four quadrants or regions.

We want to store True/False information in our quad tree. The quad tree is used to represent a $N * N$ boolean grid. For each node, it will be subdivided into four children nodes **until the values in the region it represents are all the same** . Each node has another two boolean attributes : `isLeaf` and `val` . `isLeaf` is true if and only if the node is a leaf node. The `val` attribute for a leaf node contains the value of the region it represents.

For example, below are two quad trees A and B:

A:

T		T	
F		F	

T: true
F: false

topLeft: T
topRight: T
bottomLeft: F
bottomRight: F

B:

		F	F
T			
		T	T
T		F	

topLeft: T
topRight:
 topLeft: F
 topRight: F
 bottomLeft: T
 bottomRight: T
bottomLeft: T
bottomRight: F

Your task is to implement a function that will take two quadtrees and return a quadtree that represents the logical OR (or union) of the two trees.

A:				B:				C (A or B):			
T		T		T		F	F	T		T	
						T	T				
F		F		T		F		T		F	

Note:

1. Both A and B represent grids of size N * N .
2. N is guaranteed to be a power of 2.

3. If you want to know more about the quad tree, you can refer to its [wiki](#).
4. The logic OR operation is defined as this: "A or B" is true if A is true , or if B is true , or if both A and B are true .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[558-Logical-OR-of-Two-Binary-Grids-Represented-as-Quad-Trees](#)

All Problems:

[Link to All Problems](#)

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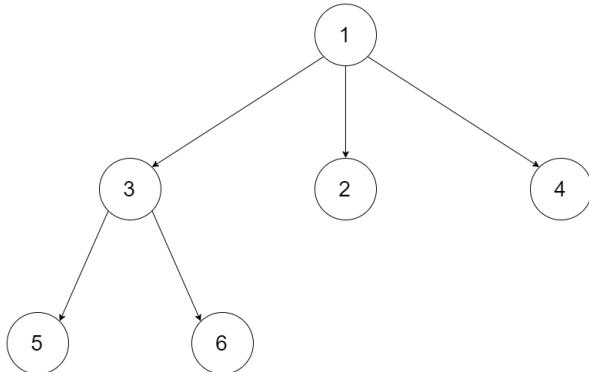
Welcome to Subscribe On Youtube:

559. Maximum Depth of N-ary Tree

Given a n-ary tree, find its maximum depth.

The maximum depth is the number of nodes along the longest path from the root node down to the farthest leaf node.

For example, given a 3-ary tree:



We should return its max depth, which is 3.

Note:

1. The depth of the tree is at most 1000 .
2. The total number of nodes is at most 5000 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[559-Maximum-Depth-of-N-ary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

560. Subarray Sum Equals K

Given an array of integers and an integer k , you need to find the total number of continuous subarrays whose sum equals to k .

Example 1:

Input: nums = [1, 1, 1], k = 2
Output: 2

Note:

1. The length of the array is in range [1, 20,000].
2. The range of numbers in the array is [-1000, 1000] and the range of the integer k is [-1e7, 1e7].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[560-Subarray-Sum-Equals-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

561. Array Partition I

Given an array of $2n$ integers, your task is to group these integers into n pairs of integer, say $(a_1, b_1), (a_2, b_2), \dots, (a_n, b_n)$ which makes sum of $\min(a_i, b_i)$ for all i from 1 to n as large as possible.

Example 1:

Input: [1, 4, 3, 2]

Output: 4

Explanation: n is 2, and the maximum sum of pairs is $4 = \min(1, 2) + \min(3, 4)$.

Note:

1. **n** is a positive integer, which is in the range of [1, 10000].
2. All the integers in the array will be in the range of [-10000, 10000].

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[**561-Array-Partition-I**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

562. Longest Line of Consecutive One in Matrix

Given a 01 matrix **M** , find the longest line of consecutive one in the matrix. The line could be horizontal, vertical, diagonal or anti-diagonal.

Example:

Input:
[[0,1,1,0],
 [0,1,1,0],
 [0,0,0,1]]
Output: 3

Hint: The number of elements in the given matrix will not exceed 10,000.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[562-Longest-Line-of-Consecutive-One-in-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

563. Binary Tree Tilt

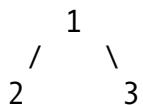
Given a binary tree, return the tilt of the **whole tree**.

The tilt of a **tree node** is defined as the **absolute difference** between the sum of all left subtree node values and the sum of all right subtree node values. Null node has tilt 0.

The tilt of the **whole tree** is defined as the sum of all nodes' tilt.

Example:

Input:



Output: 1

Explanation:

Tilt of node 2 : 0

Tilt of node 3 : 0

Tilt of node 1 : $|2-3| = 1$

Tilt of binary tree : $0 + 0 + 1 = 1$

Note:

1. The sum of node values in any subtree won't exceed the range of 32-bit integer.
2. All the tilt values won't exceed the range of 32-bit integer.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[563-Binary-Tree-Tilt](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

564. Find the Closest Palindrome

Given an integer n, find the closest integer (not including itself), which is a palindrome.

The 'closest' is defined as absolute difference minimized between two integers.

Example 1:

Input: "123"
Output: "121"

Note:

1. The input **n** is a positive integer represented by string, whose length will not exceed 18.
2. If there is a tie, return the smaller one as answer.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[564-Find-the-Closest-Palindrome](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

565. Array Nesting

A zero-indexed array A of length N contains all integers from 0 to N-1. Find and return the longest length of set S, where $S[i] = \{A[i], A[A[i]], A[A[A[i]]], \dots\}$ subjected to the rule below.

Suppose the first element in S starts with the selection of element $A[i]$ of index = i, the next element in S should be $A[A[i]]$, and then $A[A[A[i]]]\dots$ By that analogy, we stop adding right before a duplicate element occurs in S.

Example 1:

Input: A = [5, 4, 0, 3, 1, 6, 2]

Output: 4

Explanation:

$A[0] = 5, A[1] = 4, A[2] = 0, A[3] = 3, A[4] = 1, A[5] = 6, A[6] = 2$

One of the longest S[K]:

$S[0] = \{A[0], A[5], A[6], A[2]\} = \{5, 6, 2, 0\}$

Note:

1. N is an integer within the range [1, 20,000].
2. The elements of A are all distinct.
3. Each element of A is an integer within the range [0, N-1].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[565-Array-Nesting](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

566. Reshape the Matrix

In MATLAB, there is a very useful function called 'reshape', which can reshape a matrix into a new one with different size but keep its original data.

You're given a matrix represented by a two-dimensional array, and two **positive** integers **r** and **c** representing the **row** number and **column** number of the wanted reshaped matrix, respectively.

The reshaped matrix need to be filled with all the elements of the original matrix in the same **row-traversing** order as they were.

If the 'reshape' operation with given parameters is possible and legal, output the new reshaped matrix; Otherwise, output the original matrix.

Example 1:

```
Input:  
nums =  
[[1,2],  
 [3,4]]  
r = 1, c = 4  
Output:
```

`[[1,2,3,4]]`

Explanation:

The row-traversing of nums is `[1,2,3,4]`. The new reshaped matrix

Example 2:

Input:

`nums =`

`[[1,2],`

`[3,4]]`

`r = 2, c = 4`

Output:

`[[1,2],`

`[3,4]]`

Explanation:

There is no way to reshape a $2 * 2$ matrix to a $2 * 4$ matrix. So o

Note:

1. The height and width of the given matrix is in range $[1, 100]$.
2. The given r and c are all positive.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[566-Reshape-the-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

567. Permutation in String

Given two strings **s1** and **s2** , write a function to return true if **s2** contains the permutation of **s1** . In other words, one of the first string's permutations is the **substring** of the second string.

Example 1:

Input: s1 = "ab" s2 = "eidbaooo"
Output: True
Explanation: s2 contains one permutation of s1 ("ba").

Example 2:

Input:s1= "ab" s2 = "eidboaoo"
Output: False

Note:

1. The input strings only contain lower case letters.
2. The length of both given strings is in range [1, 10,000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[567-Permutation-in-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

568. Maximum Vacation Days

LeetCode wants to give one of its best employees the option to travel among N cities to collect algorithm problems. But all work and no play makes Jack a dull boy, you could take vacations in some particular cities and weeks. Your job is to schedule the traveling to maximize the number of vacation days you could take, but there are certain rules and restrictions you need to follow.

Rules and restrictions:

1. You can only travel among N cities, represented by indexes from 0 to N-1. Initially, you are in the city indexed 0 on **Monday**.
2. The cities are connected by flights. The flights are represented as a $N \times N$ matrix (not necessary symmetrical), called **flights** representing the airline status from the city i to the city j. If there is no flight from the city i to the city j, **flights[i][j] = 0** ; Otherwise, **flights[i][j] = 1** . Also, **flights[i][i] = 0** for all i.
3. You totally have K weeks (**each week has 7 days**) to travel. You can only take flights at most once **per day** and can only take flights on each week's **Monday** morning. Since flight time is so short, we don't consider the impact of flight time.
4. For each city, you can only have restricted vacation days in different weeks, given an $N \times K$ matrix called **days** representing this relationship. For the value of **days[i][j]** , it represents the maximum days you could take vacation in the city i in the week j .

You're given the **flights** matrix and **days** matrix, and you need to output the maximum vacation days you could take during K weeks.

Example 1:

Input: flights = [[0,1,1],[1,0,1],[1,1,0]], days = [[1,3,1],[6,0,0]]
Output: 12
Explanation:
Ans = 6 + 3 + 3 = 12.

One of the best strategies is:

1st week : fly from city 0 to city 1 on Monday, and play 6 days .
(Although you start at city 0, we could also fly to and start at city 1)
2nd week : fly from city 1 to city 2 on Monday, and play 3 days .
3rd week : stay at city 2, and play 3 days and work 4 days.

Example 2:

Input: flights = [[0,0,0],[0,0,0],[0,0,0]], days = [[1,1,1],[7,7,7]]
Output: 3
Explanation:
Ans = 1 + 1 + 1 = 3.

Since there is no flights enable you to move to another city, you can't travel between cities. For each week, you only have one day to play and six days to work. So the maximum number of vacation days is 3.

Example 3:

Input:flights = [[0,1,1],[1,0,1],[1,1,0]], days = [[7,0,0],[0,7,0],[0,0,7]]

Output: 21

Explanation:

$$\text{Ans} = 7 + 7 + 7 = 21$$

One of the best strategies is:

1st week : stay at city 0, and play 7 days.

2nd week : fly from city 0 to city 1 on Monday, and play 7 days.

3rd week : fly from city 1 to city 2 on Monday, and play 7 days.

Note:

1. N and K are positive integers, which are in the range of [1, 100].
2. In the matrix **flights**, all the values are integers in the range of [0, 1].
3. In the matrix **days**, all the values are integers in the range [0, 7].
4. You could stay at a city beyond the number of vacation days, but you should **work** on the extra days, which won't be counted as vacation days.
5. If you fly from the city A to the city B and take the vacation on that day, the deduction towards vacation days will count towards the vacation days of city B in that week.
6. We don't consider the impact of flight hours towards the calculation of vacation days.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[568-Maximum-Vacation-Days](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

569. Median Employee Salary

The Employee table holds all employees. The employee table has three columns: Employee Id, Company Name, and Salary.

Id	Company	Salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15

8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

Write a SQL query to find the median salary of each company. Bonus points if you can solve it without using any built-in SQL functions.

Id	Company	Salary
5	A	451
6	A	513
12	B	234
9	B	1154
14	C	2645

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[569-Median-Employee-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

570. Managers with at Least 5 Direct Reports

The Employee table holds all employees including their managers. Every employee has an Id, and there is also a column for the manager Id.

Id	Name	Department	ManagerId
101	John	A	null
102	Dan	A	101
103	James	A	101
104	Amy	A	101
105	Anne	A	101
106	Ron	B	101

Given the Employee table, write a SQL query that finds out managers with at least 5 direct report. For the above table, your SQL query should return:

Name
John

Note:

No one would report to himself.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[570-Managers-with-at-Least-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

571. Find Median Given Frequency of Numbers

The `Numbers` table keeps the value of number and its frequency.

Number	Frequency
0	7
1	1
2	3

3	1

In this table, the numbers are 0, 0, 0, 0, 0, 0, 0, 1, 2, 2, 2, 3, so the median is $(0 + 0) / 2 = 0$.

median
0.0000

Write a query to find the median of all numbers and name the result as `median`.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[571-Find-Median-Given-Frequency-of-Numbers](#)

All Problems:

[Link to All Problems](#)

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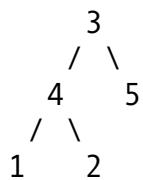
Welcome to Subscribe On Youtube:

572. Subtree of Another Tree

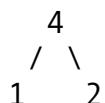
Given two non-empty binary trees **s** and **t** , check whether tree **t** has exactly the same structure and node values with a subtree of **s** . A subtree of **s** is a tree consists of a node in **s** and all of this node's descendants. The tree **s** could also be considered as a subtree of itself.

Example 1:

Given tree **s**:



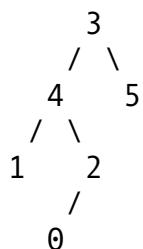
Given tree **t**:



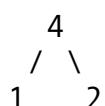
Return **true** , because **t** has the same structure and node values with a subtree of **s**.

Example 2:

Given tree **s**:



Given tree **t**:



Return **false** .

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[572-Subtree-of-Another-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

573. Squirrel Simulation

There's a tree, a squirrel, and several nuts. Positions are represented by the cells in a 2D grid. Your goal is to find the **minimal** distance for the squirrel to collect all the nuts and put them under the tree one by one. The squirrel can only take at most **one nut** at one time and

can move in four directions - up, down, left and right, to the adjacent cell. The distance is represented by the number of moves.

Example 1:

Input:

Height : 5

Width : 7

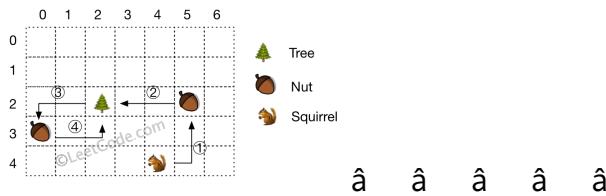
Tree position : [2,2]

Squirrel : [4,4]

Nuts : [[3,0], [2,5]]

Output: 12

Explanation:



Note:

1. All given positions won't overlap.
2. The squirrel can take at most one nut at one time.
3. The given positions of nuts have no order.
4. Height and width are positive integers. $3 \leq \text{height} * \text{width} \leq 10,000$.
5. The given positions contain at least one nut, only one tree and one squirrel.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[573-Squirrel-Simulation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

574. Winning Candidate

Table: Candidate

id	Name
1	A
2	B
3	C
4	D
5	E

Table: Vote

id	CandidateId
1	2
2	4
3	3
4	2
5	5

id is the auto-increment primary key,
CandidateId is the id appeared in Candidate table.

Write a sql to find the name of the winning candidate, the above example will return the winner B .

```
+-----+
| Name |
+-----+
| B    |
+-----+
```

Notes:

1. You may assume **there is no tie** , in other words there will be **at most one** winning candidate.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[574-Winning-Candidate](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

575. Distribute Candies

Given an integer array with **even** length, where different numbers in this array represent different **kinds** of candies. Each number means one candy of the corresponding kind. You need to distribute these candies **equally** in number to brother and sister. Return the maximum number of **kinds** of candies the sister could gain.

Example 1:

Input: candies = [1,1,2,2,3,3]

Output: 3

Explanation:

There are three different kinds of candies (1, 2 and 3), and two

Optimal distribution: The sister has candies [1,2,3] and the bro

The sister has three different kinds of candies.

Example 2:

Input: candies = [1,1,2,3]

Output: 2

Explanation: For example, the sister has candies [2,3] and the b

The sister has two different kinds of candies, the brother has o

Note:

1. The length of the given array is in range [2, 10,000], and will be even.
2. The number in given array is in range [-100,000, 100,000].

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[575-Distribute-Candies](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

576. Out of Boundary Paths

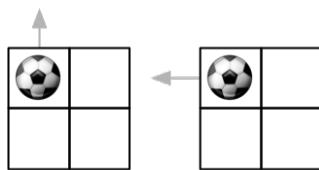
There is an **m** by **n** grid with a ball. Given the start coordinate **(i,j)** of the ball, you can move the ball to **adjacent** cell or cross the grid boundary in four directions (up, down, left, right). However, you can **at most** move **N** times. Find out the number of paths to move the ball out of grid boundary. The answer may be very large, return it after mod $10^9 + 7$.

Example 1:

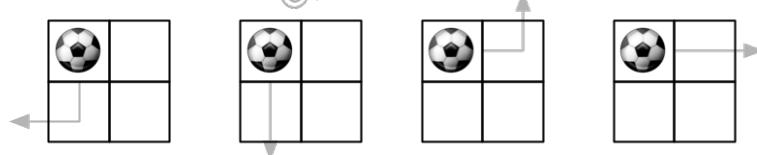
Input: m = 2, n = 2, N = 2, i = 0, j = 0
Output: 6

Explanation:

Move one time:



Move two times:



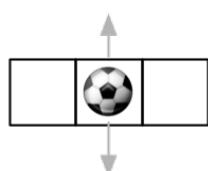
Example 2:

Input: $m = 1$, $n = 3$, $N = 3$, $i = 0$, $j = 1$

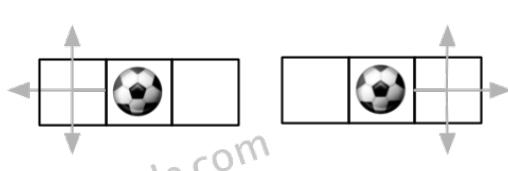
Output: 12

Explanation:

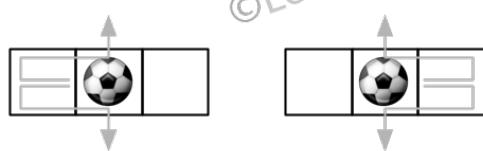
Move one time:



Move two times:



Move three times:



Note:

1. Once you move the ball out of boundary, you cannot move it back.
2. The length and height of the grid is in range [1,50].
3. N is in range [0,50].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[576-Out-of-Boundary-Paths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

577. Employee Bonus

Select all employee's name and bonus whose bonus is < 1000.

Table: Employee

empId	name	supervisor	salary
1	John	3	1000
2	Dan	3	2000
3	Brad	null	4000
4	Thomas	3	4000

empId is the primary key column for this table.

Table: Bonus

empId	bonus
2	500
4	2000

empId is the primary key column for this table.

Example output:

name	bonus
John	null
Dan	500
Brad	null

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[577-Employee-Bonus](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

578. Get Highest Answer Rate Question

Get the highest answer rate question from a table `survey_log` with these columns: **uid** , **action** , **question_id** , **answer_id** , **q_num** , **timestamp** .

`uid` means user id; `action` has these kind of values: "show", "answer", "skip"; `answer_id` is not null when `action` column is "answer", while is null for "show" and "skip"; `q_num` is the numeral order of the question in current session.

Write a sql query to identify the question which has the highest answer rate.

Example:

Input:

uid	action	question_id	answer_id	q_num	time
5	show	285	null	1	123
5	answer	285	124124	1	124
5	show	369	null	2	125
5	skip	369	null	2	126

Output:

survey_log
285

Explanation:

question 285 has answer rate 1/1, while question 369 has 0/1 ans

Note: The highest answer rate meaning is: answer number's ratio in show number in the same question.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[578-Get-Highest-Answer-Rate-Question](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

579. Find Cumulative Salary of an Employee

The **Employee** table holds the salary information in a year.

Write a SQL to get the cumulative sum of an employee's salary over a period of 3 months but exclude the most recent month.

The result should be displayed by 'Id' ascending, and then by 'Month' descending.

Example

Input

Id	Month	Salary
1	1	20
2	1	20
1	2	30
2	2	30
3	2	40
1	3	40
3	3	60
1	4	60
3	4	70

Output

Id	Month	Salary
1	3	90
1	2	50
1	1	20
2	1	20
3	3	100
3	2	40

Explanation

Employee '1' has 3 salary records for the following 3 months except the most recent month '4': salary 40 for month '3', 30 for month '2' and 20 for month '1'

So the cumulative sum of salary of this employee over 3 months is 90(40+30+20), 50(30+20) and 20 respectively.

Id	Month	Salary
1	3	90
1	2	50
1	1	20

Employee '2' only has one salary record (month '1') except its most recent month '2'.

Id	Month	Salary
2	1	20

Employ '3' has two salary records except its most recent pay month '4': month '3' with 60 and month '2' with 40. So the cumulative salary is as following.

Id	Month	Salary
3	3	100
3	2	40

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[579-Find-Cumulative-Salary-of-an-Employee](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

580. Count Student Number in Departments

A university uses 2 data tables, ***student*** and ***department***, to store data about its students and the departments associated with each major.

Write a query to print the respective department name and number of students majoring in each department for all departments in the ***department*** table (even ones with no current students).

Sort your results by descending number of students; if two or more departments have the same number of students, then sort those departments alphabetically by department name.

The ***student*** is described as follow:

Column Name	Type
student_id	Integer
student_name	String
gender	Character
dept_id	Integer

where `student_id` is the student's ID number, `student_name` is the student's name, `gender` is their gender, and `dept_id` is the department ID associated with their declared major.

And the ***department*** table is described as below:

Column Name	Type
dept_id	Integer
dept_name	String

where `dept_id` is the department's ID number and `dept_name` is the department name.

Here is an example **input** :
student table:

student_id	student_name	gender	dept_id
1	Jack	M	1
2	Jane	F	1
3	Mark	M	2

department table:

dept_id	dept_name
1	Engineering
2	Science
3	Law

The **Output** should be:

dept_name	student_number
Engineering	2
Science	1
Law	0

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[580-Count-Student-Number-in-Departments](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

581. Shortest Unsorted Continuous Subarray

Given an integer array, you need to find one **continuous subarray** that if you only sort this subarray in ascending order, then the whole array will be sorted in ascending order, too.

You need to find the **shortest** such subarray and output its length.

Example 1:

Input: [2, 6, 4, 8, 10, 9, 15]

Output: 5

Explanation: You need to sort [6, 4, 8, 10, 9] in ascending order.

Note:

1. Then length of the input array is in range [1, 10,000].
2. The input array may contain duplicates, so ascending order here means \leq .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

581-Shortest-Unsorted-Continuous-Subarray

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

582. Kill Process

Given **n** processes, each process has a unique **PID (process id)** and its **PPID (parent process id)**.

Each process only has one parent process, but may have one or more children processes. This is just like a tree structure. Only one process has PPID that is 0, which means this process has no parent process. All the PIDs will be distinct positive integers.

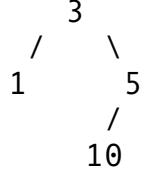
We use two list of integers to represent a list of processes, where the first list contains PID for each process and the second list contains the corresponding PPID.

Now given the two lists, and a PID representing a process you want to kill, return a list of PIDs of processes that will be killed in the end. You should assume that when a process is killed, all its children processes will be killed. No order is required for the final answer.

Example 1:

Input:
pid = [1, 3, 10, 5]
ppid = [3, 0, 5, 3]
kill = 5
Output: [5,10]

Explanation:



Kill 5 will also kill 10.

Note:

1. The given kill id is guaranteed to be one of the given PIDs.
2. $n \geq 1$.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[582-Kill-Process](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

583. Delete Operation for Two Strings

Given two words $word1$ and $word2$, find the minimum number of steps required to make $word1$ and $word2$ the same, where in each step you can delete one character in either string.

Example 1:

Input: "sea", "eat"

Output: 2

Explanation: You need one step to make "sea" to "ea" and another

Note:

1. The length of given words won't exceed 500.
2. Characters in given words can only be lower-case letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[583-Delete-Operation-for-Two-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

584. Find Customer Referee

Given a table `customer` holding customers information and the referee.

+-----+	+-----+	+-----+
id	name	referee_id
+-----+	+-----+	+-----+
1	Will	NULL
2	Jane	NULL
3	Alex	2
4	Bill	NULL
5	Zack	1
6	Mark	2
+-----+	+-----+	+-----+

Write a query to return the list of customers **NOT** referred by the person with id '2'.

For the sample data above, the result is:

name
Will
Jane
Bill
Zack

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[584-Find-Customer-Referee](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

585. Investments in 2016

Write a query to print the sum of all total investment values in 2016 (**TIV_2016**), to a scale of 2 decimal places, for all policy holders who meet the following criteria:

1. Have the same **TIV_2015** value as one or more other policyholders.
2. Are not located in the same city as any other policyholder (i.e.: the (latitude, longitude) attribute pairs must be unique).

Input Format:

The **insurance** table is described as follows:

Column Name	Type
PID	INTEGER(11)
TIV_2015	NUMERIC(15,2)
TIV_2016	NUMERIC(15,2)
LAT	NUMERIC(5,2)
LON	NUMERIC(5,2)

where **PID** is the policyholder's policy ID, **TIV_2015** is the total investment value in 2015, **TIV_2016** is the total investment value in 2016, **LAT** is the latitude of the policy holder's city, and **LON** is the longitude of the policy holder's city.

Sample Input

PID	TIV_2015	TIV_2016	LAT	LON
1	10	5	10	10
2	20	20	20	20
3	10	30	20	20
4	10	40	40	40

Sample Output

TIV_2016
45.00

Explanation

The first record in the table, like the last record, meets both criteria. The **TIV_2015** value '10' is as the same as the third and forth records.

The second record does not meet any of the two criteria. Its TIV_2016 is 45, which is not prime, and its location is not the same as the first record's location. So, the result is the sum of TIV_2016 of the first and last records.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[585-Investments-in-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

586. Customer Placing the Largest Number of Orders

Query the **customer_number** from the **orders** table for the customer who has placed the largest number of orders.

It is guaranteed that exactly one customer will have placed more orders than any other customer.

The **orders** table is defined as follows:

Column	Type
order_number (PK)	int
customer_number	int
order_date	date
required_date	date
shipped_date	date
status	char(15)
comment	char(200)

Sample Input

order_number	customer_number	order_date	required_date
1	1	2017-04-09	2017-04-13
2	2	2017-04-15	2017-04-20
3	3	2017-04-16	2017-04-25
4	3	2017-04-18	2017-04-28

Sample Output

customer_number
3

Explanation

The customer with number '3' has two orders, which is greater than any other customer. So the result is customer_number '3'.

Follow up: What if more than one customer have the largest number of orders, can you find all the customer_number in this case?

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[586-Customer-Placing-the-Largest-Number-of-Orders](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

587. Erect the Fence

There are some trees, where each tree is represented by (x,y) coordinate in a two-dimensional garden. Your job is to fence the entire garden using the **minimum length** of rope as it is expensive. The garden is well fenced only if all the trees are enclosed. Your task is to help find the

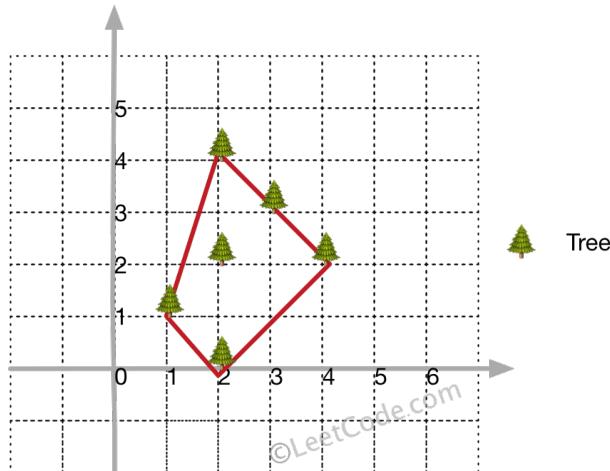
coordinates of trees which are exactly located on the fence perimeter.

Example 1:

Input: `[[1,1],[2,2],[2,0],[2,4],[3,3],[4,2]]`

Output: `[[1,1],[2,0],[4,2],[3,3],[2,4]]`

Explanation:

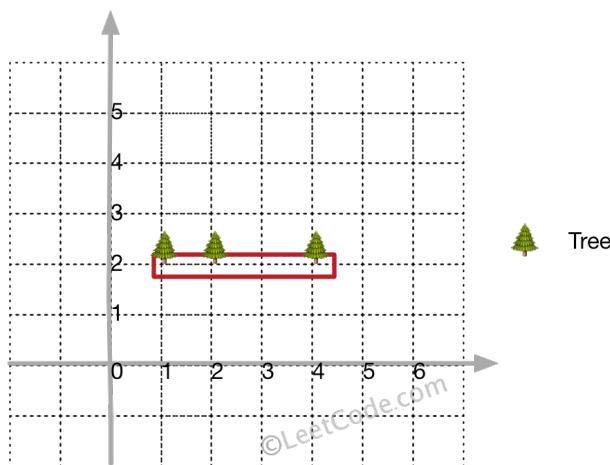


Example 2:

Input: `[[1,2],[2,2],[4,2]]`

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

Explanation:



Even you only have trees in a line, you need to use rope to enclose them.

Note:

1. All trees should be enclosed together. You cannot cut the rope to enclose trees that will separate them in more than one group.
2. All input integers will range from 0 to 100.
3. The garden has at least one tree.
4. All coordinates are distinct.

5. Input points have **NO** order. No order required for output.
6. input types have been changed on April 15, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[587-Erect-the-Fence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

588. Design In-Memory File System

Design an in-memory file system to simulate the following functions:

ls : Given a path in string format. If it is a file path, return a list that only contains this file's name. If it is a directory path, return the list of file and directory names **in this directory**. Your output (file and directory names together) should be in **lexicographic order**.

mkdir : Given a **directory path** that does not exist, you should make a new directory according to the path. If the middle directories in the path don't exist either, you should create them as well. This function has void return type.

addContentToFile : Given a **file path** and **file content** in string format. If the file doesn't exist, you need to create that file containing given content. If the file already exists, you need to **append** given content to original content. This function has void return type.

readContentFromFile : Given a **file path**, return its **content** in string format.

Example:

Input:

```
["FileSystem", "ls", "mkdir", "addContentToFile", "ls", "readContentF
[[], ["/"], ["/a/b/c"], ["/a/b/c/d", "hello"], ["/"], ["/a/b/c/d"]]
```

Output:

```
[null, [], null, null, ["a"], "hello"]
```

Explanation:

Operation	Output	Explanation
FileSystem fs = new FileSystem()	null	The constructor returns nothing.
fs.ls("/")	[]	Initially, directory / has nothing. So return empty list.
fs.mkdir("/a/b/c")	null	Create directory a in directory /. Then create directory b in directory a. Finally, create directory c in directory b.
fs.addContentToFile("/a/b/c/d","hello")	null	Create a file named d with content "hello" in directory /a/b/c.
fs.ls("/")	["a"]	Only directory a is in directory /.
fs.readContentFromFile("/a/b/c/d")	"hello"	Output the file content.

Note:

1. You can assume all file or directory paths are absolute paths which begin with / and do not end with / except that the path is just "/" .
2. You can assume that all operations will be passed valid parameters and users will not attempt to retrieve file content or list a directory or file that does not exist.
3. You can assume that all directory names and file names only contain lower-case letters, and same names won't exist in the same directory.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[588-Design-In-Memory-File-System](#)

All Problems:

[Link to All Problems](#)

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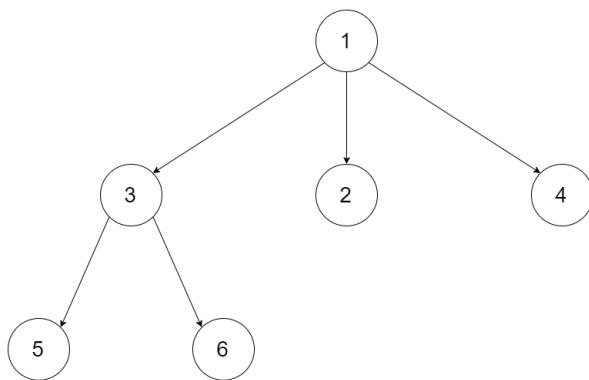
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Welcome to Subscribe On Youtube:

589. N-ary Tree Preorder Traversal

Given an n-ary tree, return the *preorder* traversal of its nodes' values.

For example, given a 3-ary tree:



Return its preorder traversal as: [1, 3, 5, 6, 2, 4] .

Note:

Recursive solution is trivial, could you do it iteratively?

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[**589-N-ary-Tree-Preorder-Traversal**](#)**All Problems:**[**Link to All Problems**](#)

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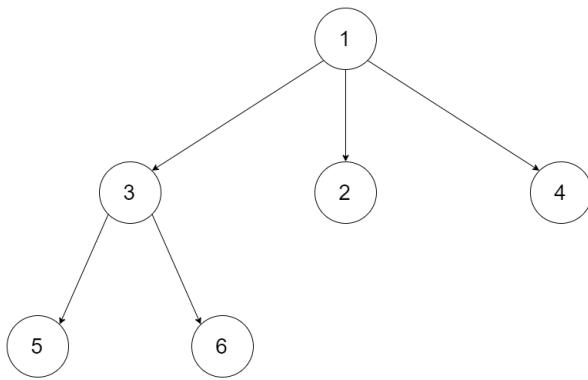
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Welcome to Subscribe On Youtube:

590. N-ary Tree Postorder Traversal

Given an n-ary tree, return the *postorder* traversal of its nodes' values.

For example, given a 3-ary tree:



Return its postorder traversal as: [5 , 6 , 3 , 2 , 4 , 1] .

Note:

Recursive solution is trivial, could you do it iteratively?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[590-N-ary-Tree-Postorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

591. Tag Validator

Given a string representing a code snippet, you need to implement a tag validator to parse the code and return whether it is valid. A code snippet is valid if all the following rules hold:

1. The code must be wrapped in a **valid closed tag** . Otherwise, the code is invalid.
2. A **closed tag** (not necessarily valid) has exactly the following format : <TAG_NAME>TAG_CONTENT</TAG_NAME> . Among them, <TAG_NAME> is the start tag, and </TAG_NAME> is the end tag. The TAG_NAME in start and end tags should be the same. A closed tag is **valid** if and only if the TAG_NAME and TAG_CONTENT are valid.
3. A **valid TAG_NAME** only contain **upper-case letters** , and has length in range [1,9]. Otherwise, the TAG_NAME is **invalid** .
4. A **valid TAG_CONTENT** may contain other **valid closed tags** , **cdata** and any characters (see note1) **EXCEPT** unmatched < , unmatched start and end tag, and unmatched or closed tags with invalid TAG_NAME. Otherwise, the TAG_CONTENT is **invalid** .
5. A start tag is unmatched if no end tag exists with the same TAG_NAME, and vice versa. However, you also need to consider the issue of unbalanced when tags are nested.
6. A < is unmatched if you cannot find a subsequent > . And when you find a < or </ , all the subsequent characters until the next > should be parsed as TAG_NAME (not necessarily valid).
7. The cdata has the following format : <! [CDATA[CDATA_CONTENT]]> . The range of CDATA_CONTENT is defined as the characters between <! [CDATA[and the **first subsequent**]]>.

8. CDATA_CONTENT may contain **any characters**. The function of cdata is to forbid the validator to parse CDATA_CONTENT , so even it has some characters that can be parsed as tag (no matter valid or invalid), you should treat it as **regular characters**.

Valid Code Examples:

Input: "<DIV>This is the first line <! [CDATA[<div>]]></DIV>"

Output: True

Explanation:

The code is wrapped in a closed tag : <DIV> and </DIV>.

The TAG_NAME is valid, the TAG_CONTENT consists of some characters.

Although CDATA_CONTENT has unmatched start tag with invalid TAG_NAME.

So TAG_CONTENT is valid, and then the code is valid. Thus return True.

Input: "<DIV>>> ! [cdata[]] <! [CDATA[<div>]]>>]></DIV>"

Output: True

Explanation:

We first separate the code into : start_tag|tag_content|end_tag.

start_tag -> "<DIV>"

end_tag -> "</DIV>"

tag_content could also be separated into : text1|cdata|text2.

text1 -> ">> ! [cdata[]] "

cdata -> "<! [CDATA[<div>]]>", where the CDATA_CONTENT is "<div>"

text2 -> "]]>>]"

The reason why start_tag is NOT "<DIV>>>" is because of the rule.

The reason why cdata is NOT "<! [CDATA[<div>]]>">" is because of the rule.

Invalid Code Examples:

```
Input: "<A> <B> </A> </B>"  
Output: False  
Explanation: Unbalanced. If "<A>" is closed, then "<B>" must be closed.  
  
Input: "<DIV> div tag is not closed <DIV>"  
Output: False  
  
Input: "<DIV> unmatched < </DIV>"  
Output: False  
  
Input: "<DIV> closed tags with invalid tag name <b>123</b> </DIV>"  
Output: False  
  
Input: "<DIV> unmatched tags with invalid tag name </1234567890>"  
Output: False  
  
Input: "<DIV> unmatched start tag <B> and unmatched end tag </>"  
Output: False
```

Note:

1. For simplicity, you could assume the input code (including the **any characters** mentioned above) only contain letters , digits , '<' , '>' , '/' , '!' , '[' , ']' and ' ' .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[591-Tag-Validator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

592. Fraction Addition and Subtraction

Given a string representing an expression of fraction addition and subtraction, you need to return the calculation result in string format. The final result should be [irreducible fraction](#). If your final result is an integer, say 2 , you need to change it to the format of fraction that has denominator 1 . So in this case, 2 should be converted to 2/1 .

Example 1:

Input: "-1/2+1/2"
Output: "0/1"

Example 2:

Input: "-1/2+1/2+1/3"
Output: "1/3"

Example 3:

Input: "1/3-1/2"
Output: "-1/6"

Example 4:

Input: "5/3+1/3"
Output: "2/1"

Note:

1. The input string only contains '0' to '9' , '/' , '+' and '-' . So does the output.
2. Each fraction (input and output) has format $\text{A}\pm\text{numerator}/\text{denominator}$. If the first input fraction or the output is positive, then '+' will be omitted.
3. The input only contains valid **irreducible fractions** , where the **numerator** and **denominator** of each fraction will always be in the range [1,10]. If the denominator is 1, it means this fraction is actually an integer in a fraction format defined above.
4. The number of given fractions will be in the range [1,10].
5. The numerator and denominator of the **final result** are guaranteed to be valid and in the range of 32-bit int.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[592-Fraction-Addition-and-Subtraction](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

593. Valid Square

Given the coordinates of four points in 2D space, return whether the four points could construct a square.

The coordinate (x,y) of a point is represented by an integer array with two integers.

Example:

Input: p1 = [0, 0], p2 = [1, 1], p3 = [1, 0], p4 = [0, 1]
Output: True

Note:

1. All the input integers are in the range [-10000, 10000].
2. A valid square has four equal sides with positive length and four equal angles (90-degree angles).
3. Input points have no order.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[593-Valid-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

594. Longest Harmonious Subsequence

We define a harmonious array as an array where the difference between its maximum value and its minimum value is **exactly 1**.

Now, given an integer array, you need to find the length of its longest harmonious subsequence among all its possible [subsequences](#).

Example 1:

Input: [1,3,2,2,5,2,3,7]

Output: 5

Explanation: The longest harmonious subsequence is [3,2,2,2,3].

Note: The length of the input array will not exceed 20,000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[594-Longest-Harmonious-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

595. Big Countries

There is a table World

name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	203
Albania	Europe	28748	2831741	129
Algeria	Africa	2381741	37100000	188
Andorra	Europe	468	78115	371
Angola	Africa	1246700	20609294	100

A country is big if it has an area of bigger than 3 million square km or a population of more than 25 million.

Write a SQL solution to output big countries' name, population and area.

For example, according to the above table, we should output:

name	population	area
Afghanistan	25500100	652230
Algeria	37100000	2381741

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[595-Big-Countries](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

596. Classes More Than 5 Students

There is a table `courses` with columns: **student** and **class**

Please list out all classes which have more than or equal to 5 students.

For example, the table:

student	class
A	Math
B	English
C	Math
D	Biology
E	Math
F	Computer
G	Math
H	Math
I	Math

Should output:

class
Math

Note:

The students should not be counted duplicate in each course.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[596-Classes-More-Than-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

597. Friend Requests I: Overall Acceptance Rate

In social network like Facebook or Twitter, people send friend requests and accept others' requests as well. Now given two tables as below:

Table: friend_request

sender_id	send_to_id	request_date
1	2	2016_06-01
1	3	2016_06-01
1	4	2016_06-01
2	3	2016_06-02
3	4	2016-06-09

Table: request_accepted

requester_id	accepter_id	accept_date
1	2	2016-06-03
1	3	2016-06-08
2	3	2016-06-08
3	4	2016-06-09
3	4	2016-06-10

Write a query to find the overall acceptance rate of requests rounded to 2 decimals, which is the number of acceptance divide the number of requests.

For the sample data above, your query should return the following result.

accept_rate
0.80

Note:

- The accepted requests are not necessarily from the table friend_request . In this case, you just need to simply count the total accepted requests (no matter whether they are in the original requests), and divide it by the number of requests to get the acceptance rate.
- It is possible that a sender sends multiple requests to the same receiver, and a request could be accepted more than once. In this case, the ‘duplicated’ requests or acceptances are only counted once.
- If there is no requests at all, you should return 0.00 as the accept_rate.

Explanation: There are 4 unique accepted requests, and there are 5 requests in total. So the rate is 0.80.

Follow-up:

- Can you write a query to return the accept rate but for every month?
- How about the cumulative accept rate for every day?

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[597-Friend-Requests-I-Overall-Acceptance-Rate](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

598. Range Addition II

Given an $m * n$ matrix \mathbf{M} initialized with all **0**'s and several update operations.

Operations are represented by a 2D array, and each operation is represented by an array with two **positive**

integers **a** and **b** , which means **M[i][j]** should be **added by one** for all **0 <= i < a** and **0 <= j < b** .

You need to count and return the number of maximum integers in the matrix after performing all the operations.

Example 1:

Input:

m = 3, n = 3

operations = [[2,2],[3,3]]

Output: 4

Explanation:

Initially, M =

```
[[0, 0, 0],
[0, 0, 0],
[0, 0, 0]]
```

After performing [2,2], M =

```
[[1, 1, 0],
[1, 1, 0],
[0, 0, 0]]
```

After performing [3,3], M =

```
[[2, 2, 1],
[2, 2, 1],
[1, 1, 1]]
```

So the maximum integer in M is 2, and there are four of it in M.

Note:

1. The range of m and n is [1,40000].
2. The range of a is [1,m], and the range of b is [1,n].
3. The range of operations size won't exceed 10,000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[598-Range-Addition-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

599. Minimum Index Sum of Two Lists

Suppose Andy and Doris want to choose a restaurant for dinner, and they both have a list of favorite restaurants represented by strings.

You need to help them find out their **common interest** with the **least list index sum**. If there is a choice tie between answers, output all of them with no order requirement. You could assume there always exists an answer.

Example 1:

Input:

["Shogun", "Tapioca Express", "Burger King", "KFC"]

["Piatti", "The Grill at Torrey Pines", "Hungry Hunter Steakhouse"]

Output: ["Shogun"]

Explanation: The only restaurant they both like is "Shogun".

Example 2:

Input:

```
["Shogun", "Tapioca Express", "Burger King", "KFC"]
```

```
["KFC", "Shogun", "Burger King"]
```

Output: ["Shogun"]

Explanation: The restaurant they both like and have the least index sum is "Shogun".

Note:

1. The length of both lists will be in the range of [1, 1000].
2. The length of strings in both lists will be in the range of [1, 30].
3. The index is starting from 0 to the list length minus 1.
4. No duplicates in both lists.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[599-Minimum-Index-Sum-of-Two-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

600. Non-negative Integers without Consecutive Ones

Given a positive integer n , find the number of **non-negative** integers less than or equal to n , whose binary representations do NOT contain **consecutive ones**.

Example 1:

Input: 5

Output: 5

Explanation:

Here are the non-negative integers ≤ 5 with their corresponding

0 : 0

1 : 1

2 : 10

3 : 11

4 : 100

5 : 101

Among them, only integer 3 disobeys the rule (two consecutive ones).

Note: $1 \leq n \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[600-Non-negative-Integers-without-Consecutive-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

601. Human Traffic of Stadium

X city built a new stadium, each day many people visit it and the stats are saved as these columns: **id** , **visit_date** , **people**

Please write a query to display the records which have 3 or more consecutive rows and the amount of people more than 100(inclusive).

For example, the table `stadium` :

<code>id</code>	<code>visit_date</code>	<code>people</code>
1	2017-01-01	10
2	2017-01-02	109
3	2017-01-03	150
4	2017-01-04	99

5	2017-01-05	145
6	2017-01-06	1455
7	2017-01-07	199
8	2017-01-08	188

For the sample data above, the output is:

id	visit_date	people
5	2017-01-05	145
6	2017-01-06	1455
7	2017-01-07	199
8	2017-01-08	188

Note:

Each day only have one row record, and the dates are increasing with id increasing.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[601-Human-Traffic-of-Stadium](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

602. Friend Requests II: Who Has the Most Friends

In social network like Facebook or Twitter, people send friend requests and accept others' requests as well.

Table `request_accepted` holds the data of friend acceptance, while **requester_id** and **accepter_id** both are the id of a person.

requester_id	accepter_id	accept_date
1	2	2016_06-03
1	3	2016-06-08
2	3	2016-06-08
3	4	2016-06-09

Write a query to find the the people who has most friends and the most friends number. For the sample data above, the result is:

id	num
3	3

Note:

- It is guaranteed there is only 1 people having the most friends.
- The friend request could only been accepted once, which mean there is no multiple records with the same **requester_id** and **accepter_id** value.

Explanation:

The person with id '3' is a friend of people '1', '2' and '4', so he has 3 friends in total, which is the most number than any others.

Follow-up:

In the real world, multiple people could have the same most number of friends, can you find all these people in this case?

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[602-Friend-Requests-II-Who-Has-the-Most-Friends](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

603. Consecutive Available Seats

Several friends at a cinema ticket office would like to reserve consecutive available seats.

Can you help to query all the consecutive available seats order by the seat_id using the following cinema table?

seat_id	free
1	1
2	0
3	1
4	1
5	1

Your query should return the following result for the sample case above.

seat_id
3
4
5

Note :

- The seat_id is an auto increment int, and free is bool ('1' means free, and '0' means occupied.).
- Consecutive available seats are more than 2(inclusive) seats consecutively available.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[603-Consecutive-Available-Seats](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

604. Design Compressed String Iterator

Design and implement a data structure for a compressed string iterator. It should support the following operations: `next` and `hasNext`.

The given compressed string will be in the form of each letter followed by a positive integer representing the number of this letter existing in the original uncompressed string.

`next()` - if the original string still has uncompressed characters, return the next letter; Otherwise return a white space.

`hasNext()` - Judge whether there is any letter needs to be uncompressed.

Note:

Please remember to **RESET** your class variables declared

in StringIterator, as static/class variables are **persisted across multiple test cases**. Please see [here](#) for more details.

Example:

```
StringIterator iterator = new StringIterator("L1e2t1C1o1d1e1");

iterator.next(); // return 'L'
iterator.next(); // return 'e'
iterator.next(); // return 'e'
iterator.next(); // return 't'
iterator.next(); // return 'C'
iterator.next(); // return 'o'
iterator.next(); // return 'd'
iterator.hasNext(); // return true
iterator.next(); // return 'e'
iterator.hasNext(); // return false
iterator.next(); // return ' '
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[604-Design-Compressed-String-Iterator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

605. Can Place Flowers

Suppose you have a long flowerbed in which some of the plots are planted and some are not. However, flowers cannot be planted in adjacent plots - they would compete for water and both would die.

Given a flowerbed (represented as an array containing 0 and 1, where 0 means empty and 1 means not empty), and a number **n**, return if **n** new flowers can be planted in it without violating the no-adjacent-flowers rule.

Example 1:

Input: flowerbed = [1, 0, 0, 0, 1], n = 1
Output: True

Example 2:

Input: flowerbed = [1, 0, 0, 0, 1], n = 2
Output: False

Note:

1. The input array won't violate no-adjacent-flowers rule.
2. The input array size is in the range of [1, 20000].
3. **n** is a non-negative integer which won't exceed the input array size.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**605-Can-Place-Flowers**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

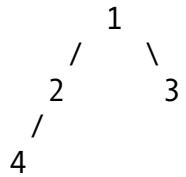
606. Construct String from Binary Tree

You need to construct a string consists of parenthesis and integers from a binary tree with the preorder traversing way.

The null node needs to be represented by empty parenthesis pair "0". And you need to omit all the empty parenthesis pairs that don't affect the one-to-one mapping relationship between the string and the original binary tree.

Example 1:

Input: Binary tree: [1,2,3,4]

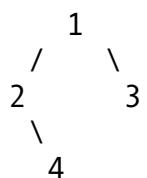


Output: "1(2(4))(3)"

Explanation: Originally it needs to be "1(2(4)())(3()())", but you need to omit all the unnecessary empty parenthesis pairs. And it will be "1(2(4))(3)".

Example 2:

Input: Binary tree: [1,2,3,null,4]



Output: "1(2()(4))(3)"

Explanation: Almost the same as the first example, except we can't omit the first parenthesis pair to break the one

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[606-Construct-String-from-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

607. Sales Person

Description

Given three tables: `salesperson` , `company` , `orders` . Output all the **names** in the table `salesperson` , who didn't have sales to company 'RED'.

Example

Input

Table: `salesperson`

<code>sales_id</code>	<code>name</code>	<code>salary</code>	<code>commission_rate</code>	<code>hire_date</code>
1	John	100000	6	4/1/2006
2	Amy	120000	5	5/1/2010
3	Mark	65000	12	12/25/2008
4	Pam	25000	25	1/1/2005
5	Alex	50000	10	2/3/2007

The table `salesperson` holds the salesperson information. Every salesperson has a `sales_id` and a `name` .

Table: `company`

<code>com_id</code>	<code>name</code>	<code>city</code>
1	RED	Boston
2	ORANGE	New York

3	YELLOW	Boston
4	GREEN	Austin

The table `company` holds the company information.
Every company has a **com_id** and a **name** .

Table: `orders`

order_id	order_date	com_id	sales_id	amount
1	1/1/2014	3	4	100000
2	2/1/2014	4	5	5000
3	3/1/2014	1	1	50000
4	4/1/2014	1	4	25000

The table `orders` holds the sales record information,
salesperson and customer company are represented by
sales_id and **com_id** .

output

name
Amy
Mark
Alex

Explanation

According to order '3' and '4' in table `orders` , it is easy to tell only salesperson 'John' and 'Alex' have sales to company 'RED',
so we need to output all the other **names** in table `salesperson` .

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[**607-Sales-Person**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

608. Tree Node

Given a table `tree` , **id** is identifier of the tree node and **p_id** is its parent node's **id** .

+-----+				+-----+
	id		p_id	
+-----+			+-----+	
	1		null	
	2		1	
	3		1	
	4		2	
	5		2	
				+-----+

Each node in the tree can be one of three types:

- Leaf: if the node is a leaf node.
- Root: if the node is the root of the tree.

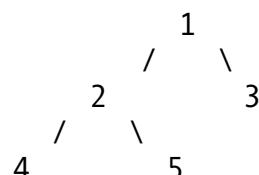
- Inner: If the node is neither a leaf node nor a root node.

Write a query to print the node id and the type of the node. Sort your output by the node id. The result for the above sample is:

id	Type
1	Root
2	Inner
3	Leaf
4	Leaf
5	Leaf

Explanation

- Node '1' is root node, because its parent node is NULL and it has child node '2' and '3'.
- Node '2' is inner node, because it has parent node '1' and child node '4' and '5'.
- Node '3', '4' and '5' is Leaf node, because they have parent node and they don't have child node.
- And here is the image of the sample tree as below:



Note

If there is only one node on the tree, you only need to output its root attributes.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[608-Tree-Node](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

609. Find Duplicate File in System

Given a list of directory info including directory path, and all the files with contents in this directory, you need to find out all the groups of duplicate files in the file system in terms of their paths.

A group of duplicate files consists of at least **two** files that have exactly the same content.

A single directory info string in the **input** list has the following format:

```
"root/d1/d2/.../dm f1.txt(f1_content)  
f2.txt(f2_content) ... fn.txt(fn_content)"
```

It means there are **n** files (f1.txt , f2.txt ... fn.txt with content f1_content , f2_content ... fn_content , respectively) in directory root/d1/d2/.../dm . Note that n >= 1 and m >= 0. If m = 0, it means the directory is just the root directory.

The **output** is a list of group of duplicate file paths. For each group, it contains all the file paths of the files that have the same content. A file path is a string that has the following format:

"directory_path/file_name.txt"

Example 1:

Input:

["root/a 1.txt(abcd) 2.txt(efgh)", "root/c 3.txt(abcd)", "root/c

Output:

[["root/a/2.txt", "root/c/d/4.txt", "root/4.txt"], ["root/a/1.txt",

Note:

1. No order is required for the final output.
2. You may assume the directory name, file name and file content only has letters and digits, and the length of file content is in the range of [1,50].
3. The number of files given is in the range of [1,20000].
4. You may assume no files or directories share the same name in the same directory.
5. You may assume each given directory info represents a unique directory. Directory path and file info are separated by a single blank space.

Follow-up beyond contest:

1. Imagine you are given a real file system, how will you search files? DFS or BFS?
2. If the file content is very large (GB level), how will you modify your solution?
3. If you can only read the file by 1kb each time, how will you modify your solution?
4. What is the time complexity of your modified solution? What is the most time-consuming part and memory consuming part of it? How to optimize?
5. How to make sure the duplicated files you find are not false positive?

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[609-Find-Duplicate-File-in-System](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

610. Triangle Judgement

A pupil Tim gets homework to identify whether three line segments could possibly form a triangle.

However, this assignment is very heavy because there are hundreds of records to calculate.

Could you help Tim by writing a query to judge whether these three sides can form a triangle, assuming table `triangle` holds the length of the three sides x, y and z.

x	y	z
13	15	30
10	20	15

For the sample data above, your query should return the follow result:

x	y	z	triangle
13	15	30	No
10	20	15	Yes

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[610-Triangle-Judgement](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

611. Valid Triangle Number

Given an array consists of non-negative integers, your task is to count the number of triplets chosen from the array that can make triangles if we take them as side lengths of a triangle.

Example 1:

Input: [2, 2, 3, 4]

Output: 3

Explanation:

Valid combinations are:

2, 3, 4 (using the first 2)

2, 3, 4 (using the second 2)

2, 2, 3

Note:

1. The length of the given array won't exceed 1000.
2. The integers in the given array are in the range of [0, 1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[611-Valid-Triangle-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

612. Shortest Distance in a Plane

Table `point_2d` holds the coordinates (x,y) of some unique points (more than two) in a plane.

Write a query to find the shortest distance between these points rounded to 2 decimals.

x	y
-1	-1
0	0
-1	-2

The shortest distance is 1.00 from point (-1,-1) to (-1,2). So the output should be:

shortest
1.00

Note: The longest distance among all the points are less than 10000.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[612-Shortest-Distance-in-a-Plane](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

613. Shortest Distance in a Line

Table point holds the x coordinate of some points on x-axis in a plane, which are all integers.

Write a query to find the shortest distance between two points in these points.

x
-1
0
2

The shortest distance is '1' obviously, which is from point '-1' to '0'. So the output is as below:

shortest
-
1

Note: Every point is unique, which means there is no duplicates in table point .

Follow-up: What if all these points have an id and are arranged from the left most to the right most of x axis?

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[613-Shortest-Distance-in-a-Line](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

614. Second Degree Follower

In facebook, there is a `follow` table with two columns: **followee**, **follower**.

Please write a sql query to get the amount of each follower's follower if he/she has one.

For example:

followee	follower
A	B
B	C
B	D
D	E

should output:

follower	num
B	2
D	1

Explanation:

Both B and D exist in the follower list, when as a followee, B's follower is C and D, and D's follower is E. A does not exist in follower list.

Note:

Followee would not follow himself/herself in all cases.
Please display the result in follower's alphabet order.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[614-Second-Degree-Follower](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

615. Average Salary: Departments VS Company

Given two tables as below, write a query to display the comparison result (higher/lower/same) of the average salary of employees in a department to the company's average salary.

Table: salary

id employee_id amount pay_date
1 1 9000 2017-03-31
2 2 6000 2017-03-31
3 3 10000 2017-03-31
4 1 7000 2017-02-28
5 2 6000 2017-02-28
6 3 8000 2017-02-28

The **employee_id** column refers to the **employee_id** in the following table **employee** .

employee_id department_id
1 1
2 2
3 2

So for the sample data above, the result is:

pay_month department_id comparison
2017-03 1 higher
2017-03 2 lower
2017-02 1 same
2017-02 2 same

Explanation

In March, the company's average salary is $(9000+6000+10000)/3 = 8333.33\dots$

The average salary for department '1' is 9000, which is the salary of **employee_id** '1' since there is only one employee in this department. So the comparison result is 'higher' since $9000 > 8333.33$ obviously.

The average salary of department '2' is $(6000 + 10000)/2 = 8000$, which is the average of **employee_id** '2' and '3'. So the comparison result is 'lower' since $8000 < 8333.33$.

With the same formula for the average salary comparison in February, the result is 'same' since both the department '1' and '2' have the same average salary with the company, which is 7000.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[615-Average-Salary-Departments-VS-Company](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

616. Add Bold Tag in String

Given a string **s** and a list of strings **dict**, you need to add a closed pair of bold tag **< b >** and **< /b >** to wrap the substrings in **s** that exist in **dict**. If two such substrings overlap, you need to wrap them together by only one pair of closed bold tag. Also, if two substrings wrapped by bold tags are consecutive, you need to combine them.

Example 1:

Input:
s = "abcxyz123"
dict = ["abc", "123"]
Output:
"abcxyz123"

Example 2:

Input:
s = "aaabbcc"
dict = ["aaa", "aab", "bc"]
Output:
"aaabbcc"

Note:

1. The given dict won't contain duplicates, and its length won't exceed 100.
2. All the strings in input have length in range [1, 1000].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[616-Add-Bold-Tag-in-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

617. Merge Two Binary Trees

Given two binary trees and imagine that when you put one of them to cover the other, some nodes of the two trees are overlapped while the others are not.

You need to merge them into a new binary tree. The merge rule is that if two nodes overlap, then sum node values up as the new value of the merged node. Otherwise, the NOT null node will be used as the node of new tree.

Example 1:

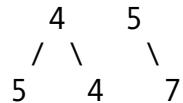
Input:



Output:

Merged tree:





Note: The merging process must start from the root nodes of both trees.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[617-Merge-Two-Binary-Trees](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

618. Students Report By Geography

A U.S graduate school has students from Asia, Europe and America. The students' location information are stored in table `student` as below.

name	continent
Jack	America
Pascal	Europe
Xi	Asia
Jane	America

[Pivot](#) the continent column in this table so that each name is sorted alphabetically and displayed underneath its corresponding continent. The output headers should be America, Asia and Europe respectively. It is guaranteed that the student number from America is no less than either Asia or Europe.

For the sample input, the output is:

America	Asia	Europe
Jack	Xi	Pascal
Jane		

Follow-up: If it is unknown which continent has the most students, can you write a query to generate the student report?

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[618-Students-Report-By-Geography](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

619. Biggest Single Number

Table `my_numbers` contains many numbers in column **num** including duplicated ones.

Can you write a SQL query to find the biggest number, which only appears once.

```
+---+
| num |
+---+
| 8 |
| 8 |
| 3 |
| 3 |
| 1 |
| 4 |
| 5 |
| 6 |
```

For the sample data above, your query should return the following result:

```
+---+
| num |
+---+
| 6 |
```

Note:

If there is no such number, just output **null**.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[619-Biggest-Single-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

620. Not Boring Movies

X city opened a new cinema, many people would like to go to this cinema. The cinema also gives out a poster indicating the movies' ratings and descriptions.

Please write a SQL query to output movies with an odd numbered ID and a description that is not 'boring'. Order the result by rating.

For example, table cinema :

id	movie	description	rating
1	War	great 3D	8.9
2	Science	fiction	8.5
3	irish	boring	6.2
4	Ice song	Fantacy	8.6
5	House card	Interesting	9.1

For the example above, the output should be:

id	movie	description	rating
5	House card	Interesting	9.1
1	War	great 3D	8.9

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[620-Not-Boring-Movies](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

621. Task Scheduler

Given a char array representing tasks CPU need to do. It contains capital letters A to Z where different letters represent different tasks. Tasks could be done without original order. Each task could be done in one interval. For each interval, CPU could finish one task or just be idle.

However, there is a non-negative cooling interval **n** that means between two **same tasks**, there must be at least n intervals that CPU are doing different tasks or just be idle.

You need to return the **least** number of intervals the CPU will take to finish all the given tasks.

Example:

Input: tasks = ["A", "A", "A", "B", "B", "B"], n = 2
Output: 8

Explanation: A -> B -> idle -> A -> B -> idle -> A -> B.

Note:

1. The number of tasks is in the range [1, 10000].

2. The integer n is in the range [0, 100].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**621-Task-Scheduler**](#)

All Problems:

[**Link to All Problems**](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

622. Design Circular Queue

Design your implementation of the circular queue. The circular queue is a linear data structure in which the operations are performed based on FIFO (First In First Out) principle and the last position is connected back to

the first position to make a circle. It is also called "Ring Buffer".

One of the benefits of the circular queue is that we can make use of the spaces in front of the queue. In a normal queue, once the queue becomes full, we cannot insert the next element even if there is a space in front of the queue. But using the circular queue, we can use the space to store new values.

Your implementation should support following operations:

- `MyCircularQueue(k)` : Constructor, set the size of the queue to be k.
- `Front` : Get the front item from the queue. If the queue is empty, return -1.
- `Rear` : Get the last item from the queue. If the queue is empty, return -1.
- `enQueue(value)` : Insert an element into the circular queue. Return true if the operation is successful.
- `deQueue()` : Delete an element from the circular queue. Return true if the operation is successful.
- `isEmpty()` : Checks whether the circular queue is empty or not.
- `isFull()` : Checks whether the circular queue is full or not.

Example:

```
MyCircularQueue circularQueue = new MyCircularQueue(3); // set the size to 3
circularQueue.enQueue(1); // return true
circularQueue.enQueue(2); // return true
circularQueue.enQueue(3); // return true
circularQueue.enQueue(4); // return false, the queue is full
circularQueue.Rear(); // return 3
circularQueue.isFull(); // return true
circularQueue.deQueue(); // return true
circularQueue.enQueue(4); // return true
circularQueue.Rear(); // return 4
```

Note:

- All values will be in the range of [0, 1000].
- The number of operations will be in the range of [1, 1000].
- Please do not use the built-in Queue library.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[622-Design-Circular-Queue](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

623. Add One Row to Tree

Given the root of a binary tree, then value v and depth d , you need to add a row of nodes with value v at the given depth d . The root node is at depth 1.

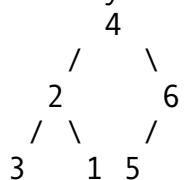
The adding rule is: given a positive integer depth d , for each NOT null tree nodes N in depth $d-1$, create two

tree nodes with value v as N 's left subtree root and right subtree root. And N 's **original left subtree** should be the left subtree of the new left subtree root, its **original right subtree** should be the right subtree of the new right subtree root. If depth d is 1 that means there is no depth $d-1$ at all, then create a tree node with value v as the new root of the whole original tree, and the original tree is the new root's left subtree.

Example 1:

Input:

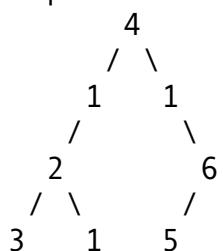
A binary tree as following:



$v = 1$

$d = 2$

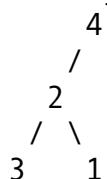
Output:



Example 2:

Input:

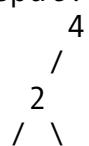
A binary tree as following:

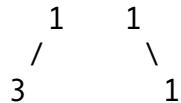


$v = 1$

$d = 3$

Output:





Note:

1. The given d is in range [1, maximum depth of the given tree + 1].
2. The given binary tree has at least one tree node.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[623-Add-One-Row-to-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

624. Maximum Distance in Arrays

Given m arrays, and each array is sorted in ascending order. Now you can pick up two integers from two different arrays (each array picks one) and calculate the distance. We define the distance between two integers a and b to be their absolute difference $|a - b|$. Your task is to find the maximum distance.

Example 1:

Input:

```
[[1,2,3],  
 [4,5],  
 [1,2,3]]
```

Output: 4

Explanation:

One way to reach the maximum distance 4 is to pick 1 in the first

Note:

1. Each given array will have at least 1 number. There will be at least two non-empty arrays.
2. The total number of the integers in **all** the m arrays will be in the range of [2, 10000].
3. The integers in the m arrays will be in the range of [-10000, 10000].

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[624-Maximum-Distance-in-Arrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

625. Minimum Factorization

Given a positive integer a , find the smallest positive integer b whose multiplication of each digit equals to a .

If there is no answer or the answer is not fit in 32-bit signed integer, then return 0.

Example 1

Input:

48

Output:

68

Example 2

Input:

15

Output:

35

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution****625-Minimum-Factorization****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:

626. Exchange Seats

Mary is a teacher in a middle school and she has a table `seat` storing students' names and their corresponding seat ids.

The column `id` is continuous increment.

Mary wants to change seats for the adjacent students.

Can you write a SQL query to output the result for Mary?

id	student
1	Abbot
2	Doris
3	Emerson
4	Green
5	Jeames

For the sample input, the output is:

id	student
1	Doris
2	Abbot
3	Green
4	Emerson
5	Jeames

Note:

If the number of students is odd, there is no need to change the last one's seat.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[626-Exchange-Seats](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

627. Swap Salary

Given a table `salary` , such as the one below, that has m=male and f=female values. Swap all f and m values (i.e., change all f values to m and vice versa) with a **single update statement** and no intermediate temp table.

Note that you must write a single update statement, **DO NOT** write any select statement for this problem.

Example:

id name sex salary
----- ----- ----- -----
1 A m 2500
2 B f 1500
3 C m 5500
4 D f 500

After running your **update** statement, the above salary table should have the following rows:

id name sex salary
----- ----- ----- -----
1 A f 2500
2 B m 1500
3 C f 5500
4 D m 500

Difficulty:

Lock:

Company:

Problem Solution

[627-Swap-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

628. Maximum Product of Three Numbers

Given an integer array, find three numbers whose product is maximum and output the maximum product.

Example 1:

Input: [1, 2, 3]
Output: 6

Example 2:

Input: [1, 2, 3, 4]
Output: 24

Note:

1. The length of the given array will be in range [3,10⁴] and all elements are in the range [-1000, 1000].
2. Multiplication of any three numbers in the input won't exceed the range of 32-bit signed integer.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[628-Maximum-Product-of-Three-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

629. K Inverse Pairs Array

Given two integers n and k , find how many different arrays consist of numbers from 1 to n such that there are exactly k inverse pairs.

We define an inverse pair as following: For i_{th} and j_{th} element in the array, if $i < j$ and $a[i] > a[j]$ then it's an inverse pair; Otherwise, it's not.

Since the answer may be very large, the answer should be modulo $10^9 + 7$.

Example 1:

Input: $n = 3$, $k = 0$

Output: 1

Explanation:

Only the array [1,2,3] which consists of numbers from 1 to 3 has

Example 2:

Input: $n = 3$, $k = 1$

Output: 2

Explanation:

The array [1,3,2] and [2,1,3] have exactly 1 inverse pair.

Note:

1. The integer n is in the range [1, 1000] and k is in the range [0, 1000].

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[629-K-Inverse-Pairs-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

630. Course Schedule III

There are n different online courses numbered from 1 to n . Each course has some duration(course length) t and closed on d_{th} day. A course should be taken continuously for t days and must be finished before or on the d_{th} day. You will start at the 1_{st} day.

Given n online courses represented by pairs (t, d) , your task is to find the maximal number of courses that can be taken.

Example:

Input: [[100, 200], [200, 1300], [1000, 1250], [2000, 3200]]
Output: 3

Explanation:

There're totally 4 courses, but you can take 3 courses at most:
First, take the 1st course, it costs 100 days so you will finish
Second, take the 3rd course, it costs 1000 days so you will finish
Third, take the 2nd course, it costs 200 days so you will finish
The 4th course cannot be taken now, since you will finish it on

Note:

1. The integer $1 \leq d, t, n \leq 10,000$.
2. You can't take two courses simultaneously.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution****630-Course-Schedule-III****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:

631. Design Excel Sum Formula

Your task is to design the basic function of Excel and implement the function of sum formula. Specifically, you need to implement the following functions:

`Excel(int H, char W)`: This is the constructor. The inputs represents the height and width of the Excel form. **H** is a positive integer, range from 1 to 26. It represents the height. **W** is a character range from 'A' to 'Z'. It represents that the width is the number of characters from 'A' to **W**. The Excel form content is represented by a height * width 2D integer array **C**, it should be initialized to zero. You should assume that the first row of **C** starts from 1, and the first column of **C** starts from 'A'.

`void Set(int row, char column, int val)`: Change the value at **C(row, column)** to be **val**.

`int Get(int row, char column)`: Return the value at **C(row, column)** .

`int Sum(int row, char column, List<String> : numbers)`: This function calculate and set the value at **C(row, column)** , where the value should be the sum of cells represented by **numbers** . This function return the sum result at **C(row, column)** . This sum formula should exist until this cell is overlapped by another value or another sum formula.

numbers is a list of strings that each string represent a cell or a range of cells. If the string represent a single cell, then it has the following format : **ColRow** . For example, "F7" represents the cell at (7, F).

If the string represent a range of cells, then it has the following format : **ColRow1:ColRow2** . The range will

always be a rectangle, and ColRow1 represent the position of the top-left cell, and ColRow2 represents the position of the bottom-right cell.

Example 1:

```
Excel(3, "C");
// construct a 3*3 2D array with all zero.
//   A B C
// 1 0 0 0
// 2 0 0 0
// 3 0 0 0

Set(1, "A", 2);
// set C(1,"A") to be 2.
//   A B C
// 1 2 0 0
// 2 0 0 0
// 3 0 0 0

Sum(3, "C", ["A1", "A1:B2"]);
// set C(3,"C") to be the sum of value at C(1,"A") and the value
//   A B C
// 1 2 0 0
// 2 0 0 0
// 3 0 0 4

Set(2, "B", 2);
// set C(2,"B") to be 2. Note C(3, "C") should also be changed.
//   A B C
// 1 2 0 0
// 2 0 2 0
// 3 0 0 6
```

Note:

1. You could assume that there won't be any circular sum reference. For example, A1 = sum(B1) and B1 = sum(A1).
2. The test cases are using double-quotes to represent a character.
3. Please remember to **RESET** your class variables declared in class Excel, as static/class variables are **persisted across multiple test cases**. Please see [here](#) for more details.

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution****[631-Design-Excel-Sum-Formula](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

632. Smallest Range Covering Elements from K Lists

You have k lists of sorted integers in ascending order.
Find the **smallest** range that includes at least one number from each of the k lists.

We define the range $[a,b]$ is smaller than range $[c,d]$ if $b-a < d-c$ or $a < c$ if $b-a == d-c$.

Example 1:

Input: $[[4, 10, 15, 24, 26], [0, 9, 12, 20], [5, 18, 22, 30]]$
Output: $[20, 24]$

Explanation:

List 1: $[4, 10, 15, 24, 26]$, 24 is in range $[20, 24]$.
List 2: $[0, 9, 12, 20]$, 20 is in range $[20, 24]$.
List 3: $[5, 18, 22, 30]$, 22 is in range $[20, 24]$.

Note:

1. The given list may contain duplicates, so ascending order means \geq here.
2. $1 \leq k \leq 3500$
3. $-10^5 \leq \text{value of elements} \leq 10^5$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[632-Smallest-Range-Covering-Elements-from-K-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

633. Sum of Square Numbers

Given a non-negative integer c , your task is to decide whether there're two integers a and b such that $a^2 + b^2 = c$.

Example 1:

Input: 5
Output: True
Explanation: $1 * 1 + 2 * 2 = 5$

Example 2:

Input: 3
Output: False

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[633-Sum-of-Square-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

634. Find the Derangement of An Array

In combinatorial mathematics, a derangement is a permutation of the elements of a set, such that no element appears in its original position.

There's originally an array consisting of n integers from 1 to n in ascending order, you need to find the number of derangement it can generate.

Also, since the answer may be very large, you should return the output mod $10^9 + 7$.

Example 1:

Input: 3

Output: 2

Explanation: The original array is [1,2,3]. The two derangements

Note:

n is in the range of $[1, 10^6]$.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[634-Find-the-Derangement-of-An-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

635. Design Log Storage System

You are given several logs that each log contains a unique id and timestamp. Timestamp is a string that has the following format:

Year:Month:Day:Hour:Minute:Second , for example, 2017:01:01:23:59:59 . All domains are zero-padded decimal numbers.

Design a log storage system to implement the following functions:

`void Put(int id, string timestamp)` : Given a log's unique id and timestamp, store the log in your storage system.

`int[] Retrieve(String start, String end, String granularity)` : Return the id of logs whose timestamps are within the range from start to end. Start and end all have the same format as timestamp. However, granularity means the time level for consideration. For example, start = "2017:01:01:23:59:59", end = "2017:01:02:23:59:59", granularity = "Day", it means that we need to find the logs within the range from Jan. 1st 2017 to Jan. 2nd 2017.

Example 1:

```
put(1, "2017:01:01:23:59:59");
put(2, "2017:01:01:22:59:59");
put(3, "2016:01:01:00:00:00");
retrieve("2016:01:01:01:01:01", "2017:01:01:23:00:00", "Year"); //
retrieve("2016:01:01:01:01:01", "2017:01:01:23:00:00", "Hour"); //
```

Note:

1. There will be at most 300 operations of Put or Retrieve.
2. Year ranges from [2000,2017]. Hour ranges from [00,23].
3. Output for Retrieve has no order required.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[635-Design-Log-Storage-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

636. Exclusive Time of Functions

On a **single threaded** CPU, we execute some functions. Each function has a unique id between 0 and N-1 .

We store logs in timestamp order that describe when a function is entered or exited.

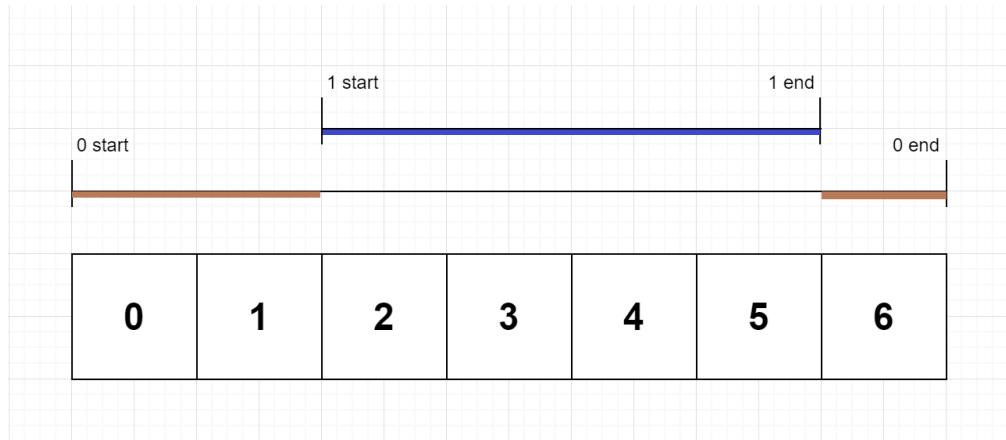
Each log is a string with this format: "{function_id}: {"start" | "end"}:{timestamp}" . For example, "0:start:3" means the function with id 0 **started at the beginning** of timestamp 3 . "1:end:2" means the function with id 1 **ended at the end** of timestamp 2 .

A function's *exclusive time* is the number of units of time spent in this function. Note that this does **not** include any recursive calls to child functions.

The CPU is **single threaded** which means that only one function is being executed at a given time unit.

Return the exclusive time of each function, sorted by their function id.

Example 1:



Input:

n = 2

logs = ["0:start:0", "1:start:2", "1:end:5", "0:end:6"]

Output: [3, 4]

Explanation:

Function 0 starts at the beginning of time 0, then it executes 2
Now function 1 starts at the beginning of time 2, executes 4 uni

Function 0 is running again at the beginning of time 6, and also So function 0 spends $2 + 1 = 3$ units of total time executing, and

Note:

1. $1 \leq n \leq 100$
2. Two functions won't start or end at the same time.
3. Functions will always log when they exit.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[636-Exclusive-Time-of-Functions](#)

All Problems:

[Link to All Problems](#)

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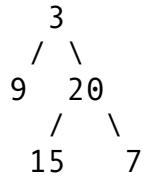
Welcome to Subscribe On Youtube:

637. Average of Levels in Binary Tree

Given a non-empty binary tree, return the average value of the nodes on each level in the form of an array.

Example 1:

Input:



Output: [3, 14.5, 11]

Explanation:

The average value of nodes on level 0 is 3, on level 1 is 14.5,

Note:

1. The range of node's value is in the range of 32-bit signed integer.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[637-Average-of-Levels-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

638. Shopping Offers

In LeetCode Store, there are some kinds of items to sell. Each item has a price.

However, there are some special offers, and a special offer consists of one or more different kinds of items with a sale price.

You are given the each item's price, a set of special offers, and the number we need to buy for each item. The job is to output the lowest price you have to pay for **exactly** certain items as given, where you could make optimal use of the special offers.

Each special offer is represented in the form of an array, the last number represents the price you need to pay for this special offer, other numbers represents how many specific items you could get if you buy this offer.

You could use any of special offers as many times as you want.

Example 1:

Input: [2,5], [[3,0,5],[1,2,10]], [3,2]

Output: 14

Explanation:

There are two kinds of items, A and B. Their prices are \$2 and \$5.

In special offer 1, you can pay \$5 for 3A and 0B.

In special offer 2, you can pay \$10 for 1A and 2B.

You need to buy 3A and 2B, so you may pay \$10 for 1A and 2B (speci

Example 2:

Input: [2,3,4], [[1,1,0,4],[2,2,1,9]], [1,2,1]

Output: 11

Explanation:

The price of A is \$2, and \$3 for B, \$4 for C.

You may pay \$4 for 1A and 1B, and \$9 for 2A ,2B and 1C.

You need to buy 1A ,2B and 1C, so you may pay \$4 for 1A and 1B (

You cannot add more items, though only \$9 for 2A ,2B and 1C.

Note:

1. There are at most 6 kinds of items, 100 special offers.
2. For each item, you need to buy at most 6 of them.
3. You are **not** allowed to buy more items than you want, even if that would lower the overall price.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[638-Shopping-Offers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

639. Decode Ways II

A message containing letters from A-Z is being encoded to numbers using the following mapping way:

'A' -> 1
'B' -> 2
...
'Z' -> 26

Beyond that, now the encoded string can also contain the character '*', which can be treated as one of the numbers from 1 to 9.

Given the encoded message containing digits and the character '*', return the total number of ways to decode it.

Also, since the answer may be very large, you should return the output mod $10^9 + 7$.

Example 1:

Input: "*"

Output: 9

Explanation: The encoded message can be decoded to the string: "AA", "AB", "BA", "BB".

Example 2:

Input: "1*"

Output: $9 + 9 = 18$

Note:

1. The length of the input string will fit in range [1, 10⁵].
2. The input string will only contain the character '*' and digits '0' - '9'.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[639-Decode-Ways-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

640. Solve the Equation

Solve a given equation and return the value of x in the form of string " $x=#value$ ". The equation contains only '+', '-' operation, the variable x and its coefficient.

If there is no solution for the equation, return "No solution".

If there are infinite solutions for the equation, return "Infinite solutions".

If there is exactly one solution for the equation, we ensure that the value of x is an integer.

Example 1:

Input: " $x+5-3+x=6+x-2$ "
Output: "x=2"

Example 2:

Input: "x=x"
Output: "Infinite solutions"

Example 3:

Input: "2x=x"
Output: "x=0"

Example 4:

Input: "2x+3x-6x=x+2"
Output: "x=-1"

Example 5:

Input: "x=x+2"
Output: "No solution"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[640-Solve-the-Equation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

641. Design Circular Deque

Design your implementation of the circular double-ended queue (deque).

Your implementation should support following operations:

- `MyCircularDeque(k)` : Constructor, set the size of the deque to be k.
- `insertFront()` : Adds an item at the front of Deque. Return true if the operation is successful.
- `insertLast()` : Adds an item at the rear of Deque. Return true if the operation is successful.
- `deleteFront()` : Deletes an item from the front of Deque. Return true if the operation is successful.
- `deleteLast()` : Deletes an item from the rear of Deque. Return true if the operation is successful.
- `getFront()` : Gets the front item from the Deque. If the deque is empty, return -1.
- `getRear()` : Gets the last item from Deque. If the deque is empty, return -1.
- `isEmpty()` : Checks whether Deque is empty or not.
- `isFull()` : Checks whether Deque is full or not.

Example:

```
MyCircularDeque circularDeque = new MyCircularDeque(3); // set t
circularDeque.insertLast(1);                      // return true
circularDeque.insertLast(2);                      // return true
circularDeque.insertFront(3);                     // return true
circularDeque.insertFront(4);                     // return false,
circularDeque.getRear();                         // return 2
circularDeque.isFull();                          // return true
circularDeque.deleteLast();                      // return true
circularDeque.insertFront(4);                     // return true
circularDeque.getFront();                        // return 4
```

Note:

- All values will be in the range of [0, 1000].
- The number of operations will be in the range of [1, 1000].
- Please do not use the built-in Deque library.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[641-Design-Circular-Deque](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

642. Design Search Autocomplete System

Design a search autocomplete system for a search engine. Users may input a sentence (at least one word and end with a special character '#'). For **each character** they type **except '#'**, you need to return the **top 3** historical hot sentences that have prefix the same as the part of sentence already typed. Here are the specific rules:

1. The hot degree for a sentence is defined as the number of times a user typed the exactly same sentence before.
2. The returned top 3 hot sentences should be sorted by hot degree (The first is the hottest one). If several sentences have the same degree of hot, you need to use ASCII-code order (smaller one appears first).
3. If less than 3 hot sentences exist, then just return as many as you can.
4. When the input is a special character, it means the sentence ends, and in this case, you need to return an empty list.

Your job is to implement the following functions:

The constructor function:

```
AutocompleteSystem(String[] sentences, int[] times): This is the constructor. The input is historical data. Sentences is a string array consists of previously typed sentences. Times is the corresponding times a sentence has been typed. Your system should record these historical data.
```

Now, the user wants to input a new sentence. The following function will provide the next character the user types:

List<String> input(char c): The input c is the next character typed by the user. The character will only be lower-case letters ('a' to 'z'), blank space (' ') or a special character ('#'). Also, the previously typed sentence should be recorded in your system. The output will be the **top 3** historical hot sentences that have prefix the same as the part of sentence already typed.

Example:

Operation: AutocompleteSystem(["i love you", "island", "ironman", "i love leetcode"], [5,3,2,2])

The system have already tracked down the following sentences and their corresponding times:

"i love you" : 5 times

"island" : 3 times

"ironman" : 2 times

"i love leetcode" : 2 times

Now, the user begins another search:

Operation: input('i')

Output: ["i love you", "island", "i love leetcode"]

Explanation:

There are four sentences that have prefix "i". Among them, "ironman" and "i love leetcode" have same hot degree. Since ' ' has ASCII code 32 and 'r' has ASCII code 114, "i love leetcode" should be in front of "ironman". Also we only need to output top 3 hot sentences, so "ironman" will be ignored.

Operation: input(' ')

Output: ["i love you", "i love leetcode"]

Explanation:

There are only two sentences that have prefix "i " .

Operation: input('a')

Output: []

Explanation:

There are no sentences that have prefix "i a" .

Operation: input('#')

Output: []

Explanation:

The user finished the input, the sentence "i a" should be saved as a historical sentence in system. And the following input will be counted as a new search.

Note:

1. The input sentence will always start with a letter and end with '#', and only one blank space will exist between two words.
2. The number of **complete sentences** that to be searched won't exceed 100. The length of each sentence including those in the historical data won't exceed 100.
3. Please use double-quote instead of single-quote when you write test cases even for a character input.
4. Please remember to **RESET** your class variables declared in class AutocompleteSystem, as static/class variables are **persisted across multiple test cases**. Please see [here](#) for more details.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[642-Design-Search-Autocomplete-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

643. Maximum Average Subarray I

Given an array consisting of n integers, find the contiguous subarray of given length k that has the maximum average value. And you need to output the maximum average value.

Example 1:

Input: [1,12,-5,-6,50,3], k = 4

Output: 12.75

Explanation: Maximum average is $(12-5-6+50)/4 = 51/4 = 12.75$

Note:

1. $1 \leq k \leq n \leq 30,000$.
2. Elements of the given array will be in the range $[-10,000, 10,000]$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[643-Maximum-Average-Subarray-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

644. Maximum Average Subarray II

Given an array consisting of n integers, find the contiguous subarray whose **length is greater than or equal to k** that has the maximum average value. And you need to output the maximum average value.

Example 1:

Input: [1,12,-5,-6,50,3], k = 4

Output: 12.75

Explanation:

when length is 5, maximum average value is 10.8,
when length is 6, maximum average value is 9.16667.
Thus return 12.75.

Note:

1. $1 \leq k \leq n \leq 10,000$.

2. Elements of the given array will be in range [-10,000, 10,000].
3. The answer with the calculation error less than 10^{-5} will be accepted.

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[644-Maximum-Average-Subarray-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

645. Set Mismatch

The set S originally contains numbers from 1 to n . But unfortunately, due to the data error, one of the numbers in the set got duplicated to **another** number in the set, which results in repetition of one number and loss of another number.

Given an array nums representing the data status of this set after the error. Your task is to firstly find the number occurs twice and then find the number that is missing. Return them in the form of an array.

Example 1:

Input: $\text{nums} = [1, 2, 2, 4]$
Output: $[2, 3]$

Note:

1. The given array size will be in the range $[2, 10000]$.
2. The given array's numbers won't have any order.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[645-Set-Mismatch](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

646. Maximum Length of Pair Chain

You are given n pairs of numbers. In every pair, the first number is always smaller than the second number.

Now, we define a pair (c, d) can follow another pair (a, b) if and only if $b < c$. Chain of pairs can be formed in this fashion.

Given a set of pairs, find the length longest chain which can be formed. You needn't use up all the given pairs. You can select pairs in any order.

Example 1:

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

Output: 2

Explanation: The longest chain is [1,2] -> [3,4]

Note:

1. The number of given pairs will be in the range [1, 1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[646-Maximum-Length-of-Pair-Chain](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

647. Palindromic Substrings

Given a string, your task is to count how many palindromic substrings in this string.

The substrings with different start indexes or end indexes are counted as different substrings even they consist of same characters.

Example 1:

Input: "abc"

Output: 3

Explanation: Three palindromic strings: "a", "b", "c".

Example 2:

Input: "aaa"
Output: 6
Explanation: Six palindromic strings: "a", "a", "a", "aa", "aa", "aaa".

Note:

1. The input string length won't exceed 1000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[647-Palindromic-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

648. Replace Words

In English, we have a concept called `root` , which can be followed by some other words to form another longer word - let's call this word `successor` . For example, the root `an` , followed by `other` , which can form another word `another` .

Now, given a dictionary consisting of many roots and a sentence. You need to replace all the `successor` in the sentence with the `root` forming it. If a `successor` has many `roots` can form it, replace it with the `root` with the shortest length.

You need to output the sentence after the replacement.

Example 1:

```
Input: dict = ["cat", "bat", "rat"]
sentence = "the cattle was rattled by the battery"
Output: "the cat was rat by the bat"
```

Note:

1. The input will only have lower-case letters.
2. $1 \leq \text{dict words number} \leq 1000$
3. $1 \leq \text{sentence words number} \leq 1000$
4. $1 \leq \text{root length} \leq 100$
5. $1 \leq \text{sentence words length} \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[648-Replace-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

649. Dota2 Senate

In the world of Dota2, there are two parties: the Radiant and the Dire .

The Dota2 senate consists of senators coming from two parties. Now the senate wants to make a decision about a change in the Dota2 game. The voting for this change is a round-based procedure. In each round, each senator can exercise one of the two rights:

1. Ban one senator's right :

A senator can make another senator lose **all his rights** in this and all the following rounds.

2. Announce the victory :

If this senator found the senators who still have rights to vote are all from **the same party** , he can announce the victory and make the decision about the change in the game.

Given a string representing each senator's party belonging. The character 'R' and 'D' represent the Radiant party and the Dire party respectively. Then if there are n senators, the size of the given string will be n.

The round-based procedure starts from the first senator to the last senator in the given order. This procedure will last until the end of voting. All the senators who have lost their rights will be skipped during the procedure.

Suppose every senator is smart enough and will play the best strategy for his own party, you need to predict which party will finally announce the victory and make the change in the Dota2 game. The output should be Radiant or Dire .

Example 1:

Input: "RD"

Output: "Radiant"

Explanation: The first senator comes from Radiant and he can just ban the next senator. And the second senator can't exercise any rights anymore since he has been skipped. And in the round 2, the first senator can just announce the victory.

Example 2:

Input: "RDD"

Output: "Dire"

Explanation:

The first senator comes from Radiant and he can just ban the next senator. And the second senator can't exercise any rights anymore since he has been skipped. And the third senator comes from Dire and he can ban the first senator. And in the round 2, the third senator can just announce the victory.

Note:

1. The length of the given string will be in the range [1, 10,000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[649-Dota](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

650. 2 Keys Keyboard

Initially on a notepad only one character 'A' is present. You can perform two operations on this notepad for each step:

1. Copy All : You can copy all the characters present on the notepad (partial copy is not allowed).
2. Paste : You can paste the characters which are copied **last time**.

Given a number n . You have to get **exactly** n 'A' on the notepad by performing the minimum number of steps permitted. Output the minimum number of steps to get n 'A'.

Example 1:

Input: 3

Output: 3

Explanation:

Initially, we have one character 'A'.

In step 1, we use Copy All operation.
In step 2, we use Paste operation to get 'AA'.
In step 3, we use Paste operation to get 'AAA'.

Note:

1. The n will be in the range [1, 1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[650-2-Keys-Keyboard](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

651. 4 Keys Keyboard

Imagine you have a special keyboard with the following keys:

Key 1: (A) : Print one 'A' on screen.

Key 2: (Ctrl-A) : Select the whole screen.

Key 3: (Ctrl-C) : Copy selection to buffer.

Key 4: (Ctrl-V) : Print buffer on screen appending it after what has already been printed.

Now, you can only press the keyboard for N times (with the above four keys), find out the maximum numbers of 'A' you can print on screen.

Example 1:

Input: N = 3

Output: 3

Explanation:

We can at most get 3 A's on screen by pressing following key seq
A, A, A

Example 2:

Input: N = 7

Output: 9

Explanation:

We can at most get 9 A's on screen by pressing following key seq
A, A, A, Ctrl A, Ctrl C, Ctrl V, Ctrl V

Note:

1. $1 \leq N \leq 50$
2. Answers will be in the range of 32-bit signed integer.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[651-4-Keys-Keyboard](#)

All Problems:

[Link to All Problems](#)

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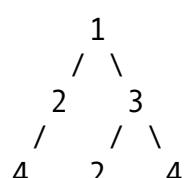
Welcome to Subscribe On Youtube:

652. Find Duplicate Subtrees

Given a binary tree, return all duplicate subtrees. For each kind of duplicate subtrees, you only need to return the root node of any **one** of them.

Two trees are duplicate if they have the same structure with same node values.

Example 1:



/
4

The following are two duplicate subtrees:

2
/
4

and

4

Therefore, you need to return above trees' root in the form of a list.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[652-Find-Duplicate-Subtrees](#)

All Problems:

[Link to All Problems](#)

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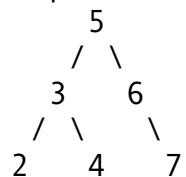
Welcome to Subscribe On Youtube:

653. Two Sum IV - Input is a BST

Given a Binary Search Tree and a target number, return true if there exist two elements in the BST such that their sum is equal to the given target.

Example 1:

Input:

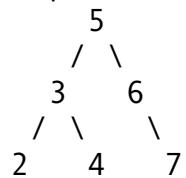


Target = 9

Output: True

Example 2:

Input:



Target = 28

Output: False

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[653-Two-Sum-IV-Input-is-a-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

654. Maximum Binary Tree

Given an integer array with no duplicates. A maximum tree building on this array is defined as follow:

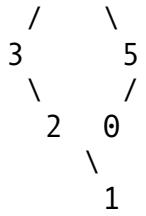
1. The root is the maximum number in the array.
2. The left subtree is the maximum tree constructed from left part subarray divided by the maximum number.
3. The right subtree is the maximum tree constructed from right part subarray divided by the maximum number.

Construct the maximum tree by the given array and output the root node of this tree.

Example 1:

Input: [3,2,1,6,0,5]

Output: return the tree root node representing the following tree



Note:

1. The size of the given array will be in the range [1,1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[654-Maximum-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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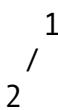
655. Print Binary Tree

Print a binary tree in an $m \times n$ 2D string array following these rules:

1. The row number m should be equal to the height of the given binary tree.
2. The column number n should always be an odd number.
3. The root node's value (in string format) should be put in the exactly middle of the first row it can be put. The column and the row where the root node belongs will separate the rest space into two parts (**left-bottom part and right-bottom part**). You should print the left subtree in the left-bottom part and print the right subtree in the right-bottom part. The left-bottom part and the right-bottom part should have the same size. Even if one subtree is none while the other is not, you don't need to print anything for the none subtree but still need to leave the space as large as that for the other subtree. However, if two subtrees are none, then you don't need to leave space for both of them.
4. Each unused space should contain an empty string "" .
5. Print the subtrees following the same rules.

Example 1:

Input:

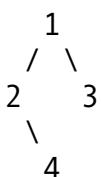


Output:

```
[["", "1", ""],
 ["2", "", ""]]
```

Example 2:

Input:



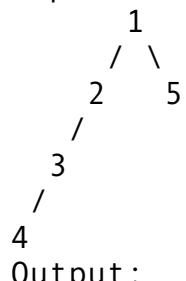
Output:

```
[["", "", "", "1", "", "", ""],
```

```
[ "", "2", "", "", "", "3", "" ],  
[ "", "", "4", "", "", "", "" ]]
```

Example 3:

Input:



Output:

```
[ [ "", "", "", "", "", "", "", "1", "", "", "", "", "", "", "", "" ],  
[ "", "", "", "2", "", "", "", "", "", "", "", "", "", "", "5", "", "" ],  
[ "", "3", "", "", "", "", "", "", "", "", "", "", "", "", "", "" ],  
[ "4", "", "", "", "", "", "", "", "", "", "", "", "", "", "", "" ],
```

Note: The height of binary tree is in the range of [1, 10].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[655-Print-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

656. Coin Path

Given an array A (index starts at 1) consisting of N integers: A_1, A_2, \dots, A_N and an integer B. The integer B denotes that from any place (suppose the index is i) in the array A, you can jump to any one of the places in the array A indexed $i+1, i+2, \dots, i+B$ if this place can be jumped to. Also, if you step on the index i, you have to pay A_i coins. If A_i is -1, it means you can't jump to the place indexed i in the array.

Now, you start from the place indexed 1 in the array A, and your aim is to reach the place indexed N using the minimum coins. You need to return the path of indexes (starting from 1 to N) in the array you should take to get to the place indexed N using minimum coins.

If there are multiple paths with the same cost, return the lexicographically smallest such path.

If it's not possible to reach the place indexed N then you need to return an empty array.

Example 1:

Input: [1, 2, 4, -1, 2], 2
Output: [1, 3, 5]

Example 2:

Input: [1, 2, 4, -1, 2], 1
Output: []

Note:

1. Path Pa_1, Pa_2, \dots, Pa_n is lexicographically smaller than Pb_1, Pb_2, \dots, Pb_m , if and only if at the first i where Pa_i and Pb_i differ, $Pa_i < Pb_i$; when no such i exists, then $n < m$.
2. $A_1 \geq 0$. A_2, \dots, A_N (if exist) will be in the range of [-1, 100].
3. Length of A is in the range of [1, 1000].
4. B is in the range of [1, 100].

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[656-Coin-Path](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

657. Robot Return to Origin

There is a robot starting at position $(0, 0)$, the origin, on a 2D plane. Given a sequence of its moves, judge if this robot **ends up at $(0, 0)$** after it completes its moves.

The move sequence is represented by a string, and the character `moves[i]` represents its i th move. Valid moves are R (right), L (left), U (up), and D (down). If the robot returns to the origin after it finishes all of its moves, return true. Otherwise, return false.

Note : The way that the robot is "facing" is irrelevant. "R" will always make the robot move to the right once, "L" will always make it move left, etc. Also, assume that the magnitude of the robot's movement is the same for each move.

Example 1:

Input: "UD"

Output: true

Explanation: The robot moves up once, and then down once. All moves are of equal length.

Example 2:

Input: "LL"

Output: false

Explanation: The robot moves left twice. It ends up two "moves" to the left of the origin.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[657-Robot-Return-to-Origin](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

658. Find K Closest Elements

Given a sorted array, two integers k and x , find the k closest elements to x in the array. The result should also be sorted in ascending order. If there is a tie, the smaller elements are always preferred.

Example 1:

Input: [1, 2, 3, 4, 5], $k=4$, $x=3$
Output: [1, 2, 3, 4]

Example 2:

Input: [1, 2, 3, 4, 5], $k=4$, $x=-1$
Output: [1, 2, 3, 4]

Note:

1. The value k is positive and will always be smaller than the length of the sorted array.
 2. Length of the given array is positive and will not exceed 10^4
 3. Absolute value of elements in the array and x will not exceed 10^4
-

UPDATE (2017/9/19):

The *arr* parameter had been changed to an **array of integers** (instead of a list of integers). **Please reload the code definition to get the latest changes .**

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[658-Find-K-Closest-Elements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

659. Split Array into Consecutive Subsequences

Given an array `nums` sorted in ascending order, return `true` if and only if you can split it into 1 or more subsequences such that each subsequence consists of consecutive integers and has length at least 3.

Example 1:

Input: [1,2,3,3,4,5]
Output: True
Explanation:
You can split them into two consecutive subsequences :
1, 2, 3
3, 4, 5

Example 2:

Input: [1,2,3,3,4,4,5,5]
Output: True
Explanation:
You can split them into two consecutive subsequences :
1, 2, 3, 4, 5
3, 4, 5

Example 3:

Input: [1,2,3,4,4,5]
Output: False

Constraints:

- $1 \leq \text{nums.length} \leq 10000$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[659-Split-Array-into-Consecutive-Subsequences](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

660. Remove 9

Start from integer 1, remove any integer that contains 9 such as 9, 19, 29...

So now, you will have a new integer sequence: 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, ...

Given a positive integer n , you need to return the n -th integer after removing. Note that 1 will be the first integer.

Example 1:

Input: 9
Output: 10

Hint : n will not exceed 9×10^8 .

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[660-Remove-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

661. Image Smoother

Given a 2D integer matrix M representing the gray scale of an image, you need to design a smoother to make the gray scale of each cell becomes the average gray scale (rounding down) of all the 8 surrounding cells and itself. If a cell has less than 8 surrounding cells, then use as many as you can.

Example 1:

Input:

```
[[1,1,1],  
 [1,0,1],  
 [1,1,1]]
```

Output:

```
[[0, 0, 0],  
 [0, 0, 0],  
 [0, 0, 0]]
```

Explanation:

For the point (0,0), (0,2), (2,0), (2,2): $\text{floor}(3/4) = \text{floor}(0.75) = 0$

For the point (0,1), (1,0), (1,2), (2,1): $\text{floor}(5/6) = \text{floor}(0.83333333) = 0$

For the point (1,1): $\text{floor}(8/9) = \text{floor}(0.88888889) = 0$

Note:

1. The value in the given matrix is in the range of [0, 255].
2. The length and width of the given matrix are in the range of [1, 150].

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[661-Image-Smoother](#)

All Problems:

[Link to All Problems](#)

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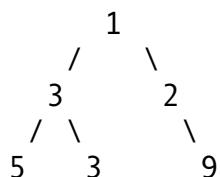
662. Maximum Width of Binary Tree

Given a binary tree, write a function to get the maximum width of the given tree. The width of a tree is the maximum width among all levels. The binary tree has the same structure as a **full binary tree**, but some nodes are null.

The width of one level is defined as the length between the end-nodes (the leftmost and right most non-null nodes in the level, where the null nodes between the end-nodes are also counted into the length calculation).

Example 1:

Input:



Output: 4

Explanation: The maximum width existing in the third level with

Example 2:

Input:

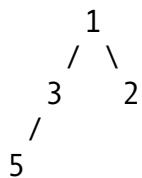


Output: 2

Explanation: The maximum width existing in the third level with 2 nodes.

Example 3:

Input:

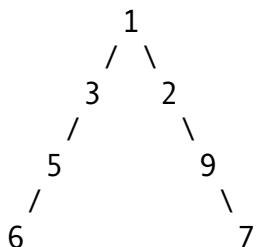


Output: 2

Explanation: The maximum width existing in the second level with 2 nodes.

Example 4:

Input:



Output: 8

Explanation: The maximum width existing in the fourth level with 8 nodes.

Note: Answer will in the range of 32-bit signed integer.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**662-Maximum-Width-of-Binary-Tree**](#)

All Problems:

[**Link to All Problems**](#)

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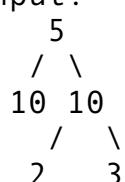
Welcome to Subscribe On Youtube:

663. Equal Tree Partition

Given a binary tree with n nodes, your task is to check if it's possible to partition the tree to two trees which have the equal sum of values after removing **exactly** one edge on the original tree.

Example 1:

Input:



Output: True
Explanation:

```
      5  
     /  
    10
```

Sum: 15

```
      10  
     /   \  
    2     3
```

Sum: 15

Example 2:

Input:

```
      1  
     /   \  
    2   10  
     /   \  
    2   20
```

Output: False

Explanation: You can't split the tree into two trees with equal sum.

Note:

1. The range of tree node value is in the range of [-100000, 100000].
2. $1 \leq n \leq 10000$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[663-Equal-Tree-Partition](#)

All Problems:

[Link to All Problems](#)

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664. Strange Printer

There is a strange printer with the following two special requirements:

1. The printer can only print a sequence of the same character each time.
2. At each turn, the printer can print new characters starting from and ending at any places, and will cover the original existing characters.

Given a string consists of lower English letters only, your job is to count the minimum number of turns the printer needed in order to print it.

Example 1:

Input: "aaabbb"

Output: 2

Explanation: Print "aaa" first and then print "bbb".

Example 2:

Input: "aba"

Output: 2

Explanation: Print "aaa" first and then print "b" from the second position.

Hint : Length of the given string will not exceed 100.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**664-Strange-Printer**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

665. Non-decreasing Array

Given an array with n integers, your task is to check if it could become non-decreasing by modifying **at most 1** element.

We define an array is non-decreasing if $\text{array}[i] \leq \text{array}[i + 1]$ holds for every i ($1 \leq i < n$).

Example 1:

Input: [4, 2, 3]

Output: True

Explanation: You could modify the first 4 to 1 to get a non-decreasing array.

Example 2:

Input: [4, 2, 1]

Output: False

Explanation: You can't get a non-decreasing array by modify at most one element.

Note: The n belongs to [1, 10,000].

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[665-Non-decreasing-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

666. Path Sum IV

If the depth of a tree is smaller than 5 , then this tree can be represented by a list of three-digits integers.

For each integer in this list:

1. The hundreds digit represents the depth D of this node, $1 \leq D \leq 4$.
2. The tens digit represents the position P of this node in the level it belongs to, $1 \leq P \leq 8$. The position is the same as that in a full binary tree.
3. The units digit represents the value V of this node, $0 \leq V \leq 9$.

Given a list of ascending three-digits integers representing a binary tree with the depth smaller than 5, you need to return the sum of all paths from the root towards the leaves.

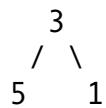
Example 1:

Input: [113, 215, 221]

Output: 12

Explanation:

The tree that the list represents is:



The path sum is $(3 + 5) + (3 + 1) = 12$.

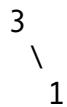
Example 2:

Input: [113, 221]

Output: 4

Explanation:

The tree that the list represents is:



The path sum is $(3 + 1) = 4$.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[**666-Path-Sum-IV**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

667. Beautiful Arrangement II

Given two integers n and k , you need to construct a list which contains n different positive integers ranging from 1 to n and obeys the following requirement:
Suppose this list is $[a_1, a_2, a_3, \dots, a_n]$, then the list $[|a_1 - k|, |a_2 - k|, |a_3 - k|, \dots, |a_n - k|]$ also satisfies the requirement.

$|a_1 - a_2|, |a_2 - a_3|, |a_3 - a_4|, \dots, |a_{n-1} - a_n|$ has exactly k distinct integers.

If there are multiple answers, print any of them.

Example 1:

Input: $n = 3, k = 1$

Output: [1, 2, 3]

Explanation: The [1, 2, 3] has three different positive integers

Example 2:

Input: $n = 3, k = 2$

Output: [1, 3, 2]

Explanation: The [1, 3, 2] has three different positive integers

Note:

1. The n and k are in the range $1 \leq k < n \leq 10^4$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[667-Beautiful-Arrangement-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

668. Kth Smallest Number in Multiplication Table

Nearly every one have used the [Multiplication Table](#). But could you find out the k-th smallest number quickly from the multiplication table?

Given the height m and the length n of a m * n Multiplication Table, and a positive integer k , you need to return the k-th smallest number in this table.

Example 1:

Input: m = 3, n = 3, k = 5

Output:

Explanation:

The Multiplication Table:

1	2	3
2	4	6
3	6	9

The 5-th smallest number is 3 (1, 2, 2, 3, 3).

Example 2:

Input: m = 2, n = 3, k = 6

Output:

Explanation:

The Multiplication Table:

1	2	3
2	4	6

The 6-th smallest number is 6 (1, 2, 2, 3, 4, 6).

Note:

1. The m and n will be in the range [1, 30000].
2. The k will be in the range [1, m * n]

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[668-Kth-Smallest-Number-in-Multiplication-Table](#)

All Problems:

[Link to All Problems](#)

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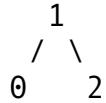
669. Trim a Binary Search Tree

Given a binary search tree and the lowest and highest boundaries as L and R , trim the tree so that all its elements lies in [L , R] (R >= L). You might need to

change the root of the tree, so the result should return the new root of the trimmed binary search tree.

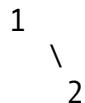
Example 1:

Input:



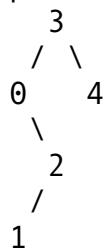
L = 1
R = 2

Output:



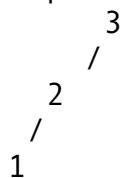
Example 2:

Input:



L = 1
R = 3

Output:



Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[669-Trim-a-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

670. Maximum Swap

Given a non-negative integer, you could swap two digits **at most** once to get the maximum valued number.
Return the maximum valued number you could get.

Example 1:

Input: 2736

Output: 7236

Explanation: Swap the number 2 and the number 7.

Example 2:

Input: 9973

Output: 9973

Explanation: No swap.

Note:

1. The given number is in the range $[0, 10^8]$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**670-Maximum-Swap**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

671. Second Minimum Node In a Binary Tree

Given a non-empty special binary tree consisting of nodes with the non-negative value, where each node in this tree has exactly two or zero sub-node. If the node has two sub-nodes, then this node's value is the smaller

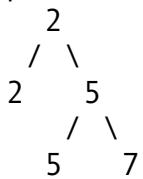
value among its two sub-nodes. More formally, the property `root.val = min(root.left.val, root.right.val)` always holds.

Given such a binary tree, you need to output the **second minimum** value in the set made of all the nodes' value in the whole tree.

If no such second minimum value exists, output -1 instead.

Example 1:

Input:

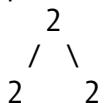


Output: 5

Explanation: The smallest value is 2, the second smallest value

Example 2:

Input:



Output: -1

Explanation: The smallest value is 2, but there isn't any second

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[671-Second-Minimum-Node-In-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

672. Bulb Switcher II

There is a room with n lights which are turned on initially and 4 buttons on the wall. After performing exactly m unknown operations towards buttons, you need to return how many different kinds of status of the n lights could be.

Suppose n lights are labeled as number $[1, 2, 3 \dots, n]$, function of these 4 buttons are given below:

1. Flip all the lights.
2. Flip lights with even numbers.
3. Flip lights with odd numbers.
4. Flip lights with $(3k + 1)$ numbers, $k = 0, 1, 2, \dots$

Example 1:

Input: $n = 1, m = 1$.

Output: 2

Explanation: Status can be: [on], [off]

Example 2:

Input: $n = 2, m = 1$.

Output: 3

Explanation: Status can be: [on, off], [off, on], [off, off]

Example 3:

Input: n = 3, m = 1.

Output: 4

Explanation: Status can be: [off, on, off], [on, off, on], [off,

Note: n and m both fit in range [0, 1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[672-Bulb-Switcher-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

673. Number of Longest Increasing Subsequence

Given an unsorted array of integers, find the number of longest increasing subsequence.

Example 1:

Input: [1,3,5,4,7]

Output: 2

Explanation: The two longest increasing subsequence are [1, 3, 4]

Example 2:

Input: [2,2,2,2,2]

Output: 5

Explanation: The length of longest continuous increasing subsequence

Note: Length of the given array will be not exceed 2000 and the answer is guaranteed to be fit in 32-bit signed int.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[673-Number-of-Longest-Increasing-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

674. Longest Continuous Increasing Subsequence

Given an unsorted array of integers, find the length of longest continuous increasing subsequence (subarray).

Example 1:

Input: [1,3,5,4,7]

Output: 3

Explanation: The longest continuous increasing subsequence is [1,3,5]. Even though [1,3,5,7] is also an increasing subsequence, it's not continuous.

Example 2:

Input: [2,2,2,2,2]

Output: 1

Explanation: The longest continuous increasing subsequence is [2].

Note: Length of the array will not exceed 10,000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[674-Longest-Continuous-Increasing-Subsequence](#)

All Problems:

[Link to All Problems](#)

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675. Cut Off Trees for Golf Event

You are asked to cut off trees in a forest for a golf event. The forest is represented as a non-negative 2D map, in this map:

1. 0 represents the obstacle can't be reached.
2. 1 represents the ground can be walked through.
3. The place with number bigger than 1 represents a tree can be walked through, and this positive number represents the tree's height.

You are asked to cut off **all** the trees in this forest in the order of tree's height - always cut off the tree with lowest height first. And after cutting, the original place has the tree will become a grass (value 1).

You will start from the point (0, 0) and you should output the minimum steps **you need to walk** to cut off all the trees. If you can't cut off all the trees, output -1 in that situation.

You are guaranteed that no two trees have the same height and there is at least one tree needs to be cut off.

Example 1:

Input:
[
 [1, 2, 3],
 [0, 0, 4],
 [7, 6, 5]
]
Output: 6

Example 2:

Input:
[
 [1, 2, 3],
 [0, 0, 0],
 [7, 6, 5]
]
Output: -1

Example 3:

Input:
[
 [2, 3, 4],
 [0, 0, 5],
 [8, 7, 6]
]
Output: 6

Explanation: You started from the point (0,0) and you can cut off

Hint : size of the given matrix will not exceed 50x50.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[675-Cut-Off-Trees-for-Golf-Event](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

676. Implement Magic Dictionary

Implement a magic directory with `buildDict` , and `search` methods.

For the method `buildDict` , you'll be given a list of non-repetitive words to build a dictionary.

For the method `search` , you'll be given a word, and judge whether if you modify **exactly** one character into **another** character in this word, the modified word is in the dictionary you just built.

Example 1:

```
Input: buildDict(["hello", "leetcode"]), Output: Null
Input: search("hello"), Output: False
Input: search("hhllo"), Output: True
Input: search("hell"), Output: False
Input: search("leetcoded"), Output: False
```

Note:

1. You may assume that all the inputs are consist of lowercase letters a-z .
2. For contest purpose, the test data is rather small by now. You could think about highly efficient algorithm after the contest.
3. Please remember to **RESET** your class variables declared in class MagicDictionary, as static/class variables are **persisted across multiple test cases** .
Please see [here](#) for more details.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[676-Implement-Magic-Dictionary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

677. Map Sum Pairs

Implement a MapSum class with `insert` , and `sum` methods.

For the method `insert` , you'll be given a pair of (string, integer). The string represents the key and the integer represents the value. If the key already existed, then the original key-value pair will be overridden to the new one.

For the method `sum` , you'll be given a string representing the prefix, and you need to return the sum of all the pairs' value whose key starts with the prefix.

Example 1:

```
Input: insert("apple", 3), Output: Null  
Input: sum("ap"), Output: 3  
Input: insert("app", 2), Output: Null  
Input: sum("ap"), Output: 5
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[677-Map-Sum-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

678. Valid Parenthesis String

Given a string containing only three types of characters: '(', ')' and '*', write a function to check whether this string is valid. We define the validity of a string by these rules:

1. Any left parenthesis '(' must have a corresponding right parenthesis ')'. .
2. Any right parenthesis ')' must have a corresponding left parenthesis '(' .
3. Left parenthesis '(' must go before the corresponding right parenthesis ')'. .
4. '*' could be treated as a single right parenthesis ')' or a single left parenthesis '(' or an empty string.
5. An empty string is also valid.

Example 1:

Input: "()"
Output: True

Example 2:

Input: "(*)"
Output: True

Example 3:

Input: "(*))"
Output: True

Note:

1. The string size will be in the range [1, 100].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[678-Valid-Parenthesis-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

679. 24 Game

You have 4 cards each containing a number from 1 to 9. You need to judge whether they could be operated through * , / , + , - , (,) to get the value of 24.

Example 1:

Input: [4, 1, 8, 7]

Output: True

Explanation: $(8-4) * (7-1) = 24$

Example 2:

Input: [1, 2, 1, 2]

Output: False

Note:

1. The division operator / represents real division, not integer division. For example, $4 / (1 - 2/3) = 12$.
2. Every operation done is between two numbers. In particular, we cannot use - as a unary operator. For example, with [1, 1, 1, 1] as input, the expression $-1 - 1 - 1 - 1$ is not allowed.
3. You cannot concatenate numbers together. For example, if the input is [1, 2, 1, 2], we cannot write this as $12 + 12$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[679-24-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

680. Valid Palindrome II

Given a non-empty string s , you may delete **at most** one character. Judge whether you can make it a palindrome.

Example 1:

Input: "aba"
Output: True

Example 2:

Input: "abca"
Output: True
Explanation: You could delete the character 'c'.

Note:

1. The string will only contain lowercase characters a-z. The maximum length of the string is 50000.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[680-Valid-Palindrome-II](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

681. Next Closest Time

Given a time represented in the format "HH:MM", form the next closest time by reusing the current digits. There is no limit on how many times a digit can be reused.

You may assume the given input string is always valid. For example, "01:34", "12:09" are all valid. "1:34", "12:9" are all invalid.

Example 1:

Input: "19:34"
Output: "19:39"
Explanation: The next closest time choosing from digits 1, 9, 3,

Example 2:

Input: "23:59"
Output: "22:22"
Explanation: The next closest time choosing from digits 2, 3, 5,

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[681-Next-Closest-Time](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

682. Baseball Game

You're now a baseball game point recorder.

Given a list of strings, each string can be one of the 4 following types:

1. Integer (one round's score): Directly represents the number of points you get in this round.
2. "+" (one round's score): Represents that the points you get in this round are the sum of the last two valid round's points.
3. "D" (one round's score): Represents that the points you get in this round are the doubled data of the last valid round's points.
4. "C" (an operation, which isn't a round's score): Represents the last valid round's points you get were invalid and should be removed.

Each round's operation is permanent and could have an impact on the round before and the round after.

You need to return the sum of the points you could get in all the rounds.

Example 1:

Input: ["5", "2", "C", "D", "+"]

Output: 30

Explanation:

Round 1: You could get 5 points. The sum is: 5.

Round 2: You could get 2 points. The sum is: 7.

Operation 1: The round 2's data was invalid. The sum is: 5.

Round 3: You could get 10 points (the round 2's data has been removed).

Round 4: You could get $5 + 10 = 15$ points. The sum is: 30.

Example 2:

Input: ["5", "-2", "4", "C", "D", "9", "+", "+"]

Output: 27

Explanation:

Round 1: You could get 5 points. The sum is: 5.

Round 2: You could get -2 points. The sum is: 3.

Round 3: You could get 4 points. The sum is: 7.

Operation 1: The round 3's data is invalid. The sum is: 3.

Round 4: You could get -4 points (the round 3's data has been removed).

Round 5: You could get 9 points. The sum is: 8.

Round 6: You could get $-4 + 9 = 5$ points. The sum is 13.

Round 7: You could get $9 + 5 = 14$ points. The sum is 27.

Note:

- The size of the input list will be between 1 and 1000.
- Every integer represented in the list will be between -30000 and 30000.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[682-Baseball-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

683. K Empty Slots

You have N bulbs in a row numbered from 1 to N . Initially, all the bulbs are turned off. We turn on exactly one bulb everyday until all bulbs are on after N days.

You are given an array `bulbs` of length N where `bulbs[i] = x` means that on the $(i+1)$ th day, we will turn on the bulb at position x where i is 0-indexed and x is 1-indexed.

Given an integer K , find out the **minimum day number** such that there exists two **turned on** bulbs that have **exactly K** bulbs between them that are **all turned off**.

If there isn't such day, return -1.

Example 1:

Input:

`bulbs: [1, 3, 2]`

$K: 1$

Output: 2

Explanation:

On the first day: `bulbs[0] = 1`, first bulb is turned on: `[1, 0, 0]`

On the second day: `bulbs[1] = 3`, third bulb is turned on: `[1, 0, 1]`

On the third day: `bulbs[2] = 2`, second bulb is turned on: `[1, 1, 1]`

We return 2 because on the second day, there were two on bulbs which are 3 units apart.

Example 2:

Input:

`bulbs: [1, 2, 3]`

$K: 1$

Output: -1

Note:

1. $1 \leq N \leq 20000$
2. $1 \leq \text{bulbs}[i] \leq N$
3. `bulbs` is a permutation of numbers from 1 to N .
4. $0 \leq K \leq 20000$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[683-K-Empty-Slots](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

684. Redundant Connection

In this problem, a tree is an **undirected** graph that is connected and has no cycles.

The given input is a graph that started as a tree with N nodes (with distinct values 1, 2, ..., N), with one additional edge added. The added edge has two different vertices chosen from 1 to N, and was not an edge that already existed.

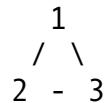
The resulting graph is given as a 2D-array of edges .
Each element of edges is a pair [u, v] with $u < v$,
that represents an **undirected** edge connecting nodes u
and v .

Return an edge that can be removed so that the resulting
graph is a tree of N nodes. If there are multiple answers,
return the answer that occurs last in the given 2D-array.
The answer edge [u, v] should be in the same format,
with $u < v$.

Example 1:

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

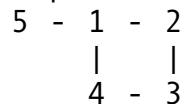
Explanation: The given undirected graph will be like this:



Example 2:

Input: [[1,2], [2,3], [3,4], [1,4], [1,5]]
Output: [1,4]

Explanation: The given undirected graph will be like this:



Note:

- The size of the input 2D-array will be between 3 and 1000.
- Every integer represented in the 2D-array will be between 1 and N, where N is the size of the input array.

Update (2017-09-26):

We have overhauled the problem description + test cases and specified clearly the graph is an **undirected** graph. For the **directed** graph follow up please see [Redundant Connection II](#)). We apologize for any inconvenience caused.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[684-Redundant-Connection](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

685. Redundant Connection II

In this problem, a rooted tree is a **directed** graph such that, there is exactly one node (the root) for which all other nodes are descendants of this node, plus every node has exactly one parent, except for the root node which has no parents.

The given input is a directed graph that started as a rooted tree with N nodes (with distinct values 1, 2, ..., N), with one additional directed edge added. The added edge

has two different vertices chosen from 1 to N, and was not an edge that already existed.

The resulting graph is given as a 2D-array of edges . Each element of edges is a pair [u, v] that represents a **directed** edge connecting nodes u and v , where u is a parent of child v .

Return an edge that can be removed so that the resulting graph is a rooted tree of N nodes. If there are multiple answers, return the answer that occurs last in the given 2D-array.

Example 1:

Input: [[1,2], [1,3], [2,3]]

Output: [2,3]

Explanation: The given directed graph will be like this:

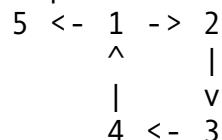


Example 2:

Input: [[1,2], [2,3], [3,4], [4,1], [1,5]]

Output: [4,1]

Explanation: The given directed graph will be like this:



Note:

- The size of the input 2D-array will be between 3 and 1000.
- Every integer represented in the 2D-array will be between 1 and N, where N is the size of the input array.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[685-Redundant-Connection-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

686. Repeated String Match

Given two strings A and B, find the minimum number of times A has to be repeated such that B is a substring of it. If no such solution, return -1.

For example, with A = "abcd" and B = "cdabcdab".

Return 3, because by repeating A three times ("abcdabcdabcd"), B is a substring of it; and B is not a substring of A repeated two times ("abcdabcd").

Note:

The length of A and B will be between 1 and 10000.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[686-Repeated-String-Match](#)

All Problems:

[Link to All Problems](#)

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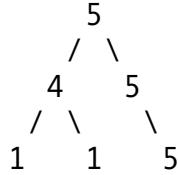
687. Longest Univalue Path

Given a binary tree, find the length of the longest path where each node in the path has the same value. This path may or may not pass through the root.

The length of path between two nodes is represented by the number of edges between them.

Example 1:

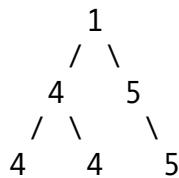
Input:



Output: 2

Example 2:

Input:



Output: 2

Note: The given binary tree has not more than 10000 nodes. The height of the tree is not more than 1000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[687-Longest-Univalued-Path](#)

All Problems:

[Link to All Problems](#)

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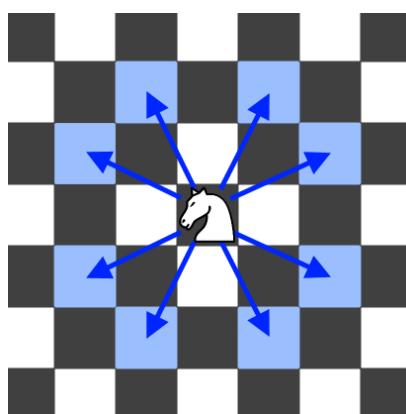
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Welcome to Subscribe On Youtube:

688. Knight Probability in Chessboard

On an $N \times N$ chessboard, a knight starts at the r -th row and c -th column and attempts to make exactly K moves. The rows and columns are 0 indexed, so the top-left square is $(0, 0)$, and the bottom-right square is $(N-1, N-1)$.

A chess knight has 8 possible moves it can make, as illustrated below. Each move is two squares in a cardinal direction, then one square in an orthogonal direction.



Each time the knight is to move, it chooses one of eight possible moves uniformly at random (even if the piece would go off the chessboard) and moves there.

The knight continues moving until it has made exactly K moves or has moved off the chessboard. Return the

probability that the knight remains on the board after it has stopped moving.

Example:

Input: 3, 2, 0, 0
Output: 0.0625

Explanation: There are two moves (to (1,2), (2,1)) that will keep the knight on the board. From each of those positions, there are also two moves that will keep the knight on the board. The total probability the knight stays on the board is 0.0625.

Note:

- N will be between 1 and 25.
- K will be between 0 and 100.
- The knight always initially starts on the board.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[688-Knight-Probability-in-Chessboard](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

689. Maximum Sum of 3 Non-Overlapping Subarrays

In a given array `nums` of positive integers, find three non-overlapping subarrays with maximum sum.

Each subarray will be of size `k`, and we want to maximize the sum of all `3*k` entries.

Return the result as a list of indices representing the starting position of each interval (0-indexed). If there are multiple answers, return the lexicographically smallest one.

Example:

Input: [1,2,1,2,6,7,5,1], 2

Output: [0, 3, 5]

Explanation: Subarrays [1, 2], [2, 6], [7, 5] correspond to the output. We could have also taken [2, 1], but an answer of [1, 3, 5] would be incorrect.

Note:

- `nums.length` will be between 1 and 20000.
- `nums[i]` will be between 1 and 65535.
- `k` will be between 1 and `floor(nums.length / 3)`.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[689-Maximum-Sum-of-3-Non-Overlapping-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

690. Employee Importance

You are given a data structure of employee information, which includes the employee's **unique id** , his **importance value** and his **direct** subordinates' id.

For example, employee 1 is the leader of employee 2, and employee 2 is the leader of employee 3. They have importance value 15, 10 and 5, respectively. Then employee 1 has a data structure like [1, 15, [2]], and employee 2 has [2, 10, [3]], and employee 3 has [3, 5, []]. Note that although employee 3 is also a subordinate of employee 1, the relationship is **not direct** .

Now given the employee information of a company, and an employee id, you need to return the total importance value of this employee and all his subordinates.

Example 1:

Input: [[1, 5, [2, 3]], [2, 3, []], [3, 3, []]], 1

Output: 11

Explanation:

Employee 1 has importance value 5, and he has two direct subordinates, 2 and 3. Employee 2 has importance value 3, and he has one direct subordinate, 3. Employee 3 has importance value 3, and he has no direct subordinates. So the total importance value is 5 + 3 + 3 = 11.

Note:

1. One employee has at most one **direct** leader and may have several subordinates.
2. The maximum number of employees won't exceed 2000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[690-Employee-Importance](#)

All Problems:

[Link to All Problems](#)

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691. Stickers to Spell Word

We are given N different types of stickers. Each sticker has a lowercase English word on it.

You would like to spell out the given `target` string by cutting individual letters from your collection of stickers and rearranging them.

You can use each sticker more than once if you want, and you have infinite quantities of each sticker.

What is the minimum number of stickers that you need to spell out the `target`? If the task is impossible, return `-1`.

Example 1:

Input:

```
["with", "example", "science"], "thehat"
```

Output:

3

Explanation:

We can use 2 "with" stickers, and 1 "example" sticker. After cutting and rearrange the letters of those stickers, we can spell out "thehat". Also, this is the minimum number of stickers necessary to form the target string.

Example 2:

Input:

```
["notice", "possible"], "basicbasic"
```

Output:

-1

Explanation:

We can't form the target "basicbasic" from cutting letters from

Note:

- `stickers` has length in the range [1, 50] .
- `stickers` consists of lowercase English words (without apostrophes).
- `target` has length in the range [1, 15] , and consists of lowercase English letters.
- In all test cases, all words were chosen randomly from the 1000 most common US English words, and the target was chosen as a concatenation of two random words.
- The time limit may be more challenging than usual. It is expected that a 50 sticker test case can be solved within 35ms on average.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[691-Stickers-to-Spell-Word](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

692. Top K Frequent Words

Given a non-empty list of words, return the k most frequent elements.

Your answer should be sorted by frequency from highest to lowest. If two words have the same frequency, then the word with the lower alphabetical order comes first.

Example 1:

Input: ["i", "love", "leetcode", "i", "love", "coding"], $k = 2$
Output: ["i", "love"]

Explanation: "i" and "love" are the two most frequent words.
Note that "i" comes before "love" due to a lower alphabetical order.

Example 2:

Input: ["the", "day", "is", "sunny", "the", "the", "the", "sunny"]
Output: ["the", "is", "sunny", "day"]

Explanation: "the", "is", "sunny" and "day" are the four most frequent words with the number of occurrence being 4, 3, 2 and 1 respectively.

Note:

1. You may assume k is always valid, $1 \leq k \leq$ number of unique elements.
2. Input words contain only lowercase letters.

Follow up:

1. Try to solve it in $O(n \log k)$ time and $O(n)$ extra space.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[692-Top-K-Frequent-Words](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

693. Binary Number with Alternating Bits

Given a positive integer, check whether it has alternating bits: namely, if two adjacent bits will always have different values.

Example 1:

Input: 5
Output: True
Explanation:
The binary representation of 5 is: 101

Example 2:

Input: 7
Output: False
Explanation:
The binary representation of 7 is: 111.

Example 3:

Input: 11
Output: False
Explanation:
The binary representation of 11 is: 1011.

Example 4:

Input: 10
Output: True
Explanation:
The binary representation of 10 is: 1010.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[693-Binary-Number-with-Alternating-Bits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

694. Number of Distinct Islands

Given a non-empty 2D array `grid` of 0's and 1's, an **island** is a group of 1 's (representing land) connected 4-directionally (horizontal or vertical.) You may assume all four edges of the grid are surrounded by water.

Count the number of **distinct** islands. An island is considered to be the same as another if and only if one island can be translated (and not rotated or reflected) to equal the other.

Example 1:

```
11000
11000
00011
00011
```

Given the above grid map, return 1 .

Example 2:

```
11011
10000
00001
11011
```

Given the above grid map, return 3 .

Notice that:

11
1

and

1
11

are considered different island shapes, because we do not consider reflection / rotation.

Note: The length of each dimension in the given grid does not exceed 50.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[694-Number-of-Distinct-Islands](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

695. Max Area of Island

Given a non-empty 2D array `grid` of 0's and 1's, an **island** is a group of 1 's (representing land) connected 4-directionally (horizontal or vertical.) You may assume all four edges of the grid are surrounded by water.

Find the maximum area of an island in the given 2D array. (If there is no island, the maximum area is 0.)

Example 1:

```
[ [0,0,1,0,0,0,0,1,0,0,0,0,0],  
  [0,0,0,0,0,0,0,1,1,1,0,0,0],  
  [0,1,1,0,1,0,0,0,0,0,0,0,0],  
  [0,1,0,0,1,1,0,0,1,0,1,0,0],  
  [0,1,0,0,1,1,0,0,1,1,1,0,0],  
  [0,0,0,0,0,0,0,0,0,0,1,0,0],  
  [0,0,0,0,0,0,0,1,1,1,0,0,0],  
  [0,0,0,0,0,0,1,1,0,0,0,0,0] ]
```

Given the above grid, return 6 . Note the answer is not 11, because the island must be connected 4-directionally.

Example 2:

```
[ [0,0,0,0,0,0,0,0] ]
```

Given the above grid, return 0 .

Note: The length of each dimension in the given `grid` does not exceed 50.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[695-Max-Area-of-Island](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

696. Count Binary Substrings

Give a string s , count the number of non-empty (contiguous) substrings that have the same number of 0's and 1's, and all the 0's and all the 1's in these substrings are grouped consecutively.

Substrings that occur multiple times are counted the number of times they occur.

Example 1:

Input: "00110011"

Output: 6

Explanation: There are 6 substrings that have equal number of consecutive 0's and 1's.

Notice that some of these substrings repeat and are counted the number of times as per their occurences.

Also, "00110011" is not a valid substring because all the 0's (and 1's) are not grouped together.

Example 2:

Input: "10101"

Output: 4

Explanation: There are 4 substrings: "10", "01", "10", "01" that have equal number of consecutive 0's and 1's.

Note:

- `s.length` will be between 1 and 50,000.
- `s` will only consist of "0" or "1" characters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[696-Count-Binary-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

697. Degree of an Array

Given a non-empty array of non-negative integers `nums` , the **degree** of this array is defined as the maximum frequency of any one of its elements.

Your task is to find the smallest possible length of a (contiguous) subarray of `nums` , that has the same degree as `nums` .

Example 1:

Input: [1, 2, 2, 3, 1]

Output: 2

Explanation:

The input array has a degree of 2 because both elements 1 and 2

Of the subarrays that have the same degree:

[1, 2, 2, 3, 1], [1, 2, 2, 3], [2, 2, 3, 1], [1, 2, 2], [2, 2, 3]

The shortest length is 2. So return 2.

Example 2:

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

Output: 6

Note:

- `nums.length` will be between 1 and 50,000.
- `nums[i]` will be an integer between 0 and 49,999.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[697-Degree-of-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

698. Partition to K Equal Sum Subsets

Given an array of integers `nums` and a positive integer `k`, find whether it's possible to divide this array into `k` non-empty subsets whose sums are all equal.

Example 1:

Input: `nums = [4, 3, 2, 3, 5, 2, 1]`, `k = 4`
Output: True

Explanation: It's possible to divide it into 4 subsets (5), (1,

Note:

- `1 <= k <= len(nums) <= 16` .

• $0 < \text{nums}[i] < 10000$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**698-Partition-to-K-Equal-Sum-Subsets**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

699. Falling Squares

On an infinite number line (x-axis), we drop given squares in the order they are given.

The i -th square dropped (`positions[i] = (left, side_length)`) is a square with the left-most point being `positions[i][0]` and sidelength `positions[i][1]`.

The square is dropped with the bottom edge parallel to the number line, and from a higher height than all currently landed squares. We wait for each square to stick before dropping the next.

The squares are infinitely sticky on their bottom edge, and will remain fixed to any positive length surface they touch (either the number line or another square). Squares dropped adjacent to each other will not stick together prematurely.

Return a list `ans` of heights. Each height `ans[i]` represents the current highest height of any square we have dropped, after dropping squares represented by `positions[0], positions[1], ..., positions[i]`.

Example 1:

Input: `[[1, 2], [2, 3], [6, 1]]`

Output: `[2, 5, 5]`

Explanation:

After the first drop of `positions[0] = [1, 2]`:
`_aa` ----- The maximum height of any square is 2.

After the second drop of `positions[1] = [2, 3]`:
`__aaa` `__aaa` `__aaa` `_aa` `_aa` -----
The maximum height of any square is 5. The larger square stays on top of the smaller square despite where its center of gravity is, because squares are infinitely sticky on their bottom edge.

After the third drop of `positions[1] = [6, 1]`:
`___aaa` `___aaa` `___aaa` `_aa` `_aa` `_a` -----
The maximum height of any square is still 5. Thus, we return an answer of `[2, 5, 5]`.

Example 2:

Input: `[[100, 100], [200, 100]]`

Output: `[100, 100]`

Explanation: Adjacent squares don't get stuck prematurely - only

Note:

- $1 \leq \text{positions.length} \leq 1000$.
- $1 \leq \text{positions}[i][0] \leq 10^8$.
- $1 \leq \text{positions}[i][1] \leq 10^6$.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[699-Falling-Squares](#)**All Problems:**[Link to All Problems](#)

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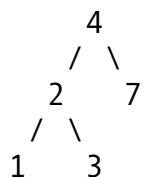
Welcome to Subscribe On Youtube:

700. Search in a Binary Search Tree

Given the root node of a binary search tree (BST) and a value. You need to find the node in the BST that the node's value equals the given value. Return the subtree rooted with that node. If such node doesn't exist, you should return NULL.

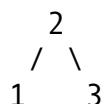
For example,

Given the tree:



And the value to search: 2

You should return this subtree:



In the example above, if we want to search the value 5 , since there is no node with value 5 , we should return NULL .

Note that an empty tree is represented by NULL , therefore you would see the expected output (serialized tree format) as [] , not null .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[700-Search-in-a-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

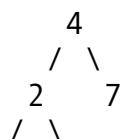
701. Insert into a Binary Search Tree

Given the root node of a binary search tree (BST) and a value to be inserted into the tree, insert the value into the BST. Return the root node of the BST after the insertion. It is guaranteed that the new value does not exist in the original BST.

Note that there may exist multiple valid ways for the insertion, as long as the tree remains a BST after insertion. You can return any of them.

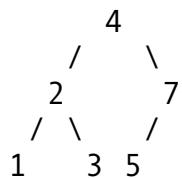
For example,

Given the tree:

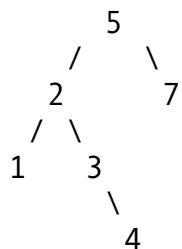


1 3
And the value to insert: 5

You can return this binary search tree:



This tree is also valid:



Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[701-Insert-into-a-Binary-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

702. Search in a Sorted Array of Unknown Size

Given an integer array sorted in ascending order, write a function to search target in nums . If target exists, then return its index, otherwise return -1 . **However, the array size is unknown to you** . You may only access the array using an ArrayReader interface, where ArrayReader.get(k) returns the element of the array at index k (0-indexed).

You may assume all integers in the array are less than 10000 , and if you access the array out of bounds, ArrayReader.get will return 2147483647 .

Example 1:

```
Input: array = [-1,0,3,5,9,12], target = 9
Output: 4
Explanation: 9 exists in nums and its index is 4
```

Example 2:

```
Input: array = [-1,0,3,5,9,12], target = 2
Output: -1
Explanation: 2 does not exist in nums so return -1
```

Note:

1. You may assume that all elements in the array are unique.
2. The value of each element in the array will be in the range [-9999, 9999] .

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[702-Search-in-a-Sorted-Array-of-Unknown-Size](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

703. Kth Largest Element in a Stream

Design a class to find the k th largest element in a stream. Note that it is the k th largest element in the sorted order, not the k th distinct element.

Your `KthLargest` class will have a constructor which accepts an integer `k` and an integer array `nums`, which contains initial elements from the stream. For each call to the method `KthLargest.add`, return the element representing the `k`th largest element in the stream.

Example:

```
int k = 3;
int[] arr = [4,5,8,2];
KthLargest kthLargest = new KthLargest(3, arr);
kthLargest.add(3);    // returns 4
kthLargest.add(5);    // returns 5
kthLargest.add(10);   // returns 5
kthLargest.add(9);    // returns 8
kthLargest.add(4);    // returns 8
```

Note:

You may assume that `nums`' length $\geq k - 1$ and $k \geq 1$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[703-Kth-Largest-Element-in-a-Stream](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

704. Binary Search

Given a **sorted** (in ascending order) integer array `nums` of `n` elements and a `target` value, write a function to search `target` in `nums`. If `target` exists, then return its index, otherwise return `-1`.

Example 1:

Input: `nums = [-1,0,3,5,9,12]`, `target = 9`
Output: 4
Explanation: 9 exists in `nums` and its index is 4

Example 2:

Input: `nums = [-1,0,3,5,9,12]`, `target = 2`
Output: -1
Explanation: 2 does not exist in `nums` so return -1

Note:

1. You may assume that all elements in `nums` are unique.
2. `n` will be in the range `[1, 10000]`.
3. The value of each element in `nums` will be in the range `[-9999, 9999]`.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[704-Binary-Search](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

705. Design HashSet

Design a HashSet without using any built-in hash table libraries.

To be specific, your design should include these functions:

- `add(value)` : Insert a value into the HashSet.
- `contains(value)` : Return whether the value exists in the HashSet or not.
- `remove(value)` : Remove a value in the HashSet. If the value does not exist in the HashSet, do nothing.

Example:

```
MyHashSet hashSet = new MyHashSet();
hashSet.add(1);
hashSet.add(2);
hashSet.contains(1);      // returns true
hashSet.contains(3);      // returns false (not found)
hashSet.add(2);
hashSet.contains(2);      // returns true
hashSet.remove(2);
hashSet.contains(2);      // returns false (already removed)
```

Note:

- All values will be in the range of [0, 1000000] .
- The number of operations will be in the range of [1, 10000] .
- Please do not use the built-in HashSet library.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[705-Design-HashSet](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

706. Design HashMap

Design a HashMap without using any built-in hash table libraries.

To be specific, your design should include these functions:

- `put(key, value)` : Insert a (key, value) pair into the HashMap. If the value already exists in the HashMap, update the value.
- `get(key)` : Returns the value to which the specified key is mapped, or -1 if this map contains no mapping for the key.
- `remove(key)` : Remove the mapping for the value key if this map contains the mapping for the key.

Example:

```
MyHashMap hashMap = new MyHashMap();
hashMap.put(1, 1);
hashMap.put(2, 2);
hashMap.get(1);           // returns 1
hashMap.get(3);           // returns -1 (not found)
hashMap.put(2, 1);         // update the existing value
hashMap.get(2);           // returns 1
hashMap.remove(2);        // remove the mapping for 2
hashMap.get(2);           // returns -1 (not found)
```

Note:

- All keys and values will be in the range of [0, 1000000] .
- The number of operations will be in the range of [1, 10000] .
- Please do not use the built-in HashMap library.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[706-Design-HashMap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

707. Design Linked List

Design your implementation of the linked list. You can choose to use the singly linked list or the doubly linked list. A node in a singly linked list should have two attributes: `val` and `next`. `val` is the value of the

current node, and `next` is a pointer/reference to the next node. If you want to use the doubly linked list, you will need one more attribute `prev` to indicate the previous node in the linked list. Assume all nodes in the linked list are 0-indexed.

Implement these functions in your linked list class:

- `get(index)` : Get the value of the `index`-th node in the linked list. If the index is invalid, return -1 .
- `addAtHead(val)` : Add a node of value `val` before the first element of the linked list. After the insertion, the new node will be the first node of the linked list.
- `addAtTail(val)` : Append a node of value `val` to the last element of the linked list.
- `addAtIndex(index, val)` : Add a node of value `val` before the `index`-th node in the linked list. If `index` equals to the length of linked list, the node will be appended to the end of linked list. If `index` is greater than the length, the node will not be inserted. If `index` is negative, the node will be inserted at the head of the list.
- `deleteAtIndex(index)` : Delete the `index`-th node in the linked list, if the index is valid.

Example:

```
MyLinkedList linkedList = new MyLinkedList();
linkedList.addAtHead(1);
linkedList.addAtTail(3);
linkedList.addAtIndex(1, 2); // linked list becomes 1->2->3
linkedList.get(1); // returns 2
linkedList.deleteAtIndex(1); // now the linked list is 1->3
linkedList.get(1); // returns 3
```

Note:

- All values will be in the range of [1, 1000] .
- The number of operations will be in the range of [1, 1000] .
- Please do not use the built-in `LinkedList` library.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[707-Design-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

708. Insert into a Cyclic Sorted List

Given a node from a cyclic linked list which is sorted in ascending order, write a function to insert a value into the list such that it remains a cyclic sorted list. The given node can be a reference to *any* single node in the list, and may not be necessarily the smallest value in the cyclic list.

If there are multiple suitable places for insertion, you may choose any place to insert the new value. After the insertion, the cyclic list should remain sorted.

If the list is empty (i.e., given node is `null`), you should create a new single cyclic list and return the reference to that single node. Otherwise, you should return the original given node.

The following example may help you understand the problem better:

In the figure above, there is a cyclic sorted list of three elements. You are given a reference to the node with value 3, and we need to insert 2 into the list.

The new node should insert between node 1 and node 3. After the insertion, the list should look like this, and we should still return node 3.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[708-Insert-into-a-Sorted-Circular-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

709. To Lower Case

Implement function ToLowerCase() that has a string parameter str, and returns the same string in lowercase.

Example 1:

Input: "Hello"
Output: "hello"

Example 2:

Input: "here"
Output: "here"

Example 3:

Input: "LOVELY"
Output: "lovely"

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[709-To-Lower-Case](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

710. Random Pick with Blacklist

Given a blacklist B containing unique integers from $[0, N]$, write a function to return a uniform random integer from $[0, N]$ which is NOT in B .

Optimize it such that it minimizes the call to system's `Math.random()`.

Note:

1. $1 \leq N \leq 1000000000$
2. $0 \leq B.length < \min(100000, N)$
3. $[0, N]$ does NOT include N . See [interval notation](#).

Example 1:

Input:

`["Solution", "pick", "pick", "pick"]`

```
[[1,[],[],[],[]]
Output: [null,0,0,0]
```

Example 2:

```
Input:
["Solution","pick","pick","pick"]
[[2,[],[],[],[]]
Output: [null,1,1,1]
```

Example 3:

```
Input:
["Solution","pick","pick","pick"]
[[3,[1]],[],[],[]]
Output: [null,0,0,2]
```

Example 4:

```
Input:
["Solution","pick","pick","pick"]
[[4,[2]],[],[],[]]
Output: [null,1,3,1]
```

Explanation of Input Syntax:

The input is two lists: the subroutines called and their arguments. `Solution`'s constructor has two arguments, `N` and the blacklist `B`. `pick` has no arguments. Arguments are always wrapped with a list, even if there aren't any.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[710-Random-Pick-with-Blacklist](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

711. Number of Distinct Islands II

Given a non-empty 2D array `grid` of 0's and 1's, an **island** is a group of 1 's (representing land) connected 4-directionally (horizontal or vertical.) You may assume all four edges of the grid are surrounded by water.

Count the number of **distinct** islands. An island is considered to be the same as another if they have the same shape, or have the same shape after **rotation** (90, 180, or 270 degrees only) or **reflection** (left/right direction or up/down direction).

Example 1:

```
11000
10000
00001
00011
```

Given the above grid map, return 1 .

Notice that:

11
1

and

1
11

are considered **same** island shapes. Because if we make a 180 degrees clockwise rotation on the first island, then two islands will have the same shapes.

Example 2:

11100
10001
01001
01110

Given the above grid map, return 2 .

Here are the two distinct islands:

111
1

and

1
1

Notice that:

111
1

and

1
111

are considered **same** island shapes. Because if we flip the first array in the up/down direction, then they have the same shapes.

Note: The length of each dimension in the given grid does not exceed 50.

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[711-Number-of-Distinct-Islands-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

712. Minimum ASCII Delete Sum for Two Strings

Given two strings s_1 , s_2 , find the lowest ASCII sum of deleted characters to make two strings equal.

Example 1:

Input: s1 = "sea", s2 = "eat"

Output: 231

Explanation: Deleting "s" from "sea" adds the ASCII value of "s".
Deleting "t" from "eat" adds 116 to the sum.

At the end, both strings are equal, and $115 + 116 = 231$ is the m

Example 2:

Input: s1 = "delete", s2 = "leet"

Output: 403

Explanation: Deleting "dee" from "delete" to turn the string into

adds $100[d] + 101[e] + 101[e]$ to the sum. Deleting "e" from "leet"

At the end, both strings are equal to "let", and the answer is 100.

If instead we turned both strings into "lee" or "eet", we would get 101.

Note:

- $0 < s1.length, s2.length \leq 1000$.
- All elements of each string will have an ASCII value in $[97, 122]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[712-Minimum-ASCII-Delete-Sum-for-Two-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

713. Subarray Product Less Than K

Your are given an array of positive integers `nums` .

Count and print the number of (contiguous) subarrays where the product of all the elements in the subarray is less than `k` .

Example 1:

Input: `nums = [10, 5, 2, 6]`, `k = 100`
Output: 8

Explanation: The 8 subarrays that have product less than 100 are
Note that `[10, 5, 2]` is not included as the product of 100 is no

Note:

- $0 < \text{nums.length} \leq 50000$.
- $0 < \text{nums}[i] \leq 1000$.
- $0 \leq k \leq 10^6$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[713-Subarray-Product-Less-Than-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

714. Best Time to Buy and Sell Stock with Transaction Fee

Your are given an array of integers `prices` , for which the i -th element is the price of a given stock on day i ; and a non-negative integer `fee` representing a transaction fee.

You may complete as many transactions as you like, but you need to pay the transaction fee for each transaction. You may not buy more than 1 share of a stock at a time (ie. you must sell the stock share before you buy again.)

Return the maximum profit you can make.

Example 1:

Input: prices = [1, 3, 2, 8, 4, 9], fee = 2

Output: 8

Explanation: The maximum profit can be achieved by:

- Buying at prices[0] = 1
- Selling at prices[3] = 8
- Buying at prices[4] = 4
- Selling at prices[5] = 9

The total profit is $((8 - 1) - 2) + ((9 - 4) - 2) = 8$.

Note:

- $0 < \text{prices.length} \leq 50000$.
- $0 < \text{prices}[i] \leq 50000$.
- $0 \leq \text{fee} \leq 50000$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[714-Best-Time-to-Buy-and-Sell-Stock-with-Transaction-Fee](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

715. Range Module

A Range Module is a module that tracks ranges of numbers. Your task is to design and implement the following interfaces in an efficient manner.

- `addRange(int left, int right)` Adds the half-open interval $[left, right)$, tracking every real number in that interval. Adding an interval that partially overlaps with currently tracked numbers should add any numbers in the interval $[left, right)$ that are not already tracked.
- `queryRange(int left, int right)` Returns true if and only if every real number in the interval $[left, right)$ is currently being tracked.
- `removeRange(int left, int right)` Stops tracking every real number currently being tracked in the interval $[left, right)$.

Example 1:

```
addRange(10, 20): null
removeRange(14, 16): null
queryRange(10, 14): true (Every number in [10, 14) is being tracked)
queryRange(13, 15): false (Numbers like 14, 14.03, 14.17 in [13, 15) are not being tracked)
queryRange(16, 17): true (The number 16 in [16, 17) is still being tracked)
```

Note:

- A half open interval $[left, right)$ denotes all real numbers $left \leq x < right$.
- $0 < left < right < 10^9$ in all calls to `addRange`, `queryRange`, `removeRange`.
- The total number of calls to `addRange` in a single test case is at most 1000.
- The total number of calls to `queryRange` in a single test case is at most 5000.

- The total number of calls to `removeRange` in a single test case is at most 1000 .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[715-Range-Module](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

716. Max Stack

Design a max stack that supports push, pop, top, peekMax and popMax.

1. `push(x)` -- Push element `x` onto stack.

2. `pop()` -- Remove the element on top of the stack and return it.
3. `top()` -- Get the element on the top.
4. `peekMax()` -- Retrieve the maximum element in the stack.
5. `popMax()` -- Retrieve the maximum element in the stack, and remove it. If you find more than one maximum elements, only remove the top-most one.

Example 1:

```
MaxStack stack = new MaxStack();
stack.push(5);
stack.push(1);
stack.push(5);
stack.top(); -> 5
stack.popMax(); -> 5
stack.top(); -> 1
stack.peekMax(); -> 5
stack.pop(); -> 1
stack.top(); -> 5
```

Note:

1. $-1e7 \leq x \leq 1e7$
2. Number of operations won't exceed 10000.
3. The last four operations won't be called when stack is empty.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[716-Max-Stack](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

717. 1-bit and 2-bit Characters

We have two special characters. The first character can be represented by one bit 0 . The second character can be represented by two bits (10 or 11).

Now given a string represented by several bits. Return whether the last character must be a one-bit character or not. The given string will always end with a zero.

Example 1:

Input:

bits = [1, 0, 0]

Output: True

Explanation:

The only way to decode it is two-bit character and one-bit character.

Example 2:

Input:

bits = [1, 1, 1, 0]

Output: False

Explanation:

The only way to decode it is two-bit character and two-bit character.

Note:

- `1 <= len(bits) <= 1000` .
- `bits[i]` is always 0 or 1 .

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[717-1-bit-and-2-bit-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

718. Maximum Length of Repeated Subarray

Given two integer arrays A and B , return the maximum length of an subarray that appears in both arrays.

Example 1:

Input:

A: [1,2,3,2,1]

B: [3,2,1,4,7]

Output: 3

Explanation:

The repeated subarray with maximum length is [3, 2, 1].

Note:

1. $1 \leq \text{len}(A), \text{len}(B) \leq 1000$
2. $0 \leq A[i], B[i] < 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[718-Maximum-Length-of-Repeated-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

719. Find K-th Smallest Pair Distance

Given an integer array, return the k-th smallest **distance** among all the pairs. The distance of a pair (A, B) is defined as the absolute difference between A and B.

Example 1:

Input:
nums = [1, 3, 1]
k = 1

Output: 0

Explanation:

Here are all the pairs:

(1,3) -> 2

(1,1) -> 0

(3,1) -> 2

Then the 1st smallest distance pair is (1,1), and its distance is 0.

Note:

1. $2 \leq \text{len}(\text{nums}) \leq 10000$.
2. $0 \leq \text{nums}[i] < 1000000$.
3. $1 \leq k \leq \text{len}(\text{nums}) * (\text{len}(\text{nums}) - 1) / 2$

.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[719-Find-K-th-Smallest-Pair-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

720. Longest Word in Dictionary

Given a list of strings `words` representing an English Dictionary, find the longest word in `words` that can be built one character at a time by other words in `words`. If there is more than one possible answer, return the longest word with the smallest lexicographical order.

If there is no answer, return the empty string.

Example 1:

Input:

`words = ["w", "wo", "wor", "worl", "world"]`

Output: "world"

Explanation:

Example 2:

Input:

```
words = ["a", "banana", "app", "appl", "ap", "apply", "apple"]
```

Output: "apple"

Explanation:

Both "apply" and "apple" can be built from other words in the dictionary.

Note:

- All the strings in the input will only contain lowercase letters.
 - The length of words will be in the range [1, 1000] .
 - The length of words[i] will be in the range [1, 30] .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

720-Longest-Word-in-Dictionary

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

721. Accounts Merge

Given a list `accounts`, each element `accounts[i]` is a list of strings, where the first element `accounts[i][0]` is a *name*, and the rest of the elements are *emails* representing emails of the account.

Now, we would like to merge these accounts. Two accounts definitely belong to the same person if there is some email that is common to both accounts. Note that even if two accounts have the same name, they may belong to different people as people could have the same name. A person can have any number of accounts initially, but all of their accounts definitely have the same name.

After merging the accounts, return the accounts in the following format: the first element of each account is the name, and the rest of the elements are emails **in sorted order**. The accounts themselves can be returned in any order.

Example 1:

Input:

```
accounts = [["John", "johnsmith@mail.com",
"john00@mail.com"], ["John",
"johnnybravo@mail.com"], ["John",
"johnsmith@mail.com",
"john_newyork@mail.com"], ["Mary",
"mary@mail.com"]]
```

Output: `[[["John", 'john00@mail.com',
'john_newyork@mail.com',
'johnsmith@mail.com'], ["John",
"johnnybravo@mail.com"], ["Mary",
"mary@mail.com"]]]`

Explanation:

The first and third John's are the same person as they have the common email "johnsmith@mail.com".

The second John and Mary are different people

as none of their email addresses are used by other accounts.

We could return these lists in any order, for example the answer `[['Mary', 'mary@mail.com'], ['John', 'johnnybravo@mail.com'], ['John', 'john00@mail.com'], 'john_newyork@mail.com', 'johnsmith@mail.com']]` would still be accepted.

Note:

- The length of accounts will be in the range [1, 1000]
- The length of accounts[i] will be in the range [1, 10]
- The length of accounts[i][j] will be in the range [1, 30] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[721-Accounts-Merge](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

722. Remove Comments

Given a C++ program, remove comments from it. The program `source` is an array where `source[i]` is the `i`-th line of the source code. This represents the result of splitting the original source code string by the newline character `\n`.

In C++, there are two types of comments, line comments, and block comments.

The string `//` denotes a line comment, which represents that it and rest of the characters to the right of it in the same line should be ignored.

The string `/*` denotes a block comment, which represents that all characters until the next (non-overlapping) occurrence of `*/` should be ignored. (Here, occurrences happen in reading order: line by line from left to right.) To be clear, the string `/*` does not yet end the block comment, as the ending would be overlapping the beginning.

The first effective comment takes precedence over others: if the string `//` occurs in a block comment, it is ignored. Similarly, if the string `/*` occurs in a line or block comment, it is also ignored.

If a certain line of code is empty after removing comments, you must not output that line: each string in the answer list will be non-empty.

There will be no control characters, single quote, or double quote characters. For example, `source = "string s = /* Not a comment. */;"` will not be

a test case. (Also, nothing else such as defines or macros will interfere with the comments.)

It is guaranteed that every open block comment will eventually be closed, so /* outside of a line or block comment always starts a new comment.

Finally, implicit newline characters can be deleted by block comments. Please see the examples below for details.

After removing the comments from the source code, return the source code in the same format.

Example 1:

Input:

```
source = ["/*Test program */", "int main()", "{ ", " // variable declaration ", "int a, b, c;", "/* This is a test", " multiline ", " comment for ", " testing */", "a = b + c;", "}" ]
```

The line by line code is visualized as below:

```
/*Test program */
int main()
{
    // variable declaration
    int a, b, c;
    /* This is a test
       multiline
       comment for
       testing */
    a = b + c;
}
```

Output: ["int main()", "{ ", " ", "int a, b, c;", "a = b + c;", "}"]

The line by line code is visualized as below:

```
int main()
{
    int a, b, c;
    a = b + c;
}
```

Explanation:

The string /* denotes a block comment, including line 1 and lines 6-9. The string // denotes line 4 as comments.

Example 2:

Input:

```
source = ["a/*comment", "line",  
"more_comment*/b"]
```

Output: ["ab"]

Explanation: The original source string is "a/*comment\nline\nmore_comment*/b", where we have bolded the newline characters. After deletion, the implicit newline characters are deleted, leaving the string "ab", which when delimited by newline characters becomes ["ab"].

Note:

- The length of `source` is in the range [1, 100] .
- The length of `source[i]` is in the range [0, 80] .
- Every open block comment is eventually closed.
- There are no single-quote, double-quote, or control characters in the source code.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[722-Remove-Comments](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

723. Candy Crush

This question is about implementing a basic elimination algorithm for Candy Crush.

Given a 2D integer array `board` representing the grid of candy, different positive integers `board[i][j]` represent different types of candies. A value of `board[i][j] = 0` represents that the cell at position (i, j) is empty. The given board represents the state of the game following the player's move. Now, you need to restore the board to a *stable state* by crushing candies according to the following rules:

1. If three or more candies of the same type are adjacent vertically or horizontally, "crush" them all at the same time - these positions become empty.
2. After crushing all candies simultaneously, if an empty space on the board has candies on top of itself, then these candies will drop until they hit a candy or bottom at the same time. (No new candies will drop outside the top boundary.)
3. After the above steps, there may exist more candies that can be crushed. If so, you need to repeat the above steps.
4. If there does not exist more candies that can be crushed (ie. the board is *stable*), then return the current board.

You need to perform the above rules until the board becomes stable, then return the current board.

Example:

Input:
board =
[[110, 5, 112, 113, 114], [210, 211, 5, 213, 214],
[310, 311, 3, 313, 314], [410, 411, 412, 5, 414],
[5, 1, 512, 3, 3], [610, 4, 1, 613, 614],
[710, 1, 2, 713, 714], [810, 1, 2, 1, 1], [1, 1, 2, 2, 2],
[4, 1, 4, 4, 1014]]

Output:

[[0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0],
[110, 0, 0, 0, 114], [210, 0, 0, 0, 214],
[310, 0, 0, 113, 314], [410, 0, 0, 213, 414],
[610, 211, 112, 313, 614], [710, 311, 412, 613, 714],
[810, 411, 512, 713, 1014]]

Explanation:

Note:

1. The length of board will be in the range [3, 50].
2. The length of board[i] will be in the range [3, 50].
3. Each board[i][j] will initially start as an integer in the range [1, 2000].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[723-Candy-Crush](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

724. Find Pivot Index

Given an array of integers `nums` , write a method that returns the "pivot" index of this array.

We define the pivot index as the index where the sum of the numbers to the left of the index is equal to the sum of the numbers to the right of the index.

If no such index exists, we should return `-1`. If there are multiple pivot indexes, you should return the left-most pivot index.

Example 1:

Input:

`nums = [1, 7, 3, 6, 5, 6]`

Output: 3

Explanation:

The sum of the numbers to the left of index 3 (`nums[3] = 6`) is equal to 10. Also, 3 is the first index where this occurs.

Example 2:

Input:

`nums = [1, 2, 3]`

Output: -1

Explanation:

There is no index that satisfies the conditions in the problem statement.

Note:

- The length of `nums` will be in the range `[0, 10000]` .

- Each element `nums[i]` will be an integer in the range `[-1000, 1000]`.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[724-Find-Pivot-Index](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

725. Split Linked List in Parts

Given a (singly) linked list with head node `root` , write a function to split the linked list into k consecutive linked list "parts".

The length of each part should be as equal as possible: no two parts should have a size differing by more than 1. This may lead to some parts being null.

The parts should be in order of occurrence in the input list, and parts occurring earlier should always have a size greater than or equal parts occurring later.

Return a List of `ListNode`'s representing the linked list parts that are formed.

Examples 1->2->3->4, $k = 5$ // 5 equal parts [[1], [2], [3], [4], null]

Example 1:

Input:

`root = [1, 2, 3]` , $k = 5$

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

Explanation:

The input and each element of the output are `ListNode`s, not arrays.

For example, the input `root` has `root.val = 1`, `root.next.val = 2`, `\root.next.next.val = 3`, and `root.next.next.next = null`.

The first element `output[0]` has `output[0].val = 1`, `output[0].next = null`.

The last element `output[4]` is `null`, but its string representation as a `ListNode` is `[]`.

Example 2:

Input:

`root = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]` , $k = 3$

Output: [[1, 2, 3, 4], [5, 6, 7], [8, 9, 10]]

Explanation:

The input has been split into consecutive parts with size difference at most 1.

Note:

- The length of `root` will be in the range $[0, 1000]$.

- Each value of a node in the input will be an integer in the range [0, 999] .
- k will be an integer in the range [1, 50] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[725-Split-Linked-List-in-Parts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

726. Number of Atoms

Given a chemical formula (given as a string), return the count of each atom.

An atomic element always starts with an uppercase character, then zero or more lowercase letters, representing the name.

1 or more digits representing the count of that element may follow if the count is greater than 1. If the count is 1, no digits will follow. For example, H₂O and H₂O₂ are possible, but H₁O₂ is impossible.

Two formulas concatenated together produce another formula. For example, H₂O₂He₃Mg₄ is also a formula.

A formula placed in parentheses, and a count (optionally added) is also a formula. For example, (H₂O₂) and (H₂O₂)₃ are formulas.

Given a formula, output the count of all elements as a string in the following form: the first name (in sorted order), followed by its count (if that count is more than 1), followed by the second name (in sorted order), followed by its count (if that count is more than 1), and so on.

Example 1:

Input:
formula = "H₂O"
Output: "H₂O"
Explanation:
The count of elements are {'H': 2, 'O': 1}.

Example 2:

Input:
formula = "Mg(OH)₂"
Output: "H₂MgO₂"
Explanation:
The count of elements are {'H': 2, 'Mg': 1, 'O': 2}.

Example 3:

Input:
formula = "K₄(ON(SO₃)₂)₂"
Output: "K₄N₂O₁₄S₄"
Explanation:
The count of elements are {'K': 4, 'N': 2, 'O': 14, 'S': 4}.

Note:

- All atom names consist of lowercase letters, except for the first character which is uppercase.
- The length of formula will be in the range [1, 1000] .
- formula will only consist of letters, digits, and round parentheses, and is a valid formula as defined in the problem.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[726-Number-of-Atoms](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

727. Minimum Window Subsequence

Given strings S and T , find the minimum (contiguous) **substring** W of S , so that T is a **subsequence** of W .

If there is no such window in S that covers all characters in T , return the empty string " " . If there are multiple such minimum-length windows, return the one with the left-most starting index.

Example 1:

Input:

$S = \text{"abcdebbbde"}$, $T = \text{"bde"}$

Output: "bcde"

Explanation:

"bcde" is the answer because it occurs before "bdde" which has t
"deb" is not a smaller window because the elements of T in the w

Note:

- All the strings in the input will only contain lowercase letters.
- The length of S will be in the range [1, 20000] .
- The length of T will be in the range [1, 100] .

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[727-Minimum-Window-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

728. Self Dividing Numbers

A *self-dividing number* is a number that is divisible by every digit it contains.

For example, 128 is a self-dividing number because $128 \% 1 == 0$, $128 \% 2 == 0$, and $128 \% 8 == 0$.

Also, a self-dividing number is not allowed to contain the digit zero.

Given a lower and upper number bound, output a list of every possible self dividing number, including the bounds if possible.

Example 1:

```
Input:  
left = 1, right = 22  
Output: [1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 22]
```

Note:

- The boundaries of each input argument are $1 \leq left \leq right \leq 10000$.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[**728-Self-Dividing-Numbers**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

729. My Calendar I

Implement a `MyCalendar` class to store your events. A new event can be added if adding the event will not cause a double booking.

Your class will have the method, `book(int start, int end)` . Formally, this represents a booking on the half

open interval [start, end) , the range of real numbers x such that start \leq x $<$ end .

A *double booking* happens when two events have some non-empty intersection (ie., there is some time that is common to both events.)

For each call to the method `MyCalendar.book` , return `true` if the event can be added to the calendar successfully without causing a double booking.
Otherwise, return `false` and do not add the event to the calendar.

Your class will be called like this: `MyCalendar cal = new MyCalendar(); MyCalendar.book(start, end)`

Example 1:

```
MyCalendar();
MyCalendar.book(10, 20); // returns true
MyCalendar.book(15, 25); // returns false
MyCalendar.book(20, 30); // returns true
```

Explanation:

The first event can be booked. The second can't because time 15 is taken by the first event.
The third event can be booked, as the first event takes every time from 10 to 20.

Note:

- The number of calls to `MyCalendar.book` per test case will be at most 1000 .
- In calls to `MyCalendar.book(start, end)` , start and end are integers in the range [0, 10^9] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[729-My-Calendar-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

730. Count Different Palindromic Subsequences

Given a string S, find the number of different non-empty palindromic subsequences in S, and **return that number modulo $10^9 + 7$** .

A subsequence of a string S is obtained by deleting 0 or more characters from S.

A sequence is palindromic if it is equal to the sequence reversed.

Two sequences A_1, A_2, ... and B_1, B_2, ... are different if there is some i for which A_i != B_i.

Example 1:

Input:
S = 'bccb'
Output: 6

Explanation:

The 6 different non-empty palindromic subsequences are 'b', 'c', Note that 'bcb' is counted only once, even though it occurs twice

Example 2:

Input:

```
S = 'abcdabcdabcd  
Output: 104860361
```

Explanation:

There are 3104860382 different non-empty palindromic subsequences.

Note:

- The length of S will be in the range [1, 1000] .
 - Each character S[i] will be in the set { 'a' , 'b' , 'c' , 'd' } .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

730-Count-Different-Palindromic-Subsequences

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

731. My Calendar II

Implement a `MyCalendarTwo` class to store your events. A new event can be added if adding the event will not cause a **triple booking**.

Your class will have one method, `book(int start, int end)`. Formally, this represents a booking on the half open interval $[start, end]$, the range of real numbers x such that $start \leq x < end$.

A *triple booking* happens when **three** events have some non-empty intersection (ie., there is some time that is common to all 3 events.)

For each call to the method `MyCalendar.book`, return `true` if the event can be added to the calendar successfully without causing a **triple booking**. Otherwise, return `false` and do not add the event to the calendar.

Your class will be called like this: `MyCalendar cal = new MyCalendar(); MyCalendar.book(start, end)`

Example 1:

```
MyCalendar();
MyCalendar.book(10, 20); // returns true
MyCalendar.book(50, 60); // returns true
MyCalendar.book(10, 40); // returns true
MyCalendar.book(5, 15); // returns false
MyCalendar.book(5, 10); // returns true
MyCalendar.book(25, 55); // returns true
```

Explanation:

The first two events can be booked. The third event can be double booked. The fourth event (5, 15) can't be booked, because it would result in a triple booking. The fifth event (5, 10) can be booked, as it does not use time 10. The sixth event (25, 55) can be booked, as the time in [25, 40] is not used, and the time [40, 50] will be single booked, and the time [50, 55] will be single booked.

Note:

- The number of calls to MyCalendar.book per test case will be at most 1000 .
- In calls to MyCalendar.book(start, end) , start and end are integers in the range [0, 10^9] .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[731-My-Calendar-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

732. My Calendar III

Implement a `MyCalendarThree` class to store your events. A new event can **always** be added.

Your class will have one method, `book(int start, int end)` . Formally, this represents a booking on the half open interval $[start, end)$, the range of real numbers x such that $start \leq x < end$.

A *K*-booking happens when **K** events have some non-empty intersection (ie., there is some time that is common to all K events.)

For each call to the method `MyCalendar.book` , return an integer **K** representing the largest integer such that there exists a **K** -booking in the calendar.

```
Your class will be called like this: MyCalendarThree cal  
= new MyCalendarThree();  
MyCalendarThree.book(start, end)
```

Example 1:

```
MyCalendarThree();  
MyCalendarThree.book(10, 20); // returns 1  
MyCalendarThree.book(50, 60); // returns 1  
MyCalendarThree.book(10, 40); // returns 2  
MyCalendarThree.book(5, 15); // returns 3  
MyCalendarThree.book(5, 10); // returns 3  
MyCalendarThree.book(25, 55); // returns 3
```

Explanation:

The first two events can be booked and are disjoint, so the maximum K-booking is 1. The third event [10, 40) intersects the first event, and the maximum K-booking is 2. The remaining events cause the maximum K-booking to be only a 3-booking. Note that the last event locally causes a 2-booking, but the answer is 3 because e.g. [10, 20), [10, 40), and [5, 15) are still triple booked.

Note:

- The number of calls to `MyCalendarThree.book` per test case will be at most 400 .
- In calls to `MyCalendarThree.book(start, end)` , `start` and `end` are integers in the range $[0, 10^9]$.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[732-My-Calendar-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

733. Flood Fill

An `image` is represented by a 2-D array of integers, each integer representing the pixel value of the image (from 0 to 65535).

Given a coordinate (`sr`, `sc`) representing the starting pixel (row and column) of the flood fill, and a pixel value `newColor` , "flood fill" the image.

To perform a "flood fill", consider the starting pixel, plus any pixels connected 4-directionally to the starting pixel of the same color as the starting pixel, plus any pixels connected 4-directionally to those pixels (also with the same color as the starting pixel), and so on. Replace the color of all of the aforementioned pixels with the newColor.

At the end, return the modified image.

Example 1:

Input:

image = [[1,1,1],[1,1,0],[1,0,1]]

sr = 1, sc = 1, newColor = 2

Output: [[2,2,2],[2,2,0],[2,0,1]]

Explanation:

From the center of the image (with position (sr, sc) = (1, 1)), all pixels connected by a path of the same color as the starting pixel are colored with the new color. Note the bottom corner is not colored 2, because it is not 4-directionally connected to the starting pixel.

Note:

- The length of image and image[0] will be in the range [1, 50].
- The given starting pixel will satisfy $0 \leq sr < image.length$ and $0 \leq sc < image[0].length$.
- The value of each color in image[i][j] and newColor will be an integer in [0, 65535].

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[733-Flood-Fill](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

734. Sentence Similarity

Given two sentences `words1`, `words2` (each represented as an array of strings), and a list of similar word pairs `pairs`, determine if two sentences are similar.

For example, "great acting skills" and "fine drama talent" are similar, if the similar word pairs are `pairs = [["great", "fine"], ["acting", "drama"], ["skills", "talent"]]`.

Note that the similarity relation is not transitive. For example, if "great" and "fine" are similar, and "fine" and "good" are similar, "great" and "good" are **not** necessarily similar.

However, similarity is symmetric. For example, "great" and "fine" being similar is the same as "fine" and "great" being similar.

Also, a word is always similar with itself. For example, the sentences `words1 = ["great"], words2 = ["great"], pairs = []` are similar, even though there are no specified similar word pairs.

Finally, sentences can only be similar if they have the same number of words. So a sentence like `words1 = ["great"]` can never be similar to `words2 = ["doubleplus", "good"]`.

Note:

- The length of `words1` and `words2` will not exceed 1000 .
- The length of `pairs` will not exceed 2000 .
- The length of each `pairs[i]` will be 2 .
- The length of each `words[i]` and `pairs[i][j]` will be in the range [1, 20] .

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[734-Sentence-Similarity](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

735. Asteroid Collision

We are given an array `asteroids` of integers representing asteroids in a row.

For each asteroid, the absolute value represents its size, and the sign represents its direction (positive meaning right, negative meaning left). Each asteroid moves at the same speed.

Find out the state of the asteroids after all collisions. If two asteroids meet, the smaller one will explode. If both are the same size, both will explode. Two asteroids moving in the same direction will never meet.

Example 1:

Input:
`asteroids = [5, 10, -5]`
Output: [5, 10]
Explanation:
The 10 and -5 collide resulting in 10. The 5 and 10 never collide.

Example 2:

Input:
`asteroids = [8, -8]`
Output: []
Explanation:
The 8 and -8 collide exploding each other.

Example 3:

Input:
`asteroids = [10, 2, -5]`
Output: [10]
Explanation:
The 2 and -5 collide resulting in -5. The 10 and -5 collide resulting in 10.

Example 4:

Input:
`asteroids = [-2, -1, 1, 2]`
Output: [-2, -1, 1, 2]
Explanation:

The -2 and -1 are moving left, while the 1 and 2 are moving right. Asteroids moving the same direction never meet, so no asteroids will be destroyed.

Note:

- The length of asteroids will be at most 10000 .
- Each asteroid will be a non-zero integer in the range [-1000, 1000] . .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[735-Asteroid-Collision](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

736. Parse Lisp Expression

You are given a string expression representing a Lisp-like expression to return the integer value of.

The syntax for these expressions is given as follows.

- An expression is either an integer, a let-expression, an add-expression, a mult-expression, or an assigned variable. Expressions always evaluate to a single integer.
 - (An integer could be positive or negative.)
- A let-expression takes the form `(let v1 e1 v2 e2 ... vn en expr)`, where `let` is always the string "let" , then there are 1 or more pairs of alternating variables and expressions, meaning that the first variable `v1` is assigned the value of the expression `e1` , the second variable `v2` is assigned the value of the expression `e2` , and so on **sequentially** ; and then the value of this let-expression is the value of the expression `expr` .
- An add-expression takes the form `(add e1 e2)` where `add` is always the string "add" , there are always two expressions `e1` , `e2` , and this expression evaluates to the addition of the evaluation of `e1` and the evaluation of `e2` .
- A mult-expression takes the form `(mult e1 e2)` where `mult` is always the string "mult" , there are always two expressions `e1` , `e2` , and this expression evaluates to the multiplication of the evaluation of `e1` and the evaluation of `e2` .
- For the purposes of this question, we will use a smaller subset of variable names. A variable starts with a lowercase letter, then zero or more lowercase letters or digits. Additionally for your convenience, the names "add", "let", or "mult" are protected and will never be used as variable names.
- Finally, there is the concept of scope. When an expression of a variable name is evaluated, **within the context of that evaluation** , the innermost scope (in terms of parentheses) is checked first for the value of that

variable, and then outer scopes are checked sequentially. It is guaranteed that every expression is legal. Please see the examples for more details on scope.

Evaluation Examples:

Input: (add 1 2)
Output: 3

Input: (mult 3 (add 2 3))
Output: 15

Input: (let x 2 (mult x 5))
Output: 10

Input: (let x 2 (mult x (let x 3 y 4 (add x y))))
Output: 14

Explanation: In the expression (add x y), when checking for the value of x, we check from the innermost scope to the outermost in the context. Since x = 3 is found first, the value of x is 3.

Input: (let x 3 x 2 x)
Output: 2

Explanation: Assignment in let statements is processed sequentially.

Input: (let x 1 y 2 x (add x y) (add x y))
Output: 5

Explanation: The first (add x y) evaluates as 3, and is assigned to x. The second (add x y) evaluates as 3+2 = 5.

Input: (let x 2 (add (let x 3 (let x 4 x)) x))
Output: 6

Explanation: Even though (let x 4 x) has a deeper scope, it is only used to calculate the value of the final x in the add-expression. That final x will equal 2.

Input: (let a1 3 b2 (add a1 1) b2)
Output: 4

Explanation: Variable names can contain digits after the first character.

Note:

- The given string expression is well formatted: There are no leading or trailing spaces, there is only a single space separating different components of the string, and no space between adjacent parentheses. The expression is guaranteed to be legal and evaluate to an integer.
- The length of expression is at most 2000. (It is also non-empty, as that would not be a legal expression.)
- The answer and all intermediate calculations of that answer are guaranteed to fit in a 32-bit integer.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[736-Parse-Lisp-Expression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

737. Sentence Similarity II

Given two sentences `words1`, `words2` (each represented as an array of strings), and a list of similar word pairs `pairs` , determine if two sentences are similar.

For example, `words1 = ["great", "acting", "skills"]` and `words2 = ["fine", "drama", "talent"]` are similar, if the similar word pairs are `pairs = [[["great", "good"], ["fine", "good"], ["acting", "drama"], ["skills", "talent"]]]`.

Note that the similarity relation **is** transitive. For example, if "great" and "good" are similar, and "fine" and "good" are similar, then "great" and "fine" **are similar**.

Similarity is also symmetric. For example, "great" and "fine" being similar is the same as "fine" and "great" being similar.

Also, a word is always similar with itself. For example, the sentences `words1 = ["great"]`, `words2 = ["great"]`, `pairs = []` are similar, even though there are no specified similar word pairs.

Finally, sentences can only be similar if they have the same number of words. So a sentence like `words1 = ["great"]` can never be similar to `words2 = ["doubleplus", "good"]`.

Note:

- The length of `words1` and `words2` will not exceed 1000 .
- The length of `pairs` will not exceed 2000 .
- The length of each `pairs[i]` will be 2 .
- The length of each `words[i]` and `pairs[i][j]` will be in the range [1, 20] .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[737-Sentence-Similarity-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

738. Monotone Increasing Digits

Given a non-negative integer N , find the largest number that is less than or equal to N with monotone increasing digits.

(Recall that an integer has *monotone increasing digits* if and only if each pair of adjacent digits x and y satisfy $x \leq y$.)

Example 1:

Input: $N = 10$
Output: 9

Example 2:

Input: $N = 1234$
Output: 1234

Example 3:

Input: N = 332
Output: 299

Note: N is an integer in the range [0, 10^9] .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[738-Monotone-Increasing-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

739. Daily Temperatures

Given a list of daily temperatures T , return a list such that, for each day in the input, tells you how many days you would have to wait until a warmer temperature. If there is no future day for which this is possible, put 0 instead.

For example, given the list of temperatures $T = [73, 74, 75, 71, 69, 72, 76, 73]$, your output should be $[1, 1, 4, 2, 1, 1, 0, 0]$.

Note: The length of temperatures will be in the range $[1, 30000]$. Each temperature will be an integer in the range $[30, 100]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[739-Daily-Temperatures](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

740. Delete and Earn

Given an array `nums` of integers, you can perform operations on the array.

In each operation, you pick any `nums[i]` and delete it to earn `nums[i]` points. After, you must delete **every** element equal to `nums[i] - 1` or `nums[i] + 1`.

You start with 0 points. Return the maximum number of points you can earn by applying such operations.

Example 1:

Input: `nums = [3, 4, 2]`

Output: 6

Explanation:

Delete 4 to earn 4 points, consequently 3 is also deleted. Then, delete 2 to earn 2 points. 6 total points are earned.

Example 2:

Input: `nums = [2, 2, 3, 3, 3, 4]`

Output: 9

Explanation:

Delete 3 to earn 3 points, deleting both 2's and the 4. Then, delete 3 again to earn 3 points, and 3 again to earn 3 points. 9 total points are earned.

Note:

- The length of `nums` is at most 20000 .
- Each element `nums[i]` is an integer in the range `[1, 10000]` .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[740-Delete-and-Earn](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

741. Cherry Pickup

In a $N \times N$ grid representing a field of cherries, each cell is one of three possible integers.

- 0 means the cell is empty, so you can pass through;
- 1 means the cell contains a cherry, that you can pick up and pass through;
- -1 means the cell contains a thorn that blocks your way.

Your task is to collect maximum number of cherries possible by following the rules below:

- Starting at the position (0, 0) and reaching (N-1, N-1) by moving right or down through valid path cells (cells with value 0 or 1);
- After reaching (N-1, N-1), returning to (0, 0) by moving left or up through valid path cells;
- When passing through a path cell containing a cherry, you pick it up and the cell becomes an empty cell (0);
- If there is no valid path between (0, 0) and (N-1, N-1), then no cherries can be collected.

Example 1:

Input: grid =
`[[0, 1, -1],
 [1, 0, -1],
 [1, 1, 1]]`

Output: 5

Explanation:

The player started at (0, 0) and went down, down, right right to 4 cherries were picked up during this single trip, and the matrix. Then, the player went left, up, up, left to return home, picking The total number of cherries picked up is 5, and this is the max

Note:

- grid is an N by N 2D array, with $1 \leq N \leq 50$.
- Each $\text{grid}[i][j]$ is an integer in the set $\{-1, 0, 1\}$.
- It is guaranteed that $\text{grid}[0][0]$ and $\text{grid}[N-1][N-1]$ are not -1.
-

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[741-Cherry-Pickup](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

742. Closest Leaf in a Binary Tree

Given a binary tree **where every node has a unique value**, and a target key k , find the value of the nearest leaf node to target k in the tree.

Here, *nearest* to a leaf means the least number of edges travelled on the binary tree to reach any leaf of the tree. Also, a node is called a *leaf* if it has no children.

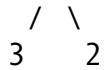
In the following examples, the input tree is represented in flattened form row by row. The actual root tree given will be a `TreeNode` object.

Example 1:

Input:

`root = [1, 3, 2], k = 1`

Diagram of binary tree:



Output: 2 (or 3)

Explanation: Either 2 or 3 is the nearest leaf node to the target.

Example 2:

Input:

root = [1], k = 1

Output: 1

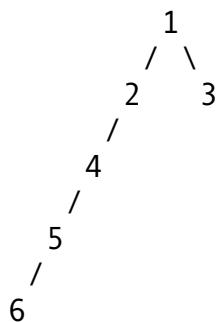
Explanation: The nearest leaf node is the root node itself.

Example 3:

Input:

root = [1,2,3,4,null,null,null,5,null,6], k = 2

Diagram of binary tree:



Output: 3

Explanation: The leaf node with value 3 (and not the leaf node with value 6).

Note:

1. root represents a binary tree with at least 1 node and at most 1000 nodes.
2. Every node has a unique node.val in range [1, 1000].
3. There exists some node in the given binary tree for which node.val == k .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[742-Closest-Leaf-in-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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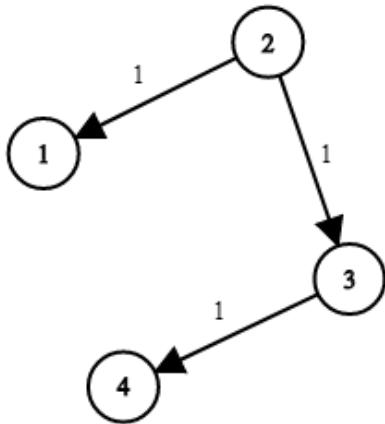
743. Network Delay Time

There are N network nodes, labelled 1 to N .

Given `times`, a list of travel times as **directed edges** `times[i] = (u, v, w)`, where u is the source node, v is the target node, and w is the time it takes for a signal to travel from source to target.

Now, we send a signal from a certain node K . How long will it take for all nodes to receive the signal? If it is impossible, return -1.

Example 1:



Input: times = [[2,1,1],[2,3,1],[3,4,1]], N = 4, K = 2
 Output: 2

Note:

1. N will be in the range [1, 100] .
2. K will be in the range [1, N] .
3. The length of times will be in the range [1, 6000] .
4. All edges times[i] = (u, v, w) will have $1 \leq u, v \leq N$ and $0 \leq w \leq 100$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[743-Network-Delay-Time](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

744. Find Smallest Letter Greater Than Target

Given a list of sorted characters `letters` containing only lowercase letters, and given a target letter `target` , find the smallest element in the list that is larger than the given target.

Letters also wrap around. For example, if the target is `target = 'z'` and `letters = ['a', 'b']` , the answer is `'a'` .

Examples:

Input:
`letters = ["c", "f", "j"]`
`target = "a"`
Output: "c"

Input:
`letters = ["c", "f", "j"]`
`target = "c"`
Output: "f"

Input:
`letters = ["c", "f", "j"]`
`target = "d"`
Output: "f"

Input:
`letters = ["c", "f", "j"]`
`target = "g"`
Output: "j"

Input:
letters = ["c", "f", "j"]
target = "j"
Output: "c"

Input:
letters = ["c", "f", "j"]
target = "k"
Output: "c"

Note:

1. letters has a length in range [2, 10000] .
2. letters consists of lowercase letters, and contains at least 2 unique letters.
3. target is a lowercase letter.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[744-Find-Smallest-Letter-Greater-Than-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

745. Prefix and Suffix Search

Given many words , words[i] has weight i .

Design a class WordFilter that supports one function, WordFilter.f(String prefix, String suffix) . It will return the word with given prefix and suffix with maximum weight. If no word exists, return -1.

Examples:

Input:
WordFilter(["apple"])
WordFilter.f("a", "e") // returns 0
WordFilter.f("b", "") // returns -1

Note:

1. words has length in range [1, 15000] .
2. For each test case, up to words.length queries WordFilter.f may be made.
3. words[i] has length in range [1, 10] .
4. prefix, suffix have lengths in range [0, 10] .
5. words[i] and prefix, suffix queries consist of lowercase letters only.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[745-Prefix-and-Suffix-Search](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

746. Min Cost Climbing Stairs

On a staircase, the i -th step has some non-negative cost $\text{cost}[i]$ assigned (0 indexed).

Once you pay the cost, you can either climb one or two steps. You need to find minimum cost to reach the top of the floor, and you can either start from the step with index 0, or the step with index 1.

Example 1:

Input: $\text{cost} = [10, 15, 20]$

Output: 15

Explanation: Cheapest is start on $\text{cost}[1]$, pay that cost and go

Example 2:

Input: cost = [1, 100, 1, 1, 1, 100, 1, 1, 100, 1]
Output: 6
Explanation: Cheapest is start on cost[0], and only step on 1s, 1s.

Note:

1. cost will have a length in the range [2, 1000] .
2. Every cost[i] will be an integer in the range [0, 999] .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[746-Min-Cost-Climbing-Stairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

747. Largest Number At Least Twice of Others

In a given integer array `nums` , there is always exactly one largest element.

Find whether the largest element in the array is at least twice as much as every other number in the array.

If it is, return the **index** of the largest element, otherwise return -1.

Example 1:

Input: `nums = [3, 6, 1, 0]`

Output: 1

Explanation: 6 is the largest integer, and for every other number 6 is more than twice as big as x. The index of value 6 is 1, so

Example 2:

Input: `nums = [1, 2, 3, 4]`

Output: -1

Explanation: 4 isn't at least as big as twice the value of 3, so

Note:

1. `nums` will have a length in the range [1, 50] .
2. Every `nums[i]` will be an integer in the range [0, 99] .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[747-Largest-Number-At-Least-Twice-of-Others](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

748. Shortest Completing Word

Find the minimum length word from a given dictionary words , which has all the letters from the string licensePlate . Such a word is said to *complete* the given string licensePlate

Here, for letters we ignore case. For example, "P" on the licensePlate still matches "p" on the word.

It is guaranteed an answer exists. If there are multiple answers, return the one that occurs first in the array.

The license plate might have the same letter occurring multiple times. For example, given a licensePlate of "PP" , the word "pair" does not complete the licensePlate , but the word "supper" does.

Example 1:

Input: licensePlate = "1s3 PSt", words = ["step", "steps", "stri

Output: "steps"

Explanation: The smallest length word that contains the letters

Note that the answer is not "step", because the letter "s" must be present. Also note that we ignored case for the purposes of comparing whether words contained the required letters.

Example 2:

Input: licensePlate = "1s3 456", words = ["looks", "pest", "stew"]
Output: "pest"

Explanation: There are 3 smallest length words that contains the required letters.
We return the one that occurred first.

Note:

1. licensePlate will be a string with length in range [1, 7].
2. licensePlate will contain digits, spaces, or letters (uppercase or lowercase).
3. words will have a length in the range [10, 1000].
4. Every words[i] will consist of lowercase letters, and have length in range [1, 15].

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[748-Shortest-Completing-Word](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

749. Contain Virus

A virus is spreading rapidly, and your task is to quarantine the infected area by installing walls.

The world is modeled as a 2-D array of cells, where 0 represents uninfected cells, and 1 represents cells contaminated with the virus. A wall (and only one wall) can be installed **between any two 4-directionally adjacent cells**, on the shared boundary.

Every night, the virus spreads to all neighboring cells in all four directions unless blocked by a wall. Resources are limited. Each day, you can install walls around only one region -- the affected area (continuous block of infected cells) that threatens the most uninfected cells the following night. There will never be a tie.

Can you save the day? If so, what is the number of walls required? If not, and the world becomes fully infected, return the number of walls used.

Example 1:

```
Input: grid =  
[[0,1,0,0,0,0,1],  
 [0,1,0,0,0,0,1],  
 [0,0,0,0,0,0,1],  
 [0,0,0,0,0,0,0]]
```

Output: 10

Explanation:

There are 2 contaminated regions.

On the first day, add 5 walls to quarantine the viral region on

```
[[0,1,0,0,0,0,1,1],  
 [0,1,0,0,0,0,1,1],  
 [0,0,0,0,0,0,1,1],
```

```
[0,0,0,0,0,0,0,1]]
```

On the second day, add 5 walls to quarantine the viral region on

Example 2:

```
Input: grid =  
[[1,1,1],  
 [1,0,1],  
 [1,1,1]]
```

Output: 4

Explanation: Even though there is only one cell saved, there are 4 walls built. Notice that walls are only built on the shared boundary of two different cells.

Example 3:

```
Input: grid =  
[[1,1,1,0,0,0,0,0,0],  
 [1,0,1,0,1,1,1,1,1],  
 [1,1,1,0,0,0,0,0,0]]
```

Output: 13

Explanation: The region on the left only builds two new walls.

Note:

1. The number of rows and columns of `grid` will each be in the range [1, 50].
2. Each `grid[i][j]` will be either 0 or 1.
3. Throughout the described process, there is always a contiguous viral region that will infect **strictly more** uncontaminated squares in the next round.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[749-Contain-Virus](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

750. Number Of Corner Rectangles

Given a grid where each entry is only 0 or 1, find the number of corner rectangles.

A *corner rectangle* is 4 distinct 1s on the grid that form an axis-aligned rectangle. Note that only the corners need to have the value 1. Also, all four 1s used must be distinct.

Example 1:

```
Input: grid =  
[[1, 0, 0, 1, 0],  
 [0, 0, 1, 0, 1],  
 [0, 0, 0, 1, 0],  
 [1, 0, 1, 0, 1]]
```

Output: 1

Explanation: There is only one corner rectangle, with corners gr

Example 2:

```
Input: grid =  
[[1, 1, 1],  
 [1, 1, 1],  
 [1, 1, 1]]
```

Output: 9

Explanation: There are four 2x2 rectangles, four 2x3 and 3x2 rec

Example 3:

Input: grid =
[[1, 1, 1, 1]]

Output: 0

Explanation: Rectangles must have four distinct corners.

Note:

1. The number of rows and columns of grid will each be in the range [1, 200].
2. Each grid[i][j] will be either 0 or 1 .
3. The number of 1 s in the grid will be at most 6000 .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[750-Number-Of-Corner-Rectangles](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

751. IP to CIDR

Given a start IP address ip and a number of ips we need to cover n , return a representation of the range as a list (of smallest possible length) of CIDR blocks.

A CIDR block is a string consisting of an IP, followed by a slash, and then the prefix length. For example: "123.45.67.89/20". That prefix length "20" represents the number of common prefix bits in the specified range.

Example 1:

Input: ip = "255.0.0.7", n = 10

Output: ["255.0.0.7/32", "255.0.0.8/29", "255.0.0.16/32"]

Explanation:

The initial ip address, when converted to binary, looks like this:
255.0.0.7 -> 11111111 00000000 00000000 00000111

The address "255.0.0.7/32" specifies all addresses with a common
ie. just this one address.

The address "255.0.0.8/29" specifies all addresses with a common
255.0.0.8 -> 11111111 00000000 00000000 00001000

Addresses with common prefix of 29 bits are:

11111111 00000000 00000000 00001000
11111111 00000000 00000000 00001001
11111111 00000000 00000000 00001010
11111111 00000000 00000000 00001011
11111111 00000000 00000000 00001100
11111111 00000000 00000000 00001101
11111111 00000000 00000000 00001110
11111111 00000000 00000000 00001111

The address "255.0.0.16/32" specifies all addresses with a common
ie. just 11111111 00000000 00000000 00010000.

In total, the answer specifies the range of 10 ips starting with

There were other representations, such as:

["255.0.0.7/32", "255.0.0.8/30", "255.0.0.12/30", "255.0.0.16/32"]
but our answer was the shortest possible.

Also note that a representation beginning with say, "255.0.0.7/3

because it includes addresses like $255.0.0.4 = 11111111\ 00000000$ that are outside the specified range.

Note:

1. ip will be a valid IPv4 address.
2. Every implied address $\text{ip} + x$ (for $x < n$) will be a valid IPv4 address.
3. n will be an integer in the range $[1, 1000]$.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[751-IP-to-CIDR](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

752. Open the Lock

You have a lock in front of you with 4 circular wheels. Each wheel has 10 slots: '0', '1', '2', '3', '4', '5', '6', '7', '8', '9'. The wheels can rotate freely and wrap around: for example we can turn '9' to be '0', or '0' to be '9'. Each move consists of turning one wheel one slot.

The lock initially starts at '0000', a string representing the state of the 4 wheels.

You are given a list of deadends dead ends, meaning if the lock displays any of these codes, the wheels of the lock will stop turning and you will be unable to open it.

Given a target representing the value of the wheels that will unlock the lock, return the minimum total number of turns required to open the lock, or -1 if it is impossible.

Example 1:

```
Input: deadends = ["0201", "0101", "0102", "1212", "2002"], target = "0000"
Output: 6
Explanation:
A sequence of valid moves would be "0000" -> "1000" -> "1100" ->
Note that a sequence like "0000" -> "0001" -> "0002" -> "0102" ->
because the wheels of the lock become stuck after the display be
```

Example 2:

```
Input: deadends = ["8888"], target = "0009"
Output: 1
Explanation:
We can turn the last wheel in reverse to move from "0000" -> "0009"
```

Example 3:

```
Input: deadends = ["8887", "8889", "8878", "8898", "8788", "8988", "7888"], target = "8888"
Output: -1
Explanation:
We can't reach the target without getting stuck.
```

Example 4:

```
Input: deadends = ["0000"], target = "8888"
Output: -1
```

Note:

1. The length of deadends will be in the range [1, 500] .
2. target will not be in the list deadends .
3. Every string in deadends and the string target will be a string of 4 digits from the 10,000 possibilities '0000' to '9999' .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[752-Open-the-Lock](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

753. Cracking the Safe

There is a box protected by a password. The password is a sequence of n digits where each digit can be one of the first k digits $0, 1, \dots, k-1$.

While entering a password, the last n digits entered will automatically be matched against the correct password.

For example, assuming the correct password is "345", if you type "012345", the box will open because the correct password matches the suffix of the entered password.

Return any password of **minimum length** that is guaranteed to open the box at some point of entering it.

Example 1:

Input: $n = 1, k = 2$
Output: "01"
Note: "10" will be accepted too.

Example 2:

Input: $n = 2, k = 2$
Output: "00110"
Note: "01100", "10011", "11001" will be accepted too.

Note:

1. n will be in the range [1, 4].
2. k will be in the range [1, 10].
3. k^n will be at most 4096.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[753-Cracking-the-Safe](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

754. Reach a Number

You are standing at position 0 on an infinite number line. There is a goal at position target .

On each move, you can either go left or right. During the n -th move (starting from 1), you take n steps.

Return the minimum number of steps required to reach the destination.

Example 1:

Input: $\text{target} = 3$

Output: 2

Explanation:

On the first move we step from 0 to 1 .

On the second step we step from 1 to 3 .

Example 2:

Input: $\text{target} = 2$

Output: 3

Explanation:

On the first move we step from 0 to 1.

On the second move we step from 1 to -1.

On the third move we step from -1 to 2.

Note:

- target will be a non-zero integer in the range $[-10^9, 10^9]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[754-Reach-a-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

755. Pour Water

We are given an elevation map, `heights[i]` representing the height of the terrain at that index. The width at each index is 1. After V units of water fall at index K , how much water is at each index?

Water first drops at index K and rests on top of the highest terrain or water at that index. Then, it flows according to the following rules:

- If the droplet would eventually fall by moving left, then move left.
- Otherwise, if the droplet would eventually fall by moving right, then move right.
- Otherwise, rise at its current position.

Here, "eventually fall" means that the droplet will eventually be at a lower level if it moves in that direction. Also, "level" means the height of the terrain plus any water in that column.

We can assume there's infinitely high terrain on the two sides out of bounds of the array. Also, there could not be partial water being spread out evenly on more than 1 grid block - each unit of water has to be in exactly one block.

Example 1:

Input: `heights = [2,1,1,2,1,2,2]`, $V = 4$, $K = 3$
Output: `[2,2,2,3,2,2,2]`

Explanation:

```
#      #
#      #
##  #  ###
######
0123456    <- index
```

The first drop of water lands at index $K = 3$:

```
#      #
#  w  #
##  #  ###
######
0123456
```

When moving left or right, the water can only move to the same level (By level, we mean the total height of the terrain plus any water)

Since moving left will eventually make it fall, it moves left.
(A droplet "made to fall" means go to a lower height than it was

```
#      #
#      #
## w# ###
######
0123456
```

Since moving left will not make it fall, it stays in place. The

```
#      #
#   w  #
## w# ###
######
0123456
```

Since the new droplet moving left will eventually make it fall,
Notice that the droplet still preferred to move left,
even though it could move right (and moving right makes it fall)

```
#      #
#   w  #
## w# ###
######
0123456
```

```
#      #
#      #
##ww# ###
######
0123456
```

After those steps, the third droplet falls.

Since moving left would not eventually make it fall, it tries to
Since moving right would eventually make it fall, it moves right

```
#      #
#   w  #
##ww# ###
######
0123456
```

```
#      #
#      #
##ww#w###
######
0123456
```

Finally, the fourth droplet falls.

Since moving left would not eventually make it fall, it tries to
Since moving right would not eventually make it fall, it stays in

```
#      #
```

```
#   w   #
##ww#w###
######
0123456
```

The final answer is [2,2,2,3,2,2,2]:

```
##
#####
#####
0123456
```

Example 2:

Input: heights = [1,2,3,4], V = 2, K = 2

Output: [2,3,3,4]

Explanation:

The last droplet settles at index 1, since moving further left would overflow.

Example 3:

Input: heights = [3,1,3], V = 5, K = 1

Output: [4,4,4]

Note:

1. heights will have length in [1, 100] and contain integers in [0, 99].
2. V will be in range [0, 2000].
3. K will be in range [0, heights.length - 1].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[755-Pour-Water](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

756. Pyramid Transition Matrix

We are stacking blocks to form a pyramid. Each block has a color which is a one letter string.

We are allowed to place any color block C on top of two adjacent blocks of colors A and B , if and only if ABC is an allowed triple.

We start with a bottom row of bottom , represented as a single string. We also start with a list of allowed triples allowed . Each allowed triple is represented as a string of length 3.

Return true if we can build the pyramid all the way to the top, otherwise false.

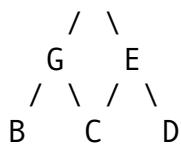
Example 1:

Input: bottom = "BCD", allowed = ["BCG", "CDE", "GEA", "FFF"]
Output: true

Explanation:

We can stack the pyramid like this:

A



We are allowed to place G on top of B and C because BCG is an allowed triple.

Example 2:

Input: bottom = "AABA", allowed = ["AAA", "AAB", "ABA", "ABB", "BAA"]

Output: false

Explanation:

We can't stack the pyramid to the top.

Note that there could be allowed triples (A, B, C) and (A, B, D).

Note:

1. bottom will be a string with length in range [2, 8].
2. allowed will have length in range [0, 200].
3. Letters in all strings will be chosen from the set {'A', 'B', 'C', 'D', 'E', 'F', 'G'}.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[756-Pyramid-Transition-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

757. Set Intersection Size At Least Two

An integer interval $[a, b]$ (for integers $a < b$) is a set of all consecutive integers from a to b , including a and b .

Find the minimum size of a set S such that for every integer interval A in `intervals`, the intersection of S with A has size at least 2.

Example 1:

Input: `intervals = [[1, 3], [1, 4], [2, 5], [3, 5]]`
Output: 3

Explanation:

Consider the set $S = \{2, 3, 4\}$. For each interval, there are at least 2 elements in S .
Also, there isn't a smaller size set that fulfills the above condition.
Thus, we output the size of this set, which is 3.

Example 2:

Input: `intervals = [[1, 2], [2, 3], [2, 4], [4, 5]]`
Output: 5
Explanation:
An example of a minimum sized set is $\{1, 2, 3, 4, 5\}$.

Note:

1. `intervals` will have length in range $[1, 3000]$.
2. `intervals[i]` will have length 2, representing some integer interval.
3. `intervals[i][j]` will be an integer in $[0, 10^8]$.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**757-Set-Intersection-Size-At-Least-Two**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

758. Bold Words in String

Given a set of keywords `words` and a string `S`, make all appearances of all keywords in `S` bold. Any letters between `` and `` tags become bold.

The returned string should use the least number of tags possible, and of course the tags should form a valid combination.

For example, given that `words = ["ab", "bc"]` and `S = "aabcd"` , we should return "`aabcd`" . Note that returning "`aabcd`" would use more tags, so it is incorrect.

Note:

1. `words` has length in range `[0, 50]` .
2. `words[i]` has length in range `[1, 10]` .
3. `S` has length in range `[0, 500]` .
4. All characters in `words[i]` and `S` are lowercase letters.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[758-Bold-Words-in-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

759. Employee Free Time

We are given a list `schedule` of employees, which represents the working time for each employee.

Each employee has a list of non-overlapping Intervals , and these intervals are in sorted order.

Return the list of finite intervals representing **common, positive-length free time** for *all* employees, also in sorted order.

Example 1:

Input: `schedule = [[[1,2],[5,6]],[[1,3]],[[4,10]]]`
Output: `[[3,4]]`

Explanation:

There are a total of three employees, and all common free time intervals would be $[-\infty, 1]$, $[3, 4]$, $[10, \infty]$. We discard any intervals that contain inf as they aren't finite.

Example 2:

Input: `schedule = [[[1,3],[6,7]],[[2,4]],[[2,5],[9,12]]]`
Output: `[[5,6],[7,9]]`

(Even though we are representing Intervals in the form $[x, y]$, the objects inside are Intervals , not lists or arrays. For example, `schedule[0][0].start = 1`, `schedule[0][0].end = 2` , and `schedule[0][0][0]` is not defined.)

Also, we wouldn't include intervals like $[5, 5]$ in our answer, as they have zero length.

Note:

1. `schedule` and `schedule[i]` are lists with lengths in range $[1, 50]$.
2. $0 \leq schedule[i].start < schedule[i].end \leq 10^8$.

NOTE: input types have been changed on June 17, 2019.
Please reset to default code definition to get new method signature.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[759-Employee-Free-Time](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

760. Find Anagram Mappings

Given two lists A and B , and B is an anagram of A . B is an anagram of A means B is made by randomizing the order of the elements in A .

We want to find an *index mapping* P , from A to B . A mapping $P[i] = j$ means the i th element in A appears in B at index j .

These lists A and B may contain duplicates. If there are multiple answers, output any of them.

For example, given

```
A = [12, 28, 46, 32, 50]
B = [50, 12, 32, 46, 28]
```

We should return

```
[1, 4, 3, 2, 0]
```

as $P[0] = 1$ because the 0 th element of A appears at B[1] , and $P[1] = 4$ because the 1 st element of A appears at B[4] , and so on.

Note:

1. A, B have equal lengths in range [1, 100] .
2. A[i], B[i] are integers in range [0, 10^5] .

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[760-Find-Anagram-Mappings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

761. Special Binary String

Special binary strings are binary strings with the following two properties:

- The number of 0's is equal to the number of 1's.
- Every prefix of the binary string has at least as many 1's as 0's.

Given a special string S , a *move* consists of choosing two consecutive, non-empty, special substrings of S , and swapping them. (*Two strings are consecutive if the last character of the first string is exactly one index before the first character of the second string.*)

At the end of any number of moves, what is the lexicographically largest resulting string possible?

Example 1:

Input: $S = "11011000"$
Output: "11100100"

Explanation:

The strings "10" [occurring at S[1]] and "1100" [at S[3]] are swapped.
This is the lexicographically largest string possible after some swaps.

Note:

1. S has length at most 50 .
2. S is guaranteed to be a *special* binary string as defined above.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[761-Special-Binary-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

762. Prime Number of Set Bits in Binary Representation

Given two integers L and R , find the count of numbers in the range [L , R] (inclusive) having a prime number of set bits in their binary representation.

(Recall that the number of set bits an integer has is the number of 1 s present when written in binary. For example, 21 written in binary is 10101 which has 3 set bits. Also, 1 is not a prime.)

Example 1:

Input: L = 6, R = 10

Output: 4

Explanation:

6 -> 110 (2 set bits, 2 is prime)

7 -> 111 (3 set bits, 3 is prime)

9 -> 1001 (2 set bits , 2 is prime)

10->1010 (2 set bits , 2 is prime)

Example 2:

Input: L = 10, R = 15

Output: 5

Explanation:

10 -> 1010 (2 set bits, 2 is prime)

11 -> 1011 (3 set bits, 3 is prime)

12 -> 1100 (2 set bits, 2 is prime)

13 -> 1101 (3 set bits, 3 is prime)

14 -> 1110 (3 set bits, 3 is prime)

15 -> 1111 (4 set bits, 4 is not prime)

Note:

1. L , R will be integers L <= R in the range [1 , 10^6] .
2. R - L will be at most 10000.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[762-Prime-Number-of-Set-Bits-in-Binary-Representation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

763. Partition Labels

A string S of lowercase letters is given. We want to partition this string into as many parts as possible so that each letter appears in at most one part, and return a list of integers representing the size of these parts.

Example 1:

Input: $S = "ababcbacadefegdehijhklij"$
Output: [9, 7, 8]

Explanation:

The partition is "ababcba", "defegde", "hijhklij".
This is a partition so that each letter appears in at most one part.
A partition like "ababcbacadefegde", "hijhklij" is incorrect, because

Note:

1. S will have length in range [1, 500].
2. S will consist of lowercase letters ('a' to 'z') only.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[763-Partition-Labels](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

764. Largest Plus Sign

In a 2D grid from (0, 0) to (N-1, N-1), every cell contains a 1 , except those cells in the given list mines which are 0 . What is the largest axis-aligned plus sign of 1 s contained in the grid? Return the order of the plus sign. If there is none, return 0.

An " *axis-aligned plus sign of 1 s* of order **k** " has some center grid[x][y] = 1 along with 4 arms of length k - 1 going up, down, left, and right, and made of 1 s. This is demonstrated in the diagrams below. Note that there could be 0 s or 1 s beyond the arms of the plus sign, only the relevant area of the plus sign is checked for 1s.

Examples of Axis-Aligned Plus Signs of Order k:

Order 1:

```
000  
010  
000
```

Order 2:

```
00000  
00100  
01110  
01110  
00100  
00000
```

Order 3:

```
0000000  
0001000  
0001000  
0111110  
0001000  
0001000  
0000000
```

Example 1:

Input: N = 5, mines = [[4, 2]]

Output: 2

Explanation:

```
11111  
11111  
11111  
11111  
11011
```

In the above grid, the largest plus sign can only be order 2. 0

Example 2:

Input: N = 2, mines = []

Output: 1

Explanation:

There is no plus sign of order 2, but there is of order 1.

Example 3:

Input: N = 1, mines = [[0, 0]]

Output: 0

Explanation:

There is no plus sign, so return 0.

Note:

1. N will be an integer in the range [1, 500] .
2. mines will have length at most 5000 .
3. mines[i] will be length 2 and consist of integers in the range [0, N-1] .
4. *(Additionally, programs submitted in C, C++, or C# will be judged with a slightly smaller time limit.)*

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[764-Largest-Plus-Sign](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

765. Couples Holding Hands

N couples sit in $2N$ seats arranged in a row and want to hold hands. We want to know the minimum number of swaps so that every couple is sitting side by side. A *swap* consists of choosing **any** two people, then they stand up and switch seats.

The people and seats are represented by an integer from 0 to $2N-1$, the couples are numbered in order, the first couple being $(0, 1)$, the second couple being $(2, 3)$, and so on with the last couple being $(2N-2, 2N-1)$.

The couples' initial seating is given by `row[i]` being the value of the person who is initially sitting in the i -th seat.

Example 1:

Input: `row = [0, 2, 1, 3]`
Output: `1`

Explanation: We only need to swap the second (`row[1]`) and third

Example 2:

Input: `row = [3, 2, 0, 1]`
Output: `0`

Explanation: All couples are already seated side by side.

Note:

1. `len(row)` is even and in the range of $[4, 60]$.

2. `row` is guaranteed to be a permutation of
`0...len(row)-1`.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[765-Couples-Holding-Hands](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

766. Toeplitz Matrix

A matrix is *Toeplitz* if every diagonal from top-left to bottom-right has the same element.

Now given an $M \times N$ matrix, return True if and only if the matrix is *Toeplitz*.

Example 1:

Input:

```
matrix = [
    [1,2,3,4],
    [5,1,2,3],
    [9,5,1,2]
]
```

Output: True

Explanation:

In the above grid, the diagonals are:

"[9]", "[5, 5]", "[1, 1, 1]", "[2, 2, 2]", "[3, 3]", "[4]".

In each diagonal all elements are the same, so the answer is True.

Example 2:

Input:

```
matrix = [
    [1,2],
    [2,2]
]
```

Output: False

Explanation:

The diagonal "[1, 2]" has different elements.

Note:

1. `matrix` will be a 2D array of integers.
2. `matrix` will have a number of rows and columns in range [1, 20].
3. `matrix[i][j]` will be integers in range [0, 99].

Follow up:

1. What if the matrix is stored on disk, and the memory is limited such that you can only load at most one row of the matrix into the memory at once?
2. What if the matrix is so large that you can only load up a partial row into the memory at once?

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[766-Toeplitz-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

767. Reorganize String

Given a string S , check if the letters can be rearranged so that two characters that are adjacent to each other are not the same.

If possible, output any possible result. If not possible, return the empty string.

Example 1:

Input: $S = "aab"$
Output: "aba"

Example 2:

Input: S = "aaab"
Output: ""

Note:

- S will consist of lowercase letters and have length in range [1, 500] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[767-Reorganize-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

768. Max Chunks To Make Sorted II

*This question is the same as "Max Chunks to Make Sorted" except the integers of the given array are not necessarily distinct, the input array could be up to length 2000 , and the elements could be up to 10^{**8} .*

Given an array `arr` of integers (**not necessarily distinct**), we split the array into some number of "chunks" (partitions), and individually sort each chunk. After concatenating them, the result equals the sorted array.

What is the most number of chunks we could have made?

Example 1:

Input: `arr = [5,4,3,2,1]`

Output: 1

Explanation:

Splitting into two or more chunks will not return the required result.
For example, splitting into [5, 4], [3, 2, 1] will result in [4, 3, 5, 2, 1].

Example 2:

Input: `arr = [2,1,3,4,4]`

Output: 4

Explanation:

We can split into two chunks, such as [2, 1], [3, 4, 4].
However, splitting into [2, 1], [3], [4], [4] is the highest number of chunks.

Note:

- `arr` will have length in range [1, 2000] .
- `arr[i]` will be an integer in range [0, 10^{**8}] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[768-Max-Chunks-To-Make-Sorted-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

769. Max Chunks To Make Sorted

Given an array `arr` that is a permutation of `[0, 1, ..., arr.length - 1]`, we split the array into some number of "chunks" (partitions), and individually sort each chunk. After concatenating them, the result equals the sorted array.

What is the most number of chunks we could have made?

Example 1:

Input: `arr = [4, 3, 2, 1, 0]`
Output: 1
Explanation:

Splitting into two or more chunks will not return the required result.
For example, splitting into [4, 3], [2, 1, 0] will result in [3, 2, 1, 0].

Example 2:

Input: arr = [1, 0, 2, 3, 4]

Output: 4

Explanation:

We can split into two chunks, such as [1, 0], [2, 3, 4].
However, splitting into [1, 0], [2], [3], [4] is the highest number of chunks.

Note:

- arr will have length in range [1, 10].
- arr[i] will be a permutation of [0, 1, ..., arr.length - 1].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[769-Max-Chunks-To-Make-Sorted](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

770. Basic Calculator IV

Given an expression such as `expression = "e + 8 - a + 5"` and an evaluation map such as `{"e": 1}` (given in terms of `evalvars = ["e"]` and `evalints = [1]`), return a list of tokens representing the simplified expression, such as `["-1*a", "14"]`

- An expression alternates chunks and symbols, with a space separating each chunk and symbol.
- A chunk is either an expression in parentheses, a variable, or a non-negative integer.
- A variable is a string of lowercase letters (not including digits.) Note that variables can be multiple letters, and note that variables never have a leading coefficient or unary operator like `"2x"` or `"-x"`.

Expressions are evaluated in the usual order: brackets first, then multiplication, then addition and subtraction. For example, `expression = "1 + 2 * 3"` has an answer of `["7"]`.

The format of the output is as follows:

- For each term of free variables with non-zero coefficient, we write the free variables within a term in sorted order lexicographically. For example, we would never write a term like `"b*a*c"`, only `"a*b*c"`.
- Terms have degree equal to the number of free variables being multiplied, counting multiplicity. (For example, `"a*a*b*c"` has degree 4.) We write the largest degree terms of our answer first, breaking ties by lexicographic order ignoring the leading coefficient of the term.
- The leading coefficient of the term is placed directly to the left with an asterisk separating it from the

variables (if they exist.) A leading coefficient of 1 is still printed.

- An example of a well formatted answer is

```
[ "-2*a*a*a", "3*a*a*b", "3*b*b", "4*a",
  "5*c", "-6"]
```

- Terms (including constant terms) with coefficient 0 are not included. For example, an expression of "0" has an output of [].

Examples:

```
Input: expression = "e + 8 - a + 5", evalvars = ["e"], evalints = []
Output: ["-1*a","14"]
```

```
Input: expression = "e - 8 + temperature - pressure",
evalvars = ["e", "temperature"], evalints = [1, 12]
Output: ["-1*pressure","5"]
```

```
Input: expression = "(e + 8) * (e - 8)", evalvars = [], evalints = []
Output: ["1*e*e","-64"]
```

```
Input: expression = "7 - 7", evalvars = [], evalints = []
Output: []
```

```
Input: expression = "a * b * c + b * a * c * 4", evalvars = [],
Output: ["5*a*b*c"]
```

```
Input: expression = "((a - b) * (b - c) + (c - a)) * ((a - b) +
evalvars = [], evalints = []
Output: ["-1*a*a*b*b","2*a*a*b*c","-1*a*a*c*c","1*a*b*b*b","-1*a"]
```

Note:

1. expression will have length in range [1, 250] .
2. evalvars, evalints will have equal lengths in range [0, 100] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

770-Basic-Calculator-IV

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

771. Jewels and Stones

You're given strings J representing the types of stones that are jewels, and S representing the stones you have. Each character in S is a type of stone you have. You want to know how many of the stones you have are also jewels.

The letters in J are guaranteed distinct, and all characters in J and S are letters. Letters are case sensitive, so "a" is considered a different type of stone from "A".

Example 1:

Input: $J = "aA"$, $S = "aAAbbb"$
Output: 3

Example 2:

Input: $J = "z"$, $S = "ZZ"$
Output: 0

Note:

- S and J will consist of letters and have length at most 50.
- The characters in J are distinct.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[771-Jewels-and-Stones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

772. Basic Calculator III

Implement a basic calculator to evaluate a simple expression string.

The expression string may contain open (and closing parentheses) , the plus + or minus sign - , **non-negative** integers and empty spaces .

The expression string contains only non-negative integers, + , - , * , / operators , open (and closing parentheses) and empty spaces . The integer division should truncate toward zero.

You may assume that the given expression is always valid. All intermediate results will be in the range of [-2147483648 , 2147483647] .

Some examples:

```
"1 + 1" = 2
" 6-4 / 2 " = 4
"2*(5+5*2)/3+(6/2+8)" = 21
"(2+6* 3+5- (3*14/7+2)*5)+3"=-12
```

Note: Do not use the eval built-in library function.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[772-Basic-Calculator-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

773. Sliding Puzzle

On a 2×3 board , there are 5 tiles represented by the integers 1 through 5, and an empty square represented by 0.

A move consists of choosing 0 and a 4-directionally adjacent number and swapping it.

The state of the board is *solved* if and only if the board is $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 0 \end{bmatrix}$.

Given a puzzle board, return the least number of moves required so that the state of the board is solved. If it is impossible for the state of the board to be solved, return -1.

Examples:

Input: board = $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 0 & 5 \end{bmatrix}$

Output: 1

Explanation: Swap the 0 and the 5 in one move.

Input: board = $\begin{bmatrix} 1 & 2 & 3 \\ 5 & 4 & 0 \end{bmatrix}$

Output: -1

Explanation: No number of moves will make the board solved.

```
Input: board = [[4,1,2],[5,0,3]]
Output: 5
Explanation: 5 is the smallest number of moves that solves the board
An example path:
After move 0: [[4,1,2],[5,0,3]]
After move 1: [[4,1,2],[0,5,3]]
After move 2: [[0,1,2],[4,5,3]]
After move 3: [[1,0,2],[4,5,3]]
After move 4: [[1,2,0],[4,5,3]]
After move 5: [[1,2,3],[4,5,0]]
```



```
Input: board = [[3,2,4],[1,5,0]]
Output: 14
```

Note:

- board will be a 2 x 3 array as described above.
- board[i][j] will be a permutation of [0, 1, 2, 3, 4, 5].

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[773-Sliding-Puzzle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

774. Minimize Max Distance to Gas Station

On a horizontal number line, we have gas stations at positions `stations[0]`, `stations[1]`, ..., `stations[N-1]` , where `N = stations.length` .

Now, we add `K` more gas stations so that **D** , the maximum distance between adjacent gas stations, is minimized.

Return the smallest possible value of **D** .

Example:

Input: `stations = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]` , `K = 9`
Output: `0.500000`

Note:

1. `stations.length` will be an integer in range `[10, 2000]` .
2. `stations[i]` will be an integer in range `[0, 10^8]` .
3. `K` will be an integer in range `[1, 10^6]` .
4. Answers within 10^{-6} of the true value will be accepted as correct.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[774-Minimize-Max-Distance-to-Gas-Station](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

775. Global and Local Inversions

We have some permutation A of [0, 1, ..., N - 1] , where N is the length of A .

The number of (global) inversions is the number of $i < j$ with $0 \leq i < j < N$ and $A[i] > A[j]$.

The number of local inversions is the number of i with $0 \leq i < N$ and $A[i] > A[i+1]$.

Return true if and only if the number of global inversions is equal to the number of local inversions.

Example 1:

Input: A = [1, 0, 2]
Output: true
Explanation: There is 1 global inversion, and 1 local inversion.

Example 2:

Input: A = [1, 2, 0]
Output: false
Explanation: There are 2 global inversions, and 1 local inversion.

Note:

- A will be a permutation of [0, 1, ..., A.length - 1].
- A will have length in range [1, 5000].
- The time limit for this problem has been reduced.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[775-Global-and-Local-Inversions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

776. Split BST

Given a Binary Search Tree (BST) with root node `root` , and a target value `V` , split the tree into two subtrees where one subtree has nodes that are all smaller or equal to the target value, while the other subtree has all nodes that are greater than the target value. It's not necessarily the case that the tree contains a node with value `V` .

Additionally, most of the structure of the original tree should remain. Formally, for any child `C` with parent `P` in the original tree, if they are both in the same subtree after the split, then node `C` should still have the parent `P`.

You should output the root `TreeNode` of both subtrees after splitting, in any order.

Example 1:

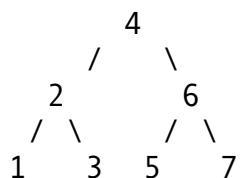
Input: `root = [4,2,6,1,3,5,7]`, `V = 2`

Output: `[[2,1],[4,3,6,null,null,5,7]]`

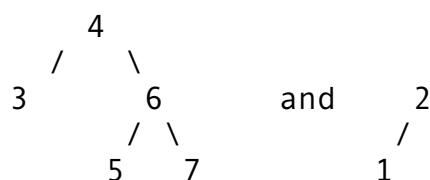
Explanation:

Note that `root`, `output[0]`, and `output[1]` are `TreeNode` objects, no

The given tree `[4,2,6,1,3,5,7]` is represented by the following diagram:



while the diagrams for the outputs are:



Note:

1. The size of the BST will not exceed 50 .
2. The BST is always valid and each node's value is different.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[776-Split-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

777. Swap Adjacent in LR String

In a string composed of 'L' , 'R' , and 'X' characters, like "RXXLRXRXL" , a move consists of either replacing one occurrence of "XL" with "LX" , or replacing one occurrence of "RX" with "XR" . Given the starting string start and the ending string end , return True if and only if there exists a sequence of moves to transform one string to the other.

Example:

Input: start = "RXXLRXRXL" , end = "XRLXXRRLX"

Output: True

Explanation:

We can transform start to end following these steps:

RXXLRXRXL ->

XRXLRXRXL ->

XRLXRXRXL ->

XRLXXRRXL ->

XRLXXRRLX

Note:

1. $1 \leq \text{len}(\text{start}) = \text{len}(\text{end}) \leq 10000$.

2. Both start and end will only consist of characters in $\{\text{'L'}, \text{'R'}, \text{'X'}\}$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[777-Swap-Adjacent-in-LR-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

778. Swim in Rising Water

On an $N \times N$ grid , each square $\text{grid}[i][j]$ represents the elevation at that point (i, j) .

Now rain starts to fall. At time t , the depth of the water everywhere is t . You can swim from a square to another 4-directionally adjacent square if and only if the elevation of both squares individually are at most t . You can swim infinite distance in zero time. Of course, you must stay within the boundaries of the grid during your swim.

You start at the top left square $(0, 0)$. What is the least time until you can reach the bottom right square $(N-1, N-1)$?

Example 1:

Input: `[[0,2],[1,3]]`

Output: 3

Explanation:

At time 0, you are in grid location $(0, 0)$.

You cannot go anywhere else because 4-directionally adjacent nei

You cannot reach point $(1, 1)$ until time 3.

When the depth of water is 3, we can swim anywhere inside the gr

Example 2:

Input: [[0,1,2,3,4],[24,23,22,21,5],[12,13,14,15,16],[11,17,18,19,20]]

Output: 16

Explanation:

0	1	2	3	4
24	23	22	21	5
12	13	14	15	16
11	17	18	19	20
10	9	8	7	6

The final route is marked in bold.

We need to wait until time 16 so that (0, 0) and (4, 4) are connected.

Note:

1. $2 \leq N \leq 50$.
2. $\text{grid}[i][j]$ is a permutation of $[0, \dots, N^2 - 1]$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[778-Swim-in-Rising-Water](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

779. K-th Symbol in Grammar

On the first row, we write a θ . Now in every subsequent row, we look at the previous row and replace each occurrence of θ with $\theta 1$, and each occurrence of 1 with 1θ .

Given row N and index K , return the K -th indexed symbol in row N . (The values of K are 1-indexed.) (1 indexed).

Examples:

Input: $N = 1$, $K = 1$
Output: θ

Input: $N = 2$, $K = 1$
Output: θ

Input: $N = 2$, $K = 2$
Output: 1

Input: $N = 4$, $K = 5$
Output: 1

Explanation:

row 1: θ
row 2: $\theta 1$
row 3: $\theta 11\theta$
row 4: $\theta 1101001$

Note:

1. N will be an integer in the range $[1, 30]$.
2. K will be an integer in the range $[1, 2^{N-1}]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[779-K-th-Symbol-in-Grammar](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

780. Reaching Points

A move consists of taking a point (x, y) and transforming it to either $(x, x+y)$ or $(x+y, y)$.

Given a starting point (sx, sy) and a target point (tx, ty) , return True if and only if a sequence of moves exists to transform the point (sx, sy) to (tx, ty) . Otherwise, return False.

Examples:

Input: $sx = 1$, $sy = 1$, $tx = 3$, $ty = 5$

Output: True

Explanation:

One series of moves that transforms the starting point to the target point.

(1, 1) -> (1, 2)
(1, 2) -> (3, 2)
(3, 2) -> (3, 5)

Input: sx = 1, sy = 1, tx = 2, ty = 2
Output: False

Input: sx = 1, sy = 1, tx = 1, ty = 1
Output: True

Note:

- sx, sy, tx, ty will all be integers in the range [1, 10^9] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[780-Reaching-Points](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

781. Rabbits in Forest

In a forest, each rabbit has some color. Some subset of rabbits (possibly all of them) tell you how many other rabbits have the same color as them. Those answers are placed in an array.

Return the minimum number of rabbits that could be in the forest.

Examples:

Input: answers = [1, 1, 2]

Output: 5

Explanation:

The two rabbits that answered "1" could both be the same color, The rabbit than answered "2" can't be red or the answers would be 1, 1, 1.

Say the rabbit that answered "2" was blue.

Then there should be 2 other blue rabbits in the forest that didn't answer.

The smallest possible number of rabbits in the forest is therefore 5.

Input: answers = [10, 10, 10]

Output: 11

Input: answers = []

Output: 0

Note:

1. answers will have length at most 1000 .
2. Each answers[i] will be an integer in the range [0, 999] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**781-Rabbits-in-Forest**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

782. Transform to Chessboard

An $N \times N$ board contains only 0's and 1's. In each move, you can swap any 2 rows with each other, or any 2 columns with each other.

What is the minimum number of moves to transform the board into a "chessboard" - a board where no 0's and no 1's are 4-directionally adjacent? If the task is impossible, return -1.

Examples:

Input: board = [[0,1,1,0],[0,1,1,0],[1,0,0,1],[1,0,0,1]]

Output: 2

Explanation:

One potential sequence of moves is shown below, from left to right:

```
0110      1010      1010  
0110 --> 1010 --> 0101  
1001      0101      1010  
1001      0101      0101
```

The first move swaps the first and second column.
The second move swaps the second and third row.

Input: board = [[0, 1], [1, 0]]

Output: 0

Explanation:

Also note that the board with 0 in the top left corner,

01

10

is also a valid chessboard.

Input: board = [[1, 0], [1, 0]]

Output: -1

Explanation:

No matter what sequence of moves you make, you cannot end with a

Note:

- board will have the same number of rows and columns, a number in the range [2, 30] .
- board[i][j] will be only 0 s or 1 s.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[782-Transform-to-Chessboard](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

783. Minimum Distance Between BST Nodes

Given a Binary Search Tree (BST) with the root node `root` , return the minimum difference between the values of any two different nodes in the tree.

Example :

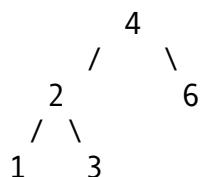
Input: `root = [4,2,6,1,3,null,null]`

Output: 1

Explanation:

Note that `root` is a `TreeNode` object, not an array.

The given tree `[4,2,6,1,3,null,null]` is represented by the follow



while the minimum difference in this tree is 1, it occurs between 1 and 2.

Note:

1. The size of the BST will be between 2 and 100 .
2. The BST is always valid, each node's value is an integer, and each node's value is different.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[783-Minimum-Distance-Between-BST-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

784. Letter Case Permutation

Given a string S, we can transform every letter individually to be lowercase or uppercase to create another string. Return a list of all possible strings we could create.

Examples:

Input: S = "a1b2"

Output: ["a1b2", "a1B2", "A1b2", "A1B2"]

Input: S = "3z4"

Output: ["3z4", "3Z4"]

Input: S = "12345"

Output: ["12345"]

Note:

- S will be a string with length between 1 and 12 .
- S will consist only of letters or digits.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[784-Letter-Case-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

785. Is Graph Bipartite?

Given an undirected graph , return true if and only if it is bipartite.

Recall that a graph is *bipartite* if we can split its set of nodes into two independent subsets A and B such that every edge in the graph has one node in A and another node in B.

The graph is given in the following form: `graph[i]` is a list of indexes `j` for which the edge between nodes `i` and `j` exists. Each node is an integer between 0 and `graph.length - 1`. There are no self edges or parallel edges: `graph[i]` does not contain `i`, and it doesn't contain any element twice.

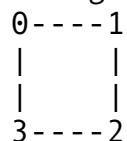
Example 1:

Input: [[1,3], [0,2], [1,3], [0,2]]

Output: true

Explanation:

The graph looks like this:



We can divide the vertices into two groups: {0, 2} and {1, 3}.

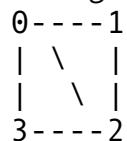
Example 2:

Input: [[1,2,3], [0,2], [0,1,3], [0,2]]

Output: false

Explanation:

The graph looks like this:



We cannot find a way to divide the set of nodes into two independent sets.

Note:

- `graph` will have length in range [1, 100] .
- `graph[i]` will contain integers in range [0, `graph.length - 1`] .
- `graph[i]` will not contain `i` or duplicate values.

- The graph is undirected: if any element j is in `graph[i]`, then i will be in `graph[j]`.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[785-Is-Graph-Bipartite](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

786. K-th Smallest Prime Fraction

A sorted list A contains 1, plus some number of primes. Then, for every $p < q$ in the list, we consider the fraction p/q .

What is the K -th smallest fraction considered? Return your answer as an array of ints, where `answer[0] = p` and `answer[1] = q` .

Examples:

Input: A = [1, 2, 3, 5], K = 3

Output: [2, 5]

Explanation:

The fractions to be considered in sorted order are:

$1/5, 1/3, 2/5, 1/2, 3/5, 2/3$.

The third fraction is $2/5$.

Input: A = [1, 7], K = 1

Output: [1, 7]

Note:

- A will have length between 2 and 2000 .
- Each $A[i]$ will be between 1 and 30000 .
- K will be between 1 and $A.length * (A.length - 1) / 2$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[786-K-th-Smallest-Prime-Fraction](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

787. Cheapest Flights Within K Stops

There are n cities connected by m flights. Each flight starts from city u and arrives at v with a price w .

Now given all the cities and flights, together with starting city src and the destination dst , your task is to find the cheapest price from src to dst with up to k stops. If there is no such route, output -1.

Example 1:

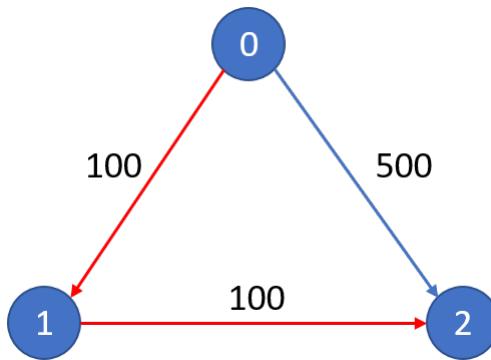
Input:

```
n = 3, edges = [[0,1,100],[1,2,100],[0,2,500]]  
src = 0, dst = 2, k = 1
```

Output: 200

Explanation:

The graph looks like this:



The cheapest price from city 0 to city 2 with at most 1 stop costs 500.

Example 2:

Input:

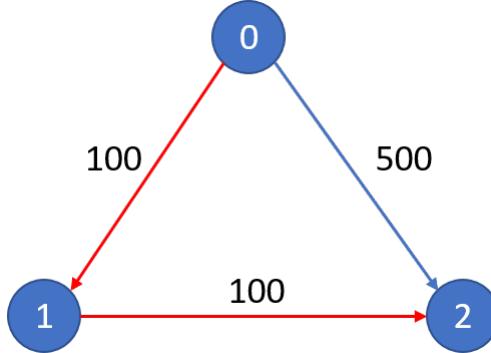
```
n = 3, edges = [[0,1,100],[1,2,100],[0,2,500]]
```

```
src = 0, dst = 2, k = 0
```

Output: 500

Explanation:

The graph looks like this:



The cheapest price from city 0 to city 2 with at most 0 stop costs 500.

Note:

- The number of nodes n will be in range $[1, 100]$, with nodes labeled from 0 to $n - 1$.
- The size of flights will be in range $[0, n * (n - 1) / 2]$.
- The format of each flight will be $(src, dst, price)$.
- The price of each flight will be in the range $[1, 10000]$.
- k is in the range of $[0, n - 1]$.
- There will not be any duplicated flights or self cycles.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[787-Cheapest-Flights-Within-K-Stops](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

788. Rotated Digits

X is a good number if after rotating each digit individually by 180 degrees, we get a valid number that is different from X. Each digit must be rotated - we cannot choose to leave it alone.

A number is valid if each digit remains a digit after rotation. 0, 1, and 8 rotate to themselves; 2 and 5 rotate to each other; 6 and 9 rotate to each other, and the rest of the numbers do not rotate to any other number and become invalid.

Now given a positive number N , how many numbers X from 1 to N are good?

Example:

Input: 10

Output: 4

Explanation:

There are four good numbers in the range [1, 10] : 2, 5, 6, 9.
Note that 1 and 10 are not good numbers, since they remain unchanged.

Note:

- N will be in range [1, 10000].

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[788-Rotated-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

789. Escape The Ghosts

You are playing a simplified Pacman game. You start at the point $(0, 0)$, and your destination is $(\text{target}[0], \text{target}[1])$. There are several ghosts on the map, the i -th ghost starts at $(\text{ghosts}[i][0], \text{ghosts}[i][1])$.

Each turn, you and all ghosts simultaneously *may* move in one of 4 cardinal directions: north, east, west, or south, going from the previous point to a new point 1 unit of distance away.

You escape if and only if you can reach the target before any ghost reaches you (for any given moves the ghosts may take.) If you reach any square (including the target) at the same time as a ghost, it doesn't count as an escape.

Return True if and only if it is possible to escape.

Example 1:

Input:

```
ghosts = [[1, 0], [0, 3]]  
target = [0, 1]
```

Output: true

Explanation:

You can directly reach the destination $(0, 1)$ at time 1, while the ghost at $(1, 0)$ needs to move to $(0, 1)$ at time 2.

Example 2:

Input:

```
ghosts = [[1, 0]]  
target = [2, 0]
```

Output: false

Explanation:

You need to reach the destination $(2, 0)$, but the ghost at $(1, 0)$ needs to move to $(2, 0)$ at time 2.

Example 3:

Input:

```
ghosts = [[2, 0]]  
target = [1, 0]
```

Output: false

Explanation:

The ghost can reach the target at the same time as you.

Note:

- All points have coordinates with absolute value <= 10000 .
- The number of ghosts will not exceed 100 .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[789-Escape-The-Ghosts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

790. Domino and Tromino Tiling

We have two types of tiles: a 2x1 domino shape, and an "L" tromino shape. These shapes may be rotated.

```
XX  <- domino  
XX  <- "L" tromino  
X
```

Given N, how many ways are there to tile a 2 x N board?
Return your answer modulo $10^9 + 7$.

(In a tiling, every square must be covered by a tile. Two tilings are different if and only if there are two 4-directionally adjacent cells on the board such that exactly one of the tilings has both squares occupied by a tile.)

Example:

Input: 3

Output: 5

Explanation:

The five different ways are listed below, different letters indicate different squares.

XYZ XXZ XYY XXY XYY

XYZ YYZ XZZ XYY XXY

Note:

- N will be in range [1, 1000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[790-Domino-and-Tromino-Tiling](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

791. Custom Sort String

S and T are strings composed of lowercase letters. In S , no letter occurs more than once.

S was sorted in some custom order previously. We want to permute the characters of T so that they match the order that S was sorted. More specifically, if x occurs before y in S , then x should occur before y in the returned string.

Return any permutation of T (as a string) that satisfies this property.

Example :

Input:

S = "cba"

T = "abcd"

Output: "cbad"

Explanation:

"a", "b", "c" appear in S, so the order of "a", "b", "c" should be maintained. Since "d" does not appear in S, it can be at any position in T.

Note:

- S has length at most 26 , and no character is repeated in S .

- T has length at most 200 .
- S and T consist of lowercase letters only.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[791-Custom-Sort-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

792. Number of Matching Subsequences

Given string S and a dictionary of words words , find the number of $\text{words}[i]$ that is a subsequence of S .

Example :
Input:
S = "abcde"
words = ["a", "bb", "acd", "ace"]
Output: 3
Explanation: There are three words in words that are a subsequences of S.

Note:

- All words in words and S will only consist of lowercase letters.
- The length of S will be in the range of [1, 50000]
- The length of words will be in the range of [1, 5000].
- The length of words[i] will be in the range of [1, 50].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[792-Number-of-Matching-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

793. Preimage Size of Factorial Zeroes Function

Let $f(x)$ be the number of zeroes at the end of $x!$.
(Recall that $x! = 1 * 2 * 3 * \dots * x$, and by convention, $0! = 1$.)

For example, $f(3) = 0$ because $3! = 6$ has no zeroes at the end, while $f(11) = 2$ because $11! = 39916800$ has 2 zeroes at the end. Given K , find how many non-negative integers x have the property that $f(x) = K$.

Example 1:

Input: $K = 0$

Output: 5

Explanation: $0!, 1!, 2!, 3!,$ and $4!$ end with $K = 0$ zeroes.

Example 2:

Input: $K = 5$

Output: 0

Explanation: There is no x such that $x!$ ends in $K = 5$ zeroes.

Note:

- K will be an integer in the range $[0, 10^9]$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[793-Preimage-Size-of-Factorial-Zeroes-Function](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

794. Valid Tic-Tac-Toe State

A Tic-Tac-Toe board is given as a string array `board` .
Return True if and only if it is possible to reach this board position during the course of a valid tic-tac-toe game.

The `board` is a 3×3 array, and consists of characters " ", "X" , and "O" . The " " character represents an empty square.

Here are the rules of Tic-Tac-Toe:

- Players take turns placing characters into empty squares (" ").
- The first player always places "X" characters, while the second player always places "O" characters.
- "X" and "O" characters are always placed into empty squares, never filled ones.

- The game ends when there are 3 of the same (non-empty) character filling any row, column, or diagonal.
- The game also ends if all squares are non-empty.
- No more moves can be played if the game is over.

Example 1:

Input: board = ["0 ", " ", " "]

Output: false

Explanation: The first player always plays "X".

Example 2:

Input: board = ["XOX", " X ", " "]

Output: false

Explanation: Players take turns making moves.

Example 3:

Input: board = ["XXX", " ", "000"]

Output: false

Example 4:

Input: board = ["XOX", "0 0", "XOX"]

Output: true

Note:

- board is a length-3 array of strings, where each string board[i] has length 3.
- Each board[i][j] is a character in the set {" ", "X", "0"} .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[794-Valid-Tic-Tac-Toe-State](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

795. Number of Subarrays with Bounded Maximum

We are given an array A of positive integers, and two positive integers L and R ($L \leq R$).

Return the number of (contiguous, non-empty) subarrays such that the value of the maximum array element in that subarray is at least L and at most R .

Example :

Input:

A = [2, 1, 4, 3]

L = 2

R = 3

Output: 3

Explanation: There are three subarrays that meet the requirement

Note:

- L, R and A[i] will be an integer in the range [0, 10^9] .
- The length of A will be in the range of [1, 50000]

.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[795-Number-of-Subarrays-with-Bounded-Maximum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

796. Rotate String

We are given two strings, A and B .

A *shift on A* consists of taking string A and moving the leftmost character to the rightmost position. For example, if A = 'abcde' , then it will be 'bcdea' after one shift

on A . Return True if and only if A can become B after some number of shifts on A .

Example 1:

Input: A = 'abcde' , B = 'cdeab'
Output: true

Example 2:

Input: A = 'abcde' , B = 'abced'
Output: false

Note:

- A and B will have length at most 100 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[796-Rotate-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

797. All Paths From Source to Target

Given a directed, acyclic graph of N nodes. Find all possible paths from node 0 to node $N-1$, and return them in any order.

The graph is given as follows: the nodes are $0, 1, \dots, \text{graph.length} - 1$. $\text{graph}[i]$ is a list of all nodes j for which the edge (i, j) exists.

Example:

Input: `[[1,2], [3], [3], []]`

Output: `[[0,1,3],[0,2,3]]`

Explanation: The graph looks like this:

`0--->1`

`| |`

`v v`

`2--->3`

There are two paths: $0 \rightarrow 1 \rightarrow 3$ and $0 \rightarrow 2 \rightarrow 3$.

Note:

- The number of nodes in the graph will be in the range $[2, 15]$.
- You can print different paths in any order, but you should keep the order of nodes inside one path.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[797-All-Paths-From-Source-to-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

798. Smallest Rotation with Highest Score

Given an array A , we may rotate it by a non-negative integer K so that the array becomes A[K] , A[K+1] , A{K+2} , . . . A[A.length - 1] , A[0] , A[1] , . . . , A[K-1] . Afterward, any entries that are less than or equal to their index are worth 1 point.

For example, if we have [2 , 4 , 1 , 3 , 0] , and we rotate by K = 2 , it becomes [1 , 3 , 0 , 2 , 4] . This is worth 3 points because 1 > 0 [no points], 3 > 1 [no points], 0 <= 2 [one point], 2 <= 3 [one point], 4 <= 4 [one point].

Over all possible rotations, return the rotation index K that corresponds to the highest score we could receive. If there are multiple answers, return the smallest such index K.

Example 1:

Input: [2, 3, 1, 4, 0]

Output: 3

Explanation:

Scores for each K are listed below:

K = 0, A = [2,3,1,4,0], score 2

K = 1, A = [3,1,4,0,2], score 3

K = 2, A = [1,4,0,2,3], score 3

K = 3, A = [4,0,2,3,1], score 4

K = 4, A = [0,2,3,1,4], score 3

So we should choose K = 3, which has the highest score.

Example 2:

Input: [1, 3, 0, 2, 4]

Output: 0

Explanation: A will always have 3 points no matter how it shift.

So we will choose the smallest K, which is 0.

Note:

- A will have length at most 20000 .
- A[i] will be in the range [0, A.length] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[798-Smallest-Rotation-with-Highest-Score](#)

All Problems:

[Link to All Problems](#)

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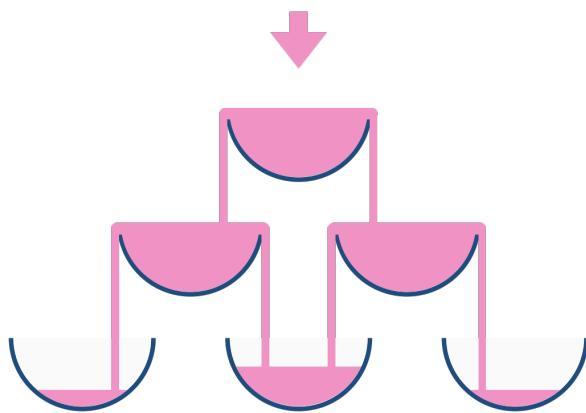
Welcome to Subscribe On Youtube:

799. Champagne Tower

We stack glasses in a pyramid, where the first row has 1 glass, the second row has 2 glasses, and so on until the 100th row. Each glass holds one cup (250ml) of champagne.

Then, some champagne is poured in the first glass at the top. When the top most glass is full, any excess liquid poured will fall equally to the glass immediately to the left and right of it. When those glasses become full, any excess champagne will fall equally to the left and right of those glasses, and so on. (A glass at the bottom row has its excess champagne fall on the floor.)

For example, after one cup of champagne is poured, the top most glass is full. After two cups of champagne are poured, the two glasses on the second row are half full. After three cups of champagne are poured, those two cups become full - there are 3 full glasses total now. After four cups of champagne are poured, the third row has the middle glass half full, and the two outside glasses are a quarter full, as pictured below.



Now after pouring some non-negative integer cups of champagne, return how full the j-th glass in the i-th row is (both i and j are 0 indexed.)

Example 1:

Input: poured = 1, query_glass = 1, query_row = 1

Output: 0.0

Explanation: We poured 1 cup of champagne to the top glass of the first row.

Example 2:

Input: poured = 2, query_glass = 1, query_row = 1

Output: 0.5

Explanation: We poured 2 cups of champagne to the top glass of the first row.

Note:

- poured will be in the range of [0, 10 ^ 9] .
- query_glass and query_row will be in the range of [0, 99] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[799-Champagne-Tower](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

800. Similar RGB Color

In the following, every capital letter represents some hexadecimal digit from 0 to f .

The red-green-blue color "#AABBCC" can be written as "#ABC" in shorthand. For example, "#15c" is shorthand for the color "#1155cc" .

Now, say the similarity between two colors "#ABCDEF" and "#UVWXYZ" is - $(AB - UV)^2 - (CD - WX)^2 - (EF - YZ)^2$.

Given the color "#ABCDEF" , return a 7 character color that is most similar to #ABCDEF , and has a shorthand (that is, it can be represented as some "#XYZ")

Example 1:

Input: color = "#09f166"

Output: "#11ee66"

Explanation:

The similarity is $-(0x09 - 0x11)^2 - (0xf1 - 0xee)^2 - (0x66 - 0x66)^2$. This is the highest among any shorthand color.

Note:

- color is a string of length 7 .

- `color` is a valid RGB color: for $i > 0$, `color[i]` is a hexadecimal digit from `0` to `f`
- Any answer which has the same (highest) similarity as the best answer will be accepted.
- All inputs and outputs should use lowercase letters, and the output is 7 characters.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[800-Similar-RGB-Color](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

801. Minimum Swaps To Make Sequences Increasing

We have two integer sequences A and B of the same non-zero length.

We are allowed to swap elements A[i] and B[i]. Note that both elements are in the same index position in their respective sequences.

At the end of some number of swaps, A and B are both strictly increasing. (A sequence is *strictly increasing* if and only if $A[0] < A[1] < A[2] < \dots < A[A.length - 1]$.)

Given A and B, return the minimum number of swaps to make both sequences strictly increasing. It is guaranteed that the given input always makes it possible.

Example:

Input: A = [1, 3, 5, 4], B = [1, 2, 3, 7]

Output: 1

Explanation:

Swap A[3] and B[3]. Then the sequences are:

A = [1, 3, 5, 7] and B = [1, 2, 3, 4]

which are both strictly increasing.

Note:

- A, B are arrays with the same length, and that length will be in the range [1, 1000].
- A[i], B[i] are integer values in the range [0, 2000].

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[801-Minimum-Swaps-To-Make-Sequences-Increasing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

802. Find Eventual Safe States

In a directed graph, we start at some node and every turn, walk along a directed edge of the graph. If we reach a node that is terminal (that is, it has no outgoing directed edges), we stop.

Now, say our starting node is *eventually safe* if and only if we must eventually walk to a terminal node. More specifically, there exists a natural number K so that for any choice of where to walk, we must have stopped at a terminal node in less than K steps.

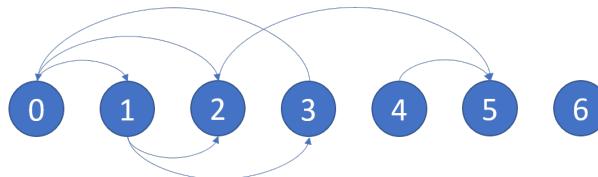
Which nodes are eventually safe? Return them as an array in sorted order.

The directed graph has N nodes with labels $0, 1, \dots, N-1$, where N is the length of `graph`. The graph is given in the following form: `graph[i]` is a list of labels j such that (i, j) is a directed edge of the graph.

Example:

Input: `graph = [[1,2],[2,3],[5],[0],[5],[],[]]`
Output: `[2,4,5,6]`

Here is a diagram of the above graph.



Note:

- `graph` will have length at most 10000 .
- The number of edges in the graph will not exceed 32000 .
- Each `graph[i]` will be a sorted list of different integers, chosen within the range $[0, \text{graph.length} - 1]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[802-Find-Eventual-Safe-States](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

803. Bricks Falling When Hit

We have a grid of 1s and 0s; the 1s in a cell represent bricks. A brick will not drop if and only if it is directly connected to the top of the grid, or at least one of its (4-way) adjacent bricks will not drop.

We will do some erasures sequentially. Each time we want to do the erasure at the location (i, j) , the brick (if it exists) on that location will disappear, and then some other bricks may drop because of that erasure.

Return an array representing the number of bricks that will drop after each erasure in sequence.

Example 1:

Input:

grid = [[1,0,0,0],[1,1,1,0]]

hits = [[1,0]]

Output: [2]

Explanation:

If we erase the brick at $(1, 0)$, the brick at $(1, 1)$ and $(1, 2)$

Example 2:

Input:

```
grid = [[1,0,0,0],[1,1,0,0]]
```

```
hits = [[1,1],[1,0]]
```

```
Output: [0,0]
```

```
Explanation:
```

```
When we erase the brick at (1, 0), the brick at (1, 1) has already
```

Note:

- The number of rows and columns in the grid will be in the range [1, 200].
- The number of erasures will not exceed the area of the grid.
- It is guaranteed that each erasure will be different from any other erasure, and located inside the grid.
- An erasure may refer to a location with no brick - if it does, no bricks drop.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[803-Bricks-Falling-When-Hit](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

804. Unique Morse Code Words

International Morse Code defines a standard encoding where each letter is mapped to a series of dots and dashes, as follows: "a" maps to ". -" , "b" maps to "- . . " , "c" maps to "- . - . " , and so on.

For convenience, the full table for the 26 letters of the English alphabet is given below:

Now, given a list of words, each word can be written as a concatenation of the Morse code of each letter. For example, "cba" can be written as "-.-.-...", (which is the concatenation "-.-." + "-..." + ".-"). We'll call such a concatenation, the transformation of a word.

Return the number of different transformations among all words we have.

Example:

```
Input: words = ["gin", "zen", "gig", "msg"]
Output: 2
```

Explanation:

The transformation of each word is:

```
"gin" -> " - . . - . "
"zen" -> " - . . - . "
"gig" -> " - . . - - . "
"msg" -> " - . . - - . "
```

There are 2 different transformations, "----." and "-----".

Note:

- The length of words will be at most 100 .
 - Each words[i] will have length in range [1, 12].
 - .
 - words[i] will only consist of lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[804-Unique-Morse-Code-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

805. Split Array With Same Average

In a given integer array A, we must move every element of A to either list B or list C. (B and C initially start empty.)

Return true if and only if after such a move, it is possible that the average value of B is equal to the average value of C, and B and C are both non-empty.

Example :

Input:

[1,2,3,4,5,6,7,8]

Output: true

Explanation: We can split the array into [1,4,5,8] and [2,3,6,7]

Note:

- The length of A will be in the range [1, 30].
- A[i] will be in the range of [0, 10000] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[805-Split-Array-With-Same-Average](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

806. Number of Lines To Write String

We are to write the letters of a given string S , from left to right into lines. Each line has maximum width 100 units, and if writing a letter would cause the width of the line to exceed 100 units, it is written on the next line. We are given an array widths , an array where $\text{widths}[0]$ is the width of 'a', $\text{widths}[1]$ is the width of 'b', ..., and $\text{widths}[25]$ is the width of 'z'.

Now answer two questions: how many lines have at least one character from S , and what is the width used by the last such line? Return your answer as an integer list of length 2.

Example :

Input:

$\text{widths} = [10, 10]$,
 $S = "abcdefghijklmnopqrstuvwxyz"$

Output: [3, 60]

Explanation:

All letters have the same length of 10. To write all 26 letters, we need two full lines and one line with 60 units.

Example :

Input:

$\text{widths} = [4, 10]$,
 $S = "bbbcccccdddaaa"$

Output: [2, 4]

Explanation:

All letters except 'a' have the same length of 10, and "bbbcccccdddaa" will cover $9 * 10 + 2 * 4 = 98$ units.

For the last 'a', it is written on the second line because there is only 2 units left in the first line.

So the answer is 2 lines, plus 4 units in the second line.

Note:

- The length of S will be in the range [1, 1000].
- S will only contain lowercase letters.
- widths is an array of length 26 .
- $\text{widths}[i]$ will be in the range of [2, 10] .

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[806-Number-of-Lines-To-Write-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

807. Max Increase to Keep City Skyline

In a 2 dimensional array `grid` , each value `grid[i][j]` represents the height of a building located there. We are allowed to increase the height of any number of buildings, by any amount (the amounts can be different

for different buildings). Height 0 is considered to be a building as well.

At the end, the "skyline" when viewed from all four directions of the grid, i.e. top, bottom, left, and right, must be the same as the skyline of the original grid. A city's skyline is the outer contour of the rectangles formed by all the buildings when viewed from a distance. See the following example.

What is the maximum total sum that the height of the buildings can be increased?

Example:

Input: grid = [[3,0,8,4],[2,4,5,7],[9,2,6,3],[0,3,1,0]]

Output: 35

Explanation:

The grid is:

```
[ [3, 0, 8, 4],  
  [2, 4, 5, 7],  
  [9, 2, 6, 3],  
  [0, 3, 1, 0] ]
```

The skyline viewed from top or bottom is: [9, 4, 8, 7]

The skyline viewed from left or right is: [8, 7, 9, 3]

The grid after increasing the height of buildings without affect

```
gridNew = [ [8, 4, 8, 7],  
            [7, 4, 7, 7],  
            [9, 4, 8, 7],  
            [3, 3, 3, 3] ]
```

Notes:

- $1 < \text{grid.length} = \text{grid[0].length} \leq 50$.
- All heights grid[i][j] are in the range $[0, 100]$.
- All buildings in grid[i][j] occupy the entire grid cell: that is, they are a $1 \times 1 \times \text{grid[i][j]}$ rectangular prism.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[807-Max-Increase-to-Keep-City-Skyline](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

808. Soup Servings

There are two types of soup: type A and type B. Initially we have N ml of each type of soup. There are four kinds of operations:

1. Serve 100 ml of soup A and 0 ml of soup B
2. Serve 75 ml of soup A and 25 ml of soup B
3. Serve 50 ml of soup A and 50 ml of soup B
4. Serve 25 ml of soup A and 75 ml of soup B

When we serve some soup, we give it to someone and we no longer have it. Each turn, we will choose from the

four operations with equal probability 0.25. If the remaining volume of soup is not enough to complete the operation, we will serve as much as we can. We stop once we no longer have some quantity of both types of soup.

Note that we do not have the operation where all 100 ml's of soup B are used first.

Return the probability that soup A will be empty first, plus half the probability that A and B become empty at the same time.

Example:

Input: N = 50

Output: 0.625

Explanation:

If we choose the first two operations, A will become empty first

Notes:

- $0 \leq N \leq 10^9$.
- Answers within 10^{-6} of the true value will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[808-Soup-Servings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

809. Expressive Words

Sometimes people repeat letters to represent extra feeling, such as "hello" -> "heeellooo", "hi" -> "hiiii". In these strings like "heeellooo", we have *groups* of adjacent letters that are all the same: "h", "eee", "ll", "ooo".

For some given string S , a query word is *stretchy* if it can be made to be equal to S by any number of applications of the following *extension* operation: choose a group consisting of characters c , and add some number of characters c to the group so that the size of the group is 3 or more.

For example, starting with "hello", we could do an extension on the group "o" to get "hellooo", but we cannot get "heloo" since the group "oo" has size less than 3. Also, we could do another extension like "ll" -> "llll" to get "helllllooo". If $S = \text{"helllllooo"}$, then the query word "hello" would be stretchy because of these two extension operations: $\text{query} = \text{"hello"} \rightarrow \text{"hellooo"} \rightarrow \text{"helllllooo"} = S$.

Given a list of query words, return the number of words that are stretchy.

Example:

Input:

$S = \text{"heeellooo"}$

```
words = ["hello", "hi", "heolo"]
Output: 1
Explanation:
We can extend "e" and "o" in the word "hello" to get "heeellooo"
We can't extend "heolo" to get "heeellooo" because the group "ll"
```

Notes:

- $0 \leq \text{len}(S) \leq 100$.
- $0 \leq \text{len}(\text{words}) \leq 100$.
- $0 \leq \text{len}(\text{words}[i]) \leq 100$.
- S and all words in words consist only of lowercase letters

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[809-Expressive-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

810. Chalkboard XOR Game

We are given non-negative integers $\text{nums}[i]$ which are written on a chalkboard. Alice and Bob take turns erasing exactly one number from the chalkboard, with Alice starting first. If erasing a number causes the bitwise XOR of all the elements of the chalkboard to become 0, then that player loses. (Also, we'll say the bitwise XOR of one element is that element itself, and the bitwise XOR of no elements is 0.)

Also, if any player starts their turn with the bitwise XOR of all the elements of the chalkboard equal to 0, then that player wins.

Return True if and only if Alice wins the game, assuming both players play optimally.

Example:

Input: $\text{nums} = [1, 1, 2]$

Output: false

Explanation:

Alice has two choices: erase 1 or erase 2.

If she erases 1, the nums array becomes $[1, 2]$. The bitwise XOR of $[1, 2]$ is 3, which is not 0.

If Alice erases 2 first, now nums becomes $[1, 1]$. The bitwise XOR of $[1, 1]$ is 0, so Alice loses.

Notes:

- $1 \leq N \leq 1000$.
- $0 \leq \text{nums}[i] \leq 2^{16}$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[**810-Chalkboard-XOR-Game**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

811. Subdomain Visit Count

A website domain like "discuss.leetcode.com" consists of various subdomains. At the top level, we have "com", at the next level, we have "leetcode.com", and at the lowest level, "discuss.leetcode.com". When we visit a domain like "discuss.leetcode.com", we will also visit the parent domains "leetcode.com" and "com" implicitly.

Now, call a "count-paired domain" to be a count (representing the number of visits this domain received), followed by a space, followed by the address. An example of a count-paired domain might be "9001 discuss.leetcode.com".

We are given a list cpdomains of count-paired domains. We would like a list of count-paired domains, (in the same format as the input, and in any order), that explicitly counts the number of visits to each subdomain.

Example 1:

Input:

["9001 discuss.leetcode.com"]

Output:

["9001 discuss.leetcode.com", "9001 leetcode.com", "9001 com"]

Explanation:

We only have one website domain: "discuss.leetcode.com". As disc

Example 2:

Input:

["900 google.mail.com", "50 yahoo.com", "1 intel.mail.com", "5 w

Output:

["901 mail.com", "50 yahoo.com", "900 google.mail.com", "5 wiki.org

Explanation:

We will visit "google.mail.com" 900 times, "yahoo.com" 50 times,

Notes:

- The length of cpdomains will not exceed 100 .
- The length of each domain name will not exceed 100 .
- Each address will have either 1 or 2 "." characters.
- The input count in any count-paired domain will not exceed 10000 .
- The answer output can be returned in any order.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[811-Subdomain-Visit-Count](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

812. Largest Triangle Area

You have a list of points in the plane. Return the area of the largest triangle that can be formed by any 3 of the points.

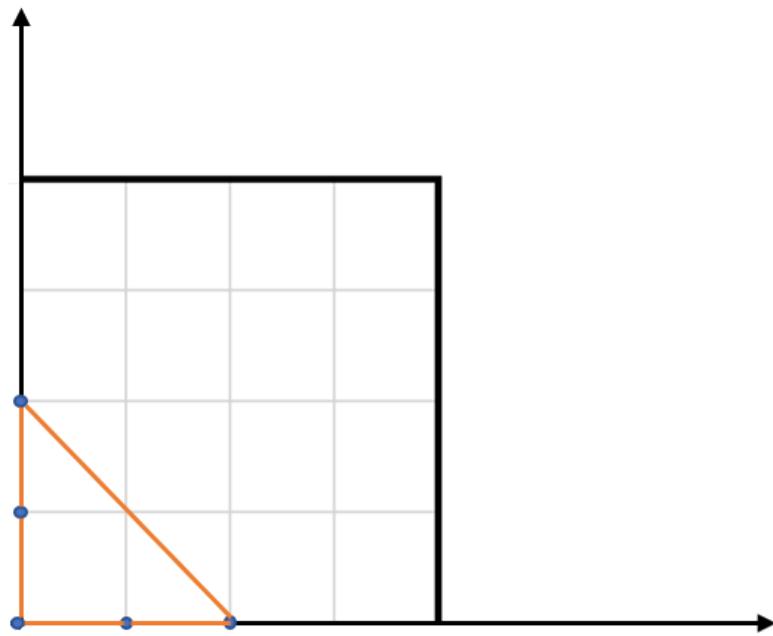
Example:

Input: points = [[0,0],[0,1],[1,0],[0,2],[2,0]]

Output: 2

Explanation:

The five points are show in the figure below. The red triangle is



Notes:

- $3 \leq \text{points.length} \leq 50$.
- No points will be duplicated.
- $-50 \leq \text{points}[i][j] \leq 50$.
- Answers within 10^{-6} of the true value will be accepted as correct.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[812-Largest-Triangle-Area](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

813. Largest Sum of Averages

We partition a row of numbers A into at most K adjacent (non-empty) groups, then our score is the sum of the average of each group. What is the largest score we can achieve?

Note that our partition must use every number in A , and that scores are not necessarily integers.

Example:

Input:

$A = [9, 1, 2, 3, 9]$

$K = 3$

Output: 20

Explanation:

The best choice is to partition A into $[9]$, $[1, 2, 3]$, $[9]$. The We could have also partitioned A into $[9, 1]$, $[2]$, $[3, 9]$, for example. That partition would lead to a score of $9 + 2 + 6 = 17$, which is less than 20.

Note:

- $1 \leq A.length \leq 100$.
- $1 \leq A[i] \leq 10000$.
- $1 \leq K \leq A.length$.
- Answers within 10^{-6} of the correct answer will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[813-Largest-Sum-of-Averages](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

814. Binary Tree Pruning

We are given the head node `root` of a binary tree, where additionally every node's value is either a 0 or a 1.

Return the same tree where every subtree (of the given tree) not containing a 1 has been removed.

(Recall that the subtree of a node X is X, plus every node that is a descendant of X.)

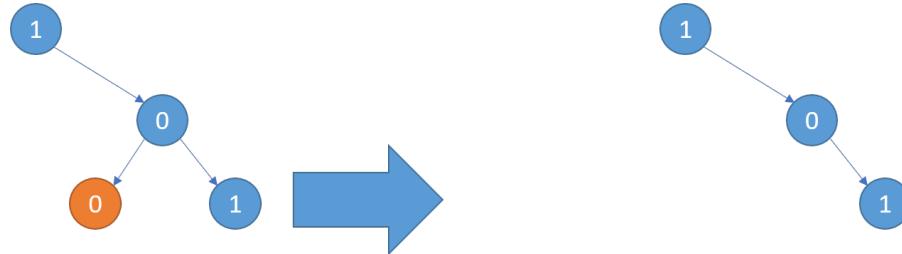
Example 1:

Input: [1,null,0,0,1]

Output: [1,null,0,null,1]

Explanation:

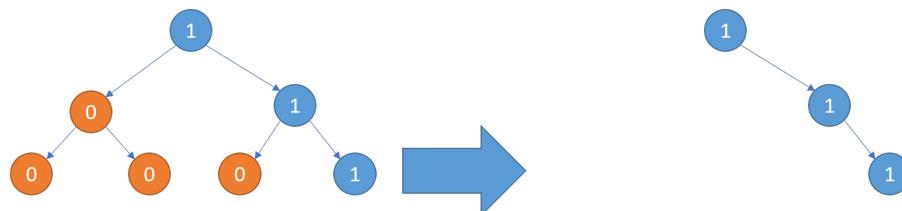
Only the red nodes satisfy the property "every subtree not containing a red node is a complete binary tree".
The diagram on the right represents the answer.



Example 2:

Input: [1,0,1,0,0,0,1]

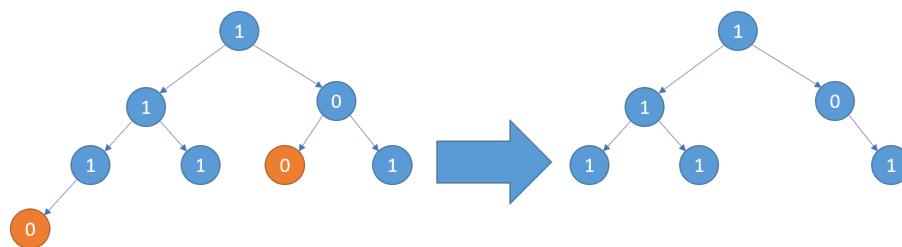
Output: [1,null,1,null,1]



Example 3:

Input: [1,1,0,1,1,0,1,0]

Output: [1,1,0,1,1,null,1]



Note:

- The binary tree will have at most 100 nodes .
- The value of each node will only be 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[814-Binary-Tree-Pruning](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

815. Bus Routes

We have a list of bus routes. Each `routes[i]` is a bus route that the `i`-th bus repeats forever. For example if `routes[0] = [1, 5, 7]`, this means that the first bus (0-th indexed) travels in the sequence `1->5->7->1->...` forever.

We start at bus stop `S` (initially not on a bus), and we want to go to bus stop `T`. Travelling by buses only, what is the least number of buses we must take to reach our destination? Return `-1` if it is not possible.

Example:
Input:
routes = [[1, 2, 7], [3, 6, 7]]
S = 1
T = 6
Output: 2
Explanation:
The best strategy is take the first bus to the bus stop 7, then

Note:

- $1 \leq \text{routes.length} \leq 500$.
- $1 \leq \text{routes[i].length} \leq 500$.
- $0 \leq \text{routes[i][j]} < 10^6$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[815-Bus-Routes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

816. Ambiguous Coordinates

We had some 2-dimensional coordinates, like "(1, 3)" or "(2, 0.5)". Then, we removed all commas, decimal points, and spaces, and ended up with the string S . Return a list of strings representing all possibilities for what our original coordinates could have been.

Our original representation never had extraneous zeroes, so we never started with numbers like "00", "0.0", "0.00", "1.0", "001", "00.01", or any other number that can be represented with less digits. Also, a decimal point within a number never occurs without at least one digit occurring before it, so we never started with numbers like ".1".

The final answer list can be returned in any order. Also note that all coordinates in the final answer have exactly one space between them (occurring after the comma.)

Example 1:

Input: "(123)"

Output: ["(1, 23)", "(12, 3)", "(1.2, 3)", "(1, 2.3)"]

Example 2:

Input: "(00011)"

Output: ["(0.001, 1)", "(0, 0.011)"]

Explanation:

0.0, 00, 0001 or 00.01 are not allowed.

Example 3:

Input: "(0123)"

Output: ["(0, 123)", "(0, 12.3)", "(0, 1.23)", "(0.1, 23)", "(0.12, 3)"]

Example 4:

Input: "(100)"

Output: [(10, 0)]

Explanation:

1.0 is not allowed.

Note:

- $4 \leq S.length \leq 12$.

- $S[0] = "(", S[S.length - 1] = ")"$, and the other elements in S are digits.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**816-Ambiguous-Coordinates**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

817. Linked List Components

We are given `head` , the head node of a linked list containing **unique integer values** .

We are also given the list G , a subset of the values in the linked list.

Return the number of connected components in G , where two values are connected if they appear consecutively in the linked list.

Example 1:

Input:

head: 0->1->2->3

G = [0, 1, 3]

Output: 2

Explanation:

0 and 1 are connected, so [0, 1] and [3] are the two connected components.

Example 2:

Input:

head: 0->1->2->3->4

G = [0, 3, 1, 4]

Output: 2

Explanation:

0 and 1 are connected, 3 and 4 are connected, so [0, 1] and [3, 4] are the two connected components.

Note:

- If N is the length of the linked list given by head , 1 $\leq N \leq 10000$.
- The value of each node in the linked list will be in the range $[0, N - 1]$.
- $1 \leq G.length \leq 10000$.
- G is a subset of all values in the linked list.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[817-Linked-List-Components](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

818. Race Car

Your car starts at position 0 and speed +1 on an infinite number line. (Your car can go into negative positions.)

Your car drives automatically according to a sequence of instructions A (accelerate) and R (reverse).

When you get an instruction "A", your car does the following: `position += speed`, `speed *= 2`.

When you get an instruction "R", your car does the following: if your speed is positive then `speed = -1`, otherwise `speed = 1`. (Your position stays the same.)

For example, after commands "AAR", your car goes to positions 0->1->3->3, and your speed goes to 1->2->4->-1.

Now for some target position, say the **length** of the shortest sequence of instructions to get there.

Example 1:
Input:
target = 3
Output: 2
Explanation:
The shortest instruction sequence is "AA".
Your position goes from 0->1->3.

Example 2:
Input:
target = 6
Output: 5
Explanation:
The shortest instruction sequence is "AAARA".
Your position goes from 0->1->3->7->7->6.

Note:

- $1 \leq \text{target} \leq 10000$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[818-Race-Car](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

819. Most Common Word

Given a paragraph and a list of banned words, return the most frequent word that is not in the list of banned words. It is guaranteed there is at least one word that isn't banned, and that the answer is unique.

Words in the list of banned words are given in lowercase, and free of punctuation. Words in the paragraph are not case sensitive. The answer is in lowercase.

Example:

Input:

```
paragraph = "Bob hit a ball, the hit BALL flew far after it was
```

```
banned = ["hit"]
```

Output: "ball"

Explanation:

"hit" occurs 3 times, but it is a banned word.

"ball" occurs twice (and no other word does), so it is the most

Note that words in the paragraph are not case sensitive, that punctuation is ignored (even if adjacent to words, such as and that "hit" isn't the answer even though it occurs more because

Note:

- $1 \leq \text{paragraph.length} \leq 1000$.
- $0 \leq \text{banned.length} \leq 100$.
- $1 \leq \text{banned}[i].length \leq 10$.
- The answer is unique, and written in lowercase (even if its occurrences in paragraph may have uppercase symbols, and even if it is a proper noun.)
- paragraph only consists of letters, spaces, or the punctuation symbols !? ', ; .
- There are no hyphens or hyphenated words.

- Words only consist of letters, never apostrophes or other punctuation symbols.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[819-Most-Common-Word](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

820. Short Encoding of Words

Given a list of words, we may encode it by writing a reference string S and a list of indexes A .

For example, if the list of words is ["time", "me", "bell"] , we can write it as S = "time#bell#" and indexes = [0, 2, 5] .

Then for each index, we will recover the word by reading from the reference string from that index until we reach a "#" character.

What is the length of the shortest reference string S possible that encodes the given words?

Example:

Input: words = ["time", "me", "bell"]

Output: 10

Explanation: S = "time#bell#" and indexes = [0, 2, 5].

Note:

1. $1 \leq \text{words.length} \leq 2000$.
2. $1 \leq \text{words[i].length} \leq 7$.
3. Each word has only lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[820-Short-Encoding-of-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

821. Shortest Distance to a Character

Given a string S and a character C , return an array of integers representing the shortest distance from the character C in the string.

Example 1:

Input: S = "loveleetcode" , C = 'e'
Output: [3, 2, 1, 0, 1, 0, 0, 1, 2, 2, 1, 0]

Note:

1. S string length is in [1, 10000] .
2. C is a single character, and guaranteed to be in string S .
3. All letters in S and C are lowercase.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[821-Shortest-Distance-to-a-Character](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

822. Card Flipping Game

On a table are N cards, with a positive integer printed on the front and back of each card (possibly different).

We flip any number of cards, and after we choose one card.

If the number X on the back of the chosen card is not on the front of any card, then this number X is good.

What is the smallest number that is good? If no number is good, output 0 .

Here, $\text{fronts}[i]$ and $\text{backs}[i]$ represent the number on the front and back of card i .

A flip swaps the front and back numbers, so the value on the front is now on the back and vice versa.

Example:

Input: fronts = [1,2,4,4,7], backs = [1,3,4,1,3]
Output: 2
Explanation: If we flip the second card, the fronts are [1,3,4,4,7]. We choose the second card, which has number 2 on the back, and it is even.

Note:

1. `1 <= fronts.length == backs.length <= 1000 .`
2. `1 <= fronts[i] <= 2000 .`
3. `1 <= backs[i] <= 2000 .`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[822-Card-Flipping-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

823. Binary Trees With Factors

Given an array of unique integers, each integer is strictly greater than 1.

We make a binary tree using these integers and each number may be used for any number of times.

Each non-leaf node's value should be equal to the product of the values of it's children.

How many binary trees can we make? Return the answer **modulo 10 ** 9 + 7**.

Example 1:

Input: A = [2, 4]

Output: 3

Explanation: We can make these trees: [2], [4], [4, 2, 2]

Example 2:

Input: A = [2, 4, 5, 10]

Output: 7

Explanation: We can make these trees: [2], [4], [5], [10], [4, 2, 2, 5]

Note:

1. $1 \leq A.length \leq 1000$.

2. $2 \leq A[i] \leq 10^9$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[823-Binary-Trees-With-Factors](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

824. Goat Latin

A sentence S is given, composed of words separated by spaces. Each word consists of lowercase and uppercase letters only.

We would like to convert the sentence to "*Goat Latin*" (a made-up language similar to Pig Latin.)

The rules of Goat Latin are as follows:

- If a word begins with a vowel (a, e, i, o, or u), append "ma" to the end of the word.
For example, the word 'apple' becomes 'applema'.
- If a word begins with a consonant (i.e. not a vowel), remove the first letter and append it to the end, then add "ma".
For example, the word "goat" becomes "oatgma".
- Add one letter 'a' to the end of each word per its word index in the sentence, starting with 1.
For example, the first word gets "a" added to the

end, the second word gets "aa" added to the end and so on.

Return the final sentence representing the conversion from S to Goat Latin.

Example 1:

Input: "I speak Goat Latin"

Output: "Imaa peaksmaaa oatGmaaaa atinLmaaaaa"

Example 2:

Input: "The quick brown fox jumped over the lazy dog"

Output: "heTmaa uickqmaaa rownbmaaaa oxfmaaaaa umpedjmaaaaaa ove

Notes:

- S contains only uppercase, lowercase and spaces. Exactly one space between each word.
- $1 \leq S.length \leq 150$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[824-Goat-Latin](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

825. Friends Of Appropriate Ages

Some people will make friend requests. The list of their ages is given and `ages[i]` is the age of the `i`th person.

Person A will NOT friend request person B (`B != A`) if any of the following conditions are true:

- `age[B] <= 0.5 * age[A] + 7`
- `age[B] > age[A]`
- `age[B] > 100 && age[A] < 100`

Otherwise, A will friend request B.

Note that if A requests B, B does not necessarily request A. Also, people will not friend request themselves.

How many total friend requests are made?

Example 1:

Input: [16, 16]

Output: 2

Explanation: 2 people friend request each other.

Example 2:

Input: [16, 17, 18]

Output: 2

Explanation: Friend requests are made 17 -> 16, 18 -> 17.

Example 3:

Input: [20, 30, 100, 110, 120]

Output:

Explanation: Friend requests are made 110 -> 100, 120 -> 110, 120 -> 20, 30 -> 20, 30 -> 100.

Notes:

- $1 \leq \text{ages.length} \leq 20000$.
- $1 \leq \text{ages}[i] \leq 120$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[825-Friends-Of-Appropriate-Ages](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

826. Most Profit Assigning Work

We have jobs: `difficulty[i]` is the difficulty of the i th job, and `profit[i]` is the profit of the i th job.

Now we have some workers. `worker[i]` is the ability of the i th worker, which means that this worker can only complete a job with difficulty at most `worker[i]`.

Every worker can be assigned at most one job, but one job can be completed multiple times.

For example, if 3 people attempt the same job that pays \$1, then the total profit will be \$3. If a worker cannot complete any job, his profit is \$0.

What is the most profit we can make?

Example 1:

Input: `difficulty = [2,4,6,8,10]`, `profit = [10,20,30,40,50]`, `worker = [4,4,6,6]`

Output: 100

Explanation: Workers are assigned jobs of difficulty [4,4,6,6] and profit [20,30,40,40].

Notes:

- $1 \leq \text{difficulty.length} = \text{profit.length} \leq 10000$
- $1 \leq \text{worker.length} \leq 10000$
- $\text{difficulty}[i]$, $\text{profit}[i]$, $\text{worker}[i]$ are in range $[1, 10^5]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[826-Most-Profit-Assigning-Work](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

827. Making A Large Island

In a 2D grid of 0's and 1's, we change at most one 0 to a 1.

After, what is the size of the largest island? (An island is a 4-directionally connected group of 1's).

Example 1:

Input: [[1, 0], [0, 1]]
Output: 3

Explanation: Change one 0 to 1 and connect two 1s, then we get a

Example 2:

Input: [[1, 1], [1, 0]]
Output: 4

Explanation: Change the 0 to 1 and make the island bigger, only

Example 3:

```
Input: [[1, 1], [1, 1]]
Output: 4
Explanation: Can't change any 0 to 1, only one island with area 4.
```

Notes:

- $1 \leq \text{grid.length} = \text{grid[0].length} \leq 50$.
- $0 \leq \text{grid[i][j]} \leq 1$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[827-Making-A-Large-Island](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

828. Unique Letter String

A character is unique in string S if it occurs exactly once in it.

For example, in string $S = "LETTER"$, the only unique characters are "L" and "R".

Let's define $\text{UNIQ}(S)$ as the number of unique characters in string S .

For example, $\text{UNIQ}("LETTER") = 2$.

Given a string S with only upercases, calculate the sum of $\text{UNIQ}(\text{substring})$ over all non-empty substrings of S .

If there are two or more equal substrings at different positions in S , we consider them different.

Since the answer can be very large, return the answer modulo $10^9 + 7$.

Example 1:

Input: "ABC"

Output: 10

Explanation: All possible substrings are: "A", "B", "C", "AB", "BC". Every substring is composed with only unique letters.

Sum of lengths of all substring is $1 + 1 + 1 + 2 + 2 + 3 = 10$

Example 2:

Input: "ABA"

Output: 8

Explanation: The same as example 1, except $\text{uni}("ABA") = 1$.

Note: $0 \leq S.length \leq 10000$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[828-Count-Unique-Characters-of-All-Substrings-of-a-Given-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

829. Consecutive Numbers Sum

Given a positive integer N , how many ways can we write it as a sum of consecutive positive integers?

Example 1:

Input: 5
Output: 2
Explanation: $5 = 5 = 2 + 3$

Example 2:

Input: 9
Output: 3
Explanation: $9 = 9 = 4 + 5 = 2 + 3 + 4$

Example 3:

Input: 15
Output: 4
Explanation: $15 = 15 = 8 + 7 = 4 + 5 + 6 = 1 + 2 + 3 + 4 + 5$

Note: $1 \leq N \leq 10^9$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[829-Consecutive-Numbers-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

830. Positions of Large Groups

In a string S of lowercase letters, these letters form consecutive groups of the same character.

For example, a string like $S = "abbxxxxzzy"$ has the groups "a" , "bb" , "xxxx" , "z" and "yy" .

Call a group *large* if it has 3 or more characters. We would like the starting and ending positions of every large group.

The final answer should be in lexicographic order.

Example 1:

Input: "abbxxxxzzy"

Output: [[3,6]]

Explanation: "xxxx" is the single large group with starting 3 and ending 6.

Example 2:

Input: "abc"

Output: []

Explanation: We have "a", "b" and "c" but no large group.

Example 3:

Input: "abddddeeeeabbcd"

Output: [[3,5],[6,9],[12,14]]

Note: $1 \leq S.length \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[830-Positions-of-Large-Groups](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

831. Masking Personal Information

We are given a personal information string S , which may represent either **an email address or a phone number**.

We would like to mask this personal information according to the following rules:

1. Email address:

We define a **name** to be a string of $\text{length } \geq 2$ consisting of only lowercase letters a-z or uppercase letters A-Z .

An email address starts with a name, followed by the symbol '@' , followed by a name, followed by the dot '.' and followed by a name.

All email addresses are guaranteed to be valid and in the format of "name1@name2.name3".

To mask an email, **all names must be converted to lowercase** and **all letters between the first and last letter of the first name must be replaced by 5 asterisks**

'*' .

2. Phone number:

A phone number is a string consisting of only the digits 0-9 or the characters from the set { '+', '- ', '(' , ')' , ' ' }. You may assume a phone number contains 10 to 13 digits.

The last 10 digits make up the local number, while the digits before those make up the country code. Note that the country code is optional. We want to expose only the last 4 digits and mask all other digits.

The local number should be formatted and masked as "***-***-1111", where 1 represents the exposed digits.

To mask a phone number with country code like "+111 111 1111", we write it in the form "+***-***-***-1111". The '+' sign and the first '-' sign before the local number should only exist if there is a country code. For example, a 12 digit phone number mask should start with "+**-".

Note that extraneous characters like "(", ")", " " , as well as extra dashes or plus signs not part of the above formatting scheme should be removed.

Return the correct "mask" of the information provided.

Example 1:

Input: "LeetCode@LeetCode.com"

Output: "l*****e@leetcode.com"

Explanation: All names are converted to lowercase, and the letter first and last letter of the first name is replaced Therefore, "leetcode" -> "l*****e".

Example 2:

Input: "AB@qq.com"
Output: "a*****b@qq.com"

Explanation: There must be 5 asterisks between the first and last characters of the first name "ab". Therefore, "ab" -> "a*****b"

Example 3:

Input: "1(234)567-890"
Output: "***-***-7890"

Explanation: 10 digits in the phone number, which means all digits

Example 4:

Input: "86-(10)12345678"
Output: "+**-***-***-5678"

Explanation: 12 digits, 2 digits for country code and 10 digits

Notes:

1. S.length <= 40 .
2. Emails have length at least 8.
3. Phone numbers have length at least 10.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[831-Masking-Personal-Information](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

832. Flipping an Image

Given a binary matrix A , we want to flip the image horizontally, then invert it, and return the resulting image.

To flip an image horizontally means that each row of the image is reversed. For example, flipping $[1, 1, 0]$ horizontally results in $[0, 1, 1]$.

To invert an image means that each 0 is replaced by 1 , and each 1 is replaced by 0 . For example, inverting $[0, 1, 1]$ results in $[1, 0, 0]$.

Example 1:

Input: $[[1,1,0],[1,0,1],[0,0,0]]$

Output: $[[1,0,0],[0,1,0],[1,1,1]]$

Explanation: First reverse each row: $[[0,1,1],[1,0,1],[0,0,0]]$. Then, invert the image: $[[1,0,0],[0,1,0],[1,1,1]]$

Example 2:

Input: $[[1,1,0,0],[1,0,0,1],[0,1,1,1],[1,0,1,0]]$

Output: $[[1,1,0,0],[0,1,1,0],[0,0,0,1],[1,0,1,0]]$

Explanation: First reverse each row: $[[0,0,1,1],[1,0,0,1],[1,1,1,0]]$. Then invert the image: $[[1,1,0,0],[0,1,1,0],[0,0,0,1],[1,0,1,0]]$

Notes:

- $1 \leq A.length = A[0].length \leq 20$
- $0 \leq A[i][j] \leq 1$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[832-Flipping-an-Image](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

833. Find And Replace in String

To some string S , we will perform some replacement operations that replace groups of letters with new ones (not necessarily the same size).

Each replacement operation has 3 parameters: a starting index i , a source word x and a target word y . The rule is that if x starts at position i in the **original string** S , then we will replace that occurrence of x with y . If not, we do nothing.

For example, if we have $S = "abcd"$ and we have some replacement operation $i = 2$, $x = "cd"$, $y = "ffff"$, then because "cd" starts at position 2 in the original string S , we will replace it with "ffff".

Using another example on $S = "abcd"$, if we have both the replacement operation $i = 0$, $x = "ab"$, $y = "eee"$, as well as another replacement operation $i = 2$, $x = "ec"$, $y = "ffff"$, this second operation does nothing because in the original string $S[2] = 'c'$, which doesn't match $x[0] = 'e'$.

All these operations occur simultaneously. It's guaranteed that there won't be any overlap in replacement: for example, $S = "abc"$, $\text{indexes} = [0, 1]$, $\text{sources} = ["ab", "bc"]$ is not a valid test case.

Example 1:

Input: $S = "abcd"$, $\text{indexes} = [0, 2]$, $\text{sources} = ["a", "cd"]$, target
Output: "eeebffff"
Explanation: "a" starts at index 0 in S , so it's replaced by "ee"
"cd" starts at index 2 in S , so it's replaced by "ffff".

Example 2:

Input: $S = "abcd"$, $\text{indexes} = [0, 2]$, $\text{sources} = ["ab", "ec"]$, target
Output: "eeecd"
Explanation: "ab" starts at index 0 in S , so it's replaced by "ee"
"ec" doesn't start at index 2 in the original S , so we do nothing.

Notes:

1. $0 \leq \text{indexes.length} = \text{sources.length} \leq 100$
2. $0 < \text{indexes}[i] < S.length \leq 1000$
3. All characters in given inputs are lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[833-Find-And-Replace-in-String](#)

All Problems:

[Link to All Problems](#)

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834. Sum of Distances in Tree

An undirected, connected tree with N nodes labelled 0...N-1 and N-1 edges are given.

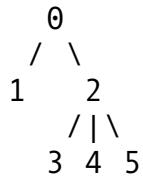
The i th edge connects nodes edges[i][0] and edges[i][1] together.

Return a list ans , where ans[i] is the sum of the distances between node i and all other nodes.

Example 1:

Input: N = 6, edges = [[0,1],[0,2],[2,3],[2,4],[2,5]]
Output: [8,12,6,10,10,10]
Explanation:

Here is a diagram of the given tree:



We can see that $\text{dist}(0,1) + \text{dist}(0,2) + \text{dist}(0,3) + \text{dist}(0,4) + \text{dist}(0,5)$ equals $1 + 1 + 2 + 2 + 2 = 8$. Hence, $\text{answer}[0] = 8$, and so on.

Note: $1 \leq N \leq 10000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[834-Sum-of-Distances-in-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

835. Image Overlap

Two images A and B are given, represented as binary, square matrices of the same size. (A binary matrix has only 0s and 1s as values.)

We translate one image however we choose (sliding it left, right, up, or down any number of units), and place it on top of the other image. After, the *overlap* of this translation is the number of positions that have a 1 in both images.

(Note also that a translation does **not** include any kind of rotation.)

What is the largest possible overlap?

Example 1:

```
Input: A = [[1,1,0],  
           [0,1,0],  
           [0,1,0]]  
      B = [[0,0,0],  
           [0,1,1],  
           [0,0,1]]
```

Output: 3

Explanation: We slide A to right by 1 unit and down by 1 unit.

Notes:

1. $1 \leq A.length = A[0].length = B.length = B[0].length \leq 30$
2. $0 \leq A[i][j], B[i][j] \leq 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[835-Image-Overlap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

836. Rectangle Overlap

A rectangle is represented as a list $[x_1, y_1, x_2, y_2]$, where (x_1, y_1) are the coordinates of its bottom-left corner, and (x_2, y_2) are the coordinates of its top-right corner.

Two rectangles overlap if the area of their intersection is positive. To be clear, two rectangles that only touch at the corner or edges do not overlap.

Given two (axis-aligned) rectangles, return whether they overlap.

Example 1:

Input: `rec1 = [0,0,2,2], rec2 = [1,1,3,3]`
Output: true

Example 2:

Input: rec1 = [0,0,1,1], rec2 = [1,0,2,1]
Output: false

Notes:

1. Both rectangles `rec1` and `rec2` are lists of 4 integers.
2. All coordinates in rectangles will be between -10^9 and 10^9 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[836-Rectangle-Overlap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

837. New 21 Game

Alice plays the following game, loosely based on the card game "21".

Alice starts with 0 points, and draws numbers while she has less than K points. During each draw, she gains an integer number of points randomly from the range $[1, W]$, where W is an integer. Each draw is independent and the outcomes have equal probabilities.

Alice stops drawing numbers when she gets K or more points. What is the probability that she has N or less points?

Example 1:

Input: $N = 10$, $K = 1$, $W = 10$

Output: 1.00000

Explanation: Alice gets a single card, then stops.

Example 2:

Input: $N = 6$, $K = 1$, $W = 10$

Output: 0.60000

Explanation: Alice gets a single card, then stops.

In 6 out of $W = 10$ possibilities, she is at or below $N = 6$ points.

Example 3:

Input: $N = 21$, $K = 17$, $W = 10$

Output: 0.73278

Note:

1. $0 \leq K \leq N \leq 10000$
2. $1 \leq W \leq 10000$
3. Answers will be accepted as correct if they are within 10^{-5} of the correct answer.
4. The judging time limit has been reduced for this question.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[837-New-](#)

All Problems:

[Link to All Problems](#)

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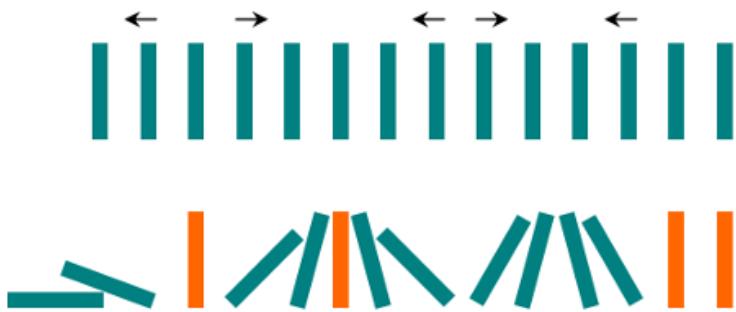
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Welcome to Subscribe On Youtube:

838. Push Dominoes

There are N dominoes in a line, and we place each domino vertically upright.

In the beginning, we simultaneously push some of the dominoes either to the left or to the right.



After each second, each domino that is falling to the left pushes the adjacent domino on the left.

Similarly, the dominoes falling to the right push their adjacent dominoes standing on the right.

When a vertical domino has dominoes falling on it from both sides, it stays still due to the balance of the forces.

For the purposes of this question, we will consider that a falling domino expends no additional force to a falling or already fallen domino.

Given a string "S" representing the initial state. $S[i] = 'L'$, if the i -th domino has been pushed to the left; $S[i] = 'R'$, if the i -th domino has been pushed to the right; $S[i] = '.'$, if the i -th domino has not been pushed.

Return a string representing the final state.

Example 1:

Input: ".L.R...LR..L.."
Output: "LL.RR.LLRRLL.."

Example 2:

Input: "RR.L"
Output: "RR.L"

Explanation: The first domino expends no additional force on the

Note:

1. $0 \leq N \leq 10^5$
2. String `dominoes` contains only '`L`', '`R`' and '`.`'

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[838-Push-Dominoes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

839. Similar String Groups

Two strings X and Y are similar if we can swap two letters (in different positions) of X , so that it equals Y .

For example, "tars" and "rats" are similar (swapping at positions 0 and 2), and "rats" and "arts" are similar, but "star" is not similar to "tars", "rats", or "arts".

Together, these form two connected groups by similarity: {"tars", "rats", "arts"} and {"star"}. Notice that "tars" and "arts" are in the same group even

though they are not similar. Formally, each group is such that a word is in the group if and only if it is similar to at least one other word in the group.

We are given a list A of strings. Every string in A is an anagram of every other string in A . How many groups are there?

Example 1:

Input: ["tars", "rats", "arts", "star"]
Output: 2

Note:

1. $A.length \leq 2000$
2. $A[i].length \leq 1000$
3. $A.length * A[i].length \leq 20000$
4. All words in A consist of lowercase letters only.
5. All words in A have the same length and are anagrams of each other.
6. The judging time limit has been increased for this question.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[839-Similar-String-Groups](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

840. Magic Squares In Grid

A 3×3 magic square is a 3×3 grid filled with distinct numbers **from 1 to 9** such that each row, column, and both diagonals all have the same sum.

Given an `grid` of integers, how many 3×3 "magic square" subgrids are there? (Each subgrid is contiguous).

Example 1:

Input: `[[4,3,8,4], [9,5,1,9], [2,7,6,2]]`

Output: 1

Explanation:

The following subgrid is a 3×3 magic square:

438

951

276

while this one is not:

384

519

762

In total, there is only one magic square inside the given grid.

Note:

1. `1 <= grid.length <= 10`
2. `1 <= grid[0].length <= 10`
3. `0 <= grid[i][j] <= 15`

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[840-Magic-Squares-In-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

841. Keys and Rooms

There are N rooms and you start in room 0 . Each room has a distinct number in $0, 1, 2, \dots, N-1$, and each room may have some keys to access the next room.

Formally, each room i has a list of keys $\text{rooms}[i]$, and each key $\text{rooms}[i][j]$ is an integer in $[0, 1, \dots,$

$N-1]$ where $N = \text{rooms.length}$. A key $\text{rooms}[i][j] = v$ opens the room with number v .

Initially, all the rooms start locked (except for room 0).

You can walk back and forth between rooms freely.

Return `true` if and only if you can enter every room.

Example 1:

Input: `[[1],[2],[3],[]]`

Output: `true`

Explanation:

We start in room 0 , and pick up key 1 .

We then go to room 1 , and pick up key 2 .

We then go to room 2 , and pick up key 3 .

We then go to room 3 . Since we were able to go to every room, w

Example 2:

Input: `[[1,3],[3,0,1],[2],[0]]`

Output: `false`

Explanation: We can't enter the room with number 2 .

Note:

1. $1 \leq \text{rooms.length} \leq 1000$

2. $0 \leq \text{rooms}[i].length \leq 1000$

3. The number of keys in all rooms combined is at most 3000 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[841-Keys-and-Rooms](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

842. Split Array into Fibonacci Sequence

Given a string S of digits, such as $S = "123456579"$, we can split it into a *Fibonacci-like sequence* [123 , 456 , 579] .

Formally, a Fibonacci-like sequence is a list F of non-negative integers such that:

- $0 \leq F[i] \leq 2^{31} - 1$, (that is, each integer fits a 32-bit signed integer type);
- $F.length \geq 3$;
- and $F[i] + F[i+1] = F[i+2]$ for all $0 \leq i < F.length - 2$.

Also, note that when splitting the string into pieces, each piece must not have extra leading zeroes, except if the piece is the number 0 itself.

Return any Fibonacci-like sequence split from S , or return [] if it cannot be done.

Example 1:

Input: "123456579"
Output: [123, 456, 579]

Example 2:

Input: "11235813"
Output: [1, 1, 2, 3, 5, 8, 13]

Example 3:

Input: "112358130"
Output: []
Explanation: The task is impossible.

Example 4:

Input: "0123"
Output: []
Explanation: Leading zeroes are not allowed, so "01", "2", "3" i

Example 5:

Input: "1101111"
Output: [110, 1, 111]
Explanation: The output [11, 0, 11, 11] would also be accepted.

Note:

1. $1 \leq S.length \leq 200$
2. S contains only digits.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[842-Split-Array-into-Fibonacci-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

843. Guess the Word

This problem is an ***interactive problem*** new to the LeetCode platform.

We are given a word list of unique words, each word is 6 letters long, and one word in this list is chosen as **secret**.

You may call `master.guess(word)` to guess a word. The guessed word should have type `string` and must be from the original list with 6 lowercase letters.

This function returns an `integer` type, representing the number of exact matches (value and position) of your guess to the **secret word**. Also, if your guess is not in the given wordlist, it will return -1 instead.

For each test case, you have 10 guesses to guess the word. At the end of any number of calls, if you have made 10 or less calls to `master.guess` and at least one of these guesses was the **secret**, you pass the testcase.

Besides the example test case below, there will be 5 additional test cases, each with 100 words in the word list. The letters of each word in those testcases were

chosen independently at random from 'a' to 'z' , such that every word in the given word lists is unique.

Example 1:

Input: secret = "acckzz" , wordlist = ["acckzz" , "ccbazz" , "eiowzz"]

Explanation:

```
master.guess("aaaaaa") returns -1, because "aaaaaa" is not in wo  
master.guess("acckzz") returns 6, because "acckzz" is secret and  
master.guess("ccbazz") returns 3, because "ccbazz" has 3 matches  
master.guess("eiowzz") returns 2, because "eiowzz" has 2 matches  
master.guess("abcczz") returns 4, because "abcczz" has 4 matches
```

We made 5 calls to master.guess and one of them was the secret, .

Note: Any solutions that attempt to circumvent the judge will result in disqualification.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[843-Guess-the-Word](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

844. Backspace String Compare

Given two strings S and T , return if they are equal when both are typed into empty text editors. '#' means a backspace character.

Example 1:

Input: $S = "ab\#c"$, $T = "ad\#c"$

Output: true

Explanation: Both S and T become "ac".

Example 2:

Input: $S = "ab##"$, $T = "c\#d\#"$

Output: true

Explanation: Both S and T become "".

Example 3:

Input: $S = "a##c"$, $T = "#a\#c"$

Output: true

Explanation: Both S and T become "c".

Example 4:

Input: $S = "a\#c"$, $T = "b"$

Output: false

Explanation: S becomes "c" while T becomes "b".

Note :

1. $1 \leq S.length \leq 200$
2. $1 \leq T.length \leq 200$
3. S and T only contain lowercase letters and '#' characters.

Follow up:

- Can you solve it in $O(N)$ time and $O(1)$ space?

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

845. Longest Mountain in Array

Let's call any (contiguous) subarray B (of A) a *mountain* if the following properties hold:

- $B.length \geq 3$
- There exists some $0 < i < B.length - 1$ such that $B[0] < B[1] < \dots < B[i-1] < B[i] > B[i+1] > \dots > B[B.length - 1]$

(Note that B could be any subarray of A, including the entire array A.)

Given an array A of integers, return the length of the longest *mountain*.

Return 0 if there is no mountain.

Example 1:

Input: [2,1,4,7,3,2,5]

Output: 5

Explanation: The largest mountain is [1,4,7,3,2] which has length 5.

Example 2:

Input: [2,2,2]

Output: 0

Explanation: There is no mountain.

Note:

1. $0 \leq A.length \leq 10000$

2. $0 \leq A[i] \leq 10000$

Follow up:

- Can you solve it using only one pass?
- Can you solve it in $O(1)$ space?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[845-Longest-Mountain-in-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

846. Hand of Straights

Alice has a hand of cards, given as an array of integers.

Now she wants to rearrange the cards into groups so that each group is size W , and consists of W consecutive cards.

Return true if and only if she can.

Example 1:

Input: hand = [1,2,3,6,2,3,4,7,8], W = 3

Output: true

Explanation: Alice's hand can be rearranged as [1,2,3],[2,3,4],[6,7,8].

Example 2:

Input: hand = [1,2,3,4,5], W = 4

Output: false

Explanation: Alice's hand can't be rearranged into groups of 4.

Note:

1. $1 \leq \text{hand.length} \leq 10000$

2. $0 \leq \text{hand}[i] \leq 10^9$

3. $1 \leq W \leq \text{hand.length}$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[846-Hand-of-Straights](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

847. Shortest Path Visiting All Nodes

An undirected, connected graph of N nodes (labeled 0, 1, 2, ..., N-1) is given as graph .

`graph.length = N` , and $j \neq i$ is in the list `graph[i]` exactly once, if and only if nodes i and j are connected.

Return the length of the shortest path that visits every node. You may start and stop at any node, you may revisit nodes multiple times, and you may reuse edges.

Example 1:

Input: `[[1,2,3],[0],[0],[0]]`

Output: 4

Explanation: One possible path is `[1,0,2,0,3]`

Example 2:

Input: `[[1],[0,2,4],[1,3,4],[2],[1,2]]`

Output: 4

Explanation: One possible path is `[0,1,4,2,3]`

Note:

1. $1 \leq \text{graph.length} \leq 12$

2. $0 \leq \text{graph}[i].length < \text{graph.length}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[847-Shortest-Path-Visiting-All-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

848. Shifting Letters

We have a string S of lowercase letters, and an integer array shifts .

Call the $shift$ of a letter, the next letter in the alphabet, (wrapping around so that 'z' becomes 'a').

For example, $\text{shift}('a') = 'b'$, $\text{shift}('t') = 'u'$, and $\text{shift}('z') = 'a'$.

Now for each $\text{shifts}[i] = x$, we want to shift the first $i+1$ letters of S , x times.

Return the final string after all such shifts to S are applied.

Example 1:

Input: $S = \text{"abc"}$, $\text{shifts} = [3, 5, 9]$

Output: "rpl"

Explanation:

We start with "abc".

After shifting the first 1 letters of S by 3, we have "dbc".

After shifting the first 2 letters of S by 5, we have "igc".

After shifting the first 3 letters of S by 9, we have "rpl", the

Note:

1. $1 \leq S.length = \text{shifts.length} \leq 20000$
2. $0 \leq \text{shifts}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[848-Shifting-Letters](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

849. Maximize Distance to Closest Person

In a row of seats , 1 represents a person sitting in that seat, and 0 represents that the seat is empty.

There is at least one empty seat, and at least one person sitting.

Alex wants to sit in the seat such that the distance between him and the closest person to him is maximized.

Return that maximum distance to closest person.

Example 1:

Input: [1,0,0,0,1,0,1]

Output: 2

Explanation:

If Alex sits in the second open seat (`seats[2]`), then the closest person has distance 2.

If Alex sits in any other open seat, the closest person has distance 1.

Thus, the maximum distance to the closest person is 2.

Example 2:

Input: [1,0,0,0]

Output: 3

Explanation:

If Alex sits in the last seat, the closest person is 3 seats away.

This is the maximum distance possible, so the answer is 3.

Note:

1. `1 <= seats.length <= 20000`

2. `seats` contains only 0s or 1s, at least one 0 , and at least one 1 .

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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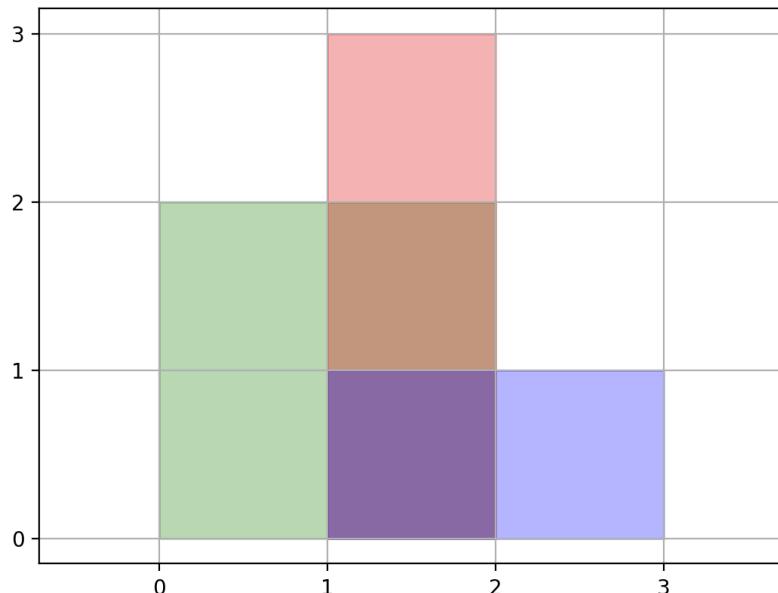
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Welcome to Subscribe On Youtube:

850. Rectangle Area II

We are given a list of (axis-aligned) rectangles . Each `rectangle[i] = [x1, y1, x2, y2]` , where (x_1, y_1) are the coordinates of the bottom-left corner, and (x_2, y_2) are the coordinates of the top-right corner of the i th rectangle.

Find the total area covered by all rectangles in the plane. Since the answer may be too large, return it **modulo $10^9 + 7$** .



Example 1:

Input: [[0,0,2,2],[1,0,2,3],[1,0,3,1]]
Output: 6
Explanation: As illustrated in the picture.

Example 2:

Input: [[0,0,1000000000,1000000000]]
Output: 49
Explanation: The answer is 10^{18} modulo $(10^9 + 7)$, which is $(10^{18} \bmod 10^9 + 7)$.

Note:

- $1 \leq \text{rectangles.length} \leq 200$
- $\text{rectanges[i].length} = 4$
- $0 \leq \text{rectangles[i][j]} \leq 10^9$
- The total area covered by all rectangles will never exceed $2^{63} - 1$ and thus will fit in a 64-bit signed integer.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[850-Rectangle-Area-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

851. Loud and Rich

In a group of N people (labelled 0, 1, 2, ..., N-1), each person has different amounts of money, and different levels of quietness.

For convenience, we'll call the person with label x , simply "person x ".

We'll say that `richer[i] = [x, y]` if person x definitely has more money than person y . Note that `richer` may only be a subset of valid observations.

Also, we'll say `quiet[x] = q` if person x has quietness q .

Now, return `answer` , where `answer[x] = y` if y is the least quiet person (that is, the person y with the smallest value of `quiet[y]`), among all people who definitely have equal to or more money than person x .

Example 1:

Input: `richer = [[1,0],[2,1],[3,1],[3,7],[4,3],[5,3],[6,3]], quiet = [5,5,2,5,4,5,6,7]`
Output: `[5,5,2,5,4,5,6,7]`

Explanation:

`answer[0] = 5`.

Person 5 has more money than 3, which has more money than 1, which has more money than 0. The only person who is quieter (has lower `quiet[x]`) is person 7, it isn't clear if they have more money than person 0.

`answer[7] = 7`.

Among all people that definitely have equal to or more money than 7 (which could be persons 3, 4, 5, 6, or 7), the person who is the quietest is person 7.

The other answers can be filled out with similar reasoning.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**851-Loud-and-Rich**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

852. Peak Index in a Mountain Array

Let's call an array A a *mountain* if the following properties hold:

- $A.length \geq 3$

- There exists some $0 < i < A.length - 1$ such that $A[0] < A[1] < \dots A[i-1] < A[i] > A[i+1] > \dots > A[A.length - 1]$

Given an array that is definitely a mountain, return any i such that $A[0] < A[1] < \dots A[i-1] < A[i] > A[i+1] > \dots > A[A.length - 1]$.

Example 1:

Input: [0, 1, 0]
Output: 1

Example 2:

Input: [0, 2, 1, 0]
Output: 1

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[852-Peak-Index-in-a-Mountain-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

853. Car Fleet

N cars are going to the same destination along a one lane road. The destination is `target` miles away.

Each car i has a constant speed `speed[i]` (in miles per hour), and initial position `position[i]` miles towards the target along the road.

A car can never pass another car ahead of it, but it can catch up to it, and drive bumper to bumper at the same speed.

The distance between these two cars is ignored - they are assumed to have the same position.

A *car fleet* is some non-empty set of cars driving at the same position and same speed. Note that a single car is also a car fleet.

If a car catches up to a car fleet right at the destination point, it will still be considered as one car fleet.

How many car fleets will arrive at the destination?

Example 1:

Input: `target = 12, position = [10,8,0,5,3], speed = [2,4,1,1,3]`

Output: 3

Explanation:

The cars starting at 10 and 8 become a fleet, meeting each other.
The car starting at 0 doesn't catch up to any other car, so it is a fleet.
The cars starting at 5 and 3 become a fleet, meeting each other.
Note that no other cars meet these fleets before the destination.

Note:

1. $0 \leq N \leq 10^4$
2. $0 < \text{target} \leq 10^6$

3. $0 < \text{speed}[i] \leq 10^6$
4. $0 \leq \text{position}[i] < \text{target}$
5. All initial positions are different.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[853-Car-Fleet](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

854. K-Similar Strings

Strings A and B are K -similar (for some non-negative integer K) if we can swap the positions of two letters in A exactly K times so that the resulting string equals B .

Given two anagrams A and B , return the smallest K for which A and B are K -similar.

Example 1:

Input: A = "ab" , B = "ba"
Output: 1

Example 2:

Input: A = "abc" , B = "bca"
Output: 2

Example 3:

Input: A = "abac" , B = "baca"
Output: 2

Example 4:

Input: A = "aabc" , B = "abca"
Output: 2

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[854-K-Similar-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

855. Exam Room

In an exam room, there are N seats in a single row, numbered 0, 1, 2, ..., N-1 .

When a student enters the room, they must sit in the seat that maximizes the distance to the closest person. If there are multiple such seats, they sit in the seat with the lowest number. (Also, if no one is in the room, then the student sits at seat number 0.)

Return a class ExamRoom(int N) that exposes two functions: ExamRoom.seat() returning an int representing what seat the student sat in, and ExamRoom.leave(int p) representing that the student in seat number p now leaves the room. It is guaranteed that any calls to ExamRoom.leave(p) have a student sitting in seat p .

Example 1:

Input: ["ExamRoom", "seat", "seat", "seat", "seat", "leave", "seat"], Output: [null,0,9,4,2,null,5]

Explanation:

ExamRoom(10) -> null
seat() -> 0, no one is in the room, then the student sits at seat 0.
seat() -> 9, the student sits at the last seat number 9.
seat() -> 4, the student sits at the last seat number 4.
seat() -> 2, the student sits at the last seat number 2.
leave(4) -> null
seat() -> 5, the student sits at the last seat number 5.

â ª â ª â ª â

Note:

1. 1 <= N <= 10^9

2. ExamRoom.seat() and ExamRoom.leave() will be called at most 10^4 times across all test cases.
3. Calls to ExamRoom.leave(p) are guaranteed to have a student currently sitting in seat number p .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[855-Exam-Room](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

856. Score of Parentheses

Given a balanced parentheses string S , compute the score of the string based on the following rule:

- $()$ has score 1
- AB has score $A + B$, where A and B are balanced parentheses strings.
- (A) has score $2 * A$, where A is a balanced parentheses string.

Example 1:

Input: "()"
Output: 1

Example 2:

Input: "((()))"
Output: 2

Example 3:

Input: "()(())"
Output: 2

Example 4:

Input: "((()((())))"
Output: 6

Note:

1. S is a balanced parentheses string, containing only $($ and $)$.
2. $2 \leq S.length \leq 50$

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

857. Minimum Cost to Hire K Workers

There are N workers. The i -th worker has a quality[i] and a minimum wage expectation wage[i].

Now we want to hire exactly K workers to form a *paid group*. When hiring a group of K workers, we must pay them according to the following rules:

1. Every worker in the paid group should be paid in the ratio of their quality compared to other workers in the paid group.
2. Every worker in the paid group must be paid at least their minimum wage expectation.

Return the least amount of money needed to form a paid group satisfying the above conditions.

Example 1:

Input: quality = [10, 20, 5], wage = [70, 50, 30], K = 2

Output: 105.00000

Explanation: We pay 70 to 0-th worker and 35 to 2-th worker.

Example 2:

Input: quality = [3,1,10,10,1], wage = [4,8,2,2,7], K = 3

Output: 30.66667

Explanation: We pay 4 to 0-th worker, 13.33333 to 2-th and 3-th

Note:

1. $1 \leq K \leq N \leq 10000$, where $N = \text{quality.length} = \text{wage.length}$
2. $1 \leq \text{quality}[i] \leq 10000$
3. $1 \leq \text{wage}[i] \leq 10000$
4. Answers within 10^{-5} of the correct answer will be considered correct.

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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858. Mirror Reflection

There is a special square room with mirrors on each of the four walls. Except for the southwest corner, there are receptors on each of the remaining corners, numbered 0, 1 , and 2 .

The square room has walls of length p , and a laser ray from the southwest corner first meets the east wall at a distance q from the 0 th receptor.

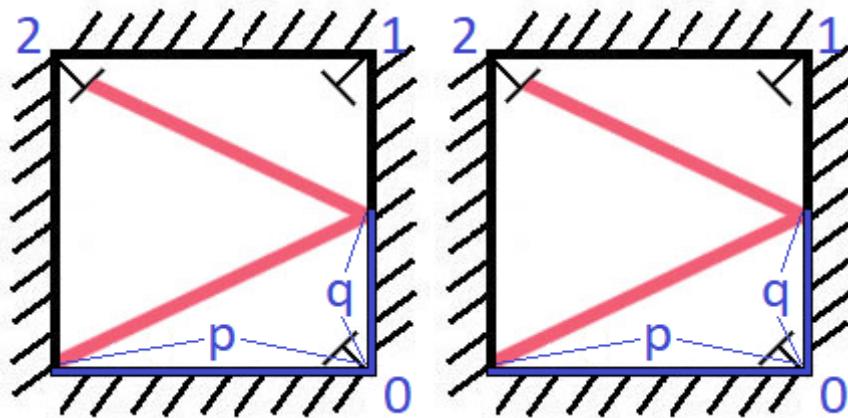
Return the number of the receptor that the ray meets first. (It is guaranteed that the ray will meet a receptor eventually.)

Example 1:

Input: $p = 2$, $q = 1$

Output: 2

Explanation: The ray meets receptor 2 the first time it gets reflected.



Note:

1. $1 \leq p \leq 1000$
2. $0 \leq q \leq p$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[858-Mirror-Reflection](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

859. Buddy Strings

Given two strings A and B of lowercase letters, return true if and only if we can swap two letters in A so that the result equals B .

Example 1:

Input: A = "ab", B = "ba"
Output: true

Example 2:

Input: A = "ab", B = "ab"
Output: false

Example 3:

Input: A = "aa", B = "aa"
Output: true

Example 4:

Input: A = "aaaaaaaaabc", B = "aaaaaaaaacb"
Output: true

Example 5:

Input: A = "", B = "aa"
Output: false

Note:

1. $0 \leq A.length \leq 20000$
2. $0 \leq B.length \leq 20000$
3. A and B consist only of lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

860. Lemonade Change

At a lemonade stand, each lemonade costs \$5 .

Customers are standing in a queue to buy from you, and order one at a time (in the order specified by bills).

Each customer will only buy one lemonade and pay with either a \$5 , \$10 , or \$20 bill. You must provide the correct change to each customer, so that the net transaction is that the customer pays \$5.

Note that you don't have any change in hand at first.

Return true if and only if you can provide every customer with correct change.

Example 1:

Input: [5,5,5,10,20]

Output: true

Explanation:

From the first 3 customers, we collect three \$5 bills in order.

From the fourth customer, we collect a \$10 bill and give back a \$5 bill.

From the fifth customer, we give a \$10 bill and a \$5 bill.

Since all customers got correct change, we output true.

Example 2:

Input: [5,5,10]

Output: true

Example 3:

Input: [10,10]

Output: false

Example 4:

Input: [5,5,10,10,20]

Output: false

Explanation:

From the first two customers in order, we collect two \$5 bills.

For the next two customers in order, we collect a \$10 bill and give back a \$5 bill.

For the last customer, we can't give change of \$15 back because we don't have a \$5 bill.

Since not every customer received correct change, the answer is false.

Note:

- $0 \leq \text{bills.length} \leq 10000$
- $\text{bills}[i]$ will be either 5 , 10 , or 20 .

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

861. Score After Flipping Matrix

We have a two dimensional matrix A where each value is 0 or 1 .

A move consists of choosing any row or column, and toggling each value in that row or column: changing all 0 s to 1 s, and all 1 s to 0 s.

After making any number of moves, every row of this matrix is interpreted as a binary number, and the score of the matrix is the sum of these numbers.

Return the highest possible score.

Example 1:

Input: [[0,0,1,1],[1,0,1,0],[1,1,0,0]]

Output: 39

Explanation:

Toggled to [[1,1,1,1],[1,0,0,1],[1,1,1,1]].
0b1111 + 0b1001 + 0b1111 = 15 + 9 + 15 = 39

Note:

1. $1 \leq A.length \leq 20$
2. $1 \leq A[0].length \leq 20$
3. $A[i][j]$ is 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[861-Score-After-Flipping-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

862. Shortest Subarray with Sum at Least K

Return the **length** of the shortest, non-empty, contiguous subarray of A with sum at least K .

If there is no non-empty subarray with sum at least K , return -1 .

Example 1:

Input: A = [1], K = 1
Output: 1

Example 2:

Input: A = [1,2], K = 4
Output: -1

Example 3:

Input: A = [2,-1,2], K = 3
Output: 3

Note:

1. $1 \leq A.length \leq 50000$
2. $-10^5 \leq A[i] \leq 10^5$
3. $1 \leq K \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[862-Shortest-Subarray-with-Sum-at-Least-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

863. All Nodes Distance K in Binary Tree

We are given a binary tree (with root node `root`), a target node, and an integer value `K` .

Return a list of the values of all nodes that have a distance `K` from the target node. The answer can be returned in any order.

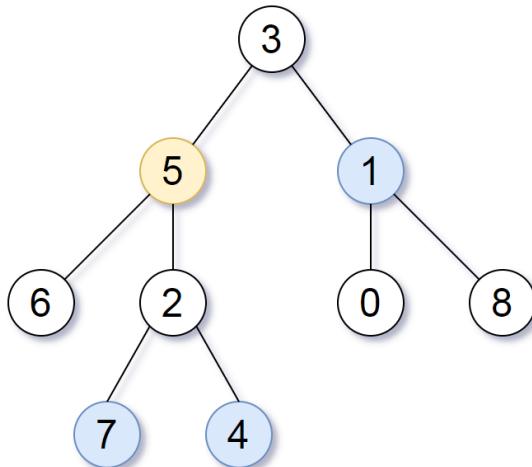
Example 1:

Input: root = [3,5,1,6,2,0,8,null,null,7,4], target = 5, K = 2

Output: [7,4,1]

Explanation:

The nodes that are a distance 2 from the target node (with value 5) have values 7, 4, and 1.



Note that the inputs "root" and "target" are actually `TreeNodes`. The descriptions of the inputs above are just serializations of

Note:

1. The given tree is non-empty.
2. Each node in the tree has unique values $0 \leq \text{node.val} \leq 500$.
3. The target node is a node in the tree.
4. $0 \leq K \leq 1000$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[863-All-Nodes-Distance-K-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

864. Shortest Path to Get All Keys

We are given a 2-dimensional grid . ". " is an empty cell, "#" is a wall, "@" is the starting point, ("a" , "b" , ...) are keys, and ("A" , "B" , ...) are locks.

We start at the starting point, and one move consists of walking one space in one of the 4 cardinal directions. We cannot walk outside the grid, or walk into a wall. If we walk over a key, we pick it up. We can't walk over a lock unless we have the corresponding key.

For some $1 \leq K \leq 6$, there is exactly one lowercase and one uppercase letter of the first K letters of the English alphabet in the grid. This means that there is exactly one key for each lock, and one lock for each key; and also that the letters used to represent the keys and locks were chosen in the same order as the English alphabet.

Return the lowest number of moves to acquire all keys.
If it's impossible, return -1 .

Example 1:

Input: ["@.a.#", "###.#", "b.A.B"]
Output: 8

Example 2:

Input: ["@..aA", "..B#. ", "...b"]
Output: 6

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

865. Smallest Subtree with all the Deepest Nodes

Given a binary tree rooted at `root` , the *depth* of each node is the shortest distance to the root.

A node is *deepest* if it has the largest depth possible among any node in the entire tree.

The subtree of a node is that node, plus the set of all descendants of that node.

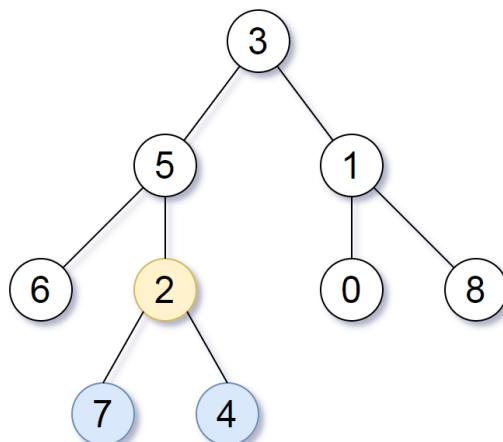
Return the node with the largest depth such that it contains all the deepest nodes in its subtree.

Example 1:

Input: [3, 5, 1, 6, 2, 0, 8, null, null, 7, 4]

Output: [2, 7, 4]

Explanation:



We return the node with value 2, colored in yellow in the diagram.
The nodes colored in blue are the deepest nodes of the tree.
The input "[3, 5, 1, 6, 2, 0, 8, null, null, 7, 4]" is a serialization.
The output "[2, 7, 4]" is a serialization of the subtree rooted at 2.
Both the input and output have TreeNode type.

Note:

- The number of nodes in the tree will be between 1 and 500.
- The values of each node are unique.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[865-Smallest-Subtree-with-all-the-Deepest-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

866. Prime Palindrome

Find the smallest prime palindrome greater than or equal to N .

Recall that a number is *prime* if it's only divisors are 1 and itself, and it is greater than 1.

For example, 2,3,5,7,11 and 13 are primes.

Recall that a number is a *palindrome* if it reads the same from left to right as it does from right to left.

For example, 12321 is a palindrome.

Example 1:

Input: 6
Output: 7

Example 2:

Input: 8
Output: 11

Example 3:

Input: 13
Output: 101

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[866-Prime-Palindrome](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

867. Transpose Matrix

Given a matrix A , return the transpose of A .

The transpose of a matrix is the matrix flipped over it's main diagonal, switching the row and column indices of the matrix.

Example 1:

Input: [[1,2,3],[4,5,6],[7,8,9]]
Output: [[1,4,7],[2,5,8],[3,6,9]]

Example 2:

Input: [[1,2,3],[4,5,6]]
Output: [[1,4],[2,5],[3,6]]

Note:

1. $1 \leq A.length \leq 1000$
2. $1 \leq A[0].length \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

868. Binary Gap

Given a positive integer N , find and return the longest distance between two consecutive 1's in the binary representation of N .

If there aren't two consecutive 1's, return 0.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[868-Binary-Gap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

869. Reordered Power of 2

Starting with a positive integer N , we reorder the digits in any order (including the original order) such that the leading digit is not zero.

Return `true` if and only if we can do this in a way such that the resulting number is a power of 2.

Example 1:

Input: 1
Output: true

Example 2:

Input: 10
Output: false

Example 3:

Input: 16
Output: true

Example 4:

Input: 24
Output: false

Example 5:

Input: 46
Output: true

Note:

1. $1 \leq N \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

870. Advantage Shuffle

Given two arrays A and B of equal size, the *advantage of A with respect to B* is the number of indices i for which $A[i] > B[i]$.

Return **any** permutation of A that maximizes its advantage with respect to B.

Example 1:

Input: A = [2,7,11,15], B = [1,10,4,11]
Output: [2,11,7,15]

Example 2:

Input: A = [12, 24, 8, 32], B = [13, 25, 32, 11]
Output: [24, 32, 8, 12]

Note:

1. 1 <= A.length = B.length <= 10000
2. 0 <= A[i] <= 10^9
3. 0 <= B[i] <= 10^9

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

871. Minimum Number of Refueling Stops

A car travels from a starting position to a destination which is target miles east of the starting position.

Along the way, there are gas stations. Each station[i] represents a gas station that is station[i][0] miles east of the starting position, and has station[i][1] liters of gas.

The car starts with an infinite tank of gas, which initially has startFuel liters of fuel in it. It uses 1 liter of gas per 1 mile that it drives.

When the car reaches a gas station, it may stop and refuel, transferring all the gas from the station into the car.

What is the least number of refueling stops the car must make in order to reach its destination? If it cannot reach the destination, return -1 .

Note that if the car reaches a gas station with 0 fuel left, the car can still refuel there. If the car reaches the destination with 0 fuel left, it is still considered to have arrived.

Example 1:

Input: target = 1, startFuel = 1, stations = []

Output: 0

Explanation: We can reach the target without refueling.

Example 2:

Input: target = 100, startFuel = 1, stations = [[10,100]]

Output: -1

Explanation: We can't reach the target (or even the first gas st

Example 3:

Input: target = 100, startFuel = 10, stations = [[10,60],[20,30]]

Output: 2

Explanation:

We start with 10 liters of fuel.

We drive to position 10, expending 10 liters of fuel. We refuel

Then, we drive from position 10 to position 60 (expending 50 liters) and refuel from 10 liters to 50 liters of gas. We then drive to position 60 again (expending another 50 liters). We made 2 refueling stops along the way, so we return 2.

Note:

1. $1 \leq \text{target}, \text{startFuel}, \text{stations}[i][1] \leq 10^9$
2. $0 \leq \text{stations.length} \leq 500$
3. $0 < \text{stations}[0][0] < \text{stations}[1][0] < \dots < \text{stations}[\text{stations.length}-1][0] < \text{target}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[871-Minimum-Number-of-Refueling-Stops](#)

All Problems:

[Link to All Problems](#)

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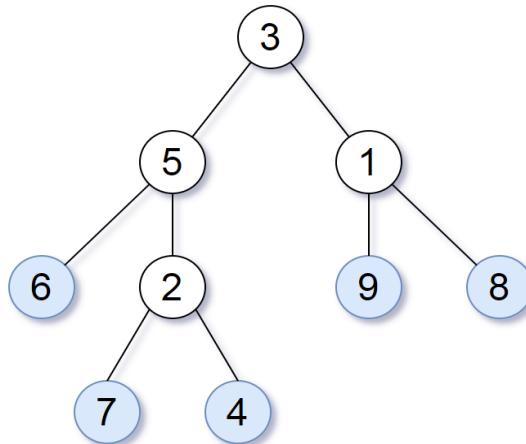
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Welcome to Subscribe On Youtube:

872. Leaf-Similar Trees

Consider all the leaves of a binary tree. From left to right order, the values of those leaves form a *leaf value sequence*.



For example, in the given tree above, the leaf value sequence is (6, 7, 4, 9, 8) .

Two binary trees are considered *leaf-similar* if their leaf value sequence is the same.

Return `true` if and only if the two given trees with head nodes `root1` and `root2` are leaf-similar.

Note:

- Both of the given trees will have between 1 and 100 nodes.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[872-Leaf-Similar-Trees](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

873. Length of Longest Fibonacci Subsequence

A sequence X_1, X_2, \dots, X_n is *fibonacci-like* if:

- $n \geq 3$
- $X_i + X_{i+1} = X_{i+2}$ for all $i + 2 \leq n$

Given a **strictly increasing** array A of positive integers forming a sequence, find the **length** of the longest fibonacci-like subsequence of A . If one does not exist, return 0.

(Recall that a subsequence is derived from another sequence A by deleting any number of elements (including none) from A , without changing the order of the remaining elements. For example, $[3, 5, 8]$ is a subsequence of $[3, 4, 5, 6, 7, 8]$.)

Example 1:

Input: [1,2,3,4,5,6,7,8]
Output: 5
Explanation:
The longest subsequence that is fibonacci-like: [1,2,3,5,8].

Example 2:

Input: [1,3,7,11,12,14,18]
Output: 3
Explanation:
The longest subsequence that is fibonacci-like:
[1,11,12], [3,11,14] or [7,11,18].

Note:

- $3 \leq A.length \leq 1000$
- $1 \leq A[0] < A[1] < \dots < A[A.length - 1] \leq 10^9$
- *(The time limit has been reduced by 50% for submissions in Java, C, and C++.)*

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[873-Length-of-Longest-Fibonacci-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

874. Walking Robot Simulation

A robot on an infinite grid starts at point (0, 0) and faces north. The robot can receive one of three possible types of commands:

- -2 : turn left 90 degrees
- -1 : turn right 90 degrees
- $1 \leq x \leq 9$: move forward x units

Some of the grid squares are obstacles.

The i -th obstacle is at grid point ($\text{obstacles}[i][0]$, $\text{obstacles}[i][1]$)

If the robot would try to move onto them, the robot stays on the previous grid square instead (but still continues following the rest of the route.)

Return the **square** of the maximum Euclidean distance that the robot will be from the origin.

Example 1:

Input: commands = [4, -1, 3], obstacles = []
Output: 25
Explanation: robot will go to (3, 4)

Example 2:

Input: commands = [4, -1, 4, -2, 4], obstacles = [[2, 4]]
Output: 65
Explanation: robot will be stuck at (1, 4) before turning left at

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**[874-Walking-Robot-Simulation](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

875. Koko Eating Bananas

Koko loves to eat bananas. There are N piles of bananas, the i -th pile has $\text{piles}[i]$ bananas. The guards have gone and will come back in H hours.

Koko can decide her bananas-per-hour eating speed of K . Each hour, she chooses some pile of bananas, and eats K bananas from that pile. If the pile has less than K

bananas, she eats all of them instead, and won't eat any more bananas during this hour.

Koko likes to eat slowly, but still wants to finish eating all the bananas before the guards come back.

Return the minimum integer K such that she can eat all the bananas within H hours.

Example 1:

Input: piles = [3, 6, 7, 11], H = 8
Output: 4

Example 2:

Input: piles = [30, 11, 23, 4, 20], H = 5
Output: 30

Example 3:

Input: piles = [30, 11, 23, 4, 20], H = 6
Output: 23

Note:

- $1 \leq \text{piles.length} \leq 10^4$
- $\text{piles.length} \leq H \leq 10^9$
- $1 \leq \text{piles}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[875-Koko-Eating-Bananas](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

876. Middle of the Linked List

Given a non-empty, singly linked list with head node head , return a middle node of linked list.

If there are two middle nodes, return the second middle node.

Example 1:

Input: [1,2,3,4,5]

Output: Node 3 from this list (Serialization: [3,4,5])

The returned node has value 3. (The judge's serialization of th

Note that we returned a ListNode object ans, such that:

ans.val = 3, ans.next.val = 4, ans.next.next.val = 5, and ans.ne

Example 2:

Input: [1,2,3,4,5,6]

Output: Node 4 from this list (Serialization: [4,5,6])

Since the list has two middle nodes with values 3 and 4, we retu

Note:

- The number of nodes in the given list will be between 1 and 100 .

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

877. Stone Game

Alex and Lee play a game with piles of stones. There are an even number of piles **arranged in a row**, and each pile has a positive integer number of stones `piles[i]`.

The objective of the game is to end with the most stones. The total number of stones is odd, so there are no ties.

Alex and Lee take turns, with Alex starting first. Each turn, a player takes the entire pile of stones from either the beginning or the end of the row. This continues until

there are no more piles left, at which point the person with the most stones wins.

Assuming Alex and Lee play optimally, return True if and only if Alex wins the game.

Example 1:

Input: [5,3,4,5]

Output: true

Explanation:

Alex starts first, and can only take the first 5 or the last 5. Say he takes the first 5, so that the row becomes [3, 4, 5]. If Lee takes 3, then the board is [4, 5], and Alex takes 5 to win. If Lee takes the last 5, then the board is [3, 4], and Alex takes 4. This demonstrated that taking the first 5 was a winning move for Alex.

Note:

1. $2 \leq \text{piles.length} \leq 500$
2. piles.length is even.
3. $1 \leq \text{piles}[i] \leq 500$
4. sum(piles) is odd.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[877-Stone-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

878. Nth Magical Number

A positive integer is *magical* if it is divisible by either A or B .

Return the N -th magical number. Since the answer may be very large, **return it modulo $10^9 + 7$** .

Example 1:

Input: N = 1, A = 2, B = 3
Output: 2

Example 2:

Input: N = 4, A = 2, B = 3
Output: 6

Example 3:

Input: N = 5, A = 2, B = 4
Output: 10

Example 4:

Input: N = 3, A = 6, B = 4
Output: 8

Note:

1. $1 \leq N \leq 10^9$
2. $2 \leq A \leq 40000$
3. $2 \leq B \leq 40000$

Difficulty:

Hard

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

879. Profitable Schemes

There are G people in a gang, and a list of various crimes they could commit.

The i -th crime generates a profit [i] and requires group [i] gang members to participate.

If a gang member participates in one crime, that member can't participate in another crime.

Let's call a *profitable scheme* any subset of these crimes that generates at least P profit, and the total number of

gang members participating in that subset of crimes is at most G.

How many schemes can be chosen? Since the answer may be very large, **return it modulo $10^9 + 7$** .

Example 1:

Input: G = 5, P = 3, group = [2,2], profit = [2,3]

Output: 2

Explanation:

To make a profit of at least 3, the gang could either commit crime 1 or crime 2.
In total, there are 2 schemes.

Example 2:

Input: G = 10, P = 5, group = [2,3,5], profit = [6,7,8]

Output: 7

Explanation:

To make a profit of at least 5, the gang could commit any crimes from group 1 or group 2.
There are 7 possible schemes: (0), (1), (2), (0,1), (0,2), (1,2).

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[**879-Profitable-Schemes**](#)

All Problems:

[**Link to All Problems**](#)

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Leetcode Solutions Java Python C++

Welcome to Subscribe On Youtube:

880. Decoded String at Index

An encoded string S is given. To find and write the *decoded* string to a tape, the encoded string is read **one character at a time** and the following steps are taken:

- If the character read is a letter, that letter is written onto the tape.
 - If the character read is a digit (say d), the entire current tape is repeatedly written $d - 1$ more times in total.

Now for some encoded string S , and an index K , find and return the K -th letter (1 indexed) in the decoded string.

Example 1:

Input: S = "leet2code3", K = 10

Output: "o"

Explanation:

The decoded string is "leetleetcodeleetleetcodeleetleetcode".
The 10th letter in the string is "o".

Example 2:

Input: S = "ha22", K = 5

Output: "h"

Explanation:

The decoded string is "hahahaha". The 5th letter is "h".

Example 3:

Input: S = "a23456789999999999999999", K = 1
Output: "a"

Explanation:

The decoded string is "a" repeated 8301530446056247680 times. T

Note:

1. $2 \leq S.length \leq 100$
2. S will only contain lowercase letters and digits 2 through 9 .
3. S starts with a letter.
4. $1 \leq K \leq 10^9$
5. The decoded string is guaranteed to have less than 2^{63} letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[880-Decoded-String-at-Index](#)

All Problems:

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Welcome to Subscribe On Youtube:

881. Boats to Save People

The i -th person has weight $\text{people}[i]$, and each boat can carry a maximum weight of limit .

Each boat carries at most 2 people at the same time, provided the sum of the weight of those people is at most limit .

Return the minimum number of boats to carry every given person. (It is guaranteed each person can be carried by a boat.)

Example 1:

Input: $\text{people} = [1, 2]$, $\text{limit} = 3$
Output: 1
Explanation: 1 boat (1, 2)

Example 2:

Input: $\text{people} = [3, 2, 2, 1]$, $\text{limit} = 3$
Output: 3
Explanation: 3 boats (1, 2), (2) and (3)

Example 3:

Input: $\text{people} = [3, 5, 3, 4]$, $\text{limit} = 5$
Output: 4
Explanation: 4 boats (3), (3), (4), (5)

Note :

- $1 \leq \text{people.length} \leq 50000$
- $1 \leq \text{people}[i] \leq \text{limit} \leq 30000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[881-Boats-to-Save-People](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

882. Reachable Nodes In Subdivided Graph

Starting with an **undirected** graph (the "original graph") with nodes from 0 to N-1 , subdivisions are made to some of the edges.

The graph is given as follows: `edges[k]` is a list of integer pairs (i, j, n) such that (i, j) is an edge of the original graph,

and n is the total number of **new** nodes on that edge.

Then, the edge (i, j) is deleted from the original graph, n new nodes (x_1, x_2, ..., x_n) are added to the original graph,

and $n+1$ new edges $(i, x_1), (x_1, x_2), (x_2, x_3), \dots, (x_{n-1}, x_n), (x_n, j)$ are added to the original graph.

Now, you start at node 0 from the original graph, and in each move, you travel along one edge.

Return how many nodes you can reach in at most M moves.

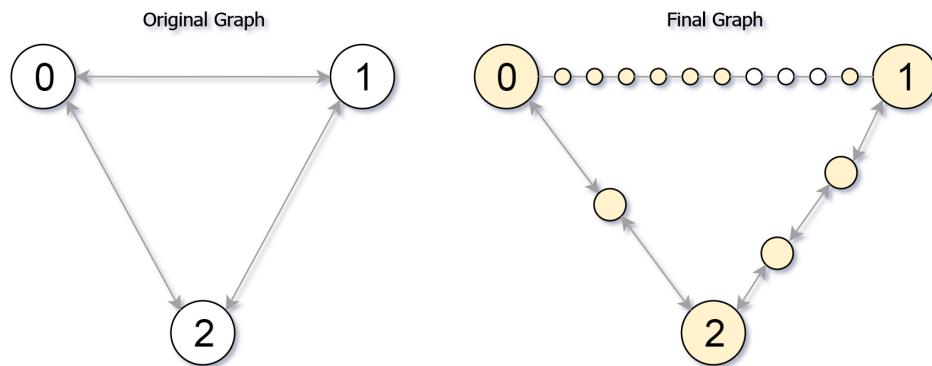
Example 1:

Input: edges = [[0,1,10],[0,2,1],[1,2,2]], M = 6, N = 3

Output: 13

Explanation:

The nodes that are reachable in the final graph after $M = 6$ moves



Example 2:

Input: edges = [[0,1,4],[1,2,6],[0,2,8],[1,3,1]], M = 10, N = 4

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[882-Reachable-Nodes-In-Subdivided-Graph](#)

All Problems:

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Welcome to Subscribe On Youtube:

883. Projection Area of 3D Shapes

On a $N * N$ grid, we place some $1 * 1 * 1$ cubes that are axis-aligned with the x, y, and z axes.

Each value $v = \text{grid}[i][j]$ represents a tower of v cubes placed on top of grid cell (i, j) .

Now we view the *projection* of these cubes onto the xy, yz, and zx planes.

A projection is like a shadow, that maps our 3 dimensional figure to a 2 dimensional plane.

Here, we are viewing the "shadow" when looking at the cubes from the top, the front, and the side.

Return the total area of all three projections.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[883-Projection-Area-of-3D-Shapes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

884. Uncommon Words from Two Sentences

We are given two sentences A and B . (A *sentence* is a string of space separated words. Each *word* consists only of lowercase letters.)

A word is *uncommon* if it appears exactly once in one of the sentences, and does not appear in the other sentence.

Return a list of all uncommon words.

You may return the list in any order.

Example 1:

Input: A = "this apple is sweet", B = "this apple is sour"
Output: ["sweet", "sour"]

Example 2:

Input: A = "apple apple", B = "banana"
Output: ["banana"]

Note:

1. $0 \leq A.length \leq 200$
2. $0 \leq B.length \leq 200$
3. A and B both contain only spaces and lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

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Welcome to Subscribe On Youtube:

885. Spiral Matrix III

On a 2 dimensional grid with R rows and C columns, we start at (r_0, c_0) facing east.

Here, the north-west corner of the grid is at the first row and column, and the south-east corner of the grid is at the last row and column.

Now, we walk in a clockwise spiral shape to visit every position in this grid.

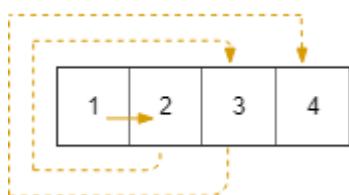
Whenever we would move outside the boundary of the grid, we continue our walk outside the grid (but may return to the grid boundary later.)

Eventually, we reach all $R * C$ spaces of the grid.

Return a list of coordinates representing the positions of the grid in the order they were visited.

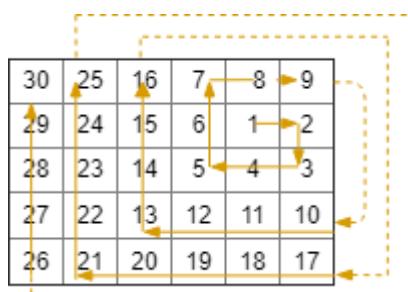
Example 1:

Input: $R = 1$, $C = 4$, $r_0 = 0$, $c_0 = 0$
Output: $[[0,0], [0,1], [0,2], [0,3]]$



Example 2:

Input: $R = 5$, $C = 6$, $r_0 = 1$, $c_0 = 4$
Output: $[[1,4], [1,5], [2,5], [2,4], [2,3], [1,3], [0,3], [0,4], [0,5], [1,2], [0,1], [1,1], [2,1], [3,1], [4,1], [3,2], [2,2], [1,2], [0,2], [1,3], [0,3], [1,4], [0,4], [1,5], [0,5], [1,6], [0,6], [1,1], [2,1], [3,1], [4,1], [5,1], [4,2], [3,2], [2,2], [1,2], [0,2], [1,3], [0,3], [1,4], [0,4], [1,5], [0,5], [1,6], [0,6], [1,7], [0,7], [1,8], [0,8], [1,9], [0,9], [1,10], [0,10], [1,11], [0,11], [1,12], [0,12], [1,13], [0,13], [1,14], [0,14], [1,15], [0,15], [1,16], [0,16], [1,17], [0,17], [1,18], [0,18], [1,19], [0,19], [1,20], [0,20], [1,21], [0,21], [1,22], [0,22], [1,23], [0,23], [1,24], [0,24], [1,25], [0,25], [1,26], [0,26], [1,27], [0,27], [1,28], [0,28], [1,29], [0,29], [1,30], [0,30]]$



Note:

1. $1 \leq R \leq 100$
2. $1 \leq C \leq 100$
3. $0 \leq r_0 < R$
4. $0 \leq c_0 < C$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[885-Spiral-Matrix-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

886. Possible Bipartition

Given a set of N people (numbered 1, 2, ..., N), we would like to split everyone into two groups of **any** size.

Each person may dislike some other people, and they should not go into the same group.

Formally, if $\text{dislikes}[i] = [a, b]$, it means it is not allowed to put the people numbered a and b into the same group.

Return `true` if and only if it is possible to split everyone into two groups in this way.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

887. Super Egg Drop

You are given K eggs, and you have access to a building with N floors from 1 to N .

Each egg is identical in function, and if an egg breaks, you cannot drop it again.

You know that there exists a floor F with $0 \leq F \leq N$ such that any egg dropped at a floor higher than F will break, and any egg dropped at or below floor F will not break.

Each *move*, you may take an egg (if you have an unbroken one) and drop it from any floor X (with $1 \leq X \leq N$).

Your goal is to know **with certainty** what the value of F is.

What is the minimum number of moves that you need to know with certainty what F is, regardless of the initial value of F ?

Example 1:

Input: $K = 1$, $N = 2$

Output: 2

Explanation:

Drop the egg from floor 1. If it breaks, we know with certainty $F = 1$. Otherwise, drop the egg from floor 2. If it breaks, we know with certainty $F = 2$. If it didn't break, then we know with certainty $F = 2$. Hence, we needed 2 moves in the worst case to know what F is with certainty.

Example 2:

Input: $K = 2$, $N = 6$

Output: 3

Example 3:

Input: $K = 3$, $N = 14$

Output: 4

Note:

1. $1 \leq K \leq 100$
2. $1 \leq N \leq 10000$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[887-Super-Egg-Drop](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

888. Fair Candy Swap

Alice and Bob have candy bars of different sizes: $A[i]$ is the size of the i -th bar of candy that Alice has, and $B[j]$ is the size of the j -th bar of candy that Bob has.

Since they are friends, they would like to exchange one candy bar each so that after the exchange, they both have the same total amount of candy. (*The total amount of*

candy a person has is the sum of the sizes of candy bars they have.)

Return an integer array ans where ans [0] is the size of the candy bar that Alice must exchange, and ans [1] is the size of the candy bar that Bob must exchange.

If there are multiple answers, you may return any one of them. It is guaranteed an answer exists.

Example 1:

Input: A = [1,1], B = [2,2]
Output: [1,2]

Example 2:

Input: A = [1,2], B = [2,3]
Output: [1,2]

Example 3:

Input: A = [2], B = [1,3]
Output: [2,3]

Example 4:

Input: A = [1,2,5], B = [2,4]
Output: [5,4]

Note:

- 1 <= A.length <= 10000
- 1 <= B.length <= 10000
- 1 <= A[i] <= 100000
- 1 <= B[i] <= 100000
- It is guaranteed that Alice and Bob have different total amounts of candy.
- It is guaranteed there exists an answer.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

889. Construct Binary Tree from Preorder and Postorder Traversal

Return any binary tree that matches the given preorder and postorder traversals.

Values in the traversals pre and post are distinct positive integers.

Example 1:

Input: pre = [1,2,4,5,3,6,7], post = [4,5,2,6,7,3,1]
Output: [1,2,3,4,5,6,7]

Note:

- $1 \leq \text{pre.length} == \text{post.length} \leq 30$
- pre[] and post[] are both permutations of 1, 2, ..., pre.length .

- It is guaranteed an answer exists. If there exists multiple answers, you can return any of them.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[889-Construct-Binary-Tree-from-Preorder-and-Postorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

890. Find and Replace Pattern

You have a list of words and a pattern , and you want to know which words in words matches the pattern.

A word matches the pattern if there exists a permutation of letters p so that after replacing every letter x in the pattern with $p(x)$, we get the desired word.

(*Recall that a permutation of letters is a bijection from letters to letters: every letter maps to another letter, and no two letters map to the same letter.*)

Return a list of the words in words that match the given pattern.

You may return the answer in any order.

Example 1:

Input: words = ["abc", "deq", "mee", "aqq", "dkd", "ccc"] , pattern =
Output: ["mee", "aqq"]
Explanation: "mee" matches the pattern because there is a permutation
"ccc" does not match the pattern because {a -> c, b -> c, ...} is not a valid permutation since a and b map to the same letter.

Note:

- $1 \leq \text{words.length} \leq 50$
- $1 \leq \text{pattern.length} = \text{words}[i].length \leq 20$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[890-Find-and-Replace-Pattern](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

891. Sum of Subsequence Widths

Given an array of integers A , consider all non-empty subsequences of A .

For any sequence S , let the *width* of S be the difference between the maximum and minimum element of S .

Return the sum of the widths of all subsequences of A .

As the answer may be very large, **return the answer modulo $10^9 + 7$** .

Example 1:

Input: [2,1,3]

Output: 6

Explanation:

Subsequences are [1], [2], [3], [2,1], [2,3], [1,3], [2,1,3].

The corresponding widths are 0, 0, 0, 1, 1, 2, 2.
The sum of these widths is 6.

Note:

- $1 \leq A.length \leq 20000$
- $1 \leq A[i] \leq 20000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[891-Sum-of-Subsequence-Widths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

892. Surface Area of 3D Shapes

On a $N * N$ grid, we place some $1 * 1 * 1$ cubes.

Each value $v = \text{grid}[i][j]$ represents a tower of v cubes placed on top of grid cell (i, j) .

Return the total surface area of the resulting shapes.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[892-Surface-Area-of-3D-Shapes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

893. Groups of Special-Equivalent Strings

You are given an array A of strings.

Two strings S and T are *special-equivalent* if after any number of *moves*, S == T.

A *move* consists of choosing two indices i and j with i % 2 == j % 2, and swapping S[i] with S[j].

Now, a *group of special-equivalent strings from A* is a non-empty subset S of A such that any string not in S is not special-equivalent with any string in S.

Return the number of groups of special-equivalent strings from A.

Example 1:

Input: ["a", "b", "c", "a", "c", "c"]

Output: 3

Explanation: 3 groups ["a", "a"], ["b"], ["c", "c", "c"]

Example 2:

Input: ["aa", "bb", "ab", "ba"]

Output: 4

Explanation: 4 groups ["aa"], ["bb"], ["ab"], ["ba"]

Example 3:

Input: ["abc", "acb", "bac", "bca", "cab", "cba"]

Output: 3

Explanation: 3 groups ["abc", "cba"], ["acb", "bca"], ["bac", "cab"]

Example 4:

Input: ["abcd", "cdab", "adcb", "cbad"]

Output: 1

Explanation: 1 group ["abcd", "cdab", "adcb", "cbad"]

Note:

- 1 <= A.length <= 1000

- $1 \leq A[i].length \leq 20$
- All $A[i]$ have the same length.
- All $A[i]$ consist of only lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

894. All Possible Full Binary Trees

A *full binary tree* is a binary tree where each node has exactly 0 or 2 children.

Return a list of all possible full binary trees with N nodes.
Each element of the answer is the root node of one possible tree.

Each node of each tree in the answer **must** have
`node.val = 0`.

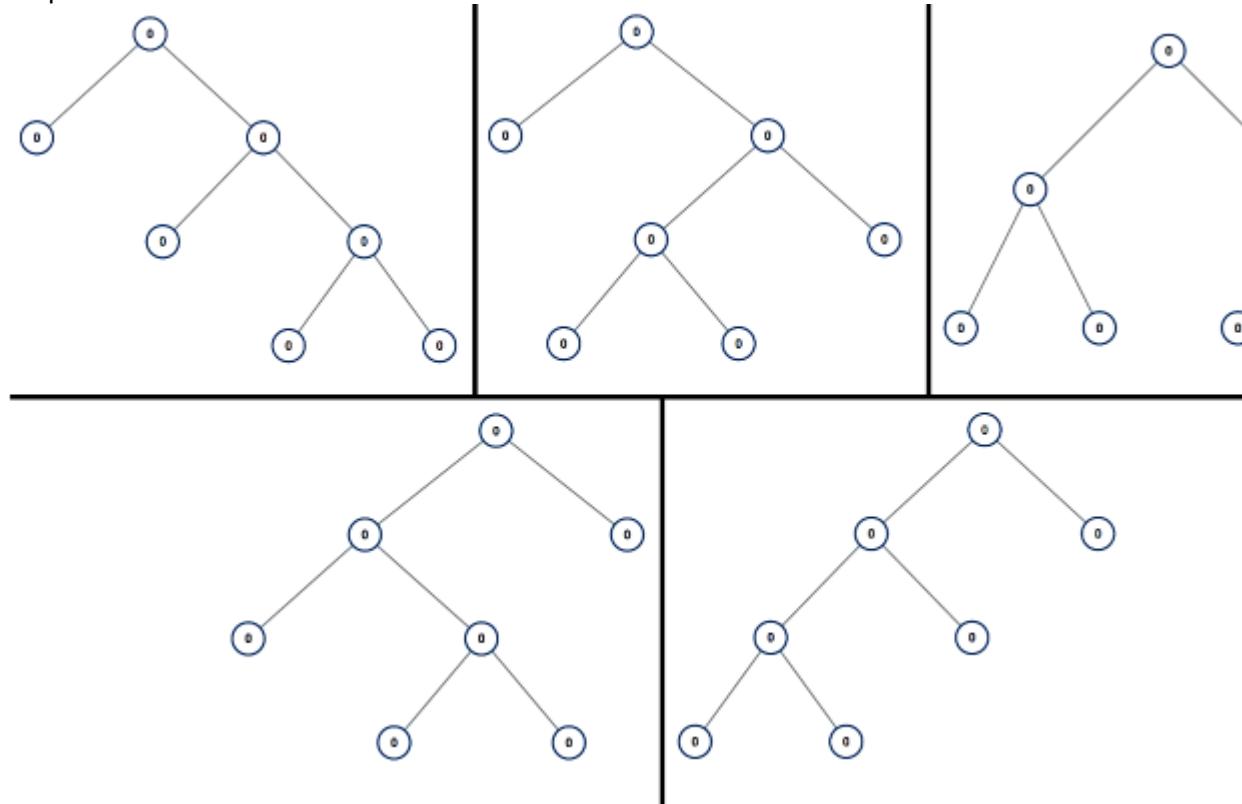
You may return the final list of trees in any order.

Example 1:

Input: 7

Output: `[[0,0,0,null,null,0,0,null,null,0,0],[0,0,0,null,null,0,0,null,0,0]]`

Explanation:



Note:

- $1 \leq N \leq 20$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**894-All-Possible-Full-Binary-Trees**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

895. Maximum Frequency Stack

Implement `FreqStack` , a class which simulates the operation of a stack-like data structure.

`FreqStack` has two functions:

- `push(int x)` , which pushes an integer `x` onto the stack.
- `pop()` , which **removes** and returns the most frequent element in the stack.
 - If there is a tie for most frequent element, the element closest to the top of the stack is removed and returned.

Example 1:

Input:

```
["FreqStack", "push", "push", "push", "push", "push", "push", "pop", "pop"]
[], [5], [5], [7], [4], [5], [], [], []]
```

Output: [null, null, null, null, null, null, null, 5, 7, 5, 4]

Explanation:

After making six .push operations, the stack is [5,7,5,7,4,5] from

pop() -> returns 5, as 5 is the most frequent.

The stack becomes [5,7,5,7,4].

pop() -> returns 7, as 5 and 7 is the most frequent, but 7 is closer to top.

The stack becomes [5,7,5,4].

pop() -> returns 5.

The stack becomes [5,7,4].

pop() -> returns 4.

The stack becomes [5,7].

Note:

- Calls to FreqStack.push(int x) will be such that $0 \leq x \leq 10^9$.
- It is guaranteed that FreqStack.pop() won't be called if the stack has zero elements.
- The total number of FreqStack.push calls will not exceed 10000 in a single test case.
- The total number of FreqStack.pop calls will not exceed 10000 in a single test case.
- The total number of FreqStack.push and FreqStack.pop calls will not exceed 150000 across all test cases.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[895-Maximum-Frequency-Stack](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

896. Monotonic Array

An array is *monotonic* if it is either monotone increasing or monotone decreasing.

An array A is monotone increasing if for all $i \leq j$, $A[i] \leq A[j]$. An array A is monotone decreasing if for all $i \leq j$, $A[i] \geq A[j]$.

Return true if and only if the given array A is monotonic.

Example 1:

Input: [1, 2, 2, 3]
Output: true

Example 2:

Input: [6, 5, 4, 4]
Output: true

Example 3:

Input: [1,3,2]
Output: false

Example 4:

Input: [1,2,4,5]
Output: true

Example 5:

Input: [1,1,1]
Output: true

Note:

1. $1 \leq A.length \leq 50000$
2. $-1000000 \leq A[i] \leq 1000000$

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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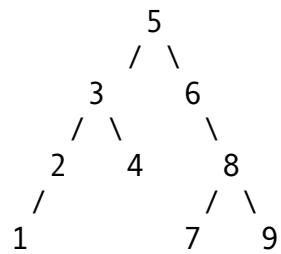
Welcome to Subscribe On Youtube:

897. Increasing Order Search Tree

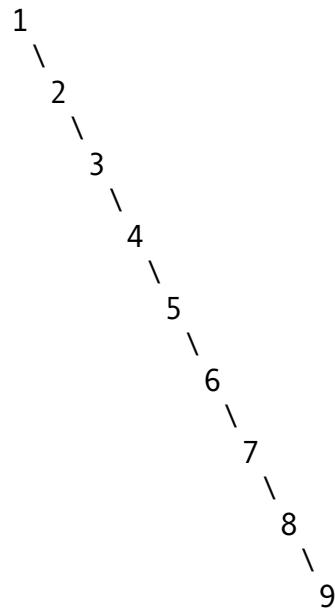
Given a binary search tree, rearrange the tree in **in-order** so that the leftmost node in the tree is now the root of the tree, and every node has no left child and only 1 right child.

Example 1:

Input: [5,3,6,2,4,null,8,1,null,null,null,7,9]



Output: [1,null,2,null,3,null,4,null,5,null,6,null,7,null,8,null]



Note:

1. The number of nodes in the given tree will be between 1 and 100.
2. Each node will have a unique integer value from 0 to 1000.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[897-Increasing-Order-Search-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

898. Bitwise ORs of Subarrays

We have an array A of non-negative integers.

For every (contiguous) subarray B = [A[i], A[i+1], ..., A[j]] (with i <= j), we take the

bitwise OR of all the elements in B , obtaining a result
 $A[i] \mid A[i+1] \mid \dots \mid A[j]$.

Return the number of possible results. (Results that occur more than once are only counted once in the final answer.)

Example 1:

Input: [0]
Output: 1
Explanation:
There is only one possible result: 0.

Example 2:

Input: [1,1,2]
Output: 3
Explanation:
The possible subarrays are [1], [1], [2], [1, 1], [1, 2], [1, 1, 2].
These yield the results 1, 1, 2, 1, 3, 3.
There are 3 unique values, so the answer is 3.

Example 3:

Input: [1,2,4]
Output: 6
Explanation:
The possible results are 1, 2, 3, 4, 6, and 7.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[898-Bitwise-ORs-of-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

899. Orderly Queue

A string S of lowercase letters is given. Then, we may make any number of *moves*.

In each move, we choose one of the first K letters (starting from the left), remove it, and place it at the end of the string.

Return the lexicographically smallest string we could have after any number of moves.

Example 1:

Input: $S = "cba"$, $K = 1$

Output: "acb"

Explanation:

In the first move, we move the 1st character ("c") to the end, or
In the second move, we move the 1st character ("b") to the end, or

Example 2:

Input: $S = "baaca"$, $K = 3$

Output: "aaabc"

Explanation:

In the first move, we move the 1st character ("b") to the end, or
In the second move, we move the 3rd character ("c") to the end, or

Note:

1. $1 \leq K \leq S.length \leq 1000$
2. S consists of lowercase letters only.

Difficulty:

Hard

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

900. RLE Iterator

Write an iterator that iterates through a run-length encoded sequence.

The iterator is initialized by `RLEIterator(int[] A)` , where A is a run-length encoding of some sequence. More specifically, for all even i , $A[i]$ tells us the

number of times that the non-negative integer value $A[i+1]$ is repeated in the sequence.

The iterator supports one function: `next(int n)` , which exhausts the next n elements ($n \geq 1$) and returns the last element exhausted in this way. If there is no element left to exhaust, `next` returns -1 instead.

For example, we start with $A = [3, 8, 0, 9, 2, 5]$, which is a run-length encoding of the sequence $[8, 8, 8, 5, 5]$. This is because the sequence can be read as "three eights, zero nines, two fives".

Example 1:

Input: ["RLEIterator", "next", "next", "next", "next"], [[[3,8,0,9,2,5]]]

Output: [null,8,8,5,-1]

Explanation:

RLEIterator is initialized with RLEIterator([3,8,0,9,2,5]).

This maps to the sequence [8,8,8,5,5].

RLEIterator.next is then called 4 times:

.next(2) exhausts 2 terms of the sequence, returning 8. The rema

.next(1) exhausts 1 term of the sequence, returning 8. The rema

.next(1) exhausts 1 term of the sequence, returning 5. The rema

.next(2) exhausts 2 terms, returning -1. This is because the fi
but the second term did not exist. Since the last term exhausted

Note:

1. $0 \leq A.length \leq 1000$
2. $A.length$ is an even integer.
3. $0 \leq A[i] \leq 10^9$
4. There are at most 1000 calls to
`RLEIterator.next(int n)` per test case.
5. Each call to `RLEIterator.next(int n)` will have
 $1 \leq n \leq 10^9$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[900-RLE-Iterator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

901. Online Stock Span

Write a class `StockSpanner` which collects daily price quotes for some stock, and returns the *span* of that stock's price for the current day.

The span of the stock's price today is defined as the maximum number of consecutive days (starting from today and going backwards) for which the price of the stock was less than or equal to today's price.

For example, if the price of a stock over the next 7 days were [100, 80, 60, 70, 60, 75, 85] , then the stock spans would be [1, 1, 1, 2, 1, 4, 6] .

Example 1:

Input: ["StockSpanner","next","next","next","next","next","next"]
Output: [null,1,1,1,2,1,4,6]
Explanation:
First, S = StockSpanner() is initialized. Then:
S.next(100) is called and returns 1,
S.next(80) is called and returns 1,
S.next(60) is called and returns 1,
S.next(70) is called and returns 2,
S.next(60) is called and returns 1,
S.next(75) is called and returns 4,
S.next(85) is called and returns 6.

Note that (for example) S.next(75) returned 4, because the last 4 prices (including today's price of 75) were less than or equal to today's price of 75.

Note:

1. Calls to StockSpanner.next(int price) will have $1 \leq \text{price} \leq 10^5$.
2. There will be at most 10000 calls to StockSpanner.next per test case.
3. There will be at most 150000 calls to StockSpanner.next across all test cases.
4. The total time limit for this problem has been reduced by 75% for C++, and 50% for all other languages.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[901-Online-Stock-Span](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

902. Numbers At Most N Given Digit Set

We have a **sorted** set of digits D , a non-empty subset of $\{ '1' , '2' , '3' , '4' , '5' , '6' , '7' , '8' , '9' \}$. (Note that '0' is not included.)

Now, we write numbers using these digits, using each digit as many times as we want. For example, if $D = \{ '1' , '3' , '5' \}$, we may write numbers such as '13' , '551' , '1351315' .

Return the number of positive integers that can be written (using the digits of D) that are less than or equal to N .

Example 1:

Input: $D = ["1", "3", "5", "7"]$, $N = 100$

Output: 20

Explanation:

The 20 numbers that can be written are:

1, 3, 5, 7, 11, 13, 15, 17, 31, 33, 35, 37, 51, 53, 55, 57, 71,

Example 2:

Input: $D = ["1", "4", "9"]$, $N = 1000000000$

Output: 29523

Explanation:

We can write 3 one digit numbers, 9 two digit numbers, 27 three

81 four digit numbers, 243 five digit numbers, 729 six digit numbers, 2187 seven digit numbers, 6561 eight digit numbers, and 19683 nine digit numbers. In total, this is 29523 integers that can be written using the digits 1 through 9.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[**902-Numbers-At-Most-N-Given-Digit-Set**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

903. Valid Permutations for DI Sequence

We are given S , a length n string of characters from the set $\{ 'D' , 'I' \}$. (These letters stand for "decreasing" and "increasing".)

A *valid permutation* is a permutation $P[0], P[1], \dots, P[n]$ of integers $\{0, 1, \dots, n\}$, such that for all i :

- If $S[i] == 'D'$, then $P[i] > P[i+1]$, and;
- If $S[i] == 'I'$, then $P[i] < P[i+1]$.

How many valid permutations are there? Since the answer may be large, **return your answer modulo $10^9 + 7$** .

Example 1:

Input: "DID"

Output: 5

Explanation:

The 5 valid permutations of $(0, 1, 2, 3)$ are:

$(1, 0, 3, 2)$

$(2, 0, 3, 1)$

$(2, 1, 3, 0)$

$(3, 0, 2, 1)$

$(3, 1, 2, 0)$

Note:

1. $1 \leq S.length \leq 200$

2. S consists only of characters from the set $\{ 'D' , 'I' \}$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[903-Valid-Permutations-for-DI-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

904. Fruit Into Baskets

In a row of trees, the i -th tree produces fruit with type `tree[i]`.

You **start at any tree of your choice**, then repeatedly perform the following steps:

1. Add one piece of fruit from this tree to your baskets. If you cannot, stop.
2. Move to the next tree to the right of the current tree. If there is no tree to the right, stop.

Note that you do not have any choice after the initial choice of starting tree: you must perform step 1, then step 2, then back to step 1, then step 2, and so on until you stop.

You have two baskets, and each basket can carry any quantity of fruit, but you want each basket to only carry one type of fruit each.

What is the total amount of fruit you can collect with this procedure?

Example 1:

Input: [1,2,1]

Output: 3

Explanation: We can collect [1,2,1].

Example 2:

Input: [0,1,2,2]

Output: 3

Explanation: We can collect [1,2,2].

If we started at the first tree, we would only collect [0, 1].

Example 3:

Input: [1,2,3,2,2]

Output: 4

Explanation: We can collect [2,3,2,2].

If we started at the first tree, we would only collect [1, 2].

Example 4:

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

Output: 5

Explanation: We can collect [1,2,1,1,2].

If we started at the first tree or the eighth tree, we would only

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[904-Fruit-Into-Baskets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

905. Sort Array By Parity

Given an array A of non-negative integers, return an array consisting of all the even elements of A , followed by all the odd elements of A .

You may return any answer array that satisfies this condition.

Example 1:

Input: [3,1,2,4]

Output: [2,4,3,1]

The outputs [4,2,3,1], [2,4,1,3], and [4,2,1,3] would also be ac

Note:

1. 1 <= A.length <= 5000

2. 0 <= A[i] <= 5000

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[905-Sort-Array-By-Parity](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

906. Super Palindromes

Let's say a positive integer is a *superpalindrome* if it is a palindrome, and it is also the square of a palindrome.

Now, given two positive integers L and R (represented as strings), return the number of superpalindromes in the inclusive range [L, R] .

Example 1:

Input: L = "4", R = "1000"

Output: 4

Explanation: 4, 9, 121, and 484 are superpalindromes.

Note that 676 is not a superpalindrome: 26 * 26 = 676, but 26 is

Note:

1. $1 \leq \text{len}(L) \leq 18$
2. $1 \leq \text{len}(R) \leq 18$
3. L and R are strings representing integers in the range $[1, 10^{18}]$.
4. $\text{int}(L) \leq \text{int}(R)$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[906-Super-Palindromes](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

907. Sum of Subarray Minimums

Given an array of integers A , find the sum of $\min(B)$, where B ranges over every (contiguous) subarray of A .

Since the answer may be large, **return the answer modulo $10^9 + 7$** .

Example 1:

Input: [3,1,2,4]

Output: 17

Explanation: Subarrays are [3], [1], [2], [4], [3,1], [1,2], [2,4]. Minimums are 3, 1, 2, 4, 1, 1, 2, 1, 1. Sum is 17.

Note:

1. $1 \leq A.length \leq 30000$

2. $1 \leq A[i] \leq 30000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[907-Sum-of-Subarray-Minimums](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

908. Smallest Range I

Given an array A of integers, for each integer A[i] we may choose any x with $-K \leq x \leq K$, and add x to A[i] .

After this process, we have some array B .

Return the smallest possible difference between the maximum value of B and the minimum value of B .

Example 1:

Input: A = [1], K = 0
Output: 0
Explanation: B = [1]

Example 2:

Input: A = [0,10], K = 2
Output: 6
Explanation: B = [2,8]

Example 3:

Input: A = [1,3,6], K = 3
Output: 0
Explanation: B = [3,3,3] or B = [4,4,4]

Note:

1. $1 \leq A.length \leq 10000$
2. $0 \leq A[i] \leq 10000$
3. $0 \leq K \leq 10000$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[908-Smallest-Range-I](#)

All Problems:

[Link to All Problems](#)

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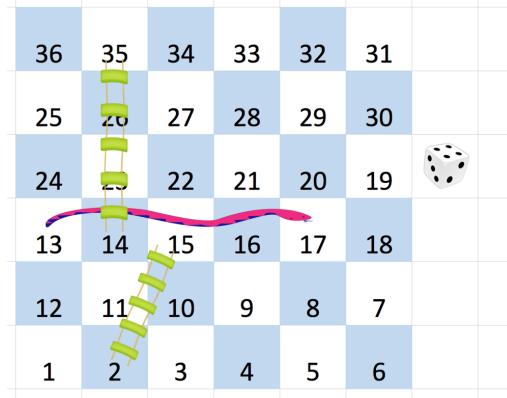
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Welcome to Subscribe On Youtube:

909. Snakes and Ladders

On an $N \times N$ board , the numbers from 1 to $N \times N$ are written **boustrophedonically starting from the bottom left of the board** , and alternating direction each row. For example, for a 6×6 board, the numbers are written as follows:



You start on square 1 of the board (which is always in the last row and first column). Each move, starting from square x , consists of the following:

- You choose a destination square S with number $x+1, x+2, x+3, x+4, x+5$, or $x+6$, provided this number is $\leq N \times N$.
 - (This choice simulates the result of a standard 6-sided die roll: ie., there are always **at most 6 destinations, regardless of the size of the board**.)
- If S has a snake or ladder, you move to the destination of that snake or ladder. Otherwise, you move to S .

A board square on row r and column c has a "snake or ladder" if $\text{board}[r][c] \neq -1$. The destination of that snake or ladder is $\text{board}[r][c]$.

Note that you only take a snake or ladder at most once per move: if the destination to a snake or ladder is the start of another snake or ladder, you do **not** continue moving. (For example, if the board is `[[4,-1],[-1,3]]`, and on the first move your destination square is `2`, then you finish your first move at `3`, because you do **not** continue moving to `4`.)

Return the least number of moves required to reach square $N \times N$. If it is not possible, return -1.

Example 1:

```
Input: [
[-1,-1,-1,-1,-1,-1],
[-1,-1,-1,-1,-1,-1],
[-1,-1,-1,-1,-1,-1],
[-1,35,-1,-1,13,-1],
```

```
[-1,-1,-1,-1,-1,-1],  
[-1,15,-1,-1,-1,-1]]
```

Output: 4

Explanation:

At the beginning, you start at square 1 [at row 5, column 0].

You decide to move to square 2, and must take the ladder to square 1.

You then decide to move to square 17 (row 3, column 5), and must take the ladder to square 1.

You then decide to move to square 14, and must take the ladder to square 1.

You then decide to move to square 36, ending the game.

It can be shown that you need at least 4 moves to reach the N*N-1 square.

Note:

1. $2 \leq \text{board.length} = \text{board[0].length} \leq 20$
2. board[i][j] is between 1 and N^N or is equal to -1 .
3. The board square with number 1 has no snake or ladder.
4. The board square with number N^N has no snake or ladder.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[909-Snakes-and-Ladders](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

910. Smallest Range II

Given an array A of integers, for each integer A[i] we need to choose **either** $x = -K$ **or** $x = K$, and add x to A[i] (only once) .

After this process, we have some array B .

Return the smallest possible difference between the maximum value of B and the minimum value of B .

Example 1:

Input: A = [1], K = 0
Output: 0
Explanation: B = [1]

Example 2:

Input: A = [0,10], K = 2
Output: 6
Explanation: B = [2,8]

Example 3:

Input: A = [1,3,6], K = 3
Output: 3
Explanation: B = [4,6,3]

Note:

1. $1 \leq A.length \leq 10000$
2. $0 \leq A[i] \leq 10000$
3. $0 \leq K \leq 10000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[910-Smallest-Range-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

911. Online Election

In an election, the i -th vote was cast for persons[i] at time times[i].

Now, we would like to implement the following query function: TopVotedCandidate.q(int t) will return the number of the person that was leading the election at time t.

Votes cast at time t will count towards our query. In the case of a tie, the most recent vote (among tied candidates) wins.

Example 1:

Input: ["TopVotedCandidate", "q", "q", "q", "q", "q", "q"], [[[0,1,1,0
Output: [null,0,1,1,0,0,1]

Explanation:

At time 3, the votes are [0], and 0 is leading.

At time 12, the votes are [0,1,1], and 1 is leading.

At time 25, the votes are [0,1,1,0,0,1], and 1 is leading (as tie)

This continues for 3 more queries at time 15, 24, and 8.

Note:

1. `1 <= persons.length = times.length <= 5000`
2. `0 <= persons[i] <= persons.length`
3. `times` is a strictly increasing array with all elements in `[0, 10^9]` .
4. `TopVotedCandidate.q` is called at most 10000 times per test case.
5. `TopVotedCandidate.q(int t)` is always called with `t >= times[0]` .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[911-Online-Election](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

912. Sort an Array

Given an array of integers `nums` , sort the array in ascending order.

Example 1:

Input: [5, 2, 3, 1]
Output: [1, 2, 3, 5]

Example 2:

Input: [5, 1, 1, 2, 0, 0]
Output: [0, 0, 1, 1, 2, 5]

Note:

1. `1 <= A.length <= 10000`
2. `-50000 <= A[i] <= 50000`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[912-Sort-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

913. Cat and Mouse

A game on an **undirected** graph is played by two players, Mouse and Cat, who alternate turns.

The graph is given as follows: `graph[a]` is a list of all nodes `b` such that `ab` is an edge of the graph.

Mouse starts at node 1 and goes first, Cat starts at node 2 and goes second, and there is a Hole at node 0.

During each player's turn, they **must** travel along one edge of the graph that meets where they are. For example, if the Mouse is at node 1 , it **must** travel to any node in `graph[1]` .

Additionally, it is not allowed for the Cat to travel to the Hole (node 0.)

Then, the game can end in 3 ways:

- If ever the Cat occupies the same node as the Mouse, the Cat wins.
- If ever the Mouse reaches the Hole, the Mouse wins.

- If ever a position is repeated (ie. the players are in the same position as a previous turn, and it is the same player's turn to move), the game is a draw.

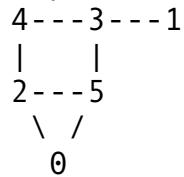
Given a graph , and assuming both players play optimally, return 1 if the game is won by Mouse, 2 if the game is won by Cat, and 0 if the game is a draw.

Example 1:

Input: [[2,5],[3],[0,4,5],[1,4,5],[2,3],[0,2,3]]

Output: 0

Explanation:



Note:

1. $3 \leq \text{graph.length} \leq 50$
2. It is guaranteed that $\text{graph}[1]$ is non-empty.
3. It is guaranteed that $\text{graph}[2]$ contains a non-zero element.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[913-Cat-and-Mouse](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

914. X of a Kind in a Deck of Cards

In a deck of cards, each card has an integer written on it.

Return `true` if and only if you can choose $X \geq 2$ such that it is possible to split the entire deck into 1 or more groups of cards, where:

- Each group has exactly X cards.
- All the cards in each group have the same integer.

Example 1:

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

Output: true

Explanation: Possible partition [1,1],[2,2],[3,3],[4,4]

Example 2:

Input: [1,1,1,2,2,2,3,3]

Output: false

Explanation: No possible partition.

Example 3:

Input: [1]

Output: false

Explanation: No possible partition.

Example 4:

Input: [1,1]
Output: true
Explanation: Possible partition [1,1]

Example 5:

Input: [1,1,2,2,2,2]
Output: true
Explanation: Possible partition [1,1],[2,2],[2,2]

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

915. Partition Array into Disjoint Intervals

Given an array A , partition it into two (contiguous) subarrays left and right so that:

- Every element in left is less than or equal to every element in right .
- left and right are non-empty.
- left has the smallest possible size.

Return the **length** of left after such a partitioning. It is guaranteed that such a partitioning exists.

Example 1:

Input: [5,0,3,8,6]

Output: 3

Explanation: $\text{left} = [5,0,3]$, $\text{right} = [8,6]$

Example 2:

Input: [1,1,1,0,6,12]

Output: 4

Explanation: $\text{left} = [1,1,1,0]$, $\text{right} = [6,12]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[915-Partition-Array-into-Disjoint-Intervals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

916. Word Subsets

We are given two arrays A and B of words. Each word is a string of lowercase letters.

Now, say that word b is a subset of word a if every letter in b occurs in a , **including multiplicity** . For example, "wrr" is a subset of "warrior" , but is not a subset of "world" .

Now say a word a from A is *universal* if for every b in B, b is a subset of a .

Return a list of all universal words in A . You can return the words in any order.

Example 1:

Input: A = ["amazon", "apple", "facebook", "google", "leetcode"] , B :

Output: ["facebook", "google", "leetcode"]

Example 2:

Input: A = ["amazon", "apple", "facebook", "google", "leetcode"] , B :

Output: ["apple", "google", "leetcode"]

Example 3:

Input: A = ["amazon", "apple", "facebook", "google", "leetcode"] , B :

Output: ["facebook", "google"]

Example 4:

Input: A = ["amazon", "apple", "facebook", "google", "leetcode"], B = ["facebook", "google", "leetcode"]
Output: ["google", "leetcode"]

Example 5:

Input: A = ["amazon", "apple", "facebook", "google", "leetcode"], B = ["facebook", "google", "amazon", "apple"]
Output: ["facebook", "leetcode"]

Note:

1. $1 \leq A.length, B.length \leq 10000$
2. $1 \leq A[i].length, B[i].length \leq 10$
3. $A[i]$ and $B[i]$ consist only of lowercase letters.
4. All words in $A[i]$ are unique: there isn't $i \neq j$ with $A[i] == A[j]$.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

917. Reverse Only Letters

Given a string S , return the "reversed" string where all characters that are not a letter stay in the same place, and all letters reverse their positions.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[917-Reverse-Only-Letters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

918. Maximum Sum Circular Subarray

Given a **circular array C** of integers represented by A , find the maximum possible sum of a non-empty subarray of C .

Here, a *circular array* means the end of the array connects to the beginning of the array. (Formally, $C[i] = A[i]$ when $0 \leq i < A.length$, and $C[i+A.length] = C[i]$ when $i \geq 0$.)

Also, a subarray may only include each element of the fixed buffer A at most once. (Formally, for a subarray $C[i], C[i+1], \dots, C[j]$, there does not exist $i \leq k_1, k_2 \leq j$ with $k_1 \% A.length = k_2 \% A.length$.)

Example 1:

Input: [1,-2,3,-2]

Output: 3

Explanation: Subarray [3] has maximum sum 3

Example 2:

Input: [5,-3,5]

Output: 10

Explanation: Subarray [5,5] has maximum sum $5 + 5 = 10$

Example 3:

Input: [3,-1,2,-1]

Output: 4

Explanation: Subarray [2,-1,3] has maximum sum $2 + (-1) + 3 = 4$

Example 4:

Input: [3,-2,2,-3]

Output: 3

Explanation: Subarray [3] and [3,-2,2] both have maximum sum 3

Example 5:

Input: [-2,-3,-1]

Output: -1

Explanation: Subarray [-1] has maximum sum -1

Note:

1. $-30000 \leq A[i] \leq 30000$
2. $1 \leq A.length \leq 30000$

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

919. Complete Binary Tree Inserter

A *complete* binary tree is a binary tree in which every level, except possibly the last, is completely filled, and all nodes are as far left as possible.

Write a data structure `CBTInserter` that is initialized with a complete binary tree and supports the following operations:

- `CBTInserter(TreeNode root)` initializes the data structure on a given tree with head node `root`;
- `CBTInserter.insert(int v)` will insert a `TreeNode` into the tree with value `node.val = v` so that the tree remains complete, **and returns the value of the parent of the inserted `TreeNode`** ;
- `CBTInserter.get_root()` will return the head node of the tree.

Example 1:

Input: `inputs = ["CBTInserter","insert","get_root"]`, `inputs = [[`
Output: `[null,1,[1,2]]`

Example 2:

Input: `inputs = ["CBTInserter","insert","insert","get_root"]`, `inputs = [[`
Output: `[null,3,4,[1,2,3,4,5,6,7,8]]`

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

920. Number of Music Playlists

Your music player contains N different songs and she wants to listen to L (not necessarily different) songs during your trip. You create a playlist so that:

- Every song is played at least once
- A song can only be played again only if K other songs have been played

Return the number of possible playlists. **As the answer can be very large, return it modulo $10^9 + 7$.**

Example 1:

Input: $N = 3$, $L = 3$, $K = 1$

Output: 6

Explanation: There are 6 possible playlists. [1, 2, 3], [1, 3, 2]

Example 2:

Input: $N = 2$, $L = 3$, $K = 0$

Output: 6

Explanation: There are 6 possible playlists. [1, 1, 2], [1, 2, 1]

Example 3:

Input: $N = 2$, $L = 3$, $K = 1$

Output: 2

Explanation: There are 2 possible playlists. [1, 2, 1], [2, 1, 2]

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

921. Minimum Add to Make Parentheses Valid

Given a string S of ' $($ ' and ' $)$ ' parentheses, we add the minimum number of parentheses ($'($ ' or ' $)$ ', and in any positions) so that the resulting parentheses string is valid.

Formally, a parentheses string is valid if and only if:

- It is the empty string, or
- It can be written as AB (A concatenated with B), where A and B are valid strings, or
- It can be written as (A) , where A is a valid string.

Given a parentheses string, return the minimum number of parentheses we must add to make the resulting string valid.

Example 1:

Input: "()"
Output: 1

Example 2:

Input: "((("
Output: 3

Example 3:

Input: "()"
Output: 0

Example 4:

Input: "())()(" "
Output: 4

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[921-Minimum-Add-to-Make-Parentheses-Valid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

922. Sort Array By Parity II

Given an array A of non-negative integers, half of the integers in A are odd, and half of the integers are even.

Sort the array so that whenever A[i] is odd, i is odd; and whenever A[i] is even, i is even.

You may return any answer array that satisfies this condition.

Example 1:

Input: [4,2,5,7]

Output: [4,5,2,7]

Explanation: [4,7,2,5], [2,5,4,7], [2,7,4,5] would also have been accepted.

Note:

1. $2 \leq A.length \leq 20000$

2. $A.length \% 2 == 0$

3. $0 \leq A[i] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[922-Sort-Array-By-Parity-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

923. 3Sum With Multiplicity

Given an integer array A , and an integer target , return the number of tuples i , j , k such that i < j < k and A[i] + A[j] + A[k] == target .

As the answer can be very large, return it modulo $10^9 + 7$.

Example 1:

Input: A = [1,1,2,2,3,3,4,4,5,5], target = 8

Output: 20

Explanation:

Enumerating by the values (A[i], A[j], A[k]):
(1, 2, 5) occurs 8 times;

```
(1, 3, 4) occurs 8 times;  
(2, 2, 4) occurs 2 times;  
(2, 3, 3) occurs 2 times.
```

Example 2:

Input: A = [1,1,2,2,2,2], target = 5

Output: 12

Explanation:

A[i] = 1, A[j] = A[k] = 2 occurs 12 times:

We choose one 1 from [1,1] in 2 ways,
and two 2s from [2,2,2,2] in 6 ways.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

924. Minimize Malware Spread

In a network of nodes, each node i is directly connected to another node j if and only if $\text{graph}[i][j] = 1$.

Some nodes initial are initially infected by malware. Whenever two nodes are directly connected and at least one of those two nodes is infected by malware, both nodes will be infected by malware. This spread of malware will continue until no more nodes can be infected in this manner.

Suppose $M(\text{initial})$ is the final number of nodes infected with malware in the entire network, after the spread of malware stops.

We will remove one node from the initial list. Return the node that if removed, would minimize $M(\text{initial})$. If multiple nodes could be removed to minimize $M(\text{initial})$, return such a node with the smallest index.

Note that if a node was removed from the initial list of infected nodes, it may still be infected later as a result of the malware spread.

Example 1:

Input: $\text{graph} = [[1,1,0],[1,1,0],[0,0,1]]$, $\text{initial} = [0,1]$
Output: 0

Example 2:

Input: $\text{graph} = [[1,0,0],[0,1,0],[0,0,1]]$, $\text{initial} = [0,2]$
Output: 0

Example 3:

Input: $\text{graph} = [[1,1,1],[1,1,1],[1,1,1]]$, $\text{initial} = [1,2]$
Output: 1

Note:

1. $1 < \text{graph.length} = \text{graph}[0].length \leq 300$
2. $0 \leq \text{graph}[i][j] == \text{graph}[j][i] \leq 1$

```
3. graph[i][i] = 1  
4. 1 <= initial.length < graph.length  
5. 0 <= initial[i] < graph.length
```

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[924-Minimize-Malware-Spread](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

925. Long Pressed Name

Your friend is typing his name into a keyboard. Sometimes, when typing a character c, the key might

get *long pressed*, and the character will be typed 1 or more times.

You examine the typed characters of the keyboard. Return True if it is possible that it was your friends name, with some characters (possibly none) being long pressed.

Example 1:

Input: name = "alex", typed = "aaleex"

Output: true

Explanation: 'a' and 'e' in 'alex' were long pressed.

Example 2:

Input: name = "saeed", typed = "ssaaedd"

Output: false

Explanation: 'e' must have been pressed twice, but it wasn't in

Example 3:

Input: name = "leelee", typed = "lleeeliee"

Output: true

Example 4:

Input: name = "laiden", typed = "laiden"

Output: true

Explanation: It's not necessary to long press any character.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[925-Long-Pressed-Name](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

926. Flip String to Monotone Increasing

A string of '0' s and '1' s is *monotone increasing* if it consists of some number of '0' s (possibly 0), followed by some number of '1' s (also possibly 0.)

We are given a string S of '0' s and '1' s, and we may flip any '0' to a '1' or a '1' to a '0' .

Return the minimum number of flips to make S monotone increasing.

Example 1:

Input: "00110"

Output: 1

Explanation: We flip the last digit to get 00111.

Example 2:

Input: "010110"

Output: 2

Explanation: We flip to get 011111, or alternatively 000111.

Example 3:

Input: "00011000"
Output: 2
Explanation: We flip to get 00000000.

Note:

1. $1 \leq S.length \leq 20000$
2. S only consists of '0' and '1' characters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[926-Flip-String-to-Monotone-Increasing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

927. Three Equal Parts

Given an array A of 0's and 1's, divide the array into 3 non-empty parts such that all of these parts represent the same binary value.

If it is possible, return **any** [i, j] with $i+1 < j$, such that:

- $A[0], A[1], \dots, A[i]$ is the first part;
- $A[i+1], A[i+2], \dots, A[j-1]$ is the second part, and
- $A[j], A[j+1], \dots, A[A.length - 1]$ is the third part.
- All three parts have equal binary value.

If it is not possible, return [-1, -1].

Note that the entire part is used when considering what binary value it represents. For example, [1, 1, 0] represents 6 in decimal, not 3. Also, leading zeros are allowed, so [0, 1, 1] and [1, 1] represent the same value.

Example 1:

Input: [1, 0, 1, 0, 1]
Output: [0, 3]

Example 2:

Input: [1, 1, 0, 1, 1]
Output: [-1, -1]

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[927-Three-Equal-Parts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

928. Minimize Malware Spread II

(This problem is the same as *Minimize Malware Spread* , with the differences bolded.)

In a network of nodes, each node i is directly connected to another node j if and only if $\text{graph}[i][j] = 1$.

Some nodes initial are initially infected by malware. Whenever two nodes are directly connected and at least one of those two nodes is infected by malware, both nodes will be infected by malware. This spread of malware will continue until no more nodes can be infected in this manner.

Suppose $M(\text{initial})$ is the final number of nodes infected with malware in the entire network, after the spread of malware stops.

We will remove one node from the initial list, **completely removing it and any connections from this node to any other node**. Return the node that if removed, would minimize $M(\text{initial})$. If multiple nodes could be removed to minimize $M(\text{initial})$, return such a node with the smallest index.

Example 1:

Input: graph = [[1,1,0],[1,1,0],[0,0,1]], initial = [0,1]
Output: 0

Example 2:

Input: graph = [[1,1,0],[1,1,1],[0,1,1]], initial = [0,1]
Output: 1

Example 3:

Input: graph = [[1,1,0,0],[1,1,1,0],[0,1,1,1],[0,0,1,1]], initial = [0,1,1]
Output: 1

Note:

1. $1 < \text{graph.length} = \text{graph[0].length} \leq 300$
2. $0 \leq \text{graph[i][j]} == \text{graph[j][i]} \leq 1$
3. $\text{graph[i][i]} = 1$
4. $1 \leq \text{initial.length} < \text{graph.length}$
5. $0 \leq \text{initial[i]} < \text{graph.length}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[928-Minimize-Malware-Spread-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

929. Unique Email Addresses

Every email consists of a local name and a domain name, separated by the @ sign.

For example, in `alice@leetcode.com` , `alice` is the local name, and `leetcode.com` is the domain name.

Besides lowercase letters, these emails may contain '.' s or '+' s.

If you add periods ('.') between some characters in the **local name** part of an email address, mail sent there will be forwarded to the same address without dots in the local name. For example, "`alice.z@leetcode.com`" and "`alicez@leetcode.com`" forward to the same email address. (Note that this rule does not apply for domain names.)

If you add a plus ('+') in the **local name** , everything after the first plus sign will be **ignored** . This allows certain emails to be filtered, for example `m.y+name@email.com` will be forwarded to

`my@email.com` . (Again, this rule does not apply for domain names.)

It is possible to use both of these rules at the same time.

Given a list of `emails` , we send one email to each address in the list. How many different addresses actually receive mails?

Example 1:

Input: ["test.email+alex@leetcode.com", "test.e.mail+bob.cathy@leetc

Output: 2

Explanation: "testemail@leetcode.com" and "testemail@lee.tcode.co

Note:

- $1 \leq \text{emails}[i].length \leq 100$
- $1 \leq \text{emails.length} \leq 100$
- Each `emails[i]` contains exactly one '@' character.
- All local and domain names are non-empty.
- Local names do not start with a '+' character.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[929-Unique-Email-Addresses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

930. Binary Subarrays With Sum

In an array A of 0's and 1's, how many **non-empty** subarrays have sum S ?

Example 1:

Input: A = [1,0,1,0,1], S = 2

Output: 4

Explanation:

The 4 subarrays are bolded below:

[1,0,1,0,1]

[1,0,1,0,1]

[1,0,1,0,1]

[1,0,1,0,1]

Note:

1. A.length <= 30000
2. 0 <= S <= A.length
3. A[i] is either 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[930-Binary-Subarrays-With-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

931. Minimum Falling Path Sum

Given a **square** array of integers A , we want the **minimum** sum of a *falling path* through A .

A falling path starts at any element in the first row, and chooses one element from each row. The next row's choice must be in a column that is different from the previous row's column by at most one.

Example 1:

Input: [[1,2,3],[4,5,6],[7,8,9]]
Output: 12

Explanation:

The possible falling paths are:

- [1,4,7], [1,4,8], [1,5,7], [1,5,8], [1,5,9]
- [2,4,7], [2,4,8], [2,5,7], [2,5,8], [2,5,9], [2,6,8], [2,6,9]
- [3,5,7], [3,5,8], [3,5,9], [3,6,8], [3,6,9]

The falling path with the smallest sum is [1,4,7] , so the answer is 12 .

Note:

1. $1 \leq A.length == A[0].length \leq 100$
2. $-100 \leq A[i][j] \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[931-Minimum-Falling-Path-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

932. Beautiful Array

For some fixed N , an array A is *beautiful* if it is a permutation of the integers $1, 2, \dots, N$, such that:

For every $i < j$, there is **no** k with $i < k < j$ such that $A[k] * 2 = A[i] + A[j]$.

Given N , return **any** beautiful array A . (It is guaranteed that one exists.)

Example 1:

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

Example 2:

Input: 5
Output: [3,1,2,5,4]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[932-Beautiful-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

933. Number of Recent Calls

Write a class `RecentCounter` to count recent requests.

It has only one method: `ping(int t)`, where `t` represents some time in milliseconds.

Return the number of `ping`'s that have been made from 3000 milliseconds ago until now.

Any `ping` with time in $[t - 3000, t]$ will count, including the current `ping`.

It is guaranteed that every call to `ping` uses a strictly larger value of `t` than before.

Example 1:

```
Input: inputs = ["RecentCounter","ping","ping","ping","ping"], i  
Output: [null,1,2,3,3]
```

Note:

1. Each test case will have at most 10000 calls to `ping`.

2. Each test case will call `ping` with strictly increasing values of `t` .
3. Each call to `ping` will have $1 \leq t \leq 10^9$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[933-Number-of-Recent-Calls](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

934. Shortest Bridge

In a given 2D binary array `A` , there are two islands. (An island is a 4-directionally connected group of 1 s not connected to any other 1s.)

Now, we may change 0's to 1's so as to connect the two islands together to form 1 island.

Return the smallest number of 0's that must be flipped.
(It is guaranteed that the answer is at least 1.)

Example 1:

Input: [[0,1],[1,0]]
Output: 1

Example 2:

Input: [[0,1,0],[0,0,0],[0,0,1]]
Output: 2

Example 3:

Input: [[1,1,1,1,1],[1,0,0,0,1],[1,0,1,0,1],[1,0,0,0,1],[1,1,1,1,1]]
Output: 1

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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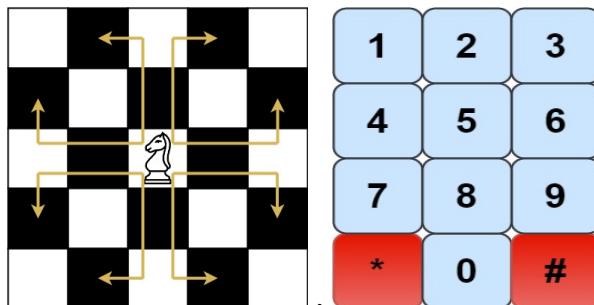
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Welcome to Subscribe On Youtube:

935. Knight Dialer

A chess knight can move as indicated in the chess diagram below:



This time, we place our chess knight on any numbered key of a phone pad (indicated above), and the knight makes $N - 1$ hops. Each hop must be from one key to another numbered key.

Each time it lands on a key (including the initial placement of the knight), it presses the number of that key, pressing N digits total.

How many distinct numbers can you dial in this manner?

Since the answer may be large, **output the answer modulo $10^9 + 7$** .

Example 1:

Input: 1
Output: 10

Example 2:

Input: 2
Output: 20

Example 3:

Input: 3
Output: 46

Note:

- $1 \leq N \leq 5000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[935-Knight-Dialer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

936. Stamping The Sequence

You want to form a target string of **lowercase letters**.

At the beginning, your sequence is `target.length` '?' marks. You also have a stamp of lowercase letters.

On each turn, you may place the stamp over the sequence, and replace every letter in the sequence with the corresponding letter from the stamp. You can make up to $10 * \text{target.length}$ turns.

For example, if the initial sequence is "?????", and your stamp is "abc" , then you may make "abc??", "?abc?", "?abc" in the first turn. (Note that the stamp must be fully contained in the boundaries of the sequence in order to stamp.)

If the sequence is possible to stamp, then return an array of the index of the left-most letter being stamped at each turn. If the sequence is not possible to stamp, return an empty array.

For example, if the sequence is "ababc" , and the stamp is "abc" , then we could return the answer [0, 2] , corresponding to the moves "?????" -> "abc??" -> "ababc" .

Also, if the sequence is possible to stamp, it is guaranteed it is possible to stamp within $10 * \text{target.length}$ moves. Any answers specifying more than this number of moves will not be accepted.

Example 1:

Input: `stamp = "abc"`, `target = "ababc"`

Output: [0,2]

([1,0,2] would also be accepted as an answer, as well as some other answers)

Example 2:

Input: `stamp = "abca"`, `target = "aabcaca"`

Output: [3,0,1]

Note:

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

937. Reorder Data in Log Files

You have an array of logs . Each log is a space delimited string of words.

For each log, the first word in each log is an alphanumeric *identifier* . Then, either:

- Each word after the identifier will consist only of lowercase letters, or;
- Each word after the identifier will consist only of digits.

We will call these two varieties of logs *letter-logs* and *digit-logs* . It is guaranteed that each log has at least one word after its identifier.

Reorder the logs so that all of the letter-logs come before any digit-log. The letter-logs are ordered

lexicographically ignoring identifier, with the identifier used in case of ties. The digit-logs should be put in their original order.

Return the final order of the logs.

Example 1:

Input: logs = ["dig1 8 1 5 1","let1 art can","dig2 3 6","let2 own kit dig1","let3 art zero"]
Output: ["let1 art can","let3 art zero","let2 own kit dig1","dig2 3 6","let1 art can"]

Constraints:

1. $0 \leq \text{logs.length} \leq 100$
2. $3 \leq \text{logs[i].length} \leq 100$
3. logs[i] is guaranteed to have an identifier, and a word after the identifier.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[937-Reorder-Data-in-Log-Files](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

938. Range Sum of BST

Given the `root` node of a binary search tree, return the sum of values of all nodes with value between `L` and `R` (inclusive).

The binary search tree is guaranteed to have unique values.

Example 1:

Input: `root = [10,5,15,3,7,null,18]`, `L = 7`, `R = 15`
Output: 32

Example 2:

Input: `root = [10,5,15,3,7,13,18,1,null,6]`, `L = 6`, `R = 10`
Output: 23

Note:

1. The number of nodes in the tree is at most 10000 .
2. The final answer is guaranteed to be less than 2^{31} .

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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939. Minimum Area Rectangle

Given a set of points in the xy-plane, determine the minimum area of a rectangle formed from these points, with sides parallel to the x and y axes.

If there isn't any rectangle, return 0.

Example 1:

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

Example 2:

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

Note :

1. $1 \leq \text{points.length} \leq 500$
2. $0 \leq \text{points}[i][0] \leq 40000$
3. $0 \leq \text{points}[i][1] \leq 40000$
4. All points are distinct.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

940. Distinct Subsequences

II

Given a string S , count the number of distinct, non-empty subsequences of S .

Since the result may be large, **return the answer modulo $10^9 + 7$** .

Example 1:

Input: "abc"

Output: 7

Explanation: The 7 distinct subsequences are "a", "b", "c", "ab"

Example 2:

Input: "aba"
Output: 6
Explanation: The 6 distinct subsequences are "a", "b", "ab", "ba", "aa", and "aaa".

Example 3:

Input: "aaa"
Output: 3
Explanation: The 3 distinct subsequences are "a", "aa" and "aaa".

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

941. Valid Mountain Array

Given an array A of integers, return true if and only if it is a *valid mountain array*.

Recall that A is a mountain array if and only if:

- $A.length \geq 3$
- There exists some i with $0 < i < A.length - 1$ such that:
 - $A[0] < A[1] < \dots < A[i-1] < A[i]$
 - $A[i] > A[i+1] > \dots > A[A.length - 1]$

Example 1:

Input: [2,1]
Output: false

Example 2:

Input: [3,5,5]
Output: false

Example 3:

Input: [0,3,2,1]
Output: true

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

942. DI String Match

Given a string S that **only** contains "I" (increase) or "D" (decrease), let $N = S.length$.

Return **any** permutation A of $[0, 1, \dots, N]$ such that for all $i = 0, \dots, N-1$:

- If $S[i] == "I"$, then $A[i] < A[i+1]$
- If $S[i] == "D"$, then $A[i] > A[i+1]$

Example 1:

Input: "IDID"
Output: [0,4,1,3,2]

Example 2:

Input: "III"
Output: [0,1,2,3]

Example 3:

Input: "DDI"
Output: [3,2,0,1]

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

943. Find the Shortest Superstring

Given an array A of strings, find any smallest string that contains each string in A as a substring.

We may assume that no string in A is substring of another string in A .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[943-Find-the-Shortest-Superstring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

944. Delete Columns to Make Sorted

We are given an array A of N lowercase letter strings, all of the same length.

Now, we may choose any set of deletion indices, and for each string, we delete all the characters in those indices.

For example, if we have an array $A = ["abcdef", "uvwxyz"]$ and deletion indices $\{0, 2, 3\}$, then the final array after deletions is $["bef", "vyz"]$, and the remaining columns of A are $["b", "v"]$, $["e", "y"]$, and $["f", "z"]$. (Formally, the c -th column is $[A[0][c], A[1][c], \dots, A[A.length-1][c]]$.)

Suppose we chose a set of deletion indices D such that after deletions, each remaining column in A is in **non-decreasing** sorted order.

Return the minimum possible value of $D.length$.

Example 1:

Input: ["cba", "daf", "ghi"]

Output: 1

Explanation:

After choosing $D = \{1\}$, each column ["c", "d", "g"] and ["a", "f", "h"] is sorted. If we chose $D = \{\}$, then a column ["b", "a", "h"] would not be in sorted order.

Example 2:

Input: ["a", "b"]

Output: 0

Explanation: $D = \{\}$

Example 3:

Input: ["zyx", "wvu", "tsr"]

Output: 3

Explanation: $D = \{0, 1, 2\}$

Note:

1. $1 \leq A.length \leq 100$

2. $1 \leq A[i].length \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[944-Delete-Columns-to-Make-Sorted](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

945. Minimum Increment to Make Array Unique

Given an array of integers A, a *move* consists of choosing any $A[i]$, and incrementing it by 1 .

Return the least number of moves to make every value in A unique.

Example 1:

Input: [1,2,2]

Output: 1

Explanation: After 1 move, the array could be [1, 2, 3].

Example 2:

Input: [3,2,1,2,1,7]

Output: 6

Explanation: After 6 moves, the array could be [3, 4, 1, 2, 5, 6]. It can be shown with 5 or less moves that it is impossible for the array to be unique.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[945-Minimum-Increment-to-Make-Array-Unique](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

946. Validate Stack Sequences

Given two sequences pushed and popped **with distinct values**, return true if and only if this could have been the result of a sequence of push and pop operations on an initially empty stack.

Example 1:

Input: pushed = [1,2,3,4,5], popped = [4,5,3,2,1]
Output: true

Explanation: We might do the following sequence:
push(1), push(2), push(3), push(4), pop() -> 4,
push(5), pop() -> 5, pop() -> 3, pop() -> 2, pop() -> 1

Example 2:

Input: pushed = [1,2,3,4,5], popped = [4,3,5,1,2]
Output: false
Explanation: 1 cannot be popped before 2.

Note:

1. $0 \leq \text{pushed.length} == \text{popped.length} \leq 1000$
2. $0 \leq \text{pushed}[i], \text{popped}[i] < 1000$
3. pushed is a permutation of popped .
4. pushed and popped have distinct values.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

947. Most Stones Removed with Same Row or Column

On a 2D plane, we place stones at some integer coordinate points. Each coordinate point may have at most one stone.

Now, a *move* consists of removing a stone that shares a column or row with another stone on the grid.

What is the largest possible number of moves we can make?

Example 1:

Input: stones = [[0,0],[0,1],[1,0],[1,2],[2,1],[2,2]]
Output: 5

Example 2:

Input: stones = [[0,0],[0,2],[1,1],[2,0],[2,2]]
Output: 3

Example 3:

Input: stones = [[0,0]]
Output: 0

Note:

1. $1 \leq \text{stones.length} \leq 1000$
2. $0 \leq \text{stones}[i][j] < 10000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[947-Most-Stones-Removed-with-Same-Row-or-Column](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

948. Bag of Tokens

You have an initial power P , an initial score of 0 points, and a bag of tokens.

Each token can be used at most once, has a value $\text{token}[i]$, and has potentially two ways to use it.

- If we have at least $\text{token}[i]$ power, we may play the token face up, losing $\text{token}[i]$ power, and gaining 1 point.
- If we have at least 1 point, we may play the token face down, gaining $\text{token}[i]$ power, and losing 1 point.

Return the largest number of points we can have after playing any number of tokens.

Example 1:

Input: tokens = [100], P = 50
Output: 0

Example 2:

Input: tokens = [100,200], P = 150
Output: 1

Example 3:

Input: tokens = [100,200,300,400], P = 200
Output: 2

Note:

1. tokens.length <= 1000
2. 0 <= tokens[i] < 10000
3. 0 <= P < 10000

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[948-Bag-of-Tokens](#)

All Problems:

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Welcome to Subscribe On Youtube:

949. Largest Time for Given Digits

Given an array of 4 digits, return the largest 24 hour time that can be made.

The smallest 24 hour time is 00:00, and the largest is 23:59. Starting from 00:00, a time is larger if more time has elapsed since midnight.

Return the answer as a string of length 5. If no valid time can be made, return an empty string.

Example 1:

Input: [1, 2, 3, 4]
Output: "23:41"

Example 2:

Input: [5, 5, 5, 5]
Output: ""

Note:

1. A.length == 4
2. 0 <= A[i] <= 9

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

950. Reveal Cards In Increasing Order

In a deck of cards, every card has a unique integer. You can order the deck in any order you want.

Initially, all the cards start face down (unrevealed) in one deck.

Now, you do the following steps repeatedly, until all cards are revealed:

1. Take the top card of the deck, reveal it, and take it out of the deck.
2. If there are still cards in the deck, put the next top card of the deck at the bottom of the deck.
3. If there are still unrevealed cards, go back to step 1.
Otherwise, stop.

Return an ordering of the deck that would reveal the cards in **increasing order**.

The first entry in the answer is considered to be the top of the deck.

Example 1:

Input: [17,13,11,2,3,5,7]
Output: [2,13,3,11,5,17,7]

Explanation:

We get the deck in the order [17,13,11,2,3,5,7] (this order does not matter).
After reordering, the deck starts as [2,13,3,11,5,17,7], where 2 is at index 0.
We reveal 2, and move 13 to the bottom. The deck is now [3,11,5,17,7].
We reveal 3, and move 11 to the bottom. The deck is now [5,17,7].
We reveal 5, and move 17 to the bottom. The deck is now [7,13,11].
We reveal 7, and move 13 to the bottom. The deck is now [11,17].
We reveal 11, and move 17 to the bottom. The deck is now [13,17].
We reveal 13, and move 17 to the bottom. The deck is now [17].
We reveal 17.

Since all the cards revealed are in increasing order, the answer is [17].

Note:

1. $1 \leq A.length \leq 1000$
2. $1 \leq A[i] \leq 10^6$
3. $A[i] \neq A[j]$ for all $i \neq j$

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

951. Flip Equivalent Binary Trees

For a binary tree T, we can define a flip operation as follows: choose any node, and swap the left and right child subtrees.

A binary tree X is *flip equivalent* to a binary tree Y if and only if we can make X equal to Y after some number of flip operations.

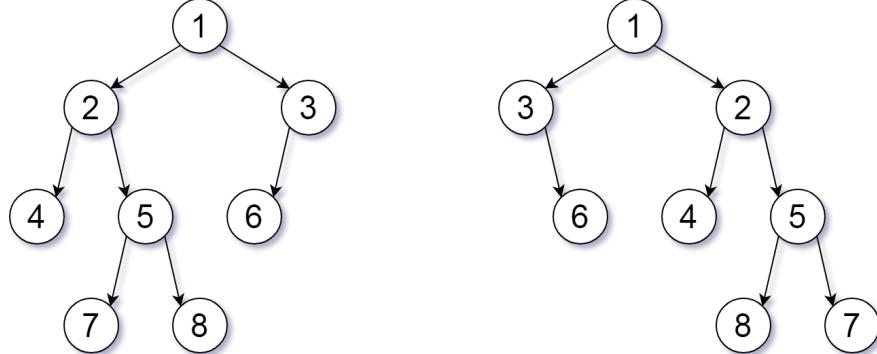
Write a function that determines whether two binary trees are *flip equivalent*. The trees are given by root nodes `root1` and `root2`.

Example 1:

Input: `root1 = [1,2,3,4,5,6,null,null,null,7,8]`, `root2 = [1,3,2,4,5,6,null,null,7,8]`

Output: true

Explanation: We flipped at nodes with values 1, 3, and 5.



Note:

1. Each tree will have at most 100 nodes.
2. Each value in each tree will be a unique integer in the range [0, 99].

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**951-Flip-Equivalent-Binary-Trees**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

952. Largest Component Size by Common Factor

Given a non-empty array of unique positive integers A , consider the following graph:

- There are $A.length$ nodes, labelled $A[0]$ to $A[A.length - 1]$;

- There is an edge between $A[i]$ and $A[j]$ if and only if $A[i]$ and $A[j]$ share a common factor greater than 1.

Return the size of the largest connected component in the graph.

Example 1:

Input: [4, 6, 15, 35]
Output: 4



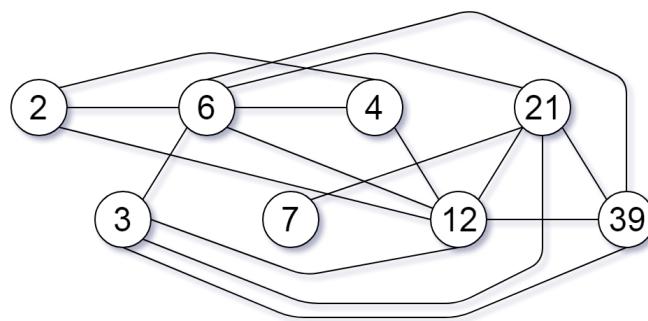
Example 2:

Input: [20, 50, 9, 63]
Output: 2



Example 3:

Input: [2, 3, 6, 7, 4, 12, 21, 39]
Output: 8



Note:

1. $1 \leq A.length \leq 20000$
2. $1 \leq A[i] \leq 100000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[952-Largest-Component-Size-by-Common-Factor](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

953. Verifying an Alien Dictionary

In an alien language, surprisingly they also use english lowercase letters, but possibly in a different order . The order of the alphabet is some permutation of lowercase letters.

Given a sequence of words written in the alien language, and the order of the alphabet, return true if and only if the given words are sorted lexicographicaly in this alien language.

Example 1:

Input: words = ["hello", "leetcode"], order = "hlabcdefgijklnopqrstuvwxyz"
Output: true
Explanation: As 'h' comes before 'l' in this language, then the word "hello" is sorted correctly.

Example 2:

Input: words = ["word", "world", "row"], order = "worldabcefghijklnopqrstuvwxyz"
Output: false
Explanation: As 'd' comes after 'l' in this language, then words["world"] > words["row"] is true.

Example 3:

Input: words = ["apple", "app"], order = "abcdefghijklmnopqrstuvwxyz"
Output: false
Explanation: The first three characters "app" match, and the second character 'p' < 'p'. Therefore, words[0] > words[1].

Note:

1. $1 \leq \text{words.length} \leq 100$
2. $1 \leq \text{words[i].length} \leq 20$
3. $\text{order.length} == 26$
4. All characters in words[i] and order are english lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[953-Verifying-an-Alien-Dictionary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

954. Array of Doubled Pairs

Given an array of integers A with even length, return `true` if and only if it is possible to reorder it such that $A[2 * i + 1] = 2 * A[2 * i]$ for every $0 \leq i < \text{len}(A) / 2$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[954-Array-of-Doubled-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

955. Delete Columns to Make Sorted II

We are given an array A of N lowercase letter strings, all of the same length.

Now, we may choose any set of deletion indices, and for each string, we delete all the characters in those indices.

For example, if we have an array A =
["abcdef" , "uvwxyz"] and deletion indices {0, 2, 3} , then the final array after deletions is ["bef" , "vyz"] .

Suppose we chose a set of deletion indices D such that after deletions, the final array has its elements in **lexicographic** order (A[0] <= A[1] <= A[2] . . . <= A[A.length - 1]).

Return the minimum possible value of D.length .

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

956. Tallest Billboard

You are installing a billboard and want it to have the largest height. The billboard will have two steel supports, one on each side. Each steel support must be an equal height.

You have a collection of rods which can be welded together. For example, if you have rods of lengths 1, 2, and 3, you can weld them together to make a support of length 6.

Return the largest possible height of your billboard installation. If you cannot support the billboard, return 0.

Example 1:

Input: [1, 2, 3, 6]

Output: 6

Explanation: We have two disjoint subsets {1, 2, 3} and {6}, which

Example 2:

Input: [1, 2, 3, 4, 5, 6]

Output: 10

Explanation: We have two disjoint subsets {2, 3, 5} and {4, 6}, which

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution****956-Tallest-Billboard****All Problems:****Link to All Problems**

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Welcome to Subscribe On Youtube:**957. Prison Cells After N Days**

There are 8 prison cells in a row, and each cell is either occupied or vacant.

Each day, whether the cell is occupied or vacant changes according to the following rules:

- If a cell has two adjacent neighbors that are both occupied or both vacant, then the cell becomes occupied.
- Otherwise, it becomes vacant.

(Note that because the prison is a row, the first and the last cells in the row can't have two adjacent neighbors.)

We describe the current state of the prison in the following way: `cells[i] == 1` if the i -th cell is occupied, else `cells[i] == 0`.

Given the initial state of the prison, return the state of the prison after N days (and N such changes described above.)

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[957-Prison-Cells-After-N-Days](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

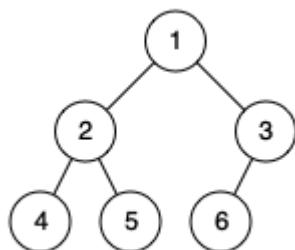
958. Check Completeness of a Binary Tree

Given a binary tree, determine if it is a *complete binary tree*.

[Definition of a complete binary tree from Wikipedia :](#)

In a complete binary tree every level, except possibly the last, is completely filled, and all nodes in the last level are as far left as possible. It can have between 1 and 2^h nodes inclusive at the last level h.

Example 1:

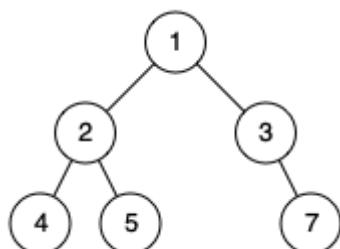


Input: [1, 2, 3, 4, 5, 6]

Output: true

Explanation: Every level before the last is full (ie. levels with

Example 2:



Input: [1,2,3,4,5,null,7]

Output: false

Explanation: The node with value 7 isn't as far left as possible

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[958-Check-Completeness-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

959. Regions Cut By Slashes

In a $N \times N$ grid composed of 1×1 squares, each 1×1 square consists of a $/$, \backslash , or blank space. These characters divide the square into contiguous regions.

(Note that backslash characters are escaped, so a \ is represented as "\\ ".)

Return the number of regions.

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

960. Delete Columns to Make Sorted III

We are given an array A of N lowercase letter strings, all of the same length.

Now, we may choose any set of deletion indices, and for each string, we delete all the characters in those indices.

For example, if we have an array A =
["babca" , "bbazb"] and deletion indices {0, 1, 4} , then the final array after deletions is ["bc" , "az"] .

Suppose we chose a set of deletion indices D such that after deletions, the final array has **every element (row) in lexicographic order**.

For clarity, A[0] is in lexicographic order (ie. A[0][0] <= A[0][1] <= ... <= A[0][A[0].length - 1]), A[1] is in lexicographic order (ie. A[1][0] <= A[1][1] <= ... <= A[1][A[1].length - 1]), and so on.

Return the minimum possible value of D.length .

Example 1:

Input: ["babca" , "bbazb"]
Output: 3

Explanation: After deleting columns 0, 1, and 4, the final array Both these rows are individually in lexicographic order (ie. A[0] Note that A[0] > A[1] - the array A isn't necessarily in lexicog

Example 2:

Input: ["edcba"]
Output: 4

Explanation: If we delete less than 4 columns, the only row won'

Example 3:

Input: ["ghi" , "def" , "abc"]
Output: 0
Explanation: All rows are already lexicographically sorted.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[960-Delete-Columns-to-Make-Sorted-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

961. N-Repeated Element in Size 2N Array

In a array A of size $2N$, there are $N+1$ unique elements, and exactly one of these elements is repeated N times.

Return the element repeated N times.

Example 1:

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

Example 2:

Input: [2, 1, 2, 5, 3, 2]
Output: 2

Example 3:

Input: [5, 1, 5, 2, 5, 3, 5, 4]
Output: 5

Note:

1. $4 \leq A.length \leq 10000$
2. $0 \leq A[i] < 10000$
3. $A.length$ is even

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[961-N-Repeated-Element-in-Size--2N-Array](#)

All Problems:

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Welcome to Subscribe On Youtube:

962. Maximum Width Ramp

Given an array A of integers, a *ramp* is a tuple (i, j) for which $i < j$ and $A[i] \leq A[j]$. The width of such a ramp is $j - i$.

Find the maximum width of a ramp in A . If one doesn't exist, return 0.

Example 1:

Input: [6, 0, 8, 2, 1, 5]

Output: 4

Explanation:

The maximum width ramp is achieved at $(i, j) = (1, 5)$: $A[1] = 0$

Example 2:

Input: [9, 8, 1, 0, 1, 9, 4, 0, 4, 1]

Output: 7

Explanation:

The maximum width ramp is achieved at $(i, j) = (2, 9)$: $A[2] = 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[962-Maximum-Width-Ramp](#)

All Problems:

[Link to All Problems](#)

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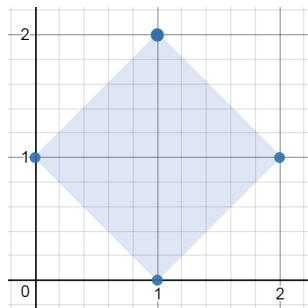
Welcome to Subscribe On Youtube:

963. Minimum Area Rectangle II

Given a set of points in the xy-plane, determine the minimum area of **any** rectangle formed from these points, with sides **not necessarily parallel** to the x and y axes.

If there isn't any rectangle, return 0.

Example 1:

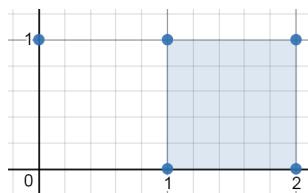


Input: [[1, 2], [2, 1], [1, 0], [0, 1]]

Output: 2.00000

Explanation: The minimum area rectangle occurs at [1, 2], [2, 1], [1,

Example 2:

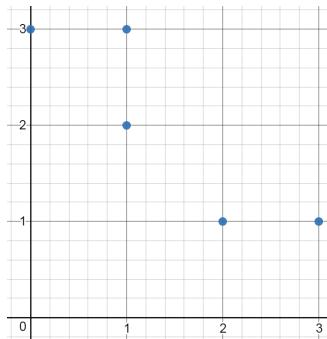


Input: $[[0,1],[2,1],[1,1],[1,0],[2,0]]$

Output: 1.00000

Explanation: The minimum area rectangle occurs at $[1,0],[1,1],[2,0]$

Example 3:

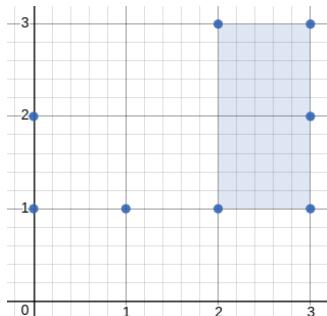


Input: $[[0,3],[1,2],[3,1],[1,3],[2,1]]$

Output: 0

Explanation: There is no possible rectangle to form from these points.

Example 4:



Input: $[[3,1],[1,1],[0,1],[2,1],[3,3],[3,2],[0,2],[2,3]]$

Output: 2.00000

Explanation: The minimum area rectangle occurs at $[2,1],[2,3],[3,2],[3,3]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[963-Minimum-Area-Rectangle-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

964. Least Operators to Express Number

Given a single positive integer x , we will write an expression of the form $x \text{ (op1)} x \text{ (op2)} x \text{ (op3)} \dots$ where each operator op1 , op2 , etc. is either addition, subtraction, multiplication, or division (+ , - , * , or /) . For example, with $x = 3$, we might write $3 * 3 / 3 + 3 - 3$ which is a value of 3 .

When writing such an expression, we adhere to the following conventions:

1. The division operator (/) returns rational numbers.
2. There are no parentheses placed anywhere.
3. We use the usual order of operations: multiplication and division happens before addition and subtraction.

4. It's not allowed to use the unary negation operator (-). For example, "x - x" is a valid expression as it only uses subtraction, but "-x + x" is not because it uses negation.

We would like to write an expression with the least number of operators such that the expression equals the given target . Return the least number of operators used.

Example 1:

Input: x = 3, target = 19

Output: 5

Explanation: $3 * 3 + 3 * 3 + 3 / 3$. The expression contains 5 operators.

Example 2:

Input: x = 5, target = 501

Output: 8

Explanation: $5 * 5 * 5 * 5 - 5 * 5 * 5 + 5 / 5$. The expression contains 8 operators.

Example 3:

Input: x = 100, target = 1000000000

Output: 3

Explanation: $100 * 100 * 100 * 100$. The expression contains 3 operators.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[964-Least-Operators-to-Express-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

965. Univalued Binary Tree

A binary tree is *univalued* if every node in the tree has the same value.

Return `true` if and only if the given tree is univalued.

Example 1:

Input: [1,1,1,1,null,1]
Output: true

Example 2:

Input: [2,2,2,5,2]
Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[965-Univalued-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

966. Vowel Spellchecker

Given a `wordlist` , we want to implement a spellchecker that converts a query word into a correct word.

For a given `query` word, the spell checker handles two categories of spelling mistakes:

- Capitalization: If the query matches a word in the `wordlist` (**case-insensitive**), then the query word is returned with the same case as the case in the `wordlist`.
 - Example: `wordlist = ["yellow"]` , `query = "Yellow"` : `correct = "yellow"`
 - Example: `wordlist = ["Yellow"]` , `query = "yellow"` : `correct = "Yellow"`
 - Example: `wordlist = ["yellow"]` , `query = "yellow"` : `correct = "yellow"`
- Vowel Errors: If after replacing the vowels ('a', 'e', 'i', 'o', 'u') of the query word with any vowel

individually, it matches a word in the wordlist (**case-insensitive**), then the query word is returned with the same case as the match in the wordlist.

- Example: wordlist = ["Yellow"], query = "yellow" : correct = "Yellow"
- Example: wordlist = ["Yellow"], query = "yeellow" : correct = "" (no match)
- Example: wordlist = ["Yellow"], query = "yllw" : correct = "" (no match)

In addition, the spell checker operates under the following precedence rules:

- When the query exactly matches a word in the wordlist (**case-sensitive**), you should return the same word back.
- When the query matches a word up to capitalization, you should return the first such match in the wordlist.
- When the query matches a word up to vowel errors, you should return the first such match in the wordlist.
- If the query has no matches in the wordlist, you should return the empty string.

Given some queries , return a list of words answer , where answer[i] is the correct word for query = queries[i] .

Example 1:

Input: wordlist = ["KiTe", "kite", "hare", "Hare"], queries = ["kite", "KiTe", "KiTe", "Hare", "hare", "", "", "KiTe", "", "KiTe"]

Note:

- 1 <= wordlist.length <= 5000
- 1 <= queries.length <= 5000
- 1 <= wordlist[i].length <= 7
- 1 <= queries[i].length <= 7
- All strings in wordlist and queries consist only of **english** letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[966-Vowel-Spellchecker](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

967. Numbers With Same Consecutive Differences

Return all **non-negative** integers of length N such that the absolute difference between every two consecutive digits is K .

Note that **every** number in the answer **must not** have leading zeros **except** for the number 0 itself. For example, 01 has one leading zero and is invalid, but 0 is valid.

You may return the answer in any order.

Example 1:

Input: N = 3, K = 7

Output: [181,292,707,818,929]

Explanation: Note that 070 is not a valid number, because it has

Example 2:

Input: N = 2, K = 1

Output: [10,12,21,23,32,34,43,45,54,56,65,67,76,78,87,89,98]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[967-Numbers-With-Same-Consecutive-Differences](#)

All Problems:

[Link to All Problems](#)

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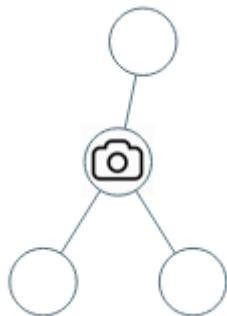
968. Binary Tree Cameras

Given a binary tree, we install cameras on the nodes of the tree.

Each camera at a node can monitor **its parent, itself, and its immediate children**.

Calculate the minimum number of cameras needed to monitor all nodes of the tree.

Example 1:

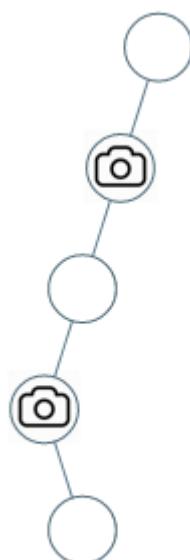


Input: [0,0,null,0,0]

Output: 1

Explanation: One camera is enough to monitor all nodes if placed

Example 2:



Input: [0,0,null,0,null,0,null,null,0]

Output: 2

Explanation: At least two cameras are needed to monitor all nodes.

Note:

1. The number of nodes in the given tree will be in the range [1, 1000] .
2. Every node has value 0.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[968-Binary-Tree-Cameras](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

969. Pancake Sorting

Given an array A , we can perform a *pancake flip* : We choose some positive integer $k \leq A.length$, then reverse the order of the first k elements of A . We want to perform zero or more pancake flips (doing them one after another in succession) to sort the array A .

Return the k-values corresponding to a sequence of pancake flips that sort A . Any valid answer that sorts the array within $10 * A.length$ flips will be judged as correct.

Example 1:

Input: [3,2,4,1]

Output: [4,2,4,3]

Explanation:

We perform 4 pancake flips, with k values 4, 2, 4, and 3.

Starting state: A = [3, 2, 4, 1]

After 1st flip (k=4): A = [1, 4, 2, 3]

After 2nd flip (k=2): A = [4, 1, 2, 3]

After 3rd flip (k=4): A = [3, 2, 1, 4]

After 4th flip (k=3): A = [1, 2, 3, 4], which is sorted.

Example 2:

Input: [1,2,3]

Output: []

Explanation: The input is already sorted, so there is no need to flip it. Note that other answers, such as [3, 3], would also be accepted.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[969-Pancake-Sorting](#)

All Problems:

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Welcome to Subscribe On Youtube:

970. Powerful Integers

Given two positive integers x and y , an integer is *powerful* if it is equal to $x^i + y^j$ for some integers $i \geq 0$ and $j \geq 0$.

Return a list of all *powerful* integers that have value less than or equal to bound.

You may return the answer in any order. In your answer, each value should occur at most once.

Example 1:

Input: $x = 2$, $y = 3$, bound = 10

Output: [2,3,4,5,7,9,10]

Explanation:

$$2 = 2^0 + 3^0$$

$$3 = 2^1 + 3^0$$

$$4 = 2^0 + 3^1$$

$$5 = 2^1 + 3^1$$

$$7 = 2^2 + 3^1$$

$$9 = 2^3 + 3^0$$

$$10 = 2^0 + 3^2$$

Example 2:

```
Input: x = 3, y = 5, bound = 15
Output: [2,4,6,8,10,14]
```

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution****[970-Powerful-Integers](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

971. Flip Binary Tree To Match Preorder Traversal

Given a binary tree with N nodes, each node has a different value from $\{1, \dots, N\}$.

A node in this binary tree can be *flipped* by swapping the left child and the right child of that node.

Consider the sequence of N values reported by a preorder traversal starting from the root. Call such a sequence of N values the *voyage* of the tree.

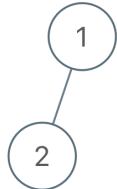
(Recall that a *preorder traversal* of a node means we report the current node's value, then preorder-traverse the left child, then preorder-traverse the right child.)

Our goal is to flip the **least number** of nodes in the tree so that the voyage of the tree matches the *voyage* we are given.

If we can do so, then return a list of the values of all nodes flipped. You may return the answer in any order.

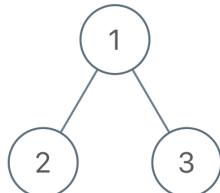
If we cannot do so, then return the list `[-1]`.

Example 1:



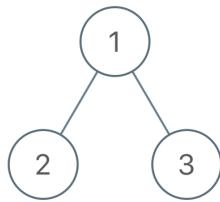
Input: `root = [1, 2]`, `voyage = [2, 1]`
Output: `[-1]`

Example 2:



Input: `root = [1, 2, 3]`, `voyage = [1, 3, 2]`
Output: `[1]`

Example 3:



Input: root = [1,2,3], voyage = [1,2,3]
Output: []

Note:

1. $1 \leq N \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[971-Flip-Binary-Tree-To-Match-Preorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

972. Equal Rational Numbers

Given two strings S and T , each of which represents a non-negative rational number, return **True** if and only if they represent the same number. The strings may use parentheses to denote the repeating part of the rational number.

In general a rational number can be represented using up to three parts: an *integer part*, a *non-repeating part*, and a *repeating part*. The number will be represented in one of the following three ways:

- <IntegerPart> (e.g. 0, 12, 123)
- <IntegerPart><.><NonRepeatingPart> (e.g. 0.5, 1., 2.12, 2.0001)
- <IntegerPart><.><NonRepeatingPart><(><RepeatingPart><)> (e.g. 0.1(6), 0.9(9), 0.00(1212))

The repeating portion of a decimal expansion is conventionally denoted within a pair of round brackets.
For example:

$$1 / 6 = 0.1666666\ldots = 0.1(6) = 0.1666(6) = 0.166(66)$$

Both 0.1(6) or 0.1666(6) or 0.166(66) are correct representations of $1 / 6$.

Example 1:

Input: $S = "0.(52)"$, $T = "0.5(25)"$

Output: true

Explanation:

Because " $0.(52)$ " represents $0.52525252\ldots$, and " $0.5(25)$ " represents $0.52525252\ldots$

Example 2:

Input: $S = "0.1666(6)"$, $T = "0.166(66)"$

Output: true

Example 3:

Input: S = "0.9(9)", T = "1."
Output: true
Explanation:
"0.9(9)" represents 0.99999999... repeated forever, which equals 1.
"1." represents the number 1, which is formed correctly: (Integer part 0 and decimal part 1).

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

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973. K Closest Points to Origin

We have a list of points on the plane. Find the K closest points to the origin (0, 0) .

(Here, the distance between two points on a plane is the Euclidean distance.)

You may return the answer in any order. The answer is guaranteed to be unique (except for the order that it is in.)

Example 1:

Input: points = [[1,3], [-2,2]], K = 1

Output: [[-2,2]]

Explanation:

The distance between (1, 3) and the origin is $\sqrt{10}$.

The distance between (-2, 2) and the origin is $\sqrt{8}$.

Since $\sqrt{8} < \sqrt{10}$, (-2, 2) is closer to the origin.

We only want the closest K = 1 points from the origin, so the an-

Example 2:

Input: points = [[3,3], [5,-1], [-2,4]], K = 2

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

(The answer [[-2,4], [3,3]] would also be accepted.)

Note:

1. $1 \leq K \leq \text{points.length} \leq 10000$
2. $-10000 < \text{points}[i][0] < 10000$
3. $-10000 < \text{points}[i][1] < 10000$

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

974. Subarray Sums Divisible by K

Given an array A of integers, return the number of (contiguous, non-empty) subarrays that have a sum divisible by K .

Example 1:

Input: A = [4,5,0,-2,-3,1], K = 5

Output: 7

Explanation: There are 7 subarrays with a sum divisible by K = 5 [4, 5, 0, -2, -3, 1], [5], [5, 0], [5, 0, -2, -3], [0], [0, -2,

Note:

1. 1 <= A.length <= 30000
2. -10000 <= A[i] <= 10000
3. 2 <= K <= 10000

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[974-Subarray-Sums-Divisible-by-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

975. Odd Even Jump

You are given an integer array A . From some starting index, you can make a series of jumps. The (1st, 3rd, 5th, ...) jumps in the series are called *odd numbered jumps* , and the (2nd, 4th, 6th, ...) jumps in the series are called *even numbered jumps* .

You may from index i jump forward to index j (with $i < j$) in the following way:

- During odd numbered jumps (ie. jumps 1, 3, 5, ...), you jump to the index j such that $A[i] \leq A[j]$ and $A[j]$ is the smallest possible value. If there are multiple such indexes j , you can only jump to the **smallest** such index j .
- During even numbered jumps (ie. jumps 2, 4, 6, ...), you jump to the index j such that $A[i] \geq A[j]$ and $A[j]$ is the largest possible value. If there are multiple such indexes j , you can only jump to the **smallest** such index j .

- (It may be the case that for some index i , there are no legal jumps.)

A starting index is *good* if, starting from that index, you can reach the end of the array (`index A.length - 1`) by jumping some number of times (possibly 0 or more than once.)

Return the number of good starting indexes.

Example 1:

Input: [10, 13, 12, 14, 15]

Output: 2

Explanation:

From starting index $i = 0$, we can jump to $i = 2$ (since $A[2]$ is the largest element)

From starting index $i = 1$ and $i = 2$, we can jump to $i = 3$, then $i = 4$.

From starting index $i = 3$, we can jump to $i = 4$, so we've reached the end.

From starting index $i = 4$, we've reached the end already.

In total, there are 2 different starting indexes ($i = 3, i = 4$)

Example 2:

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

Output: 3

Explanation:

From starting index $i = 0$, we make jumps to $i = 1, i = 2, i = 3$.

During our 1st jump (odd numbered), we first jump to $i = 1$ because it is the largest element among $i = 1, 2, 3$.

During our 2nd jump (even numbered), we jump from $i = 1$ to $i = 2$ because it is the largest element among $i = 2, 3$.

During our 3rd jump (odd numbered), we jump from $i = 2$ to $i = 3$ because it is the largest element among $i = 3, 4$.

We can't jump from $i = 3$ to $i = 4$, so the starting index $i = 0$ is not good.

In a similar manner, we can deduce that:

From starting index $i = 1$, we jump to $i = 4$, so we reach the end.

From starting index $i = 2$, we jump to $i = 3$, and then we can't jump further.

From starting index $i = 3$, we jump to $i = 4$, so we reach the end.

From starting index $i = 4$, we are already at the end.

In total, there are 3 different starting indexes ($i = 1, i = 3, i = 4$).

Example 3:

Input: [5, 1, 3, 4, 2]

Output: 3

Explanation:

We can reach the end from starting indexes 1, 2, and 4.

Difficulty:

Hard

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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976. Largest Perimeter Triangle

Given an array A of positive lengths, return the largest perimeter of a triangle with **non-zero area**, formed from 3 of these lengths.

If it is impossible to form any triangle of non-zero area, return 0 .

Example 1:

Input: [2,1,2]
Output: 5

Example 2:

Input: [1,2,1]
Output: 0

Example 3:

Input: [3,2,3,4]
Output: 10

Example 4:

Input: [3,6,2,3]
Output: 8

Note:

1. $3 \leq A.length \leq 10000$
2. $1 \leq A[i] \leq 10^6$

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

977. Squares of a Sorted Array

Given an array of integers A sorted in non-decreasing order, return an array of the squares of each number, also in sorted non-decreasing order.

Example 1:

Input: [-4, -1, 0, 3, 10]
Output: [0, 1, 9, 16, 100]

Example 2:

Input: [-7, -3, 2, 3, 11]
Output: [4, 9, 9, 49, 121]

Note:

1. $1 \leq A.length \leq 10000$
2. $-10000 \leq A[i] \leq 10000$
3. A is sorted in non-decreasing order.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

978. Longest Turbulent Subarray

A subarray $A[i], A[i+1], \dots, A[j]$ of A is said to be *turbulent* if and only if:

- For $i \leq k < j$, $A[k] > A[k+1]$ when k is odd, and $A[k] < A[k+1]$ when k is even;
- OR, for $i \leq k < j$, $A[k] > A[k+1]$ when k is even, and $A[k] < A[k+1]$ when k is odd.

That is, the subarray is turbulent if the comparison sign flips between each adjacent pair of elements in the subarray.

Return the **length** of a maximum size turbulent subarray of A .

Example 1:

Input: [9, 4, 2, 10, 7, 8, 8, 1, 9]

Output: 5

Explanation: ($A[1] > A[2] < A[3] > A[4] < A[5]$)

Example 2:

Input: [4, 8, 12, 16]
Output: 2

Example 3:

Input: [100]
Output: 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[978-Longest-Turbulent-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

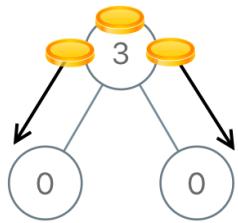
979. Distribute Coins in Binary Tree

Given the root of a binary tree with N nodes, each node in the tree has `node.val` coins, and there are N coins total.

In one move, we may choose two adjacent nodes and move one coin from one node to another. (The move may be from parent to child, or from child to parent.)

Return the number of moves required to make every node have exactly one coin.

Example 1:

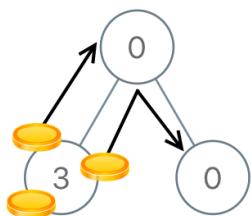


Input: [3, 0, 0]

Output: 2

Explanation: From the root of the tree, we move one coin to its left child, and then move one coin from the root to its right child.

Example 2:

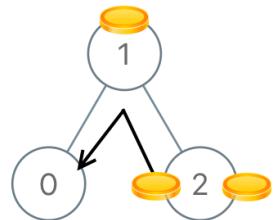


Input: [0, 3, 0]

Output: 3

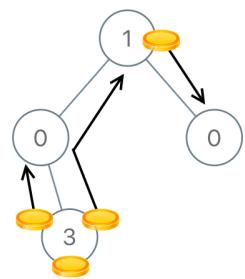
Explanation: From the left child of the root, we move two coins to the right child, and then move one coin from the left child to the root.

Example 3:



Input: [1, 0, 2]
Output: 2

Example 4:



Input: [1, 0, 0, null, 3]
Output: 4

Note:

1. $1 \leq N \leq 100$
2. $0 \leq \text{node.val} \leq N$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[979-Distribute-Coins-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

980. Unique Paths III

On a 2-dimensional grid , there are 4 types of squares:

- 1 represents the starting square. There is exactly one starting square.
- 2 represents the ending square. There is exactly one ending square.
- 0 represents empty squares we can walk over.
- -1 represents obstacles that we cannot walk over.

Return the number of 4-directional walks from the starting square to the ending square, that **walk over every non-obstacle square exactly once** .

Example 1:

Input: [[1,0,0,0],[0,0,0,0],[0,0,2,-1]]

Output: 2

Explanation: We have the following two paths:

1. (0,0),(0,1),(0,2),(0,3),(1,3),(1,2),(1,1),(1,0),(2,0),(2,1),()
2. (0,0),(1,0),(2,0),(2,1),(1,1),(0,1),(0,2),(0,3),(1,3),(1,2),()

Example 2:

Input: [[1,0,0,0],[0,0,0,0],[0,0,0,2]]

Output: 4

Explanation: We have the following four paths:

1. $(0,0), (0,1), (0,2), (0,3), (1,3), (1,2), (1,1), (1,0), (2,0), (2,1), \dots$
2. $(0,0), (0,1), (1,1), (1,0), (2,0), (2,1), (2,2), (1,2), (0,2), (0,3), \dots$
3. $(0,0), (1,0), (2,0), (2,1), (2,2), (1,2), (1,1), (0,1), (0,2), (0,3), \dots$
4. $(0,0), (1,0), (2,0), (2,1), (1,1), (0,1), (0,2), (0,3), (1,3), (1,2), \dots$

Example 3:

Input: `[[0,1],[2,0]]`

Output: 0

Explanation:

There is no path that walks over every empty square exactly once.
Note that the starting and ending square can be anywhere in the grid.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[980-Unique-Paths-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

981. Time Based Key-Value Store

Create a timebased key-value store class TimeMap , that supports two operations.

1. `set(string key, string value, int timestamp)`

- Stores the key and value , along with the given timestamp .

2. `get(string key, int timestamp)`

- Returns a value such that `set(key, value, timestamp_prev)` was called previously, with `timestamp_prev <= timestamp` .
- If there are multiple such values, it returns the one with the largest `timestamp_prev` .
- If there are no values, it returns the empty string ("").

Example 1:

Input: inputs = ["TimeMap","set","get","get","set","get","get"],
Output: [null,null,"bar","bar",null,"bar2","bar2"]
Explanation:
`TimeMap kv;`
`kv.set("foo", "bar", 1); // store the key "foo" and value "bar"`
`kv.get("foo", 1); // output "bar"`
`kv.get("foo", 3); // output "bar" since there is no value corresponding to timestamp 3`
`kv.set("foo", "bar2", 4);`
`kv.get("foo", 4); // output "bar2"`
`kv.get("foo", 5); //output "bar2"`

Example 2:

Input: inputs = ["TimeMap","set","set","get","get","get","get"],
Output: [null,null,null,"","high","high","low","low"]

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

982. Triples with Bitwise AND Equal To Zero

Given an array of integers A , find the number of triples of indices (i, j, k) such that:

- $0 \leq i < A.length$
- $0 \leq j < A.length$
- $0 \leq k < A.length$
- $A[i] \& A[j] \& A[k] == 0$, where & represents the bitwise-AND operator.

Example 1:

Input: [2,1,3]

Output: 12

Explanation: We could choose the following i, j, k triples:

(i=0, j=0, k=1) : 2 & 2 & 1
(i=0, j=1, k=0) : 2 & 1 & 2
(i=0, j=1, k=1) : 2 & 1 & 1
(i=0, j=1, k=2) : 2 & 1 & 3
(i=0, j=2, k=1) : 2 & 3 & 1
(i=1, j=0, k=0) : 1 & 2 & 2
(i=1, j=0, k=1) : 1 & 2 & 1
(i=1, j=0, k=2) : 1 & 2 & 3
(i=1, j=1, k=0) : 1 & 1 & 2
(i=1, j=1, k=1) : 1 & 1 & 1
(i=1, j=2, k=0) : 1 & 3 & 2
(i=2, j=0, k=1) : 3 & 2 & 1
(i=2, j=1, k=0) : 3 & 1 & 2

Note:

1. $1 \leq A.length \leq 1000$
2. $0 \leq A[i] < 2^{16}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[982-Triples-with-Bitwise-AND-Equal-To-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

983. Minimum Cost For Tickets

In a country popular for train travel, you have planned some train travelling one year in advance. The days of the year that you will travel is given as an array `days` . Each day is an integer from 1 to 365 .

Train tickets are sold in 3 different ways:

- a 1-day pass is sold for `costs[0]` dollars;
- a 7-day pass is sold for `costs[1]` dollars;
- a 30-day pass is sold for `costs[2]` dollars.

The passes allow that many days of consecutive travel. For example, if we get a 7-day pass on day 2, then we can travel for 7 days: day 2, 3, 4, 5, 6, 7, and 8.

Return the minimum number of dollars you need to travel every day in the given list of `days` .

Example 1:

Input: `days = [1,4,6,7,8,20]`, `costs = [2,7,15]`

Output: 11

Explanation:

For example, here is one way to buy passes that lets you travel :
On day 1, you bought a 1-day pass for `costs[0] = $2`, which covered day 1.
On day 3, you bought a 7-day pass for `costs[1] = $7`, which covered days 3 through 9.
On day 20, you bought a 1-day pass for `costs[0] = $2`, which covered day 20.
In total you spent \$11 and covered all the days of your travel.

Example 2:

Input: `days = [1,2,3,4,5,6,7,8,9,10,30,31]`, `costs = [2,7,15]`
Output: 17

Explanation:

For example, here is one way to buy passes that lets you travel:
On day 1, you bought a 30-day pass for costs[2] = \$15 which covers days 1 through 30.
On day 31, you bought a 1-day pass for costs[0] = \$2 which covered day 31.
In total you spent \$17 and covered all the days of your travel.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[983-Minimum-Cost-For-Tickets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

984. String Without AAA or BBB

Given two integers A and B , return **any** string S such that:

- S has length $A + B$ and contains exactly A 'a' letters, and exactly B 'b' letters;
- The substring 'aaa' does not occur in S ;
- The substring 'bbb' does not occur in S .

Example 1:

Input: $A = 1$, $B = 2$

Output: "abb"

Explanation: "abb", "bab" and "bba" are all correct answers.

Example 2:

Input: $A = 4$, $B = 1$

Output: "aabaa"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[984-String-Without-AAA-or-BBB](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

985. Sum of Even Numbers After Queries

We have an array A of integers, and an array queries of queries.

For the i -th query `val = queries[i][0]`, `index = queries[i][1]` , we add val to A[index] . Then, the answer to the i -th query is the sum of the even values of A .

(*Here, the given index = queries[i][1] is a 0-based index, and each query permanently modifies the array A .*)

Return the answer to all queries. Your answer array should have `answer[i]` as the answer to the i -th query.

Example 1:

Input: A = [1,2,3,4], queries = [[1,0],[-3,1],[-4,0],[2,3]]
Output: [8,6,2,4]

Explanation:

At the beginning, the array is [1,2,3,4].

After adding 1 to A[0], the array is [2,2,3,4], and the sum of evens is 8.

After adding -3 to A[1], the array is [2,-1,3,4], and the sum of evens is 6.

After adding -4 to A[0], the array is [-2,-1,3,4], and the sum of evens is 2.

After adding 2 to A[3], the array is [-2,-1,3,6], and the sum of evens is 4.

Note:

1. `1 <= A.length <= 10000`
2. `-10000 <= A[i] <= 10000`

```
3. 1 <= queries.length <= 10000
4. -10000 <= queries[i][0] <= 10000
5. 0 <= queries[i][1] < A.length
```

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[985-Sum-of-Even-Numbers-After-Queries](#)

All Problems:

[Link to All Problems](#)

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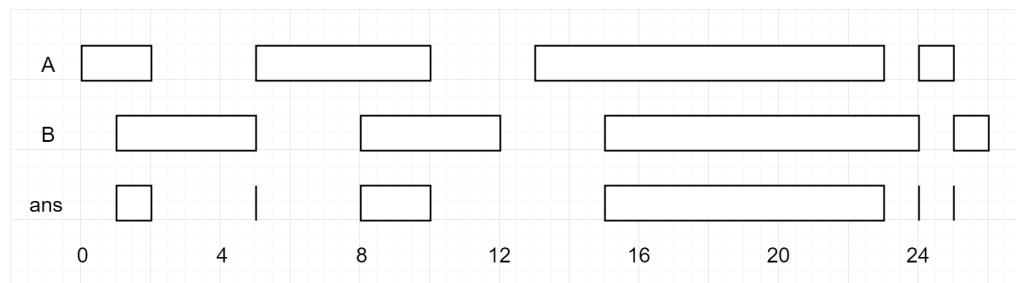
986. Interval List Intersections

Given two lists of **closed** intervals, each list of intervals is pairwise disjoint and in sorted order.

Return the intersection of these two interval lists.

(Formally, a closed interval $[a, b]$ (with $a \leq b$) denotes the set of real numbers x with $a \leq x \leq b$. The intersection of two closed intervals is a set of real numbers that is either empty, or can be represented as a closed interval. For example, the intersection of $[1, 3]$ and $[2, 4]$ is $[2, 3]$.)

Example 1:



Input: $A = [[0,2],[5,10],[13,23],[24,25]]$, $B = [[1,5],[8,12],[15,21]]$

Output: $[[1,2],[5,5],[8,10],[15,23],[24,24],[25,25]]$

Reminder: The inputs and the desired output are lists of Intervals

Note:

1. $0 \leq A.length < 1000$
2. $0 \leq B.length < 1000$
3. $0 \leq A[i].start, A[i].end, B[i].start, B[i].end < 10^9$

NOTE: input types have been changed on April 15, 2019.

Please reset to default code definition to get new method signature.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[986-Interval-List-Intersections](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

987. Vertical Order Traversal of a Binary Tree

Given a binary tree, return the *vertical order* traversal of its nodes values.

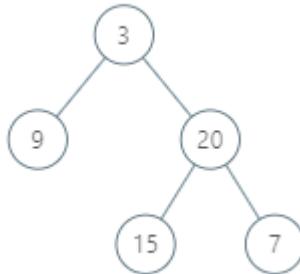
For each node at position (X, Y) , its left and right children respectively will be at positions $(X-1, Y-1)$ and $(X+1, Y-1)$.

Running a vertical line from $X = -\infty$ to $X = +\infty$, whenever the vertical line touches some nodes, we report the values of the nodes in order from top to bottom (decreasing Y coordinates).

If two nodes have the same position, then the value of the node that is reported first is the value that is smaller.

Return a list of non-empty reports in order of X coordinate. Every report will have a list of values of nodes.

Example 1:



Input: [3, 9, 20, null, null, 15, 7]

Output: [[9], [3, 15], [20], [7]]

Explanation:

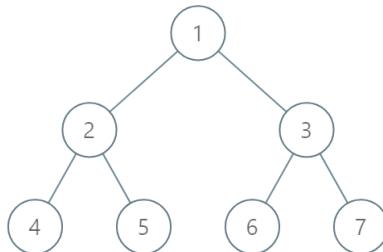
Without loss of generality, we can assume the root node is at position (0, 0). Then, the node with value 9 occurs at position (-1, -1);

The nodes with values 3 and 15 occur at positions (0, 0) and (0, -1);

The node with value 20 occurs at position (1, -1);

The node with value 7 occurs at position (2, -2).

Example 2:



Input: [1, 2, 3, 4, 5, 6, 7]

Output: [[4], [2], [1, 5, 6], [3], [7]]

Explanation:

The node with value 5 and the node with value 6 have the same position.

However, in the report "[1, 5, 6]", the node value of 5 comes first.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[987-Vertical-Order-Traversal-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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988. Smallest String Starting From Leaf

Given the root of a binary tree, each node has a value from 0 to 25 representing the letters 'a' to 'z' : a

value of 0 represents 'a' , a value of 1 represents 'b' , and so on.

Find the lexicographically smallest string that starts at a leaf of this tree and ends at the root.

(As a reminder, any shorter prefix of a string is lexicographically smaller: for example, "ab" is lexicographically smaller than "aba" . A leaf of a node is a node that has no children.)

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[988-Smallest-String-Starting-From-Leaf](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

989. Add to Array-Form of Integer

For a non-negative integer X , the *array-form* of X is an array of its digits in left to right order. For example, if $X = 1231$, then the array form is $[1, 2, 3, 1]$.

Given the array-form A of a non-negative integer X , return the array-form of the integer $X+K$.

Example 1:

Input: $A = [1, 2, 0, 0]$, $K = 34$
Output: $[1, 2, 3, 4]$
Explanation: $1200 + 34 = 1234$

Example 2:

Input: $A = [2, 7, 4]$, $K = 181$
Output: $[4, 5, 5]$
Explanation: $274 + 181 = 455$

Example 3:

Input: $A = [2, 1, 5]$, $K = 806$
Output: $[1, 0, 2, 1]$
Explanation: $215 + 806 = 1021$

Example 4:

Input: $A = [9, 9, 9, 9, 9, 9, 9, 9, 9, 9]$, $K = 1$
Output: $[1, 0, 0, 0, 0, 0, 0, 0, 0, 0]$
Explanation: $999999999 + 1 = 10000000000$

Note $\frac{1}{4}$

1. $1 \leq A.length \leq 10000$
2. $0 \leq A[i] \leq 9$
3. $0 \leq K \leq 10000$
4. If $A.length > 1$, then $A[0] \neq 0$

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

990. Satisfiability of Equality Equations

Given an array equations of strings that represent relationships between variables, each string `equations[i]` has length 4 and takes one of two different forms: "`a==b`" or "`a!=b`". Here, `a` and `b` are lowercase letters (not necessarily different) that represent one-letter variable names.

Return `true` if and only if it is possible to assign integers to variable names so as to satisfy all the given equations.

Example 1:

Input: ["a==b", "b!=a"]
Output: false
Explanation: If we assign say, a = 1 and b = 1, then the first equ

Example 2:

Input: ["b==a", "a==b"]
Output: true
Explanation: We could assign a = 1 and b = 1 to satisfy both equ

Example 3:

Input: ["a==b", "b==c", "a==c"]
Output: true

Example 4:

Input: ["a==b", "b!=c", "c==a"]
Output: false

Example 5:

Input: ["c==c", "b==d", "x!=z"]
Output: true

Note:

1. $1 \leq \text{equations.length} \leq 500$
2. $\text{equations[i].length} == 4$
3. equations[i][0] and equations[i][3] are lowercase letters
4. equations[i][1] is either '=' or '!=
5. equations[i][2] is '='

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

991. Broken Calculator

On a broken calculator that has a number showing on its display, we can perform two operations:

- **Double** : Multiply the number on the display by 2,
or;
- **Decrement** : Subtract 1 from the number on the display.

Initially, the calculator is displaying the number X .

Return the minimum number of operations needed to display the number Y .

Example 1:

Input: $X = 2$, $Y = 3$

Output: 2

Explanation: Use double operation and then decrement operation {

Example 2:

Input: $X = 5$, $Y = 8$

Output: 2

Explanation: Use decrement and then double { $5 \rightarrow 4 \rightarrow 8$ } .

Example 3:

Input: X = 3, Y = 10

Output: 3

Explanation: Use double, decrement and double {3 -> 6 -> 5 -> 10}

Example 4:

Input: X = 1024, Y = 1

Output: 1023

Explanation: Use decrement operations 1023 times.

Note:

1. $1 \leq X \leq 10^9$

2. $1 \leq Y \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[991-Broken-Calculator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

992. Subarrays with K Different Integers

Given an array A of positive integers, call a (contiguous, not necessarily distinct) subarray of A *good* if the number of different integers in that subarray is exactly K.

(For example, [1, 2, 3, 1, 2] has 3 different integers: 1 , 2 , and 3 .)

Return the number of good subarrays of A .

Example 1:

Input: A = [1, 2, 1, 2, 3], K = 2

Output: 7

Explanation: Subarrays formed with exactly 2 different integers:

Example 2:

Input: A = [1, 2, 1, 3, 4], K = 3

Output: 3

Explanation: Subarrays formed with exactly 3 different integers:

Note:

1. 1 <= A.length <= 20000

2. 1 <= A[i] <= A.length

3. 1 <= K <= A.length

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[992-Subarrays-with-K-Different-Integers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

993. Cousins in Binary Tree

In a binary tree, the root node is at depth 0 , and children of each depth k node are at depth $k+1$.

Two nodes of a binary tree are *cousins* if they have the same depth, but have **different parents** .

We are given the `root` of a binary tree with unique values, and the values `x` and `y` of two different nodes in the tree.

Return `true` if and only if the nodes corresponding to the values `x` and `y` are cousins.

Example 1:

Input: `root = [1,2,3,4]`, `x = 4`, `y = 3`
Output: `false`

Example 2:

```
Input: root = [1,2,3,null,4,null,5], x = 5, y = 4
Output: true
```

Example 3:

```
Input: root = [1,2,3,null,4], x = 2, y = 3
Output: false
```

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

994. Rotting Oranges

In a given grid, each cell can have one of three values:

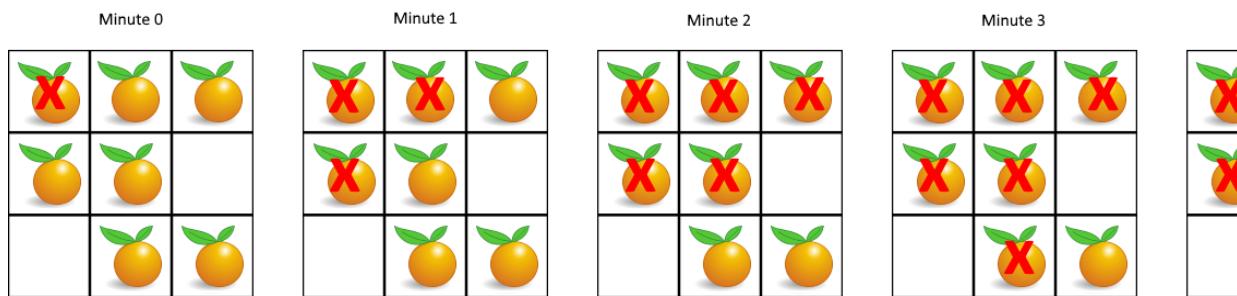
- the value 0 representing an empty cell;

- the value 1 representing a fresh orange;
- the value 2 representing a rotten orange.

Every minute, any fresh orange that is adjacent (4-directionally) to a rotten orange becomes rotten.

Return the minimum number of minutes that must elapse until no cell has a fresh orange. If this is impossible, return -1 instead.

Example 1:



Input: `[[2,1,1],[1,1,0],[0,1,1]]`
Output: 4

Example 2:

Input: `[[2,1,1],[0,1,1],[1,0,1]]`
Output: -1
Explanation: The orange in the bottom left corner (row 2, column 0) cannot rot any other oranges.

Example 3:

Input: `[[0,2]]`
Output: 0
Explanation: Since there are already no fresh oranges at minute 0, the answer is 0.

Note:

1. $1 \leq \text{grid.length} \leq 10$
2. $1 \leq \text{grid}[0].length \leq 10$
3. $\text{grid}[i][j]$ is only 0, 1, or 2.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**994-Rotting-Oranges**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

995. Minimum Number of K Consecutive Bit Flips

In an array A containing only 0s and 1s, a K -bit flip consists of choosing a (contiguous) subarray of length K and simultaneously changing every 0 in the subarray to 1, and every 1 in the subarray to 0.

Return the minimum number of K -bit flips required so that there is no 0 in the array. If it is not possible, return -1 .

Example 1:

Input: A = [0,1,0], K = 1

Output: 2

Explanation: Flip A[0], then flip A[2].

Example 2:

Input: A = [1,1,0], K = 2

Output: -1

Explanation: No matter how we flip subarrays of size 2, we can't

Example 3:

Input: A = [0,0,0,1,0,1,1,0], K = 3

Output: 3

Explanation:

Flip A[0],A[1],A[2]: A becomes [1,1,1,1,0,1,1,0]

Flip A[4],A[5],A[6]: A becomes [1,1,1,1,1,0,0,0]

Flip A[5],A[6],A[7]: A becomes [1,1,1,1,1,1,1,1]

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

996. Number of Squareful Arrays

Given an array A of non-negative integers, the array is *squareful* if for every pair of adjacent elements, their sum is a perfect square.

Return the number of permutations of A that are squareful. Two permutations A_1 and A_2 differ if and only if there is some index i such that $A_1[i] \neq A_2[i]$.
.

Example 1:

Input: [1, 17, 8]
Output: 2
Explanation:
[1, 8, 17] and [17, 8, 1] are the valid permutations.

Example 2:

Input: [2, 2, 2]
Output: 1

Note:

1. $1 \leq A.length \leq 12$
2. $0 \leq A[i] \leq 1e9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[996-Number-of-Squareful-Arrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

997. Find the Town Judge

In a town, there are N people labelled from 1 to N . There is a rumor that one of these people is secretly the town judge.

If the town judge exists, then:

1. The town judge trusts nobody.
2. Everybody (except for the town judge) trusts the town judge.
3. There is exactly one person that satisfies properties 1 and 2.

You are given `trust`, an array of pairs `trust[i] = [a, b]` representing that the person labelled `a` trusts the person labelled `b`.

If the town judge exists and can be identified, return the label of the town judge. Otherwise, return -1.

Example 1:

Input: `N = 2, trust = [[1,2]]`
Output: 2

Example 2:

Input: N = 3, trust = [[1,3],[2,3]]
Output: 3

Example 3:

Input: N = 3, trust = [[1,3],[2,3],[3,1]]
Output: -1

Example 4:

Input: N = 3, trust = [[1,2],[2,3]]
Output: -1

Example 5:

Input: N = 4, trust = [[1,3],[1,4],[2,3],[2,4],[4,3]]
Output: 3

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

998. Maximum Binary Tree

II

We are given the `root` node of a *maximum tree*: a tree where every node has a value greater than any other value in its subtree.

Just as in the [previous problem](#), the given tree was constructed from a list `A` (`root = Construct(A)`) recursively with the following `Construct(A)` routine:

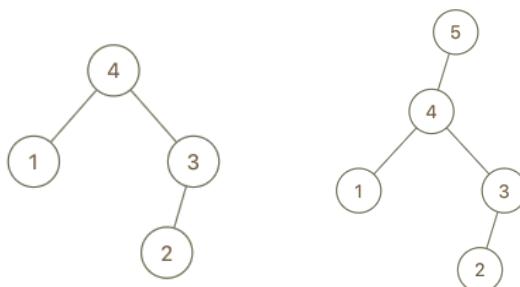
- If `A` is empty, return `null` .
- Otherwise, let `A[i]` be the largest element of `A` . Create a `root` node with value `A[i]` .
- The left child of `root` will be `Construct([A[0], A[1], ..., A[i-1]])`
- The right child of `root` will be `Construct([A[i+1], A[i+2], ..., A[A.length - 1]])`
- Return `root` .

Note that we were not given `A` directly, only a root node `root = Construct(A)` .

Suppose `B` is a copy of `A` with the value `val` appended to it. It is guaranteed that `B` has unique values.

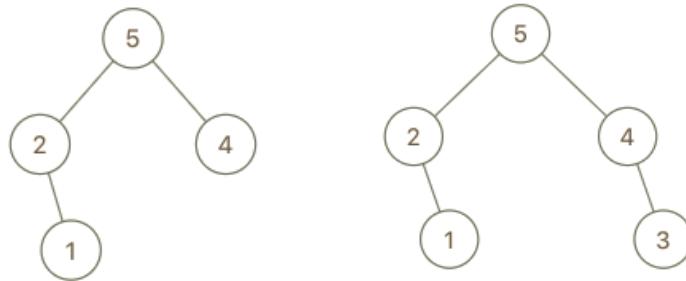
Return `Construct(B)` .

Example 1:



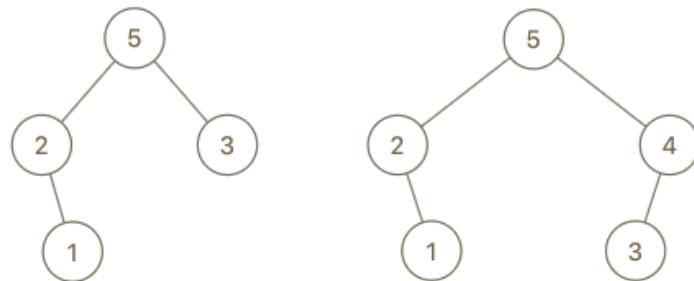
Input: root = [4,1,3,null,null,2], val = 5
Output: [5,4,null,1,3,null,null,2]
Explanation: A = [1,4,2,3], B = [1,4,2,3,5]

Example 2:



Input: root = [5,2,4,null,1], val = 3
Output: [5,2,4,null,1,null,3]
Explanation: A = [2,1,5,4], B = [2,1,5,4,3]

Example 3:



Input: root = [5,2,3,null,1], val = 4
Output: [5,2,4,null,1,3]
Explanation: A = [2,1,5,3], B = [2,1,5,3,4]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[998-Maximum-Binary-Tree-II](#)

All Problems:

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Welcome to Subscribe On Youtube:

999. Available Captures for Rook

On an 8 x 8 chessboard, there is one white rook. There also may be empty squares, white bishops, and black pawns. These are given as characters 'R', '.', 'B', and 'p' respectively. Uppercase characters represent white pieces, and lowercase characters represent black pieces.

The rook moves as in the rules of Chess: it chooses one of four cardinal directions (north, east, west, and south), then moves in that direction until it chooses to stop, reaches the edge of the board, or captures an opposite colored pawn by moving to the same square it occupies. Also, rooks cannot move into the same square as other friendly bishops.

Return the number of pawns the rook can capture in one move.

Example 1:

Input: [[".",".",".",".",".",".",".","."],[".",".",".","p",".",."],
Output: 3

Explanation:

In this example the rook is able to capture all the pawns.

Example 2:

Input: [[".",".",".",".",".",".",".","."],[".","p","p","p","p","p","p","p"]]

Output: 0

Explanation:

Bishops are blocking the rook to capture any pawn.

Example 3:

Input: [[".",".",".",".",".",".",".","."],[".",".",".","p",".","."]]

Output: 3

Explanation:

The rook can capture the pawns at positions b5, d6 and f5.

Note:

1. board.length == board[i].length == 8
2. board[i][j] is either 'R' , '.' , 'B' , or 'p'
3. There is exactly one cell with board[i][j] == 'R'

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[999-Available-Captures-for-Rook](#)

All Problems:

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Welcome to Subscribe On Youtube:

1000. Minimum Cost to Merge Stones

There are N piles of stones arranged in a row. The i -th pile has $\text{stones}[i]$ stones.

A *move* consists of merging **exactly K consecutive** piles into one pile, and the cost of this move is equal to the total number of stones in these K piles.

Find the minimum cost to merge all piles of stones into one pile. If it is impossible, return -1 .

Example 1:

Input: `stones = [3,2,4,1], K = 2`

Output: 20

Explanation:

We start with [3, 2, 4, 1].

We merge [3, 2] for a cost of 5, and we are left with [5, 4, 1].

We merge [4, 1] for a cost of 5, and we are left with [5, 5].

We merge [5, 5] for a cost of 10, and we are left with [10].

The total cost was 20, and this is the minimum possible.

Example 2:

Input: `stones = [3,2,4,1], K = 3`

Output: -1

Explanation: After any merge operation, there are 2 piles left,

Example 3:

Input: `stones = [3,5,1,2,6], K = 3`

Output: 25

Explanation:

We start with [3, 5, 1, 2, 6].

We merge [5, 1, 2] for a cost of 8, and we are left with [3, 8,

We merge [3, 8, 6] for a cost of 17, and we are left with [17]. The total cost was 25, and this is the minimum possible.

Note:

- $1 \leq \text{stones.length} \leq 30$
- $2 \leq K \leq 30$
- $1 \leq \text{stones}[i] \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1000-Minimum-Cost-to-Merge-Stones](#)

All Problems:

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Welcome to Subscribe On Youtube:

1001. Grid Illumination

On a $N \times N$ grid of cells, each cell (x, y) with $0 \leq x < N$ and $0 \leq y < N$ has a lamp.

Initially, some number of lamps are on. `lamps[i]` tells us the location of the i -th lamp that is on. Each lamp that is on illuminates every square on its x-axis, y-axis, and both diagonals (similar to a Queen in chess).

For the i -th query `queries[i] = (x, y)`, the answer to the query is 1 if the cell (x, y) is illuminated, else 0.

After each query (x, y) [in the order given by `queries`], we turn off any lamps that are at cell (x, y) or are adjacent 8-directionally (ie., share a corner or edge with cell (x, y)).

Return an array of answers. Each value `answer[i]` should be equal to the answer of the i -th query `queries[i]`.

Example 1:

Input: $N = 5$, `lamps = [[0,0],[4,4]]`, `queries = [[1,1],[1,0]]`
Output: `[1,0]`

Explanation:

Before performing the first query we have both lamps $[0,0]$ and $[4,4]$. The grid representing which cells are lit looks like this, where 1 means lit and 0 means unlit.

1 1 1 1 1
1 1 0 0 1
1 0 1 0 1
1 0 0 1 1
1 1 1 1 1

Then the query at $[1, 1]$ returns 1 because the cell is lit. After the query, the grid looks like this:

1 0 0 0 1
0 1 0 0 1
0 0 1 0 1
0 0 0 1 1
1 1 1 1 1

Before performing the second query we have only the lamp $[4,4]$ on.

Note:

1. $1 \leq N \leq 10^9$
2. $0 \leq \text{lamps.length} \leq 20000$
3. $0 \leq \text{queries.length} \leq 20000$
4. $\text{lamps}[i].length == \text{queries}[i].length == 2$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[1001-Grid-Illumination](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1002. Find Common Characters

Given an array A of strings made only from lowercase letters, return a list of all characters that show up in all strings within the list (**including duplicates**) . For example, if a character occurs 3 times in all strings but

not 4 times, you need to include that character three times in the final answer.

You may return the answer in any order.

Example 1:

Input: ["bella", "label", "roller"]
Output: ["e", "l", "l"]

Example 2:

Input: ["cool", "lock", "cook"]
Output: ["c", "o"]

Note:

1. $1 \leq A.length \leq 100$
2. $1 \leq A[i].length \leq 100$
3. $A[i][j]$ is a lowercase letter

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1003. Check If Word Is Valid After Substitutions

We are given that the string "abc" is valid.

From any valid string V , we may split V into two pieces X and Y such that $X + Y$ (X concatenated with Y) is equal to V . (X or Y may be empty.) Then, $X + \text{"abc"}$ + Y is also valid.

If for example $S = \text{"abc"}$, then examples of valid strings are: "abc", "aabcbc", "abccabc", "abcabcababcc". Examples of **invalid** strings are: "abccba", "ab", "cababc", "bac".

Return true if and only if the given string S is valid.

Example 1:

Input: "aabcbc"

Output: true

Explanation:

We start with the valid string "abc".

Then we can insert another "abc" between "a" and "bc", resulting

Example 2:

Input: "abcabcababcc"

Output: true

Explanation:

"abcabcabc" is valid after consecutive insertings of "abc".

Then we can insert "abc" before the last letter, resulting in "a

Example 3:

Input: "abccba"

Output: false

Example 4:

Input: "cababc"

Output: false

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1003-Check-If-Word-Is-Valid-After-Substitutions](#)

All Problems:

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Welcome to Subscribe On Youtube:

1004. Max Consecutive Ones III

Given an array A of 0s and 1s, we may change up to K values from 0 to 1.

Return the length of the longest (contiguous) subarray that contains only 1s.

Example 1:

Input: A = [1,1,1,0,0,0,1,1,1,1,0] , K = 2

Output: 6

Explanation:

[1,1,1,0,0,**1,1,1,1,1,1**]

Bolded numbers were flipped from 0 to 1. The longest subarray is

Example 2:

Input: A = [0,0,1,1,0,0,1,1,1,0,1,1,0,0,0,1,1,1,1] , K = 3

Output: 10

Explanation:

[0,0,**1,1,1,1,1,1,1,1,1,1**,0,0,0,1,1,1,1]

Bolded numbers were flipped from 0 to 1. The longest subarray is

Note:

1. $1 \leq A.length \leq 20000$

2. $0 \leq K \leq A.length$

3. $A[i]$ is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1004-Max-Consecutive-Ones-III](#)

All Problems:

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Welcome to Subscribe On Youtube:

1005. Maximize Sum Of Array After K Negations

Given an array A of integers, we **must** modify the array in the following way: we choose an i and replace $A[i]$ with $-A[i]$, and we repeat this process K times in total. (We may choose the same index i multiple times.)

Return the largest possible sum of the array after modifying it in this way.

Example 1:

Input: $A = [4, 2, 3]$, $K = 1$

Output: 5

Explanation: Choose indices (1,) and A becomes $[4, -2, 3]$.

Example 2:

Input: $A = [3, -1, 0, 2]$, $K = 3$

Output: 6

Explanation: Choose indices (1, 2, 2) and A becomes $[3, 1, 0, 2]$.

Example 3:

Input: $A = [2, -3, -1, 5, -4]$, $K = 2$

Output: 13

Explanation: Choose indices (1, 4) and A becomes $[2, 3, -1, 5, 4]$.

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1006. Clumsy Factorial

Normally, the factorial of a positive integer n is the product of all positive integers less than or equal to n .
For example, $\text{factorial}(10) = 10 * 9 * 8 * 7 * 6 * 5 * 4 * 3 * 2 * 1$.

We instead make a *clumsy factorial*: using the integers in decreasing order, we swap out the multiply operations for a fixed rotation of operations: multiply (*), divide (/), add (+) and subtract (-) in this order.

For example, $\text{clumsy}(10) = 10 * 9 / 8 + 7 - 6 * 5 / 4 + 3 - 2 * 1$. However, these operations are still applied using the usual order of operations of arithmetic: we do all multiplication and division steps before any addition or subtraction steps, and

multiplication and division steps are processed left to right.

Additionally, the division that we use is *floor division* such that $10 * 9 / 8$ equals 11 . This guarantees the result is an integer.

Implement the clumsy function as defined above: given an integer N , it returns the clumsy factorial of N .

Example 1:

Input: 4

Output: 7

Explanation: $7 = 4 * 3 / 2 + 1$

Example 2:

Input: 10

Output: 12

Explanation: $12 = 10 * 9 / 8 + 7 - 6 * 5 / 4 + 3 - 2 * 1$

Note:

1. $1 \leq N \leq 10000$

2. $-2^{31} \leq \text{answer} \leq 2^{31} - 1$ (The answer is guaranteed to fit within a 32-bit integer.)

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1006-Clumsy-Factorial](#)

All Problems:

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Welcome to Subscribe On Youtube:

1007. Minimum Domino Rotations For Equal Row

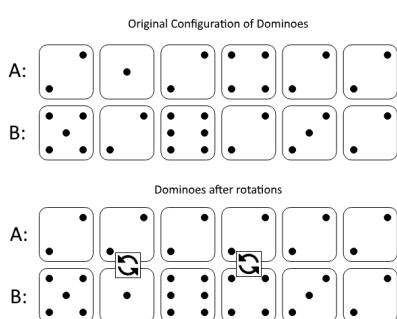
In a row of dominoes, $A[i]$ and $B[i]$ represent the top and bottom halves of the i -th domino. (A domino is a tile with two numbers from 1 to 6 - one on each half of the tile.)

We may rotate the i -th domino, so that $A[i]$ and $B[i]$ swap values.

Return the minimum number of rotations so that all the values in A are the same, or all the values in B are the same.

If it cannot be done, return -1 .

Example 1:



Input: A = [2,1,2,4,2,2], B = [5,2,6,2,3,2]

Output: 2

Explanation:

The first figure represents the dominoes as given by A and B: before we rotate them. In the second figure, we have rotated the second and fourth dominoes 90 degrees clockwise, so that every value in both arrays is 2.

Example 2:

Input: A = [3,5,1,2,3], B = [3,6,3,3,4]

Output: -1

Explanation:

In this case, it is not possible to rotate the dominoes to make every value equal.

Note:

1. $1 \leq A[i], B[i] \leq 6$

2. $2 \leq A.length == B.length \leq 20000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1007-Minimum-Domino-Rotations-For-Equal-Row](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

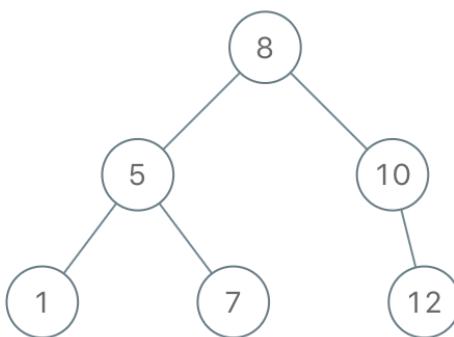
1008. Construct Binary Search Tree from Preorder Traversal

Return the root node of a binary **search** tree that matches the given preorder traversal.

(Recall that a binary search tree is a binary tree where for every node , any descendant of node.left has a value < node.val , and any descendant of node.right has a value > node.val . Also recall that a preorder traversal displays the value of the node first, then traverses node.left , then traverses node.right .)

Example 1:

Input: [8,5,1,7,10,12]
Output: [8,5,10,1,7,null,12]



Note:

1. $1 \leq \text{preorder.length} \leq 100$
2. The values of preorder are distinct.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1008-Construct-Binary-Search-Tree-from-Preorder-Traversal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1009. Complement of Base 10 Integer

Every non-negative integer N has a binary representation. For example, 5 can be represented as "101" in binary, 11 as "1011" in binary, and so on.

Note that except for $N = 0$, there are no leading zeroes in any binary representation.

The *complement* of a binary representation is the number in binary you get when changing every 1 to a 0 and 0 to a 1. For example, the complement of "101" in binary is "010" in binary.

For a given number N in base-10, return the complement of its binary representation as a base-10 integer.

Example 1:

Input: 5

Output: 2

Explanation: 5 is "101" in binary, with complement "010" in binary.

Example 2:

Input: 7

Output: 0

Explanation: 7 is "111" in binary, with complement "000" in binary.

Example 3:

Input: 10

Output: 5

Explanation: 10 is "1010" in binary, with complement "0101" in binary.

Note:

1. $0 \leq N < 10^9$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1009-Complement-of-Base-10-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1010. Pairs of Songs With Total Durations Divisible by 60

In a list of songs, the i -th song has a duration of `time[i]` seconds.

Return the number of pairs of songs for which their total duration in seconds is divisible by 60. Formally, we want the number of indices $i < j$ with $(\text{time}[i] + \text{time}[j]) \% 60 == 0$.

Example 1:

Input: [30, 20, 150, 100, 40]

Output: 3

Explanation: Three pairs have a total duration divisible by 60:
($\text{time}[0] = 30$, $\text{time}[2] = 150$): total duration 180
($\text{time}[1] = 20$, $\text{time}[3] = 100$): total duration 120
($\text{time}[1] = 20$, $\text{time}[4] = 40$): total duration 60

Example 2:

Input: [60, 60, 60]

Output: 3

Explanation: All three pairs have a total duration of 120, which

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1010-Pairs-of-Songs-With-Total-Durations-Divisible-by-60](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1011. Capacity To Ship Packages Within D Days

A conveyor belt has packages that must be shipped from one port to another within D days.

The i -th package on the conveyor belt has a weight of $\text{weights}[i]$. Each day, we load the ship with packages on the conveyor belt (in the order given by weights). We may not load more weight than the maximum weight capacity of the ship.

Return the least weight capacity of the ship that will result in all the packages on the conveyor belt being shipped within D days.

Example 1:

Input: $\text{weights} = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]$, $D = 5$
Output: 15

Explanation:

A ship capacity of 15 is the minimum to ship all the packages in 5 days.
1st day: 1, 2, 3, 4, 5
2nd day: 6, 7
3rd day: 8
4th day: 9
5th day: 10

Note that the cargo must be shipped in the order given, so using

Example 2:

Input: $\text{weights} = [3, 2, 2, 4, 1, 4]$, $D = 3$
Output: 6

Explanation:

A ship capacity of 6 is the minimum to ship all the packages in 3 days.
1st day: 3, 2
2nd day: 2, 4
3rd day: 1, 4

Example 3:

Input: $\text{weights} = [1, 2, 3, 1, 1]$, $D = 4$
Output: 3
Explanation:
1st day: 1
2nd day: 2
3rd day: 3
4th day: 1, 1

Note:

1. $1 \leq D \leq \text{weights.length} \leq 50000$
2. $1 \leq \text{weights}[i] \leq 500$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1011-Capacity-To-Ship-Packages-Within-D-Days](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1012. Numbers With Repeated Digits

Given a positive integer N , return the number of positive integers less than or equal to N that have at least 1 repeated digit.

Example 1:

Input: 20

Output: 1

Explanation: The only positive number (≤ 20) with at least 1 repeat

Example 2:

Input: 100

Output: 10

Explanation: The positive numbers (≤ 100) with atleast 1 repeat

Example 3:

Input: 1000

Output: 262

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1012-Numbers-With-Repeated-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1013. Partition Array Into Three Parts With Equal Sum

Given an array A of integers, return true if and only if we can partition the array into three **non-empty** parts with equal sums.

Formally, we can partition the array if we can find indexes $i+1 < j$ with $(A[0] + A[1] + \dots + A[i] == A[i+1] + A[i+2] + \dots + A[j-1] == A[j] + A[j+1] + \dots + A[A.length - 1])$

Example 1:

Input: [0,2,1,-6,6,-7,9,1,2,0,1]

Output: true

Explanation: $0 + 2 + 1 = -6 + 6 - 7 + 9 + 1 = 2 + 0 + 1$

Example 2:

Input: [0,2,1,-6,6,7,9,-1,2,0,1]

Output: false

Example 3:

Input: [3,3,6,5,-2,2,5,1,-9,4]

Output: true

Explanation: $3 + 3 = 6 = 5 - 2 + 2 + 5 + 1 - 9 + 4$

Difficulty:

Easy

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1014. Best Sightseeing Pair

Given an array A of positive integers, $A[i]$ represents the value of the i -th sightseeing spot, and two sightseeing spots i and j have distance $j - i$ between them.

The *score* of a pair ($i < j$) of sightseeing spots is $(A[i] + A[j] + i - j)$: the sum of the values of the sightseeing spots, **minus** the distance between them.

Return the maximum score of a pair of sightseeing spots.

Example 1:

Input: [8,1,5,2,6]

Output: 11

Explanation: $i = 0, j = 2, A[i] + A[j] + i - j = 8 + 5 + 0 - 2 = 11$

Note:

1. $2 \leq A.length \leq 50000$
2. $1 \leq A[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1014-Best-Sightseeing-Pair](#)

All Problems:

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Welcome to Subscribe On Youtube:

1015. Smallest Integer Divisible by K

Given a positive integer K , you need find the **smallest** positive integer N such that N is divisible by K , and N only contains the digit **1** .

Return the length of N . If there is no such N , return -1.

Example 1:

Input: 1

Output: 1

Explanation: The smallest answer is $N = 1$, which has length 1.

Example 2:

Input: 2

Output: -1

Explanation: There is no such positive integer N divisible by 2.

Example 3:

Input: 3

Output: 3

Explanation: The smallest answer is $N = 111$, which has length 3.

Note:

- $1 \leq K \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1015-Smallest-Integer-Divisible-by-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1016. Binary String With Substrings Representing 1 To N

Given a binary string S (a string consisting only of '0' and '1's) and a positive integer N , return true if and only if for every integer X from 1 to N, the binary representation of X is a substring of S.

Example 1:

Input: S = "0110" , N = 3
Output: true

Example 2:

Input: S = "0110" , N = 4
Output: false

Note:

1. 1 <= S.length <= 1000
2. 1 <= N <= 10^9

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1016-Binary-String-With-Substrings-Representing-1-To-N](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1017. Convert to Base -2

Given a number N , return a string consisting of "0" s and "1" s that represents its value in base -2 (negative two).

The returned string must have no leading zeroes, unless the string is "0" .

Example 1:

Input: 2
Output: "110"
Explanation: $(-2)^2 + (-2)^1 = 2$

Example 2:

Input: 3
Output: "111"
Explanation: $(-2)^2 + (-2)^1 + (-2)^0 = 3$

Example 3:

Input: 4
Output: "100"
Explanation: $(-2)^2 = 4$

Note:

1. $0 \leq N \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1017-Convert-to-Base-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1018. Binary Prefix Divisible By 5

Given an array A of 0's and 1's, consider N_i : the i-th subarray from A[0] to A[i] interpreted as a binary number (from most-significant-bit to least-significant-bit.)

Return a list of booleans answer , where answer[i] is true if and only if N_i is divisible by 5.

Example 1:

Input: [0,1,1]

Output: [true, false, false]

Explanation:

The input numbers in binary are 0, 01, 011; which are 0, 1, and 5 respectively.

Example 2:

Input: [1,1,1]

Output: [false, false, false]

Example 3:

Input: [0,1,1,1,1,1]

Output: [true, false, false, false, true, false]

Example 4:

Input: [1,1,1,0,1]

Output: [false, false, false, false, false]

Note:

1. $1 \leq A.length \leq 30000$
2. $A[i]$ is 0 or 1

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1018-Binary-Prefix-Divisible-By-5](#)

All Problems:

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Welcome to Subscribe On Youtube:

1019. Next Greater Node In Linked List

We are given a linked list with `head` as the first node.
Let's number the nodes in the list: `node_1`, `node_2`,
`node_3`, ... etc.

Each node may have a *next larger value* : for `node_i` ,
`next_larger(node_i)` is the `node_j.val` such that $j > i$,`node_j.val > node_i.val` , and j is the
smallest possible choice. If such a j does not exist, the
next larger value is 0 .

Return an array of integers `answer` , where `answer[i] = next_larger(node_{i+1})` .

Note that in the example **inputs** (not outputs) below,
arrays such as `[2,1,5]` represent the serialization of a
linked list with a head node value of 2, second node value
of 1, and third node value of 5.

Example 1:

Input: `[2,1,5]`
Output: `[5,5,0]`

Example 2:

Input: `[2,7,4,3,5]`
Output: `[7,0,5,5,0]`

Example 3:

Input: `[1,7,5,1,9,2,5,1]`
Output: `[7,9,9,9,0,5,0,0]`

Note:

1. $1 \leq \text{node.val} \leq 10^9$ for each node in the
linked list.
2. The given list has length in the range $[0, 10000]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1019-Next-Greater-Node-In-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1020. Number of Enclaves

Given a 2D array A , each cell is 0 (representing sea) or 1 (representing land)

A move consists of walking from one land square 4-directionally to another land square, or off the boundary of the grid.

Return the number of land squares in the grid for which we **cannot** walk off the boundary of the grid in any number of moves.

Example 1:

Input: [[0,0,0,0],[1,0,1,0],[0,1,1,0],[0,0,0,0]]
Output: 3
Explanation:
There are three 1s that are enclosed by 0s, and one 1 that isn't.

Example 2:

Input: [[0,1,1,0],[0,0,1,0],[0,0,1,0],[0,0,0,0]]
Output: 0
Explanation:
All 1s are either on the boundary or can reach the boundary.

Note:

1. $1 \leq A.length \leq 500$
2. $1 \leq A[i].length \leq 500$
3. $0 \leq A[i][j] \leq 1$
4. All rows have the same size.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1020-Number-of-Enclaves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1021. Remove Outermost Parentheses

A valid parentheses string is either empty ("") , "(" + A + ")" , or A + B , where A and B are valid parentheses strings, and + represents string concatenation. For example, "", "()" , "((())())" , and "(((())))" are all valid parentheses strings.

A valid parentheses string S is **primitive** if it is nonempty, and there does not exist a way to split it into S = A+B , with A and B nonempty valid parentheses strings.

Given a valid parentheses string S , consider its primitive decomposition: S = P₁ + P₂ + ... + P_k , where P_i are primitive valid parentheses strings.

Return S after removing the outermost parentheses of every primitive string in the primitive decomposition of S .

Example 1:

Input: "((())())()

Output: "())()

Explanation:

The input string is "((())())()", with primitive decomposition "After removing outer parentheses of each part, this is "()" +

Example 2:

Input: "((())())()((())())"

Output: "())()()((())())"

Explanation:

The input string is "((())())()((())())", with primitive decomposition "After removing outer parentheses of each part, this is "()" +

Example 3:

Input: "()()

Output: ""

Explanation:

The input string is "()()", with primitive decomposition "()"+>()". After removing outer parentheses of each part, this is "" + "" =

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1022. Sum of Root To Leaf Binary Numbers

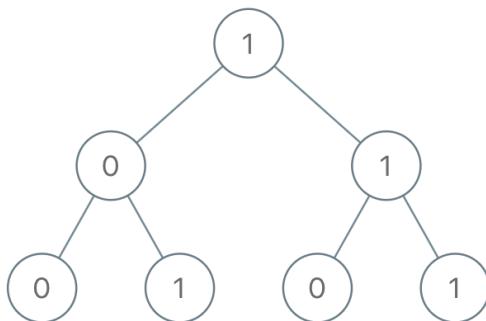
Given a binary tree, each node has value 0 or 1 . Each root-to-leaf path represents a binary number starting

with the most significant bit. For example, if the path is 0 -> 1 -> 1 -> 0 -> 1 , then this could represent 01101 in binary, which is 13 .

For all leaves in the tree, consider the numbers represented by the path from the root to that leaf.

Return the sum of these numbers.

Example 1:



Input: [1,0,1,0,1,0,1]

Output: 22

Explanation: (100) + (101) + (110) + (111) = 4 + 5 + 6 + 7 = 22

Note:

1. The number of nodes in the tree is between 1 and 1000 .
2. node.val is 0 or 1 .
3. The answer will not exceed $2^{31} - 1$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1022-Sum-of-Root-To-Leaf-Binary-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1023. Camelcase Matching

A query word matches a given pattern if we can insert **lowercase** letters to the pattern word so that it equals the query . (We may insert each character at any position, and may insert 0 characters.)

Given a list of queries , and a pattern , return an answer list of booleans, where answer[i] is true if and only if queries[i] matches the pattern .

Example 1:

Input: queries = ["FooBar", "FooBarTest", "FootBall", "FrameBuffer"]
Output: [true, false, true, true, false]
Explanation:
"FooBar" can be generated like this "F" + "oo" + "B" + "ar".
"FootBall" can be generated like this "F" + "oot" + "B" + "all".
"FrameBuffer" can be generated like this "F" + "rame" + "B" + "u

Example 2:

Input: queries = ["FooBar", "FooBarTest", "FootBall", "FrameBuffer"]
Output: [true, false, true, false]
Explanation:
"FooBar" can be generated like this "Fo" + "o" + "Ba" + "r".
"FootBall" can be generated like this "Fo" + "ot" + "Ba" + "ll".

Example 3:

Input: queries = ["FooBar", "FooBarTest", "FootBall", "FrameBuffer"]
Output: [false, true, false, false]
Explanation:
"FooBarTest" can be generated like this "Fo" + "o" + "Ba" + "r" .

Note:

1. $1 \leq \text{queries.length} \leq 100$
2. $1 \leq \text{queries}[i].length \leq 100$
3. $1 \leq \text{pattern.length} \leq 100$
4. All strings consists only of lower and upper case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1023-Camelcase-Matching](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1024. Video Stitching

You are given a series of video clips from a sporting event that lasted T seconds. These video clips can be overlapping with each other and have varied lengths.

Each video clip $\text{clips}[i]$ is an interval: it starts at time $\text{clips}[i][0]$ and ends at time $\text{clips}[i][1]$. We can cut these clips into segments freely: for example, a clip $[0, 7]$ can be cut into segments $[0, 1] + [1, 3] + [3, 7]$.

Return the minimum number of clips needed so that we can cut the clips into segments that cover the entire sporting event ($[0, T]$). If the task is impossible, return -1.

Example 1:

Input: $\text{clips} = [[0,2],[4,6],[8,10],[1,9],[1,5],[5,9]]$, $T = 10$
Output: 3
Explanation:
We take the clips $[0,2]$, $[8,10]$, $[1,9]$; a total of 3 clips.
Then, we can reconstruct the sporting event as follows:
We cut $[1,9]$ into segments $[1,2] + [2,8] + [8,9]$.
Now we have segments $[0,2] + [2,8] + [8,10]$ which cover the spor

Example 2:

Input: $\text{clips} = [[0,1],[1,2]]$, $T = 5$
Output: -1
Explanation:
We can't cover $[0,5]$ with only $[0,1]$ and $[0,2]$.

Example 3:

Input: $\text{clips} = [[0,1],[6,8],[0,2],[5,6],[0,4],[0,3],[6,7],[1,3],$
Output: 3

Explanation:

We can take clips [0,4], [4,7], and [6,9].

Example 4:

Input: clips = [[0,4],[2,8]], T = 5

Output: 2

Explanation:

Notice you can have extra video after the event ends.

Note:

1. $1 \leq \text{clips.length} \leq 100$
2. $0 \leq \text{clips}[i][0], \text{clips}[i][1] \leq 100$
3. $0 \leq T \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1024-Video-Stitching](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1025. Divisor Game

Alice and Bob take turns playing a game, with Alice starting first.

Initially, there is a number N on the chalkboard. On each player's turn, that player makes a *move* consisting of:

- Choosing any x with $0 < x < N$ and $N \% x == 0$
- Replacing the number N on the chalkboard with $N - x$.

Also, if a player cannot make a move, they lose the game.

Return `True` if and only if Alice wins the game, assuming both players play optimally.

Example 1:

Input: 2

Output: true

Explanation: Alice chooses 1, and Bob has no more moves.

Example 2:

Input: 3

Output: false

Explanation: Alice chooses 1, Bob chooses 1, and Alice has no more moves.

Note:

1. $1 \leq N \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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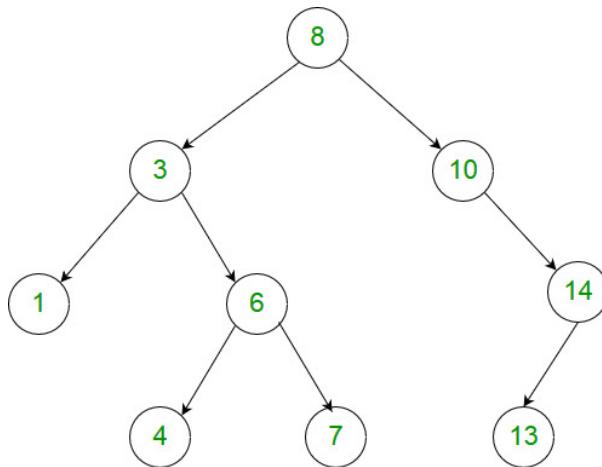
Welcome to Subscribe On Youtube:

1026. Maximum Difference Between Node and Ancestor

Given the `root` of a binary tree, find the maximum value V for which there exists **different** nodes A and B where $V = |A.val - B.val|$ and A is an ancestor of B .

(A node A is an ancestor of B if either: any child of A is equal to B , or any child of A is an ancestor of B .)

Example 1:



Input: [8,3,10,1,6,null,14,null,null,4,7,13]

Output: 7

Explanation:

We have various ancestor-node differences, some of which are given below:

$$|8 - 3| = 5$$

$$|3 - 7| = 4$$

$$|8 - 1| = 7$$

$$|10 - 13| = 3$$

Among all possible differences, the maximum value of 7 is obtained between node 8 and node 1.

Note:

1. The number of nodes in the tree is between 2 and 5000.
2. Each node will have value between 0 and 100000.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1026-Maximum-Difference-Between-Node-and-Ancestor](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1027. Longest Arithmetic Sequence

Given an array A of integers, return the **length** of the longest arithmetic subsequence in A .

Recall that a *subsequence* of A is a list A[i_1], A[i_2], ..., A[i_k] with $0 \leq i_1 < i_2 < \dots < i_k \leq A.length - 1$, and that a sequence B is *arithmetic* if $B[i+1] - B[i]$ are all the same value (for $0 \leq i < B.length - 1$).

Example 1:

Input: [3,6,9,12]

Output: 4

Explanation:

The whole array is an arithmetic sequence with steps of length =

Example 2:

Input: [9,4,7,2,10]

Output: 3

Explanation:

The longest arithmetic subsequence is [4,7,10].

Example 3:

Input: [20,1,15,3,10,5,8]

Output: 4

Explanation:

The longest arithmetic subsequence is [20,15,10,5].

Difficulty:

Medium

Lock:

Normal

Company:**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1028. Recover a Tree From Preorder Traversal

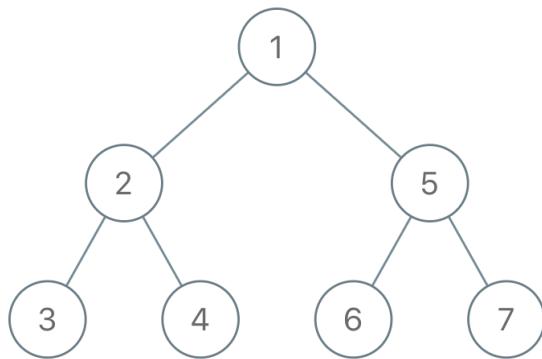
We run a preorder depth first search on the root of a binary tree.

At each node in this traversal, we output D dashes (where D is the *depth* of this node), then we output the value of this node. (*If the depth of a node is D , the depth of its immediate child is D+1 . The depth of the root node is 0 .*)

If a node has only one child, that child is guaranteed to be the left child.

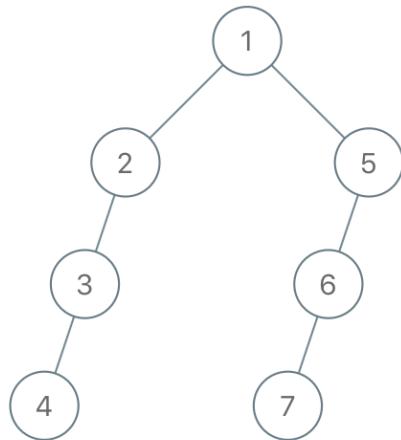
Given the output S of this traversal, recover the tree and return its root .

Example 1:



Input: "1-2--3--4-5--6--7"
Output: [1,2,5,3,4,6,7]

Example 2:



Input: "1-2--3---4-5--6---7"
Output: [1,2,5,3,null,6,null,4,null,7]

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1028-Recover-a-Tree-From-Preorder-Traversa](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1029. Two City Scheduling

There are $2N$ people a company is planning to interview. The cost of flying the i -th person to city A is $\text{costs}[i][0]$, and the cost of flying the i -th person to city B is $\text{costs}[i][1]$.

Return the minimum cost to fly every person to a city such that exactly N people arrive in each city.

Example 1:

Input: [[10, 20], [30, 200], [400, 50], [30, 20]]

Output: 110

Explanation:

The first person goes to city A for a cost of 10.

The second person goes to city A for a cost of 30.

The third person goes to city B for a cost of 50.

The fourth person goes to city B for a cost of 20.

The total minimum cost is $10 + 30 + 50 + 20 = 110$ to have half the people in each city.

Note:

1. $1 \leq \text{costs.length} \leq 100$
2. It is guaranteed that `costs.length` is even.
3. $1 \leq \text{costs}[i][0], \text{costs}[i][1] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1029-Two-City-Scheduling](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1030. Matrix Cells in Distance Order

We are given a matrix with R rows and C columns has cells with integer coordinates (r, c) , where $0 \leq r < R$ and $0 \leq c < C$.

Additionally, we are given a cell in that matrix with coordinates (r_0, c_0) .

Return the coordinates of all cells in the matrix, sorted by their distance from (r_0, c_0) from smallest distance to largest distance. Here, the distance between two cells (r_1, c_1) and (r_2, c_2) is the Manhattan distance, $|r_1 - r_2| + |c_1 - c_2|$. (You may return the answer in any order that satisfies this condition.)

Example 1:

Input: $R = 1$, $C = 2$, $r_0 = 0$, $c_0 = 0$

Output: $[[0, 0], [0, 1]]$

Explanation: The distances from (r_0, c_0) to other cells are: $[0, 1]$

Example 2:

Input: $R = 2$, $C = 2$, $r_0 = 0$, $c_0 = 1$

Output: $[[0, 1], [0, 0], [1, 1], [1, 0]]$

Explanation: The distances from (r_0, c_0) to other cells are: $[0, 1, 1, 2]$. The answer $[[0, 1], [1, 1], [0, 0], [1, 0]]$ would also be accepted as correct.

Example 3:

Input: $R = 2$, $C = 3$, $r_0 = 1$, $c_0 = 2$

Output: $[[1, 2], [0, 2], [1, 1], [0, 1], [1, 0], [0, 0]]$

Explanation: The distances from (r_0, c_0) to other cells are: $[0, 1, 2, 2, 3, 3]$. There are other answers that would also be accepted as correct.

Note:

1. $1 \leq R \leq 100$
2. $1 \leq C \leq 100$
3. $0 \leq r_0 < R$
4. $0 \leq c_0 < C$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1030-Matrix-Cells-in-Distance-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1031. Maximum Sum of Two Non-Overlapping Subarrays

Given an array A of non-negative integers, return the maximum sum of elements in two non-overlapping (contiguous) subarrays, which have lengths L and M . (For clarification, the L -length subarray could occur before or after the M -length subarray.)

Formally, return the largest V for which $V = (A[i] + A[i+1] + \dots + A[i+L-1]) + (A[j] + A[j+1] + \dots + A[j+M-1])$ and either:

- $0 \leq i < i + L - 1 < j < j + M - 1 < A.length$, or
- $0 \leq j < j + M - 1 < i < i + L - 1 < A.length$.

Example 1:

Input: $A = [0, 6, 5, 2, 2, 5, 1, 9, 4]$, $L = 1$, $M = 2$
Output: 20

Explanation: One choice of subarrays is [9] with length 1, and [6, 5] with length 2.

Example 2:

Input: $A = [3, 8, 1, 3, 2, 1, 8, 9, 0]$, $L = 3$, $M = 2$
Output: 29

Explanation: One choice of subarrays is [3, 8, 1] with length 3, and [8, 9] with length 2.

Example 3:

Input: $A = [2, 1, 5, 6, 0, 9, 5, 0, 3, 8]$, $L = 4$, $M = 3$
Output: 31

Explanation: One choice of subarrays is [5, 6, 0, 9] with length 4, and [2, 1, 5] with length 3.

Note:

1. $L \geq 1$
2. $M \geq 1$
3. $L + M \leq A.length \leq 1000$
4. $0 \leq A[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1031-Maximum-Sum-of-Two-Non-Overlapping-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1032. Stream of Characters

Implement the `StreamChecker` class as follows:

- `StreamChecker(words)` : Constructor, init the data structure with the given words.

- `query(letter)` : returns true if and only if for some $k \geq 1$, the last k characters queried (in order from oldest to newest, including this letter just queried) spell one of the words in the given list.

Example:

```
StreamChecker streamChecker = new StreamChecker(["cd","f","kl"])
streamChecker.query('a');           // return false
streamChecker.query('b');           // return false
streamChecker.query('c');           // return false
streamChecker.query('d');           // return true, because 'cd'
streamChecker.query('e');           // return false
streamChecker.query('f');           // return true, because 'f' i
streamChecker.query('g');           // return false
streamChecker.query('h');           // return false
streamChecker.query('i');           // return false
streamChecker.query('j');           // return false
streamChecker.query('k');           // return false
streamChecker.query('l');           // return true, because 'kl'
```

Note:

- $1 \leq \text{words.length} \leq 2000$
- $1 \leq \text{words}[i].length \leq 2000$
- Words will only consist of lowercase English letters.
- Queries will only consist of lowercase English letters.
- The number of queries is at most 40000.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1032-Stream-of-Characters](#)

All Problems:

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Welcome to Subscribe On Youtube:

1033. Moving Stones Until Consecutive

Three stones are on a number line at positions a , b , and c .

Each turn, you pick up a stone at an endpoint (ie., either the lowest or highest position stone), and move it to an unoccupied position between those endpoints. Formally, let's say the stones are currently at positions x , y , z with $x < y < z$. You pick up the stone at either position x or position z , and move that stone to an integer position k , with $x < k < z$ and $k \neq y$.

The game ends when you cannot make any more moves, ie. the stones are in consecutive positions.

When the game ends, what is the minimum and maximum number of moves that you could have made?
Return the answer as an length 2 array: `answer = [minimum_moves, maximum_moves]`

Example 1:

Input: a = 1, b = 2, c = 5
Output: [1,2]
Explanation: Move the stone from 5 to 3, or move the stone from

Example 2:

Input: a = 4, b = 3, c = 2
Output: [0,0]
Explanation: We cannot make any moves.

Example 3:

Input: a = 3, b = 5, c = 1
Output: [1,2]
Explanation: Move the stone from 1 to 4; or move the stone from

Difficulty:

Easy

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1034. Coloring A Border

Given a 2-dimensional `grid` of integers, each value in the grid represents the color of the grid square at that location.

Two squares belong to the same *connected component* if and only if they have the same color and are next to each other in any of the 4 directions.

The *border* of a connected component is all the squares in the connected component that are either 4-directionally adjacent to a square not in the component, or on the boundary of the grid (the first or last row or column).

Given a square at location $(r0, c0)$ in the grid and a `color`, color the border of the connected component of that square with the given `color`, and return the final `grid`.

Example 1:

Input: `grid = [[1,1],[1,2]]`, $r0 = 0$, $c0 = 0$, `color = 3`
Output: `[[3, 3], [3, 2]]`

Example 2:

Input: `grid = [[1,2,2],[2,3,2]]`, $r0 = 0$, $c0 = 1$, `color = 3`
Output: `[[1, 3, 3], [2, 3, 3]]`

Example 3:

Input: `grid = [[1,1,1],[1,1,1],[1,1,1]]`, $r0 = 1$, $c0 = 1$, `color = 1`
Output: `[[2, 2, 2], [2, 1, 2], [2, 2, 2]]`

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

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Welcome to Subscribe On Youtube:

1035. Uncrossed Lines

We write the integers of A and B (in the order they are given) on two separate horizontal lines.

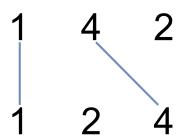
Now, we may draw *connecting lines* : a straight line connecting two numbers A[i] and B[j] such that:

- $A[i] == B[j]$;
- The line we draw does not intersect any other connecting (non-horizontal) line.

Note that a connecting lines cannot intersect even at the endpoints: each number can only belong to one connecting line.

Return the maximum number of connecting lines we can draw in this way.

Example 1:



Input: A = [1,4,2], B = [1,2,4]
Output: 2
Explanation: We can draw 2 uncrossed lines as in the diagram.
We cannot draw 3 uncrossed lines, because the line from A[1]=4 to

Example 2:

Input: A = [2,5,1,2,5], B = [10,5,2,1,5,2]
Output: 3

Example 3:

Input: A = [1,3,7,1,7,5], B = [1,9,2,5,1]
Output: 2

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1036. Escape a Large Maze

In a 1 million by 1 million grid, the coordinates of each grid square are (x, y) with $0 \leq x, y < 10^6$.

We start at the source square and want to reach the target square. Each move, we can walk to a 4-directionally adjacent square in the grid that isn't in the given list of blocked squares.

Return true if and only if it is possible to reach the target square through a sequence of moves.

Example 1:

Input: blocked = [[0,1],[1,0]], source = [0,0], target = [0,2]
Output: false

Explanation:

The target square is inaccessible starting from the source square.

Example 2:

Input: blocked = [], source = [0,0], target = [999999,999999]

Output: true

Explanation:

Because there are no blocked cells, it's possible to reach the target square.

Note:

1. $0 \leq \text{blocked.length} \leq 200$
2. $\text{blocked[i].length} == 2$
3. $0 \leq \text{blocked[i][j]} < 10^6$
4. $\text{source.length} == \text{target.length} == 2$
5. $0 \leq \text{source[i][j]}, \text{target[i][j]} < 10^6$
6. $\text{source} \neq \text{target}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1036-Escape-a-Large-Maze](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1037. Valid Boomerang

A *boomerang* is a set of 3 points that are all distinct and **not** in a straight line.

Given a list of three points in the plane, return whether these points are a boomerang.

Example 1:

Input: [[1,1],[2,3],[3,2]]
Output: true

Example 2:

Input: [[1,1],[2,2],[3,3]]
Output: false

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1037-Valid-Boomerang](#)

All Problems:

[Link to All Problems](#)

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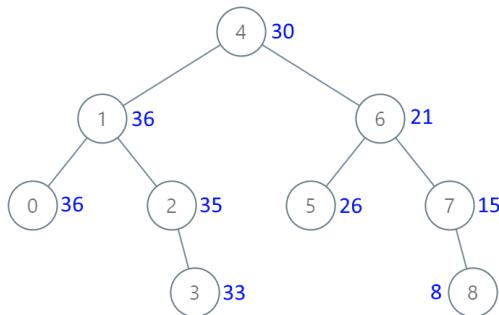
1038. Binary Search Tree to Greater Sum Tree

Given the root of a binary **search tree** with distinct values, modify it so that every node `has a new value equal to the sum of the values of the original tree that are greater than or equal to node.val`.

As a reminder, a *binary search tree* is a tree that satisfies these constraints:

- The left subtree of a node contains only nodes with keys **less than** the node's key.
- The right subtree of a node contains only nodes with keys **greater than** the node's key.
- Both the left and right subtrees must also be binary search trees.

Example 1:



Input: [4,1,6,0,2,5,7,null,null,null,3,null,null,null,8]
Output: [30,36,21,36,35,26,15,null,null,null,33,null,null,null,8]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1038-Binary-Search-Tree-to-Greater-Sum-Tree](#)

All Problems:

[Link to All Problems](#)

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1039. Minimum Score Triangulation of Polygon

Given N , consider a convex N -sided polygon with vertices labelled $A[0], A[i], \dots, A[N-1]$ in clockwise order.

Suppose you triangulate the polygon into $N-2$ triangles. For each triangle, the value of that triangle is the **product** of the labels of the vertices, and the *total score* of the triangulation is the sum of these values over all $N-2$ triangles in the triangulation.

Return the smallest possible total score that you can achieve with some triangulation of the polygon.

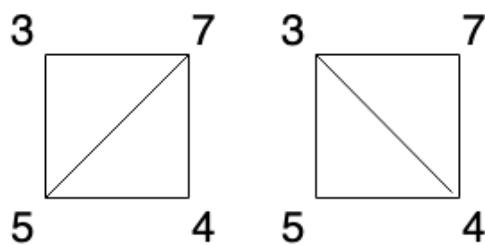
Example 1:

Input: [1, 2, 3]

Output: 6

Explanation: The polygon is already triangulated, and the score is 6 = 1 * 2 * 3.

Example 2:



Input: [3, 7, 4, 5]

Output: 144

Explanation: There are two triangulations, with possible scores:

Example 3:

Input: [1, 3, 1, 4, 1, 5]

Output: 13

Explanation: The minimum score triangulation has score $1*1*3 + 1*1*5 = 13$

Note:

1. $3 \leq A.length \leq 50$

2. $1 \leq A[i] \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1039-Minimum-Score-Triangulation-of-Polygon](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1040. Moving Stones Until Consecutive II

On an **infinite** number line, the position of the i -th stone is given by `stones[i]`. Call a stone an *endpoint stone* if it has the smallest or largest position.

Each turn, you pick up an endpoint stone and move it to an unoccupied position so that it is no longer an endpoint stone.

In particular, if the stones are at say, `stones = [1, 2, 5]`, you **cannot** move the endpoint stone at position 5, since moving it to any position (such as 0, or 3) will still keep that stone as an endpoint stone.

The game ends when you cannot make any more moves, ie. the stones are in consecutive positions.

When the game ends, what is the minimum and maximum number of moves that you could have made?

Return the answer as an length 2 array: `answer = [minimum_moves, maximum_moves]`

Example 1:

Input: [7, 4, 9]

Output: [1, 2]

Explanation:

We can move 4 \rightarrow 8 for one move to finish the game.

Or, we can move 9 \rightarrow 5, 4 \rightarrow 6 for two moves to finish the game.

Example 2:

Input: [6,5,4,3,10]

Output: [2,3]

We can move 3 -> 8 then 10 -> 7 to finish the game.

Or, we can move 3 -> 7, 4 -> 8, 5 -> 9 to finish the game.

Notice we cannot move 10 -> 2 to finish the game, because that w

Example 3:

Input: [100,101,104,102,103]

Output: [0,0]

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1041. Robot Bounded In Circle

On an infinite plane, a robot initially stands at $(0, 0)$ and faces north. The robot can receive one of three instructions:

- "G" : go straight 1 unit;
- "L" : turn 90 degrees to the left;
- "R" : turn 90 degrees to the right.

The robot performs the instructions given in order, and repeats them forever.

Return `true` if and only if there exists a circle in the plane such that the robot never leaves the circle.

Example 1:

Input: "GGLLGG"

Output: true

Explanation:

The robot moves from $(0,0)$ to $(0,2)$, turns 180 degrees, and then When repeating these instructions, the robot remains in the circ

Example 2:

Input: "GG"

Output: false

Explanation:

The robot moves north indefinitely.

Example 3:

Input: "GL"

Output: true

Explanation:

The robot moves from $(0, 0) \rightarrow (0, 1) \rightarrow (-1, 1) \rightarrow (-1, 0) \rightarrow (0, 0)$

Note:

1. $1 \leq \text{instructions.length} \leq 100$
2. `instructions[i]` is in `{'G', 'L', 'R'}`

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1041-Robot-Bounded-In-Circle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1042. Flower Planting With No Adjacent

You have N gardens, labelled 1 to N . In each garden, you want to plant one of 4 types of flowers.

`paths[i] = [x, y]` describes the existence of a bidirectional path from garden x to garden y .

Also, there is no garden that has more than 3 paths coming into or leaving it.

Your task is to choose a flower type for each garden such that, for any two gardens connected by a path, they have different types of flowers.

Return **any** such a choice as an array `answer` , where `answer[i]` is the type of flower planted in the $(i+1)$ -th garden. The flower types are denoted 1, 2, 3, or 4 . It is guaranteed an answer exists.

Example 1:

Input: `N = 3, paths = [[1,2],[2,3],[3,1]]`
Output: [1,2,3]

Example 2:

Input: `N = 4, paths = [[1,2],[3,4]]`
Output: [1,2,1,2]

Example 3:

Input: `N = 4, paths = [[1,2],[2,3],[3,4],[4,1],[1,3],[2,4]]`
Output: [1,2,3,4]

Note:

- $1 \leq N \leq 10000$
- $0 \leq \text{paths.size} \leq 20000$
- No garden has 4 or more paths coming into or leaving it.
- It is guaranteed an answer exists.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1042-Flower-Planting-With-No-Adjacent](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1043. Partition Array for Maximum Sum

Given an integer array A , you partition the array into (contiguous) subarrays of length at most K . After partitioning, each subarray has their values changed to become the maximum value of that subarray.

Return the largest sum of the given array after partitioning.

Example 1:

Input: A = [1,15,7,9,2,5,10] , K = 3

Output: 84

Explanation: A becomes [15,15,15,9,10,10,10]

Note:

1. 1 <= K <= A.length <= 500

2. 0 <= A[i] <= 10^6

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1043-Partition-Array-for-Maximum-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1044. Longest Duplicate Substring

Given a string S , consider all *duplicated substrings* :
(contiguous) substrings of S that occur 2 or more times.
(The occurrences may overlap.)

Return **any** duplicated substring that has the longest possible length. (If S does not have a duplicated substring, the answer is " " .)

Example 1:

Input: "banana"
Output: "ana"

Example 2:

Input: "abcd"
Output: ""

Note:

1. $2 \leq S.length \leq 10^5$
2. S consists of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1044-Longest-Duplicate-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1045. Customers Who Bought All Products

Table: Customer

Column Name	Type
customer_id	int
product_key	int

product_key is a foreign key to Product table.

Table: Product

Column Name	Type
product_key	int

product_key is the primary key column for this table.

Write an SQL query for a report that provides the customer ids from the Customer table that bought all the products in the Product table.

For example:

Customer table:

1	5
2	6
3	5
3	6
1	6

Product table:

5
6

```
Result table:
+-----+
| customer_id |
+-----+
| 1           |
| 3           |
+-----+
The customers who bought all the products (5 and 6) are customer
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1045-Customers-Who-Bought-All-Products](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1046. Last Stone Weight

We have a collection of rocks, each rock has a positive integer weight.

Each turn, we choose the two **heaviest** rocks and smash them together. Suppose the stones have weights x and y with $x \leq y$. The result of this smash is:

- If $x == y$, both stones are totally destroyed;
- If $x != y$, the stone of weight x is totally destroyed, and the stone of weight y has new weight $y - x$.

At the end, there is at most 1 stone left. Return the weight of this stone (or 0 if there are no stones left.)

Example 1:

Input: [2,7,4,1,8,1]

Output: 1

Explanation:

We combine 7 and 8 to get 1 so the array converts to [2,4,1,1,1]
we combine 2 and 4 to get 2 so the array converts to [2,1,1,1] the
we combine 2 and 1 to get 1 so the array converts to [1,1,1] then
we combine 1 and 1 to get 0 so the array converts to [1] then th

Note:

1. $1 \leq \text{stones.length} \leq 30$
2. $1 \leq \text{stones}[i] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1046-Last-Stone-Weight](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1047. Remove All Adjacent Duplicates In String

Given a string S of lowercase letters, a *duplicate removal* consists of choosing two adjacent and equal letters, and removing them.

We repeatedly make duplicate removals on S until we no longer can.

Return the final string after all such duplicate removals have been made. It is guaranteed the answer is unique.

Example 1:

Input: "abbaca"

Output: "ca"

Explanation:

For example, in "abbaca" we could remove "bb" since the letters

Note:

1. $1 \leq S.length \leq 20000$
2. S consists only of English lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1047-Remove-All-Adjacent-Duplicates-In-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1048. Longest String Chain

Given a list of words, each word consists of English lowercase letters.

Let's say `word1` is a predecessor of `word2` if and only if we can add exactly one letter anywhere in `word1` to make it equal to `word2`. For example, "abc" is a predecessor of "abac".

A *word chain* is a sequence of words [`word_1`, `word_2`, ..., `word_k`] with $k \geq 1$, where `word_1` is a predecessor of `word_2`, `word_2` is a predecessor of `word_3`, and so on.

Return the longest possible length of a word chain with words chosen from the given list of words.

Example 1:

Input: ["a", "b", "ba", "bca", "bda", "bdca"]

Output: 4

Explanation: one of the longest word chain is "a", "ba", "bda", "bdca".

Note:

1. $1 \leq \text{words.length} \leq 1000$
2. $1 \leq \text{words[i].length} \leq 16$
3. `words[i]` only consists of English lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1048-Longest-String-Chain](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1049. Last Stone Weight II

We have a collection of rocks, each rock has a positive integer weight.

Each turn, we choose **any two rocks** and smash them together. Suppose the stones have weights x and y with $x \leq y$. The result of this smash is:

- If $x == y$, both stones are totally destroyed;
- If $x != y$, the stone of weight x is totally destroyed, and the stone of weight y has new weight $y - x$.

At the end, there is at most 1 stone left. Return the **smallest possible** weight of this stone (the weight is 0 if there are no stones left.)

Example 1:

Input: [2,7,4,1,8,1]

Output: 1

Explanation:

We can combine 2 and 4 to get 2 so the array converts to [2,7,1,8], we can combine 7 and 8 to get 1 so the array converts to [2,1,1], we can combine 2 and 1 to get 1 so the array converts to [1,1,1], we can combine 1 and 1 to get 0 so the array converts to [1] then

Note:

1. $1 \leq \text{stones.length} \leq 30$
2. $1 \leq \text{stones}[i] \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[1049-Last-Stone-Weight-II](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

1050. Actors and Directors Who Cooperated At Least Three Times

Table: ActorDirector

Column Name	Type
actor_id	int
director_id	int
timestamp	int

timestamp is the primary key column for this table.

Write a SQL query for a report that provides the pairs (actor_id, director_id) where the actor have cooperated with the director at least 3 times.

Example:

ActorDirector table:

actor_id	director_id	timestamp
1	1	0
1	1	1
1	1	2
1	2	3
1	2	4
2	1	5
2	1	6

Result table:

actor_id	director_id
1	1

The only pair is (1, 1) where they cooperated exactly 3 times.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1050-Actors-and-Directors-Who-Cooperated-At-Least-Three-Times](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1051. Height Checker

Students are asked to stand in non-decreasing order of heights for an annual photo.

Return the minimum number of students not standing in the right positions. (This is the number of students that must move in order for all students to be standing in non-decreasing order of height.)

Example 1:

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

Output: 3

Explanation:

Students with heights 4, 3 and the last 1 are not standing in th

Note:

1. $1 \leq \text{heights.length} \leq 100$
2. $1 \leq \text{heights}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1051-Height-Checker](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1052. Grumpy Bookstore Owner

Today, the bookstore owner has a store open for `customers.length` minutes. Every minute, some number of customers (`customers[i]`) enter the store, and all those customers leave after the end of that minute.

On some minutes, the bookstore owner is grumpy. If the bookstore owner is grumpy on the i -th minute, `grumpy[i] = 1`, otherwise `grumpy[i] = 0`. When the bookstore owner is grumpy, the customers of that minute are not satisfied, otherwise they are satisfied.

The bookstore owner knows a secret technique to keep themselves not grumpy for X minutes straight, but can only use it once.

Return the maximum number of customers that can be satisfied throughout the day.

Example 1:

Input: `customers = [1,0,1,2,1,1,7,5]`, `grumpy = [0,1,0,1,0,1,0,1]`
Output: 16

Explanation: The bookstore owner keeps themselves not grumpy for
The maximum number of customers that can be satisfied = $1 + 1 + \dots$

Note:

- $1 \leq X \leq \text{customers.length}$
 $\leq \text{grumpy.length} \leq 20000$
- $0 \leq \text{customers}[i] \leq 1000$
- $0 \leq \text{grumpy}[i] \leq 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1052-Grumpy-Bookstore-Owner](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1053. Previous Permutation With One Swap

Given an array A of positive integers (not necessarily distinct), return the lexicographically largest permutation that is smaller than A , that can be **made with one swap** (A swap exchanges the positions of two numbers $A[i]$ and $A[j]$). If it cannot be done, then return the same array.

Example 1:

Input: [3,2,1]
Output: [3,1,2]
Explanation: Swapping 2 and 1.

Example 2:

Input: [1,1,5]
Output: [1,1,5]
Explanation: This is already the smallest permutation.

Example 3:

Input: [1,9,4,6,7]
Output: [1,7,4,6,9]
Explanation: Swapping 9 and 7.

Example 4:

Input: [3,1,1,3]
Output: [1,3,1,3]
Explanation: Swapping 1 and 3.

Note:

1. $1 \leq A.length \leq 10000$
2. $1 \leq A[i] \leq 10000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1053-Previous-Permutation-With-One-Swap](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1054. Distant Barcodes

In a warehouse, there is a row of barcodes, where the i -th barcode is $\text{barcodes}[i]$.

Rearrange the barcodes so that no two adjacent barcodes are equal. You may return any answer, and it is guaranteed an answer exists.

Example 1:

Input: [1,1,1,2,2,2]
Output: [2,1,2,1,2,1]

Example 2:

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

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1054-Distant-Barcodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1055. Shortest Way to Form String

From any string, we can form a *subsequence* of that string by deleting some number of characters (possibly no deletions).

Given two strings `source` and `target`, return the minimum number of subsequences of `source` such that their concatenation equals `target`. If the task is impossible, return -1.

Example 1:

Input: `source = "abc"`, `target = "abcabc"`

Output: 2

Explanation: The target "abcabc" can be formed by "abc" and "bc",

Example 2:

```
Input: source = "abc", target = "acdbc"
Output: -1
Explanation: The target string cannot be constructed from the source string.
```

Example 3:

```
Input: source = "xyz", target = "xzyxz"
Output: 3
Explanation: The target string can be constructed as follows "xz + xyz + z".
```

Constraints:

- Both the source and target strings consist of only lowercase English letters from "a"- "z".
- The lengths of source and target string are between 1 and 1000 .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1055-Shortest-Way-to-Form-String](#)

All Problems:

[Link to All Problems](#)

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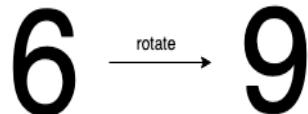
Welcome to Subscribe On Youtube:

1056. Confusing Number

Given a number N , return `true` if and only if it is a *confusing number* , which satisfies the following condition:

We can rotate digits by 180 degrees to form new digits. When 0, 1, 6, 8, 9 are rotated 180 degrees, they become 0, 1, 9, 8, 6 respectively. When 2, 3, 4, 5 and 7 are rotated 180 degrees, they become invalid. A *confusing number* is a number that when rotated 180 degrees becomes a **different** number with each digit valid.

Example 1:



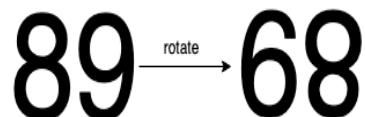
Input: 6

Output: true

Explanation:

We get 9 after rotating 6, 9 is a valid number and $9 \neq 6$.

Example 2:



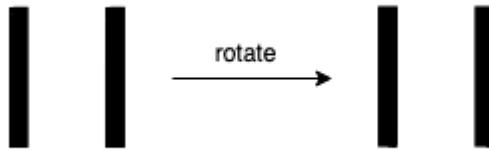
Input: 89

Output: true

Explanation:

We get 68 after rotating 89, 86 is a valid number and $86 \neq 89$.

Example 3:



Input: 11

Output: false

Explanation:

We get 11 after rotating 11, 11 is a valid number but the value

Example 4:

25  **52**

Input: 25

Output: false

Explanation:

We get an invalid number after rotating 25.

Note:

1. $0 \leq N \leq 10^9$
2. After the rotation we can ignore leading zeros, for example if after rotation we have 0008 then this number is considered as just 8 .

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1056-Confusing-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1057. Campus Bikes

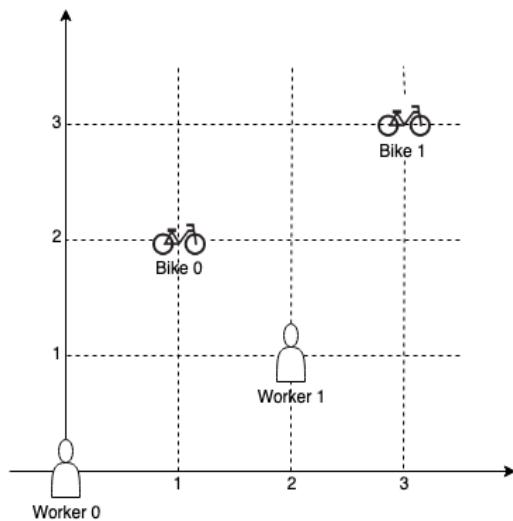
On a campus represented as a 2D grid, there are N workers and M bikes, with $N \leq M$. Each worker and bike is a 2D coordinate on this grid.

Our goal is to assign a bike to each worker. Among the available bikes and workers, we choose the (worker, bike) pair with the shortest Manhattan distance between each other, and assign the bike to that worker. (If there are multiple (worker, bike) pairs with the same shortest Manhattan distance, we choose the pair with the smallest worker index; if there are multiple ways to do that, we choose the pair with the smallest bike index). We repeat this process until there are no available workers.

The Manhattan distance between two points p_1 and p_2 is $\text{Manhattan}(p_1, p_2) = |p_1.x - p_2.x| + |p_1.y - p_2.y|$.

Return a vector ans of length N , where $\text{ans}[i]$ is the index (0-indexed) of the bike that the i -th worker is assigned to.

Example 1:



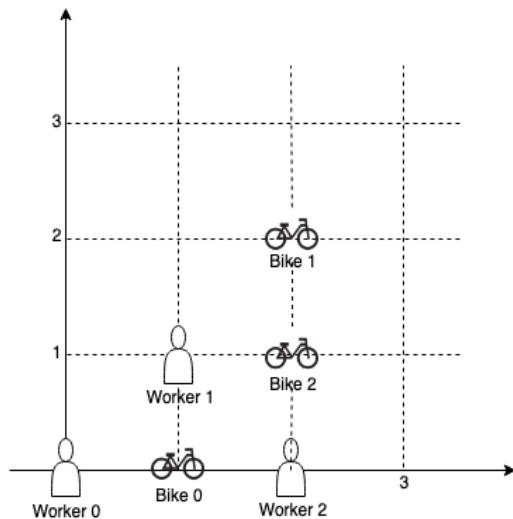
Input: `workers = [[0,0],[2,1]]`, `bikes = [[1,2],[3,3]]`

Output: [1,0]

Explanation:

Worker 1 grabs Bike 0 as they are closest (without ties), and Worker 0 gets Bike 1.

Example 2:



Input: `workers = [[0,0],[1,1],[2,0]]`, `bikes = [[1,0],[2,2],[2,1]]`

Output: [0,2,1]

Explanation:

Worker 0 grabs Bike 0 at first. Worker 1 and Worker 2 share the remaining two bikes.

Note:

1. `0 <= workers[i][j], bikes[i][j] < 1000`
2. All worker and bike locations are distinct.
3. `1 <= workers.length <= bikes.length <= 1000`

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[**1057-Campus-Bikes**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1058. Minimize Rounding Error to Meet Target

Given an array of prices $[p_1, p_2, \dots, p_n]$ and a target, round each price p_i to $\text{Round}_i(p_i)$ so that the rounded array $[\text{Round}_1(p_1), \text{Round}_2(p_2), \dots, \text{Round}_n(p_n)]$ meets the target.

p_2, \dots, p_n) sums to the given target. Each operation $\text{Round}_i(p_i)$ could be either $\text{Floor}(p_i)$ or $\text{Ceil}(p_i)$.

Return the string "-1" if the rounded array is impossible to sum to target. Otherwise, return the smallest rounding error, which is defined as $\sum | \text{Round}_i(p_i) - (p_i) |$ for i from 1 to n , as a string with three places after the decimal.

Example 1:

Input: prices = ["0.700", "2.800", "4.900"], target = 8
Output: "1.000"

Explanation:

Use Floor, Ceil and Ceil operations to get $(0.7 - 0) + (3 - 2.8)$

Example 2:

Input: prices = ["1.500", "2.500", "3.500"], target = 10
Output: "-1"

Explanation:

It is impossible to meet the target.

Note:

1. $1 \leq \text{prices.length} \leq 500$.
2. Each string of prices $\text{prices}[i]$ represents a real number which is between 0 and 1000 and has exactly 3 decimal places.
3. target is between 0 and 1000000.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1058-Minimize-Rounding-Error-to-Meet-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1059. All Paths from Source Lead to Destination

Given the edges of a directed graph, and two nodes source and destination of this graph, determine whether or not all paths starting from source eventually end at destination , that is:

- At least one path exists from the source node to the destination node
- If a path exists from the source node to a node with no outgoing edges, then that node is equal to destination .
- The number of possible paths from source to destination is a finite number.

Return true if and only if all roads from source lead to destination .

Example 1:

Input: n = 3, edges = [[0,1],[0,2]], source = 0, destination = 2
Output: false
Explanation: It is possible to reach and get stuck on both node

Example 2:

Input: n = 4, edges = [[0,1],[0,3],[1,2],[2,1]], source = 0, destination = 3
Output: false
Explanation: We have two possibilities: to end at node 3, or to

Example 3:

Input: n = 4, edges = [[0,1],[0,2],[1,3],[2,3]], source = 0, destination = 3
Output: true

Example 4:

Input: n = 3, edges = [[0,1],[1,1],[1,2]], source = 0, destination = 2
Output: false
Explanation: All paths from the source node end at the destination

Example 5:

Input: n = 2, edges = [[0,1],[1,1]], source = 0, destination = 1
Output: false
Explanation: There is infinite self-loop at destination node.

Note:

1. The given graph may have self loops and parallel edges.
2. The number of nodes n in the graph is between 1 and 10000
3. The number of edges in the graph is between 0 and 10000
4. $0 \leq \text{edges.length} \leq 10000$
5. $\text{edges}[i].length == 2$
6. $0 \leq \text{source} \leq n - 1$
7. $0 \leq \text{destination} \leq n - 1$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1059-All-Paths-from-Source-Lead-to-Destination](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1060. Missing Element in Sorted Array

Given a sorted array A of **unique** numbers, find the K - th missing number starting from the leftmost number of the array.

Example 1:

Input: A = [4, 7, 9, 10], K = 1

Output: 5

Explanation:

The first missing number is 5.

Example 2:

Input: A = [4,7,9,10], K = 3

Output: 8

Explanation:

The missing numbers are [5,6,8,...], hence the third missing number is 8.

Example 3:

Input: A = [1,2,4], K = 3

Output: 6

Explanation:

The missing numbers are [3,5,6,7,...], hence the third missing number is 6.

Note:

1. $1 \leq A.length \leq 50000$
2. $1 \leq A[i] \leq 1e7$
3. $1 \leq K \leq 1e8$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1060-Missing-Element-in-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1061. Lexicographically Smallest Equivalent String

Given strings A and B of the same length, we say A[i] and B[i] are equivalent characters. For example, if A = "abc" and B = "cde" , then we have 'a' == 'c' , 'b' == 'd' , 'c' == 'e' .

Equivalent characters follow the usual rules of any equivalence relation:

- Reflexivity: 'a' == 'a'
- Symmetry: 'a' == 'b' implies 'b' == 'a'
- Transitivity: 'a' == 'b' and 'b' == 'c' implies 'a' == 'c'

For example, given the equivalency information from A and B above, S = "eed" , "acd" , and "aab" are equivalent strings, and "aab" is the lexicographically smallest equivalent string of S .

Return the lexicographically smallest equivalent string of S by using the equivalency information from A and B .

Example 1:

Input: A = "parker" , B = "morris" , S = "parser"
Output: "makkek"

Explanation: Based on the equivalency information in A and B , we

Example 2:

Input: A = "hello" , B = "world" , S = "hold"
Output: "hdld"

Explanation: Based on the equivalency information in A and B , we

Example 3:

Input: A = "leetcode" , B = "programs" , S = "sourcecode"
Output: "aauaaaaada"

Explanation: We group the equivalent characters in A and B as [

Note:

1. String A , B and S consist of only lowercase English letters from 'a' - 'z' .
2. The lengths of string A , B and S are between 1 and 1000 .
3. String A and B are of the same length.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1061-Lexicographically-Smallest-Equivalent-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1062. Longest Repeating Substring

Given a string S , find out the length of the longest repeating substring(s). Return 0 if no repeating substring exists.

Example 1:

Input: "abcd"

Output: 0

Explanation: There is no repeating substring.

Example 2:

Input: "abbaba"

Output: 2

Explanation: The longest repeating substrings are "ab" and "ba",

Example 3:

Input: "aabcaabdaab"

Output: 3

Explanation: The longest repeating substring is "aab", which occurs twice.

Example 4:

Input: "aaaaa"

Output: 4

Explanation: The longest repeating substring is "aaaa", which occurs once.

Note:

1. The string S consists of only lowercase English letters from 'a' - 'z' .
2. $1 \leq S.length \leq 1500$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[**1062-Longest-Repeating-Substring**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1063. Number of Valid Subarrays

Given an array A of integers, return the number of **non-empty continuous subarrays** that satisfy the following condition:

The leftmost element of the subarray is not larger than other elements in the subarray.

Example 1:

Input: [1, 4, 2, 5, 3]

Output: 11

Explanation: There are 11 valid subarrays: [1], [4], [2], [5], [3], [1, 4], [4, 2], [2, 5], [5, 3], [1, 4, 2], [4, 2, 5], [2, 5, 3].

Example 2:

Input: [3,2,1]
Output: 3
Explanation: The 3 valid subarrays are: [3],[2],[1].

Example 3:

Input: [2,2,2]
Output: 6
Explanation: There are 6 valid subarrays: [2],[2],[2],[2,2],[2,2,2]

Note:

1. $1 \leq A.length \leq 50000$
2. $0 \leq A[i] \leq 100000$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1063-Number-of-Valid-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1064. Fixed Point

Given an array A of distinct integers sorted in ascending order, return the smallest index i that satisfies A[i] == i . Return -1 if no such i exists.

Example 1:

Input: [-10, -5, 0, 3, 7]

Output: 3

Explanation:

For the given array, A[0] = -10, A[1] = -5, A[2] = 0, A[3] = 3,

Example 2:

Input: [0, 2, 5, 8, 17]

Output: 0

Explanation:

A[0] = 0, thus the output is 0.

Example 3:

Input: [-10, -5, 3, 4, 7, 9]

Output: -1

Explanation:

There is no such i that A[i] = i, thus the output is -1.

Note:

1. $1 \leq A.length < 10^4$

2. $-10^9 \leq A[i] \leq 10^9$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1064-Fixed-Point](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1065. Index Pairs of a String

Given a text string and words (a list of strings), return all index pairs [i, j] so that the substring text[i]...text[j] is in the list of words .

Example 1:

Input: text = "thestoryofleetcodeandme", words = ["story", "fleet"
Output: [[3,7], [9,13], [10,17]]

Example 2:

Input: text = "ababa", words = ["aba", "ab"]
Output: [[0,1], [0,2], [2,3], [2,4]]
Explanation:
Notice that matches can overlap, see "aba" is found in [0,2] and

Note:

1. All strings contains only lowercase English letters.

2. It's guaranteed that all strings in `words` are different.
3. `1 <= text.length <= 100`
4. `1 <= words.length <= 20`
5. `1 <= words[i].length <= 50`
6. Return the pairs `[i, j]` in sorted order (i.e. sort them by their first coordinate in case of ties sort them by their second coordinate).

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1065-Index-Pairs-of-a-String](#)

All Problems:

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Welcome to Subscribe On Youtube:

1066. Campus Bikes II

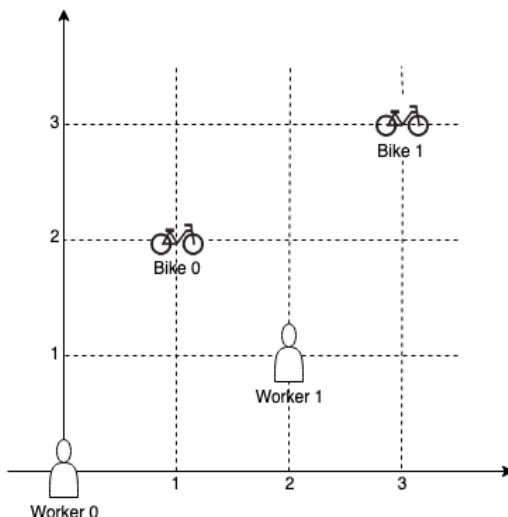
On a campus represented as a 2D grid, there are N workers and M bikes, with $N \leq M$. Each worker and bike is a 2D coordinate on this grid.

We assign one unique bike to each worker so that the sum of the Manhattan distances between each worker and their assigned bike is minimized.

The Manhattan distance between two points p_1 and p_2 is $\text{Manhattan}(p_1, p_2) = |p_1.x - p_2.x| + |p_1.y - p_2.y|$.

Return the minimum possible sum of Manhattan distances between each worker and their assigned bike.

Example 1:



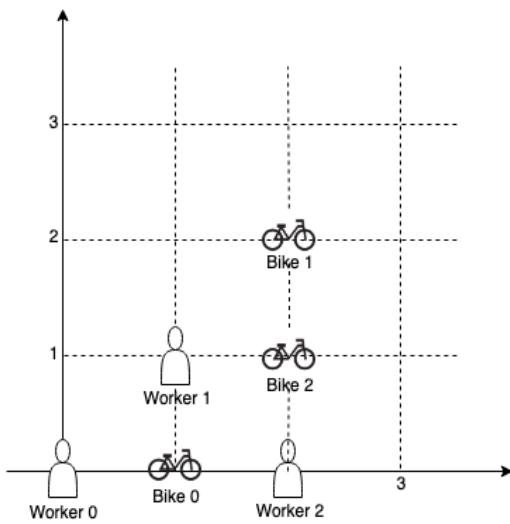
Input: `workers = [[0,0],[2,1]]`, `bikes = [[1,2],[3,3]]`

Output: 6

Explanation:

We assign bike 0 to worker 0, bike 1 to worker 1. The Manhattan

Example 2:



Input: `workers = [[0,0],[1,1],[2,0]]`, `bikes = [[1,0],[2,2],[2,1]]`
 Output: 4

Explanation:

We first assign bike 0 to worker 0, then assign bike 1 to worker

Note:

1. $0 \leq \text{workers}[i][0], \text{workers}[i][1], \text{bikes}[i][0], \text{bikes}[i][1] < 1000$
2. All worker and bike locations are distinct.
3. $1 \leq \text{workers.length} \leq \text{bikes.length} \leq 10$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1066-Campus-Bikes-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1067. Digit Count in Range

Given an integer d between 0 and 9, and two positive integers low and high as lower and upper bounds, respectively. Return the number of times that d occurs as a digit in all integers between low and high , including the bounds low and high .

Example 1:

Input: $d = 1$, $\text{low} = 1$, $\text{high} = 13$

Output: 6

Explanation:

The digit $d=1$ occurs 6 times in 1,10,11,12,13. Note that the dig

Example 2:

Input: $d = 3$, $\text{low} = 100$, $\text{high} = 250$

Output: 35

Explanation:

The digit $d=3$ occurs 35 times in 103,113,123,130,131,...,238,239

Note:

1. $0 \leq d \leq 9$

2. $1 \leq \text{low} \leq \text{high} \leq 2 \times 10^8$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1067-Digit-Count-in-Range](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1068. Product Sales Analysis I

Table: Sales

Column Name	Type
sale_id	int
product_id	int
year	int
quantity	int
price	int

```
+-----+-----+
(sale_id, year) is the primary key of this table.
product_id is a foreign key to Product table.
Note that the price is per unit.
```

Table: Product

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| product_id  | int    |
| product_name| varchar|
+-----+-----+
```

product_id is the primary key of this table.

Write an SQL query that reports all **product names** of the products in the Sales table along with their selling **year** and **price**.

For example:

Sales table:

```
+-----+-----+-----+-----+-----+
| sale_id | product_id | year  | quantity | price  |
+-----+-----+-----+-----+-----+
| 1       | 100        | 2008 | 10      | 5000   |
| 2       | 100        | 2009 | 12      | 5000   |
| 7       | 200        | 2011 | 15      | 9000   |
+-----+-----+-----+-----+-----+
```

Product table:

```
+-----+-----+
| product_id | product_name |
+-----+-----+
| 100         | Nokia       |
| 200         | Apple       |
| 300         | Samsung     |
+-----+-----+
```

Result table:

```
+-----+-----+-----+
| product_name | year  | price |
+-----+-----+-----+
| Nokia        | 2008 | 5000  |
| Nokia        | 2009 | 5000  |
| Apple         | 2011 | 9000  |
+-----+-----+-----+
```

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**[1068-Product-Sales-Analysis-I](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1069. Product Sales Analysis II

Table: Sales

Column Name	Type
sale_id	int
product_id	int
year	int
quantity	int
price	int

```
+-----+-----+
sale_id is the primary key of this table.
product_id is a foreign key to Product table.
Note that the price is per unit.
```

Table: Product

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| product_id  | int    |
| product_name| varchar|
+-----+-----+
product_id is the primary key of this table.
```

Write an SQL query that reports the total quantity sold for every product id.

The query result format is in the following example:

Sales table:

```
+-----+-----+-----+-----+
| sale_id | product_id | year  | quantity | price  |
+-----+-----+-----+-----+
| 1        | 100       | 2008 | 10      | 5000   |
| 2        | 100       | 2009 | 12      | 5000   |
| 7        | 200       | 2011 | 15      | 9000   |
+-----+-----+-----+-----+
```

Product table:

```
+-----+
| product_id | product_name |
+-----+
| 100        | Nokia      |
| 200        | Apple      |
| 300        | Samsung    |
+-----+
```

Result table:

```
+-----+
| product_id | total_quantity |
+-----+
| 100        | 22           |
| 200        | 15           |
+-----+
```

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**[1069-Product-Sales-Analysis-II](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1070. Product Sales Analysis III

Table: Sales

Column Name	Type
sale_id	int
product_id	int
year	int
quantity	int
price	int

```
+-----+-----+
sale_id is the primary key of this table.
product_id is a foreign key to Product table.
Note that the price is per unit.
```

Table: Product

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| product_id  | int    |
| product_name | varchar |
+-----+-----+
product_id is the primary key of this table.
```

Write an SQL query that selects the **product id** , **year** , **quantity** , and **price** for the **first year** of every product sold.

The query result format is in the following example:

Sales table:

```
+-----+-----+-----+-----+-----+
| sale_id | product_id | year | quantity | price |
+-----+-----+-----+-----+-----+
| 1       | 100        | 2008 | 10      | 5000  |
| 2       | 100        | 2009 | 12      | 5000  |
| 7       | 200        | 2011 | 15      | 9000  |
+-----+-----+-----+-----+
```

Product table:

```
+-----+-----+
| product_id | product_name |
+-----+-----+
| 100         | Nokia      |
| 200         | Apple      |
| 300         | Samsung    |
+-----+-----+
```

Result table:

```
+-----+-----+-----+-----+
| product_id | first_year | quantity | price |
+-----+-----+-----+-----+
| 100        | 2008       | 10      | 5000  |
| 200        | 2011       | 15      | 9000  |
+-----+-----+-----+-----+
```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1070-Product-Sales-Analysis-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1071. Greatest Common Divisor of Strings

For strings S and T , we say " T divides S " if and only if $S = T + \dots + T$ (T concatenated with itself 1 or more times)

Return the largest string X such that X divides str1 and X divides str2 .

Example 1:

Input: str1 = "ABCABC", str2 = "ABC"
Output: "ABC"

Example 2:

Input: str1 = "ABABAB", str2 = "ABAB"
Output: "AB"

Example 3:

Input: str1 = "LEET", str2 = "CODE"
Output: ""

Note:

1. $1 \leq \text{str1.length} \leq 1000$
2. $1 \leq \text{str2.length} \leq 1000$
3. $\text{str1}[i]$ and $\text{str2}[i]$ are English uppercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1071-Greatest-Common-Divisor-of-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1072. Flip Columns For Maximum Number of Equal Rows

Given a matrix consisting of 0s and 1s, we may choose any number of columns in the matrix and flip **every** cell in that column. Flipping a cell changes the value of that cell from 0 to 1 or from 1 to 0.

Return the maximum number of rows that have all values equal after some number of flips.

Example 1:

Input: [[0,1],[1,1]]

Output: 1

Explanation: After flipping no values, 1 row has all values equal.

Example 2:

Input: [[0,1],[1,0]]

Output: 2

Explanation: After flipping values in the first column, both rows have all values equal.

Example 3:

Input: [[0,0,0],[0,0,1],[1,1,0]]

Output: 2

Explanation: After flipping values in the first two columns, the first two rows have all values equal.

Note:

1. $1 \leq \text{matrix.length} \leq 300$
2. $1 \leq \text{matrix[i].length} \leq 300$
3. All matrix[i].length 's are equal
4. matrix[i][j] is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1072-Flip-Columns-For-Maximum-Number-of-Equal-Rows](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1073. Adding Two Negabinary Numbers

Given two numbers `arr1` and `arr2` in base `-2`, return the result of adding them together.

Each number is given in *array format* : as an array of 0s and 1s, from most significant bit to least significant bit. For example, `arr = [1,1,0,1]` represents the number $(-2)^3 + (-2)^2 + (-2)^0 = -3$. A number `arr` in *array format* is also guaranteed to have no leading zeros: either `arr == [0]` or `arr[0] == 1` .

Return the result of adding `arr1` and `arr2` in the same format: as an array of 0s and 1s with no leading zeros.

Example 1:

Input: `arr1 = [1,1,1,1,1]`, `arr2 = [1,0,1]`

Output: `[1,0,0,0,0]`

Explanation: `arr1` represents 11, `arr2` represents 5, the output re

Note:

1. `1 <= arr1.length <= 1000`
2. `1 <= arr2.length <= 1000`
3. `arr1` and `arr2` have no leading zeros
4. `arr1[i]` is 0 or 1
5. `arr2[i]` is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1073-Adding-Two-Negabinary-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1074. Number of Submatrices That Sum to Target

Given a matrix , and a target , return the number of non-empty submatrices that sum to target .

A submatrix x_1, y_1, x_2, y_2 is the set of all cells $\text{matrix}[x][y]$ with $x_1 \leq x \leq x_2$ and $y_1 \leq y \leq y_2$.

Two submatrices (x_1, y_1, x_2, y_2) and (x'_1, y'_1, x'_2, y'_2) are different if they have some coordinate that is different: for example, if $x_1 \neq x'_1$.

Example 1:

Input: `matrix = [[0,1,0],[1,1,1],[0,1,0]]`, `target = 0`

Output: 4

Explanation: The four 1×1 submatrices that only contain 0.

Example 2:

Input: `matrix = [[1,-1],[-1,1]]`, `target = 0`

Output: 5

Explanation: The two 1×2 submatrices, plus the two 2×1 submatrices.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1074-Number-of-Submatrices-That-Sum-to-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1075. Project Employees I

Table: Project

Column Name	Type
project_id	int
employee_id	int

(project_id, employee_id) is the primary key of this table.
employee_id is a foreign key to Employee table.

Table: Employee

Column Name	Type
employee_id	int
name	varchar
experience_years	int

employee_id is the primary key of this table.

Write an SQL query that reports the **average** experience years of all the employees for each project, **rounded to 2 digits**.

The query result format is in the following example:

Project table:

project_id	employee_id
1	1
1	2
1	3
2	1
2	4

Employee table:

employee_id	name	experience_years
1	Khaled	3
2	Ali	2
3	John	1
4	Doe	2

Result table:

project_id	average_years
1	2.00
2	2.50

The average experience years for the first project is $(3 + 2 + 1) / 3 = 2.00$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1075-Project-Employees-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1076. Project Employees II

Table: Project

Column Name	Type
project_id	int
employee_id	int

(project_id, employee_id) is the primary key of this table.
employee_id is a foreign key to Employee table.

Table: Employee

Column Name	Type
employee_id	int
name	varchar
experience_years	int

employee_id is the primary key of this table.

Write an SQL query that reports all the **projects** that have the most employees.

The query result format is in the following example:

Project table:

project_id	employee_id
1	1
1	2
1	3
2	1
2	4

Employee table:

employee_id	name	experience_years
1	Khaled	3
2	Ali	2
3	John	1
4	Doe	2

Result table:

project_id
1

The first project has 3 employees while the second one has 2.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1076-Project-Employees-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1077. Project Employees III

Table: Project

Column Name	Type
project_id	int
employee_id	int

(project_id, employee_id) is the primary key of this table.
employee_id is a foreign key to Employee table.

Table: Employee

Column Name	Type
employee_id	int

```

| name          | varchar |
| experience_years | int    |
+-----+-----+
employee_id is the primary key of this table.

```

Write an SQL query that reports the **most experienced** employees in each project. In case of a tie, report all employees with the maximum number of experience years.

The query result format is in the following example:

Project table:

```

+-----+-----+
| project_id | employee_id |
+-----+-----+
| 1          | 1          |
| 1          | 2          |
| 1          | 3          |
| 2          | 1          |
| 2          | 4          |
+-----+-----+

```

Employee table:

```

+-----+-----+-----+
| employee_id | name     | experience_years |
+-----+-----+-----+
| 1           | Khaled   | 3               |
| 2           | Ali      | 2               |
| 3           | John     | 3               |
| 4           | Doe      | 2               |
+-----+-----+-----+

```

Result table:

```

+-----+-----+
| project_id | employee_id |
+-----+-----+
| 1          | 1          |
| 1          | 3          |
| 2          | 1          |
+-----+-----+

```

Both employees with id 1 and 3 have the most experience among the projects.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1077-Project-Employees-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1078. Occurrences After Bigram

Given words `first` and `second`, consider occurrences in some text of the form "`first second third`", where `second` comes immediately after `first`, and `third` comes immediately after `second`.

For each such occurrence, add "`third`" to the answer, and return the answer.

Example 1:

Input: `text = "alice is a good girl she is a good student"`, `firs`
Output: `["girl", "student"]`

Example 2:

```
Input: text = "we will we will rock you", first = "we", second =
Output: ["we", "rock"]
```

Note:

1. $1 \leq \text{text.length} \leq 1000$
2. text consists of space separated words, where each word consists of lowercase English letters.
3. $1 \leq \text{first.length}, \text{second.length} \leq 10$
4. first and second consist of lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1078-Occurrences-After-Bigram](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1079. Letter Tile Possibilities

You have a set of tiles , where each tile has one letter tiles[i] printed on it. Return the number of possible non-empty sequences of letters you can make.

Example 1:

Input: "AAB"

Output: 8

Explanation: The possible sequences are "A", "B", "AA", "AB", "BA", "BB", "AAB", "ABA".

Example 2:

Input: "AAABBC"

Output: 188

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1079-Letter-Tile-Possibilities](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

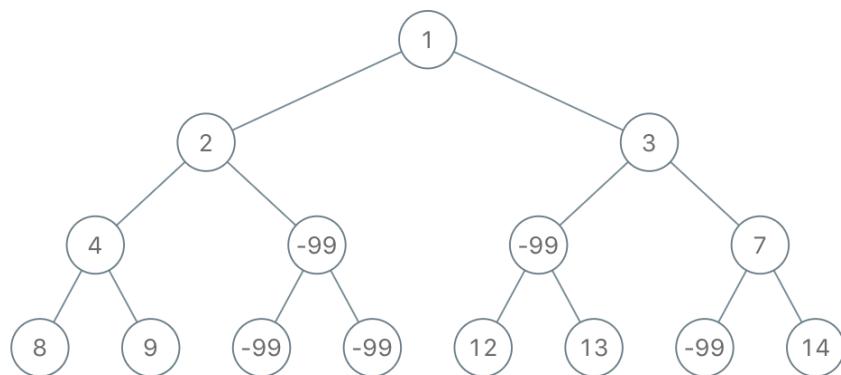
1080. Insufficient Nodes in Root to Leaf Paths

Given the `root` of a binary tree, consider all *root to leaf paths* : paths from the root to any leaf. (A leaf is a node with no children.)

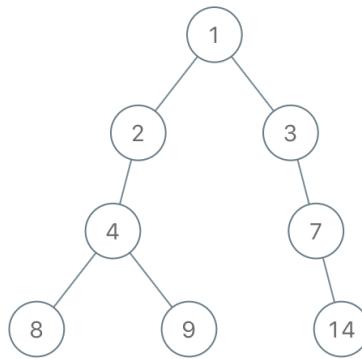
A node is *insufficient* if **every** such root to leaf path intersecting this node has sum strictly less than `limit`.

Delete all insufficient nodes simultaneously, and return the root of the resulting binary tree.

Example 1:

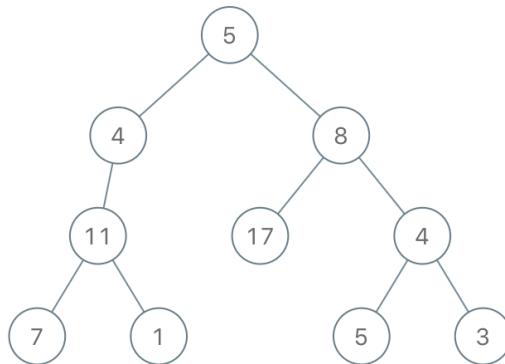


Input: `root = [1,2,3,4,-99,-99,7,8,9,-99,-99,12,13,-99,14]`, `limit = 1`

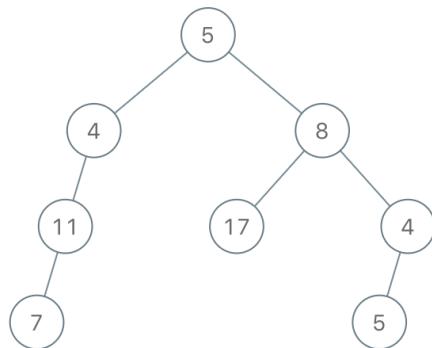


Output: [1,2,3,4,null,null,7,8,9,null,14]

Example 2:

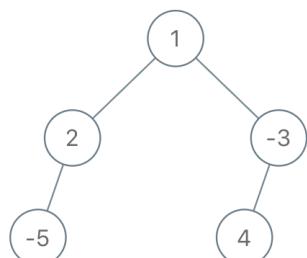


Input: root = [5,4,8,11,null,17,4,7,1,null,null,5,3], limit = 22



Output: [5,4,8,11,null,17,4,7,null,null,null,5]

Example 3:



Input: root = [1,2,-3,-5,null,4,null], limit = -1



Output: [1,null,-3,4]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1080-Insufficient-Nodes-in-Root-to-Leaf-Paths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1081. Smallest Subsequence of Distinct Characters

Return the lexicographically smallest subsequence of text that contains all the distinct characters of text exactly once.

Example 1:

Input: "cdadabcc"
Output: "adbc"

Example 2:

Input: "abcd"
Output: "abcd"

Example 3:

Input: "ecbacba"
Output: "eacb"

Example 4:

Input: "leetcode"
Output: "letcod"

Note:

1. $1 \leq \text{text.length} \leq 1000$
2. text consists of lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1081-Smallest-Subsequence-of-Distinct-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1082. Sales Analysis I

Table: Product

Column Name	Type
product_id	int
product_name	varchar
unit_price	int

product_id is the primary key of this table.

Table: Sales

Column Name	Type
seller_id	int
product_id	int
buyer_id	int
sale_date	date

```

| quantity      | int      |
| price        | int      |
+-----+-----+

```

This table has no primary key, it can have repeated rows.
product_id is a foreign key to Product table.

Write an SQL query that reports the best **seller** by total sales price, If there is a tie, report them all.

The query result format is in the following example:

Product table:

```

+-----+-----+-----+
| product_id | product_name | unit_price |
+-----+-----+-----+
| 1          | S8           | 1000       |
| 2          | G4           | 800        |
| 3          | iPhone        | 1400       |
+-----+-----+-----+

```

Sales table:

```

+-----+-----+-----+-----+-----+
| seller_id | product_id | buyer_id | sale_date   | quantity | pr
+-----+-----+-----+-----+-----+
| 1          | 1           | 1         | 2019-01-21 | 2        | 200
| 1          | 2           | 2         | 2019-02-17 | 1        | 800
| 2          | 2           | 3         | 2019-06-02 | 1        | 800
| 3          | 3           | 4         | 2019-05-13 | 2        | 280
+-----+-----+-----+-----+-----+

```

Result table:

```

+-----+
| seller_id |
+-----+
| 1          |
| 3          |
+-----+

```

Both sellers with id 1 and 3 sold products with the most total p

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1082-Sales-Analysis-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1083. Sales Analysis II

Table: Product

Column Name	Type
product_id	int
product_name	varchar
unit_price	int

product_id is the primary key of this table.

Table: Sales

Column Name	Type
seller_id	int
product_id	int
buyer_id	int
sale_date	date
quantity	int
price	int

```
+-----+-----+
```

This table has no primary key, it can have repeated rows.
product_id is a foreign key to Product table.

Write an SQL query that reports the **buyers** who have bought *S8* but not *iPhone*. Note that *S8* and *iPhone* are products present in the Product table.

The query result format is in the following example:

Product table:

product_id	product_name	unit_price
1	S8	1000
2	G4	800
3	iPhone	1400

Sales table:

seller_id	product_id	buyer_id	sale_date	quantity	pr
1	1	1	2019-01-21	2	20
1	2	2	2019-02-17	1	80
2	1	3	2019-06-02	1	80
3	3	3	2019-05-13	2	28

Result table:

buyer_id
1

The buyer with id 1 bought an S8 but didn't buy an iPhone. The buyer with id 2 bought an iPhone but didn't buy an S8.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1083-Sales-Analysis-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1084. Sales Analysis III

Table: Product

Column Name	Type
product_id	int
product_name	varchar
unit_price	int

product_id is the primary key of this table.

Table: Sales

Column Name	Type
seller_id	int
product_id	int
buyer_id	int
sale_date	date
quantity	int
price	int

```
+-----+-----+
```

This table has no primary key, it can have repeated rows.
product_id is a foreign key to Product table.

Write an SQL query that reports the **products** that were
only sold in spring 2019. That is, between **2019-01-01** and
2019-03-31 inclusive.

The query result format is in the following example:

Product table:

product_id	product_name	unit_price
1	S8	1000
2	G4	800
3	iPhone	1400

Sales table:

seller_id	product_id	buyer_id	sale_date	quantity	pr
1	1	1	2019-01-21	2	20
1	2	2	2019-02-17	1	80
2	2	3	2019-06-02	1	800
3	3	4	2019-05-13	2	280

Result table:

product_id	product_name
1	S8

The product with id 1 was only sold in spring 2019 while the other two products were sold in different periods.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1084-Sales-Analysis-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1085. Sum of Digits in the Minimum Number

Given an array A of positive integers, let S be the sum of the digits of the minimal element of A .

Return 0 if S is odd, otherwise return 1.

Example 1:

Input: [34, 23, 1, 24, 75, 33, 54, 8]

Output: 0

Explanation:

The minimal element is 1, and the sum of those digits is S = 1 which is odd.

Example 2:

Input: [99, 77, 33, 66, 55]

Output: 1

Explanation:

The minimal element is 33, and the sum of those digits is S = 3 which is odd.

Note:

1. $1 \leq A.length \leq 100$
2. $1 \leq A[i].length \leq 100$

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[1085-Sum-of-Digits-in-the-Minimum-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1086. High Five

Given a list of scores of different students, return the average score of each student's **top five scores in the order of each student's id**.

Each entry `items[i]` has `items[i][0]` the student's id, and `items[i][1]` the student's score. The average score is calculated using integer division.

Example 1:

Input: `[[1,91],[1,92],[2,93],[2,97],[1,60],[2,77],[1,65],[1,87],`
Output: `[[1,87],[2,88]]`

Explanation:

The average of the student with id = 1 is 87.

The average of the student with id = 2 is 88.6. But with integer

Note:

1. `1 <= items.length <= 1000`
2. `items[i].length == 2`
3. The IDs of the students is between 1 to 1000
4. The score of the students is between 1 to 100
5. For each student, there are at least 5 scores

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1086-High-Five](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1087. Brace Expansion

A string S represents a list of words.

Each letter in the word has 1 or more options. If there is one option, the letter is represented as is. If there is more than one option, then curly braces delimit the options.

For example, "`{a,b,c}`" represents options `["a", "b", "c"]`.

For example, "`{a,b,c}d{e,f}`" represents the list `["ade", "adf", "bde", "bdf", "cde", "cdf"]`.

Return all words that can be formed in this manner, in lexicographical order.

Example 1:

Input: `"{a,b}c{d,e}f"`
Output: `["acdf", "acef", "bcdf", "bcef"]`

Example 2:

Input: `"abcd"`
Output: `["abcd"]`

Note:

1. `1 <= S.length <= 50`
2. There are no nested curly brackets.

3. All characters inside a pair of consecutive opening and ending curly brackets are different.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1087-Brace-Expansion](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1088. Confusing Number II

We can rotate digits by 180 degrees to form new digits. When 0, 1, 6, 8, 9 are rotated 180 degrees, they become 0, 1, 9, 8, 6 respectively. When 2, 3, 4, 5 and 7 are rotated 180 degrees, they become invalid.

A *confusing number* is a number that when rotated 180 degrees becomes a **different** number with each digit valid.(Note that the rotated number can be greater than the original number.)

Given a positive integer N , return the number of confusing numbers between 1 and N inclusive.

Example 1:

Input: 20

Output: 6

Explanation:

The confusing numbers are [6,9,10,16,18,19] .

6 converts to 9.

9 converts to 6.

10 converts to 01 which is just 1.

16 converts to 91.

18 converts to 81.

19 converts to 61.

Example 2:

Input: 100

Output: 19

Explanation:

The confusing numbers are [6,9,10,16,18,19,60,61,66,68,80,81,86,89] .

Note:

1. $1 \leq N \leq 10^9$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1088-Confusing-Number-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1089. Duplicate Zeros

Given a fixed length array `arr` of integers, duplicate each occurrence of zero, shifting the remaining elements to the right.

Note that elements beyond the length of the original array are not written.

Do the above modifications to the input array **in place**, do not return anything from your function.

Example 1:

Input: [1,0,2,3,0,4,5,0]

Output: null

Explanation: After calling your function, the input array is modified to [1,0,0,2,3,0,0,4].

Example 2:

Input: [1,2,3]

Output: null

Explanation: After calling your function, the input array is modified to [1,2,3,0,0,0].

Note:

1. $1 \leq \text{arr.length} \leq 10000$

```
2. 0 <= arr[i] <= 9
```

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1089-Duplicate-Zeros](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1090. Largest Values From Labels

We have a set of items: the i -th item has value $\text{values}[i]$ and label $\text{labels}[i]$.

Then, we choose a subset S of these items, such that:

- $|S| \leq \text{num_wanted}$
- For every label L , the number of items in S with label L is $\leq \text{use_limit}$.

Return the largest possible sum of the subset S .

Example 1:

Input: values = [5,4,3,2,1], labels = [1,1,2,2,3], num_wanted = 3
Output: 9

Explanation: The subset chosen is the first, third, and fifth item.

Example 2:

Input: values = [5,4,3,2,1], labels = [1,3,3,3,2], num_wanted = 3
Output: 12

Explanation: The subset chosen is the first, second, and third item.

Example 3:

Input: values = [9,8,8,7,6], labels = [0,0,0,1,1], num_wanted = 2
Output: 16

Explanation: The subset chosen is the first and fourth item.

Example 4:

Input: values = [9,8,8,7,6], labels = [0,0,0,1,1], num_wanted = 3
Output: 24

Explanation: The subset chosen is the first, second, and fourth item.

Note:

1. $1 \leq \text{values.length} == \text{labels.length} \leq 20000$
2. $0 \leq \text{values}[i], \text{labels}[i] \leq 20000$
3. $1 \leq \text{num_wanted}, \text{use_limit} \leq \text{values.length}$

Difficulty:

Medium

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1091. Shortest Path in Binary Matrix

In an N by N square grid, each cell is either empty (0) or blocked (1).

A *clear path from top-left to bottom-right* has length k if and only if it is composed of cells C_1, C_2, \dots, C_k such that:

- Adjacent cells C_i and C_{i+1} are connected 8-directionally (ie., they are different and share an edge or corner)
- C_1 is at location $(0, 0)$ (ie. has value $\text{grid}[0][0]$)
- C_k is at location $(N-1, N-1)$ (ie. has value $\text{grid}[N-1][N-1]$)
- If C_i is located at (r, c) , then $\text{grid}[r][c]$ is empty (ie. $\text{grid}[r][c] == 0$).

Return the length of the shortest such clear path from top-left to bottom-right. If such a path does not exist, return -1.

Example 1:

Input: `[[0,1],[1,0]]`

0	1
1	0

Output: 2

0	1
1	0

Example 2:

Input: `[[0,0,0],[1,1,0],[1,1,0]]`

0	0	0
1	1	0
1	1	0

Output: 4

0	0	0
1	1	0
1	1	0

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1091-Shortest-Path-in-Binary-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1092. Shortest Common Supersequence

Given two strings `str1` and `str2` , return the shortest string that has both `str1` and `str2` as subsequences. If multiple answers exist, you may return any of them.

(A string S is a subsequence of string T if deleting some number of characters from T (possibly 0, and the characters are chosen anywhere from T) results in the string S.)

Example 1:

Input: str1 = "abac", str2 = "cab"

Output: "cabac"

Explanation:

str1 = "abac" is a subsequence of "cabac" because we can delete

str2 = "cab" is a subsequence of "cabac" because we can delete t

The answer provided is the shortest such string that satisfies t

Note:

1. $1 \leq \text{str1.length}, \text{str2.length} \leq 1000$

2. str1 and str2 consist of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1092-Shortest-Common-Supersequence](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

Welcome to Subscribe On Youtube:

1093. Statistics from a Large Sample

We sampled integers between 0 and 255 , and stored the results in an array count : count [k] is the number of integers we sampled equal to k .

Return the minimum, maximum, mean, median, and mode of the sample respectively, as an array of **floating point numbers**. The mode is guaranteed to be unique.

(Recall that the median of a sample is:

- The middle element, if the elements of the sample were sorted and the number of elements is odd;
 - The average of the middle two elements, if the elements of the sample were sorted and the number of elements is even.)

Example 1:

Example 2:

Constraints:

1. `count.length == 256`
 2. $1 \leq \text{sum}(\text{count}) \leq 10^9$
 3. The mode of the sample that `count` represents is unique.

4. Answers within 10^{-5} of the true value will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1093-Statistics-from-a-Large-Sample](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1094. Car Pooling

You are driving a vehicle that has `capacity` empty seats initially available for passengers. The vehicle **only** drives east (ie. it **cannot** turn around and drive west.)

Given a list of trips , trip[i] = [num_passengers, start_location, end_location] contains information about the i -th trip: the number of passengers that must be picked up, and the locations to pick them up and drop them off. The locations are given as the number of kilometers due east from your vehicle's initial location.

Return true if and only if it is possible to pick up and drop off all passengers for all the given trips.

Example 1:

Input: trips = [[2,1,5],[3,3,7]], capacity = 4
Output: false

Example 2:

Input: trips = [[2,1,5],[3,3,7]], capacity = 5
Output: true

Example 3:

Input: trips = [[2,1,5],[3,5,7]], capacity = 3
Output: true

Example 4:

Input: trips = [[3,2,7],[3,7,9],[8,3,9]], capacity = 11
Output: true

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1094-Car-Pooling](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1095. Find in Mountain Array

(This problem is an **interactive problem**.)

You may recall that an array A is a *mountain array* if and only if:

- $A.length \geq 3$
- There exists some i with $0 < i < A.length - 1$ such that:
 - $A[0] < A[1] < \dots < A[i-1] < A[i]$
 - $A[i] > A[i+1] > \dots > A[A.length - 1]$

Given a mountain array `mountainArr` , return the **minimum** index such that `mountainArr.get(index) == target` . If such an index doesn't exist, return `-1` .

You can't access the mountain array directly. You may only access the array using a `MountainArray` interface:

- `MountainArray.get(k)` returns the element of the array at index k (0-indexed).
- `MountainArray.length()` returns the length of the array.

Submissions making more than 100 calls to `MountainArray.get` will be judged *Wrong Answer*. Also, any solutions that attempt to circumvent the judge will result in disqualification.

Example 1:

Input: `array = [1,2,3,4,5,3,1]`, `target = 3`

Output: 2

Explanation: 3 exists in the array, at `index=2` and `index=5`. Retu

Example 2:

Input: `array = [0,1,2,4,2,1]`, `target = 3`

Output: -1

Explanation: 3 does not exist in the array, so we return -1.

Constraints:

1. `3 <= mountain_arr.length() <= 10000`

2. `0 <= target <= 10^9`

3. `0 <= mountain_arr.get(index) <= 10^9`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1095-Find-in-Mountain-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1096. Brace Expansion II

Under a grammar given below, strings can represent a set of lowercase words. Let's use $R(expr)$ to denote the set of words the expression represents.

Grammar can best be understood through simple examples:

- Single letters represent a singleton set containing that word.
 - $R("a") = \{"a"\}$
 - $R("w") = \{"w"\}$
- When we take a comma delimited list of 2 or more expressions, we take the union of possibilities.
 - $R("\{a,b,c\}") = \{"a", "b", "c"\}$
 - $R("\{\{a,b\},\{b,c\}\}") = \{"a", "b", "c"\}$
(notice the final set only contains each word at most once)
- When we concatenate two expressions, we take the set of possible concatenations between two words where the first word comes from the first expression and the second word comes from the second expression.
 - $R("\{a,b\}\{c,d\}") = \{"ac", "ad", "bc", "bd"\}$
 - $R("a\{b,c\}\{d,e\}f\{g,h\}") = \{"abdfg", "abdfh", "abefg", "abefh", "acdfg", "acdfh", "acefg", "acefh"\}$

Formally, the 3 rules for our grammar:

- For every lowercase letter x , we have $R(x) = \{x\}$
- For expressions e_1, e_2, \dots, e_k with $k \geq 2$, we have $R(\{e_1, e_2, \dots\}) = R(e_1) \cup R(e_2) \cup \dots$
- For expressions e_1 and e_2 , we have $R(e_1 + e_2) = \{a + b \text{ for } (a, b) \text{ in } R(e_1) \times R(e_2)\}$, where $+$ denotes concatenation, and \times denotes the cartesian product.

Given an expression representing a set of words under the given grammar, return the sorted list of words that the expression represents.

Example 1:

Input: " $\{a,b\}\{c,\{d,e\}\}$ "
Output: ["ac", "ad", "ae", "bc", "bd", "be"]

Example 2:

Input: " $\{\{a,z\}, a\{b,c\}, \{ab,z\}\}$ "

Output: ["a", "ab", "ac", "z"]

Explanation: Each distinct word is written only once in the final output.

Constraints:

1. $1 \leq \text{expression.length} \leq 60$
2. $\text{expression}[i]$ consists of '{', '}', ',', ' ' or lowercase English letters.
3. The given expression represents a set of words based on the grammar given in the description.

Difficulty:

Hard

Lock:

Normal

Company:

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1097. Game Play Analysis V

Table: Activity

Column Name	Type
player_id	int
device_id	int
event_date	date
games_played	int

(player_id, event_date) is the primary key of this table.
This table shows the activity of players of some game.
Each row is a record of a player who logged in and played a number

We define the *install date* of a player to be the first login day of that player.

We also define *day 1 retention* of some date X to be the number of players whose install date is X and they logged back in on the day right after X , divided by the number of players whose install date is X , **rounded to 2 decimal places .**

Write an SQL query that reports for each **install date**, the **number of players** that installed the game on that day and the **day 1 retention**.

The query result format is in the following example:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-03-02	6
2	3	2017-06-25	1
3	1	2016-03-01	0
3	4	2016-07-03	5

Result table:

install_dt	installs	Day1_retention
2016-03-01	2	0.50
2017-06-25	1	0.00

Player 1 and 3 installed the game on 2016-03-01 but only player
Player 2 installed the game on 2017-06-25 but didn't log back in

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1097-Game-Play-Analysis-V](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1098. Unpopular Books

Table: Books

Column Name	Type
book_id	int
name	varchar
available_from	date

book_id is the primary key of this table.

Table: Orders

Column Name	Type
order_id	int
book_id	int
quantity	int
dispatch_date	date

order_id is the primary key of this table.
book_id is a foreign key to the Books table.

Write an SQL query that reports the **books** that have sold **less than 10** copies in the last year, excluding books that have been available for less than 1 month from today.

Assume today is 2019-06-23 .

The query result format is in the following example:

Books table:

|--|--|--|

book_id	name	available_from
1	"Kalila And Demna"	2010-01-01
2	"28 Letters"	2012-05-12
3	"The Hobbit"	2019-06-10
4	"13 Reasons Why"	2019-06-01
5	"The Hunger Games"	2008-09-21

Orders table:

order_id	book_id	quantity	dispatch_date
1	1	2	2018-07-26
2	1	1	2018-11-05
3	3	8	2019-06-11
4	4	6	2019-06-05
5	4	5	2019-06-20
6	5	9	2009-02-02
7	5	8	2010-04-13

Result table:

book_id	name
1	"Kalila And Demna"
2	"28 Letters"
5	"The Hunger Games"

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1098-Unpopular-Books](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1099. Two Sum Less Than K

Given an array A of integers and integer K , return the maximum S such that there exists $i < j$ with $A[i] + A[j] = S$ and $S < K$. If no i , j exist satisfying this equation, return -1.

Example 1:

Input: A = [34,23,1,24,75,33,54,8], K = 60

Output: 58

Explanation:

We can use 34 and 24 to sum 58 which is less than 60.

Example 2:

Input: A = [10,20,30], K = 15

Output: -1

Explanation:

In this case it's not possible to get a pair sum less than 15.

Note:

1. $1 \leq A.length \leq 100$

2. $1 \leq A[i] \leq 1000$

3. $1 \leq K \leq 2000$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1099-Two-Sum-Less-Than-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1100. Find K-Length Substrings With No Repeated Characters

Given a string S , return the number of substrings of length K with no repeated characters.

Example 1:

Input: S = "havefunonleetcode", K = 5

Output: 6

Explanation:

There are 6 substrings they are : 'havef', 'avefu', 'vefun', 'efuno

Example 2:

Input: S = "home", K = 5

Output: 0

Explanation:

Notice K can be larger than the length of S. In this case is not

Note:

1. $1 \leq S.length \leq 10^4$
2. All characters of S are lowercase English letters.
3. $1 \leq K \leq 10^4$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1100-Find-K-Length-Substrings-With-No-Repeated-Characters](#)

All Problems:

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Welcome to Subscribe On Youtube:

1101. The Earliest Moment When Everyone Become Friends

In a social group, there are N people, with unique integer ids from 0 to $N-1$.

We have a list of logs , where each $\text{logs}[i] = [\text{timestamp}, \text{id}_A, \text{id}_B]$ contains a non-negative integer timestamp, and the ids of two different people.

Each log represents the time in which two different people became friends. Friendship is symmetric: if A is friends with B, then B is friends with A.

Let's say that person A is acquainted with person B if A is friends with B, or A is a friend of someone acquainted with B.

Return the earliest time for which every person became acquainted with every other person. Return -1 if there is no such earliest time.

Example 1:

Input: $\text{logs} = [[20190101, 0, 1], [20190104, 3, 4], [20190107, 2, 3], [20190111, 1, 5], [20190224, 2, 4]]$
Output: 20190301

Explanation:

The first event occurs at timestamp = 20190101 and after 0 and 1
The second event occurs at timestamp = 20190104 and after 3 and 4
The third event occurs at timestamp = 20190107 and after 2 and 3
The fourth event occurs at timestamp = 20190211 and after 1 and 5
The fifth event occurs at timestamp = 20190224 and after 2 and 4 and 1
The sixth event occurs at timestamp = 20190301 and after 0 and 3 and 2 and 4 and 1

Note:

1. $2 \leq N \leq 100$
2. $1 \leq \text{logs.length} \leq 10^4$
3. $0 \leq \text{logs}[i][0] \leq 10^9$
4. $0 \leq \text{logs}[i][1], \text{logs}[i][2] \leq N - 1$
5. It's guaranteed that all timestamps in $\text{logs}[i][0]$ are different.
6. logs are not necessarily ordered by some criteria.
7. $\text{logs}[i][1] \neq \text{logs}[i][2]$

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1101-The-Earliest-Moment-When-Everyone-Become-Friends](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1102. Path With Maximum Minimum Value

Given a matrix of integers A with R rows and C columns, find the **maximum** score of a path starting at [0, 0] and ending at [R-1, C-1].

The *score* of a path is the **minimum** value in that path. For example, the value of the path 8 → 4 → 5 → 9 is 4.

A *path* moves some number of times from one visited cell to any neighbouring unvisited cell in one of the 4 cardinal directions (north, east, west, south).

Example 1:

5	4	5
1	2	6
7	4	6

Input: [[5,4,5],[1,2,6],[7,4,6]]

Output: 4

Explanation:

The path with the maximum score is highlighted in yellow.

Example 2:

2	2	1	2	2	2
1	2	2	2	1	2

Input: [[2,2,1,2,2,2],[1,2,2,2,1,2]]

Output: 2

Example 3:

3	4	6	3	4
0	2	1	1	7
8	8	3	2	7
3	2	4	9	8
4	1	2	0	0
4	6	5	4	3

Input: [[3,4,6,3,4],[0,2,1,1,7],[8,8,3,2,7],[3,2,4,9,8],[4,1,2,0]]

Output: 3

Note:

1. $1 \leq R, C \leq 100$
2. $0 \leq A[i][j] \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1102-Path-With-Maximum-Minimum-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1103. Distribute Candies to People

We distribute some number of candies , to a row of $n = \text{num_people}$ people in the following way:

We then give 1 candy to the first person, 2 candies to the second person, and so on until we give n candies to the last person.

Then, we go back to the start of the row, giving $n + 1$ candies to the first person, $n + 2$ candies to the second person, and so on until we give $2 * n$ candies to the last person.

This process repeats (with us giving one more candy each time, and moving to the start of the row after we reach the end) until we run out of candies. The last person will receive all of our remaining candies (not necessarily one more than the previous gift).

Return an array (of length num_people and sum candies) that represents the final distribution of candies.

Example 1:

Input: candies = 7, num_people = 4

Output: [1,2,3,1]

Explanation:

On the first turn, $\text{ans}[0] += 1$, and the array is [1,0,0,0].

On the second turn, $\text{ans}[1] += 2$, and the array is [1,2,0,0].

On the third turn, $\text{ans}[2] += 3$, and the array is [1,2,3,0].

On the fourth turn, $\text{ans}[3] += 1$ (because there is only one candy)

Example 2:

Input: candies = 10, num_people = 3

Output: [5,2,3]

Explanation:

On the first turn, $\text{ans}[0] += 1$, and the array is [1,0,0].

On the second turn, $\text{ans}[1] += 2$, and the array is [1,2,0].

On the third turn, $\text{ans}[2] += 3$, and the array is [1,2,3].

On the fourth turn, $\text{ans}[0] += 4$, and the final array is [5,2,3].

Constraints:

- $1 \leq \text{candies} \leq 10^9$
- $1 \leq \text{num_people} \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1103-Distribute-Candies-to-People](#)

All Problems:

[Link to All Problems](#)

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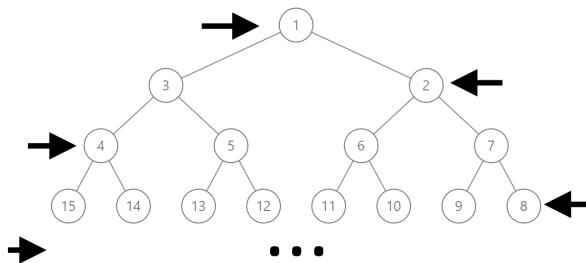
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Welcome to Subscribe On Youtube:

1104. Path In Zigzag Labelled Binary Tree

In an infinite binary tree where every node has two children, the nodes are labelled in row order.

In the odd numbered rows (ie., the first, third, fifth,...), the labelling is left to right, while in the even numbered rows (second, fourth, sixth,...), the labelling is right to left.



Given the label of a node in this tree, return the labels in the path from the root of the tree to the node with that label .

Example 1:

Input: label = 14
Output: [1,3,4,14]

Example 2:

Input: label = 26
Output: [1,2,6,10,26]

Constraints:

- $1 \leq \text{label} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1104-Path-In-Zigzag-Labelled-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1105. Filling Bookcase Shelves

We have a sequence of books : the i -th book has thickness `books[i][0]` and height `books[i][1]`.

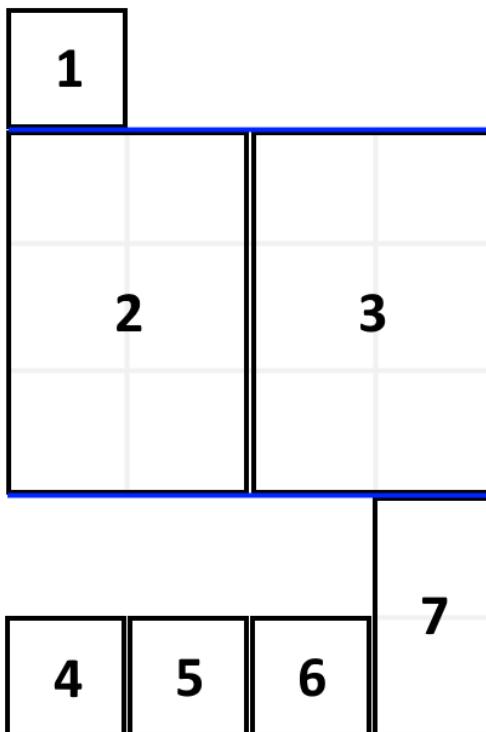
We want to place these books **in order** onto bookcase shelves that have total width `shelf_width`.

We choose some of the books to place on this shelf (such that the sum of their thickness is $\leq \text{shelf_width}$), then build another level of shelf of the bookcase so that the total height of the bookcase has increased by the maximum height of the books we just put down. We repeat this process until there are no more books to place.

Note again that at each step of the above process, the order of the books we place is the same order as the given sequence of books. For example, if we have an ordered list of 5 books, we might place the first and second book onto the first shelf, the third book on the second shelf, and the fourth and fifth book on the last shelf.

Return the minimum possible height that the total bookshelf can be after placing shelves in this manner.

Example 1:



Input: books = [[1,1],[2,3],[2,3],[1,1],[1,1],[1,1],[1,2]], shelf_width = 4

Output: 6

Explanation:

The sum of the heights of the 3 shelves are $1 + 3 + 2 = 6$.

Notice that book number 2 does not have to be on the first shelf.

Constraints:

- $1 \leq \text{books.length} \leq 1000$
- $1 \leq \text{books}[i][0] \leq \text{shelf_width} \leq 1000$
- $1 \leq \text{books}[i][1] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1105-Filling-Bookcase-Shelves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1106. Parsing A Boolean Expression

Return the result of evaluating a given boolean expression , represented as a string.

An expression can either be:

- "t" , evaluating to True ;
- "f" , evaluating to False ;
- "!(expr)" , evaluating to the logical NOT of the inner expression expr ;

- "&(expr1,expr2,...)" , evaluating to the logical AND of 2 or more inner expressions expr1, expr2, ... ;
- "|(expr1,expr2,...)" , evaluating to the logical OR of 2 or more inner expressions expr1, expr2,

Example 1:

Input: expression = "! (f)"
 Output: true

Example 2:

Input: expression = "| (f , t)"
 Output: true

Example 3:

Input: expression = "&(t , f)"
 Output: false

Example 4:

Input: expression = "| (&(t , f , t) , ! (t))"
 Output: false

Constraints:

- 1 <= expression.length <= 20000
- expression[i] consists of characters in { '(', ')', '&', '|', '!', 't', 'f', ',' } .
- expression is a valid expression representing a boolean, as given in the description.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1106-Parsing-A-Boolean-Expression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1107. New Users Daily Count

Table: Traffic

Column Name	Type
user_id	int
activity	enum
activity_date	date

There is no primary key for this table, it may have duplicate rows.
The activity column is an ENUM type of ('login', 'logout', 'jobs')

Write an SQL query that reports for every date within at most **90 days** from today, the number of users that logged in for the first time on that date. Assume today is **2019-06-30**.

The query result format is in the following example:

Traffic table:

user_id	activity	activity_date
1	login	2019-05-01
1	homepage	2019-05-01
1	logout	2019-05-01
2	login	2019-06-21
2	logout	2019-06-21
3	login	2019-01-01
3	jobs	2019-01-01
3	logout	2019-01-01
4	login	2019-06-21
4	groups	2019-06-21
4	logout	2019-06-21
5	login	2019-03-01
5	logout	2019-03-01
5	login	2019-06-21
5	logout	2019-06-21

Result table:

login_date	user_count
2019-05-01	1
2019-06-21	2

Note that we only care about dates with non zero user count.
The user with id 5 first logged in on 2019-03-01 so he's not counted.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1107-New-Users-Daily-Count](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1108. Defanging an IP Address

Given a valid (IPv4) IP address , return a defanged version of that IP address.

A *defanged IP address* replaces every period ". " with "[.]" .

Example 1:

Input: address = "1.1.1.1"
Output: "1[.]1[.]1[.]1"

Example 2:

Input: address = "255.100.50.0"
Output: "255[.]100[.]50[.]0"

Constraints:

- The given address is a valid IPv4 address.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1108-Defanging-an-IP-Address](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1109. Corporate Flight Bookings

There are n flights, and they are labeled from 1 to n .

We have a list of flight bookings. The i -th booking `bookings[i] = [i, j, k]` means that we booked k seats from flights labeled i to j inclusive.

Return an array `answer` of length n , representing the number of seats booked on each flight in order of their label.

Example 1:

Input: bookings = [[1,2,10],[2,3,20],[2,5,25]], n = 5
Output: [10,55,45,25,25]

Constraints:

- $1 \leq \text{bookings.length} \leq 20000$
- $1 \leq \text{bookings}[i][0] \leq \text{bookings}[i][1] \leq n \leq 20000$
- $1 \leq \text{bookings}[i][2] \leq 10000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1109-Corporate-Flight-Bookings](#)

All Problems:

[Link to All Problems](#)

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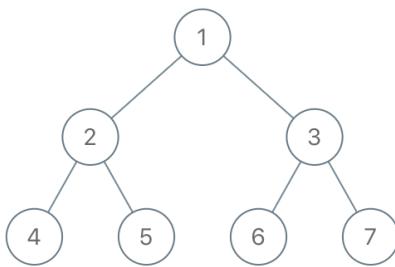
1110. Delete Nodes And Return Forest

Given the `root` of a binary tree, each node in the tree has a distinct value.

After deleting all nodes with a value in `to_delete`, we are left with a forest (a disjoint union of trees).

Return the roots of the trees in the remaining forest. You may return the result in any order.

Example 1:



Input: `root = [1,2,3,4,5,6,7]`, `to_delete = [3,5]`
Output: `[[1,2,null,4],[6],[7]]`

Constraints:

- The number of nodes in the given tree is at most 1000 .
- Each node has a distinct value between 1 and 1000.
- `to_delete.length <= 1000`
- `to_delete` contains distinct values between 1 and 1000 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1110-Delete-Nodes-And-Return-Forest](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1111. Maximum Nesting Depth of Two Valid Parentheses Strings

A string is a *valid parentheses string* (denoted VPS) if and only if it consists of "(" and ")" characters only, and:

- It is the empty string, or
- It can be written as AB (A concatenated with B), where A and B are VPS's, or
- It can be written as (A) , where A is a VPS.

We can similarly define the *nesting depth* $\text{depth}(S)$ of any VPS S as follows:

- $\text{depth}("") = 0$
- $\text{depth}(A + B) = \max(\text{depth}(A), \text{depth}(B))$, where A and B are VPS's

- $\text{depth}(" (" + A + ")") = 1 + \text{depth}(A)$,
where A is a VPS.

For example, " " , " () () " , and " ()((())()" are VPS's (with nesting depths 0, 1, and 2), and ")(" and " ((" are not VPS's.

Given a VPS seq , split it into two disjoint subsequences A and B , such that A and B are VPS's (and A.length + B.length = seq.length).

Now choose **any** such A and B such that
 $\max(\text{depth}(A), \text{depth}(B))$ is the minimum possible value.

Return an answer array (of length seq.length) that encodes such a choice of A and B : answer[i] = 0 if seq[i] is part of A , else answer[i] = 1 . Note that even though multiple answers may exist, you may return any of them.

Example 1:

Input: seq = "((())())"
Output: [0,1,1,1,1,0]

Example 2:

Input: seq = "(()((())()"
Output: [0,0,0,1,1,0,1,1]

Constraints:

- $1 \leq \text{seq.size} \leq 10000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1111-Maximum-Nesting-Depth-of-Two-Valid-Parentheses-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1112. Highest Grade For Each Student

Table: Enrollments

Column Name	Type
student_id	int
course_id	int
grade	int

(student_id, course_id) is the primary key of this table.

Write a SQL query to find the highest grade with its corresponding course for each student. In case of a tie, you should find the course with the smallest course_id . The output must be sorted by increasing student_id .

The query result format is in the following example:

Enrollments table:

student_id	course_id	grade
2	2	95
2	3	95
1	1	90
1	2	99
3	1	80
3	2	75
3	3	82

Result table:

student_id	course_id	grade
1	2	99
2	2	95
3	3	82

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1112-Highest-Grade-For-Each-Student](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1113. Reported Posts

Table: Actions

Column Name	Type
user_id	int
post_id	int
action_date	date
action	enum
extra	varchar

There is no primary key for this table, it may have duplicate rows.
The action column is an ENUM type of ('view', 'like', 'reaction').
The extra column has optional information about the action such as

Write an SQL query that reports the number of posts reported yesterday for each report reason. Assume today is **2019-07-05**.

The query result format is in the following example:

Actions table:

user_id	post_id	action_date	action	extra
1	1	2019-07-01	view	null
1	1	2019-07-01	like	null
1	1	2019-07-01	share	null
2	4	2019-07-04	view	null
2	4	2019-07-04	report	spam
3	4	2019-07-04	view	null
3	4	2019-07-04	report	spam
4	3	2019-07-02	view	null
4	3	2019-07-02	report	spam

5	2	2019-07-04	view	null
5	2	2019-07-04	report	racism
5	5	2019-07-04	view	null
5	5	2019-07-04	report	racism

Result table:

report_reason	report_count
spam	1
racism	2

Note that we only care about report reasons with non zero number

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1113-Reported-Posts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1114. Print in Order

Suppose we have a class:

```
public class Foo {  
    public void first() { print("first"); }  
    public void second() { print("second"); }  
    public void third() { print("third"); }  
}
```

The same instance of Foo will be passed to three different threads. Thread A will call `first()`, thread B will call `second()`, and thread C will call `third()`. Design a mechanism and modify the program to ensure that `second()` is executed after `first()`, and `third()` is executed after `second()`.

Example 1:

Input: [1,2,3]

Output: "firstsecondthird"

Explanation: There are three threads being fired asynchronously.

Example 2:

Input: [1,3,2]

Output: "firstsecondthird"

Explanation: The input [1,3,2] means thread A calls `first()`, thre

Note:

We do not know how the threads will be scheduled in the operating system, even though the numbers in the input seems to imply the ordering. The input format you see is mainly to ensure our tests' comprehensiveness.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1114-Print-in-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1115. Print FooBar Alternately

Suppose you are given the following code:

```
class FooBar {
    public void foo() {
        for (int i = 0; i < n; i++) {
            print("foo");
        }
    }

    public void bar() {
        for (int i = 0; i < n; i++) {
            print("bar");
        }
    }
}
```

The same instance of FooBar will be passed to two different threads. Thread A will call foo() while thread B will call bar(). Modify the given program to output "foobar" n times.

Example 1:

Input: $n = 1$
Output: "foobar"

Explanation: There are two threads being fired asynchronously. One

Example 2:

Input: $n = 2$
Output: "foobarfoobar"
Explanation: "foobar" is being output 2 times.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1115-Print-FooBar-Alternately](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1116. Print Zero Even Odd

Suppose you are given the following code:

```
class ZeroEvenOdd {  
    public ZeroEvenOdd(int n) { ... }      // constructor  
    public void zero(printNumber) { ... }   // only output 0's  
    public void even(printNumber) { ... }    // only output even numbers  
    public void odd(printNumber) { ... }     // only output odd numbers  
}
```

The same instance of `ZeroEvenOdd` will be passed to three different threads:

1. Thread A will call `zero()` which should only output 0's.
2. Thread B will call `even()` which should only output even numbers.
3. Thread C will call `odd()` which should only output odd numbers.

Each of the threads is given a `printNumber` method to output an integer. Modify the given program to output the series 010203040506 ... where the length of the series must be $2n$.

Example 1:

Input: $n = 2$
Output: "0102"

Explanation: There are three threads being fired asynchronously.

Example 2:

Input: $n = 5$
Output: "0102030405"

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1116-Print-Zero-Even-Odd](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1117. Building H2O

There are two kinds of threads, oxygen and hydrogen . Your goal is to group these threads to form water molecules. There is a barrier where each thread has to wait until a complete molecule can be formed.

Hydrogen and oxygen threads will be given `releaseHydrogen` and `releaseOxygen` methods respectively, which will allow them to pass the barrier. These threads should pass the barrier in groups of three, and they must be able to immediately bond with each other to form a water molecule. You must guarantee that

all the threads from one molecule bond *before* any other threads from the next molecule do.

In other words:

- If an oxygen thread arrives at the barrier when no hydrogen threads are present, it has to wait for two hydrogen threads.
- If a hydrogen thread arrives at the barrier when no other threads are present, it has to wait for an oxygen thread and another hydrogen thread.

We don't have to worry about matching the threads up explicitly; that is, the threads do not necessarily know which other threads they are paired up with. The key is just that threads pass the barrier in complete sets; thus, if we examine the sequence of threads that bond and divide them into groups of three, each group should contain one oxygen and two hydrogen threads.

Write synchronization code for oxygen and hydrogen molecules that enforces these constraints.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1117-Building-H₂O](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1118. Number of Days in a Month

Given a year Y and a month M , return how many days there are in that month.

Example 1:

Input: $Y = 1992$, $M = 7$
Output: 31

Example 2:

Input: $Y = 2000$, $M = 2$
Output: 29

Example 3:

Input: $Y = 1900$, $M = 2$
Output: 28

Note:

1. $1583 \leq Y \leq 2100$
2. $1 \leq M \leq 12$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1118-Number-of-Days-in-a-Month](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1119. Remove Vowels from a String

Given a string S , remove the vowels 'a' , 'e' , 'i' , 'o' , and 'u' from it, and return the new string.

Example 1:

Input: "leetcodeisacomunityforcoders"
Output: "ltcdscmmntyfrcdrs"

Example 2:

Input: "aeiou"
Output: ""

Note:

1. S consists of lowercase English letters only.
2. $1 \leq S.length \leq 1000$

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[1119-Remove-Vowels-from-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1120. Maximum Average Subtree

Given the root of a binary tree, find the maximum average value of any subtree of that tree.

(A subtree of a tree is any node of that tree plus all its descendants. The average value of a tree is the sum of its values, divided by the number of nodes.)

Example 1:

Input: [5,6,1]

Output: 6.00000

Explanation:

For the node with value = 5 we have an average of $(5 + 6 + 1) / 3$ = 4.0.

For the node with value = 6 we have an average of $6 / 1 = 6$.

For the node with value = 1 we have an average of $1 / 1 = 1$.

So the answer is 6 which is the maximum.

Note:

1. The number of nodes in the tree is between 1 and 5000 .
2. Each node will have a value between 0 and 100000 .
3. Answers will be accepted as correct if they are within 10^{-5} of the correct answer.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1120-Maximum-Average-Subtree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1121. Divide Array Into Increasing Sequences

Given a **non-decreasing** array of positive integers `nums` and an integer `K` , find out if this array can be divided into one or more **disjoint increasing subsequences of length at least K** .

Example 1:

Input: `nums = [1,2,2,3,3,4,4]` , `K = 3`

Output: `true`

Explanation:

The array can be divided into the two subsequences `[1,2,3,4]` and

Example 2:

Input: `nums = [5,6,6,7,8]` , `K = 3`

Output: `false`

Explanation:

There is no way to divide the array using the conditions required

Note:

1. `1 <= nums.length <= 10^5`
2. `1 <= K <= nums.length`

3. $1 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1121-Divide-Array-Into-Increasing-Sequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1122. Relative Sort Array

Given two arrays `arr1` and `arr2` , the elements of `arr2` are distinct, and all elements in `arr2` are also in `arr1` .

Sort the elements of `arr1` such that the relative ordering of items in `arr1` are the same as in `arr2` . Elements

that don't appear in arr2 should be placed at the end of arr1 in **ascending** order.

Example 1:

Input: arr1 = [2,3,1,3,2,4,6,7,9,2,19], arr2 = [2,1,4,3,9,6]
Output: [2,2,2,1,4,3,3,9,6,7,19]

Constraints:

- arr1.length, arr2.length <= 1000
- 0 <= arr1[i], arr2[i] <= 1000
- Each arr2[i] is distinct.
- Each arr2[i] is in arr1 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1122-Relative-Sort-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1123. Lowest Common Ancestor of Deepest Leaves

Given a rooted binary tree, return the lowest common ancestor of its deepest leaves.

Recall that:

- The node of a binary tree is a *leaf* if and only if it has no children
- The *depth* of the root of the tree is 0, and if the depth of a node is d , the depth of each of its children is $d+1$.
- The *lowest common ancestor* of a set S of nodes is the node A with the largest depth such that every node in S is in the subtree with root A .

Example 1:

Input: root = [1, 2, 3]

Output: [1, 2, 3]

Explanation:

The deepest leaves are the nodes with values 2 and 3.

The lowest common ancestor of these leaves is the node with value 1.
The answer returned is a `TreeNode` object (not an array) with ser

Example 2:

Input: root = [1, 2, 3, 4]

Output: [4]

Example 3:

Input: root = [1, 2, 3, 4, 5]

Output: [2, 4, 5]

Constraints:

- The given tree will have between 1 and 1000 nodes.
- Each node of the tree will have a distinct value between 1 and 1000.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1123-Lowest-Common-Ancestor-of-Deepest-Leaves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1124. Longest Well-Performing Interval

We are given `hours` , a list of the number of hours worked per day for a given employee.

A day is considered to be a *tiring day* if and only if the number of hours worked is (strictly) greater than 8 .

A *well-performing interval* is an interval of days for which the number of tiring days is strictly larger than the number of non-tiring days.

Return the length of the longest well-performing interval.

Example 1:

Input: hours = [9,9,6,0,6,6,9]

Output: 3

Explanation: The longest well-performing interval is [9,9,6] .

Constraints:

- $1 \leq \text{hours.length} \leq 10000$
- $0 \leq \text{hours}[i] \leq 16$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1124-Longest-Well-Performing-Interval](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1125. Smallest Sufficient Team

In a project, you have a list of required skills `req_skills`, and a list of people . The i-th person `people[i]` contains a list of skills that person has.

Consider a *sufficient team* : a set of people such that for every required skill in `req_skills`, there is at least one person in the team who has that skill. We can represent these teams by the index of each person: for example, `team = [0, 1, 3]` represents the people with skills `people[0]`, `people[1]`, and `people[3]` .

Return **any** sufficient team of the smallest possible size, represented by the index of each person.

You may return the answer in any order. It is guaranteed an answer exists.

Example 1:

Input: `req_skills = ["java", "nodejs", "reactjs"]`, `people = [[{"jav`
Output: `[0,2]`

Example 2:

Input: `req_skills = ["algorithms", "math", "java", "reactjs", "csharp"]`
Output: `[1,2]`

Constraints:

- `1 <= req_skills.length <= 16`
- `1 <= people.length <= 60`

- $1 \leq \text{people}[i].length$,
 $\text{req_skills}[i].length$, $\text{people}[i][j].length \leq 16$
- Elements of `req_skills` and `people[i]` are (respectively) distinct.
- `req_skills[i][j]`, `people[i][j][k]` are lowercase English letters.
- Every skill in `people[i]` is a skill in `req_skills`.
- It is guaranteed a sufficient team exists.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1125-Smallest-Sufficient-Team](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1126. Active Businesses

Table: Events

Column Name	Type
business_id	int
event_type	varchar
occurrences	int

(business_id, event_type) is the primary key of this table.
Each row in the table logs the info that an event of some type o

Write an SQL query to find all *active businesses*.

An active business is a business that has more than one event type with occurrences greater than the average occurrences of that event type among all businesses.

The query result format is in the following example:

Events table:

business_id	event_type	occurrences
1	reviews	7
3	reviews	3
1	ads	11
2	ads	7
3	ads	6
1	page views	3
2	page views	12

Result table:

business_id
1

Average for 'reviews', 'ads' and 'page views' are $(7+3)/2=5$, $(11+7+6)/3=8$.
Business with id 1 has 7 'reviews' events (more than 5) and 11 'ads' events (more than 8).

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1126-Active-Businesses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1127. User Purchase Platform

Table: Spending

Column Name	Type
user_id	int
spend_date	date
platform	enum
amount	int

The table logs the spendings history of users that make purchases. (user_id, spend_date, platform) is the primary key of this table. The platform column is an ENUM type of ('desktop', 'mobile').

Write an SQL query to find the total number of users and the total amount spent using mobile **only**, desktop **only** and **both** mobile and desktop together for each date.

The query result format is in the following example:

Spending table:

user_id	spend_date	platform	amount
1	2019-07-01	mobile	100
1	2019-07-01	desktop	100
2	2019-07-01	mobile	100
2	2019-07-02	mobile	100
3	2019-07-01	desktop	100
3	2019-07-02	desktop	100

Result table:

spend_date	platform	total_amount	total_users
2019-07-01	desktop	100	1
2019-07-01	mobile	100	1
2019-07-01	both	200	1
2019-07-02	desktop	100	1
2019-07-02	mobile	100	1
2019-07-02	both	0	0

On 2019-07-01, user 1 purchased using both desktop and mobile, user 2 purchased using mobile only, user 3 purchased using desktop only.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

1127-User-Purchase-Platform

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1128. Number of Equivalent Domino Pairs

Given a list of dominoes , dominoes[i] = [a, b] is *equivalent* to dominoes[j] = [c, d] if and only if either (a==c and b==d), or (a==d and b==c) - that is, one domino can be rotated to be equal to another domino.

Return the number of pairs (i, j) for which $0 \leq i < j < \text{dominoes.length}$, and dominoes[i] is equivalent to dominoes[j] .

Example 1:

Input: dominoes = [[1,2],[2,1],[3,4],[5,6]]
Output: 1

Constraints:

- $1 \leq \text{dominoes.length} \leq 40000$

- $1 \leq \text{dominoes}[i][j] \leq 9$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1128-Number-of-Equivalent-Domino-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1129. Shortest Path with Alternating Colors

Consider a directed graph, with nodes labelled $0, 1, \dots, n-1$. In this graph, each edge is either red or blue, and there could be self-edges or parallel edges.

Each [i, j] in red_edges denotes a red directed edge from node i to node j . Similarly, each [i, j] in blue_edges denotes a blue directed edge from node i to node j .

Return an array answer of length n , where each answer[X] is the length of the shortest path from node 0 to node X such that the edge colors alternate along the path (or -1 if such a path doesn't exist).

Example 1:

Input: n = 3, red_edges = [[0,1],[1,2]], blue_edges = []
Output: [0,1,-1]

Example 2:

Input: n = 3, red_edges = [[0,1]], blue_edges = [[2,1]]
Output: [0,1,-1]

Example 3:

Input: n = 3, red_edges = [[1,0]], blue_edges = [[2,1]]
Output: [0,-1,-1]

Example 4:

Input: n = 3, red_edges = [[0,1]], blue_edges = [[1,2]]
Output: [0,1,2]

Example 5:

Input: n = 3, red_edges = [[0,1],[0,2]], blue_edges = [[1,0]]
Output: [0,1,1]

Constraints:

- 1 <= n <= 100
- red_edges.length <= 400
- blue_edges.length <= 400
- red_edges[i].length == 2
- blue_edges[i].length == 2
- 0 <= red_edges[i][j], blue_edges[i][j] < n

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1129-Shortest-Path-with-Alternating-Colors](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1130. Minimum Cost Tree From Leaf Values

Given an array `arr` of positive integers, consider all binary trees such that:

- Each node has either 0 or 2 children;
- The values of `arr` correspond to the values of each **leaf** in an in-order traversal of the tree. (*Recall that a node is a leaf if and only if it has 0 children.*)

- The value of each non-leaf node is equal to the product of the largest leaf value in its left and right subtree respectively.

Among all possible binary trees considered, return the smallest possible sum of the values of each non-leaf node. It is guaranteed this sum fits into a 32-bit integer.

Example 1:

Input: arr = [6, 2, 4]

Output: 32

Explanation:

There are two possible trees. The first has non-leaf node sum 32.



Constraints:

- $2 \leq \text{arr.length} \leq 40$
- $1 \leq \text{arr}[i] \leq 15$
- It is guaranteed that the answer fits into a 32-bit signed integer (ie. it is less than 2^{31}).

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1130-Minimum-Cost-Tree-From-Leaf-Values](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1131. Maximum of Absolute Value Expression

Given two arrays of integers with equal lengths, return the maximum value of:

```
|arr1[i] - arr1[j]| + |arr2[i] - arr2[j]| + |i - j|
```

where the maximum is taken over all $0 \leq i, j < \text{arr1.length}$.

Example 1:

Input: arr1 = [1,2,3,4], arr2 = [-1,4,5,6]
Output: 13

Example 2:

Input: arr1 = [1,-2,-5,0,10], arr2 = [0,-2,-1,-7,-4]
Output: 20

Constraints:

- $2 \leq \text{arr1.length} == \text{arr2.length} \leq 40000$
- $-10^6 \leq \text{arr1}[i], \text{arr2}[i] \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1131-Maximum-of-Absolute-Value-Expression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1132. Reported Posts II

Table: Actions

Column Name	Type
user_id	int
post_id	int
action_date	date

```

| action      | enum      |
| extra       | varchar   |
+-----+-----+

```

There is no primary key for this table, it may have duplicate rows.
The action column is an ENUM type of ('view', 'like', 'reaction')
The extra column has optional information about the action such as

Table: Removals

```

+-----+-----+
| Column Name | Type    |
+-----+-----+
| post_id     | int     |
| remove_date | date    |
+-----+-----+

```

post_id is the primary key of this table.

Each row in this table indicates that some post was removed as a result of being reported as spam.

Write an SQL query to find the average for daily percentage of posts that got removed after being reported as spam, **rounded to 2 decimal places**.

The query result format is in the following example:

Actions table:

```

+-----+-----+-----+-----+-----+
| user_id | post_id | action_date | action | extra |
+-----+-----+-----+-----+-----+
| 1        | 1        | 2019-07-01  | view   | null   |
| 1        | 1        | 2019-07-01  | like   | null   |
| 1        | 1        | 2019-07-01  | share  | null   |
| 2        | 2        | 2019-07-04  | view   | null   |
| 2        | 2        | 2019-07-04  | report | spam   |
| 3        | 4        | 2019-07-04  | view   | null   |
| 3        | 4        | 2019-07-04  | report | spam   |
| 4        | 3        | 2019-07-02  | view   | null   |
| 4        | 3        | 2019-07-02  | report | spam   |
| 5        | 2        | 2019-07-03  | view   | null   |
| 5        | 2        | 2019-07-03  | report | racism |
| 5        | 5        | 2019-07-03  | view   | null   |
| 5        | 5        | 2019-07-03  | report | racism |
+-----+-----+-----+-----+-----+

```

Removals table:

```

+-----+-----+
| post_id | remove_date |
+-----+-----+
| 2        | 2019-07-20  |
| 3        | 2019-07-18  |
+-----+-----+

```

Result table:

```

+-----+

```

```
| average_daily_percent |
+-----+
| 75.00          |
+-----+
```

The percentage for 2019-07-04 is 50% because only one post of two was reported.
The percentage for 2019-07-02 is 100% because one post was reported.
The other days had no spam reports so the average is (50 + 100) / 2 = 75.
Note that the output is only one number and that we do not care about the order.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1132-Reported-Posts-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1133. Largest Unique Number

Given an array of integers A , return the largest integer that only occurs once.

If no integer occurs once, return -1.

Example 1:

Input: [5,7,3,9,4,9,8,3,1]

Output: 8

Explanation:

The maximum integer in the array is 9 but it is repeated. The nu

Example 2:

Input: [9,9,8,8]

Output: -1

Explanation:

There is no number that occurs only once.

Note:

1. $1 \leq A.length \leq 2000$

2. $0 \leq A[i] \leq 1000$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1133-Largest-Unique-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1134. Armstrong Number

The k-digit number N is an Armstrong number if and only if the k-th power of each digit sums to N.

Given a positive integer N , return true if and only if it is an Armstrong number.

Example 1:

Input: 153

Output: true

Explanation:

153 is a 3-digit number, and $1^3 + 5^3 + 3^3 = 153$.

Example 2:

Input: 123

Output: false

Explanation:

123 is a 3-digit number, and $1^3 + 2^3 + 3^3 = 36 \neq 123$.

Note:

1. $1 \leq N \leq 10^8$

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[1134-Armstrong-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1135. Connecting Cities With Minimum Cost

There are N cities numbered from 1 to N .

You are given connections , where each connections[i] = [city1, city2, cost] represents the cost to connect city1 and city2 together.

(A *connection* is bidirectional: connecting city1 and city2 is the same as connecting city2 and city1.)

Return the minimum cost so that for every pair of cities, there exists a path of connections (possibly of length 1) that connects those two cities together. The cost is the sum of the connection costs used. If the task is impossible, return -1.

Example 1:

Input: N = 3, connections = [[1,2,5],[1,3,6],[2,3,1]]

Output: 6

Explanation:

Choosing any 2 edges will connect all cities so we choose the min

Example 2:

Input: N = 4, connections = [[1,2,3],[3,4,4]]

Output: -1

Explanation:

There is no way to connect all cities even if all edges are used

Note:

1. 1 <= N <= 10000
2. 1 <= connections.length <= 10000
3. 1 <= connections[i][0], connections[i][1] <= N
4. 0 <= connections[i][2] <= 10^5
5. connections[i][0] != connections[i][1]

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1135-Connecting-Cities-With-Minimum-Cost](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1136. Parallel Courses

There are N courses, labelled from 1 to N .

We are given `relations[i] = [X, Y]`, representing a prerequisite relationship between course X and course Y : course X has to be studied before course Y .

In one semester you can study any number of courses as long as you have studied all the prerequisites for the course you are studying.

Return the minimum number of semesters needed to study all courses. If there is no way to study all the courses, return -1.

Example 1:

Input: $N = 3$, `relations = [[1,3],[2,3]]`

Output: 2

Explanation:

In the first semester, courses 1 and 2 are studied. In the second semester, course 3 is studied.

Example 2:

Input: N = 3, relations = [[1,2],[2,3],[3,1]]
Output: -1
Explanation:
No course can be studied because they depend on each other.

Note:

1. $1 \leq N \leq 5000$
2. $1 \leq \text{relations.length} \leq 5000$
3. $\text{relations}[i][0] \neq \text{relations}[i][1]$
4. There are no repeated relations in the input.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1136-Parallel-Courses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1137. N-th Tribonacci Number

The Tribonacci sequence T_n is defined as follows:

$T_0 = 0$, $T_1 = 1$, $T_2 = 1$, and $T_{n+3} = T_n + T_{n+1} + T_{n+2}$ for $n \geq 0$.

Given n , return the value of T_n .

Example 1:

Input: $n = 4$

Output: 4

Explanation:

$$\begin{aligned}T_3 &= 0 + 1 + 1 = 2 \\T_4 &= 1 + 1 + 2 = 4\end{aligned}$$

Example 2:

Input: $n = 25$

Output: 1389537

Constraints:

- $0 \leq n \leq 37$
- The answer is guaranteed to fit within a 32-bit integer, ie. $\text{answer} \leq 2^{31} - 1$.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1137-N-th-Tribonacci-Number](#)

All Problems:

[Link to All Problems](#)

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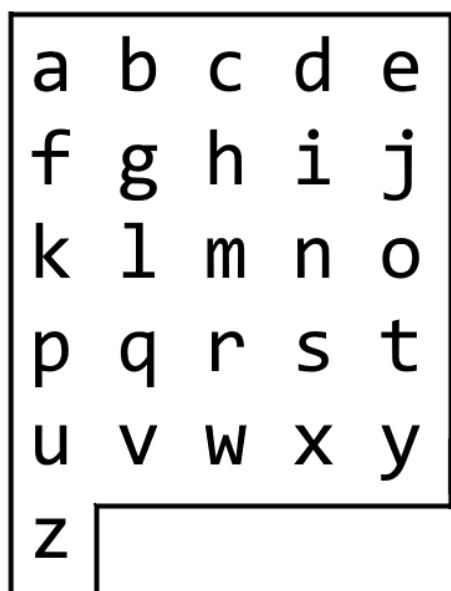
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Welcome to Subscribe On Youtube:

1138. Alphabet Board Path

On an alphabet board, we start at position $(0, 0)$, corresponding to character $\text{board}[0][0]$.

Here, $\text{board} = ["abcde", "fghij", "klmno", "pqrs", "uvwxyz"]$, as shown in the diagram below.



We may make the following moves:

- 'U' moves our position up one row, if the position exists on the board;
- 'D' moves our position down one row, if the position exists on the board;
- 'L' moves our position left one column, if the position exists on the board;
- 'R' moves our position right one column, if the position exists on the board;
- '!' adds the character `board[r][c]` at our current position (`r`, `c`) to the answer.

(Here, the only positions that exist on the board are positions with letters on them.)

Return a sequence of moves that makes our answer equal to `target` in the minimum number of moves. You may return any path that does so.

Example 1:

```
Input: target = "leet"
Output: "DDR!UURRR!!DDD!"
```

Example 2:

```
Input: target = "code"
Output: "RR!DDRR!UUL!R!"
```

Constraints:

- $1 \leq \text{target.length} \leq 100$
- `target` consists only of English lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1138-Alphabet-Board-Path](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1139. Largest 1-Bordered Square

Given a 2D grid of 0 s and 1 s, return the number of elements in the largest **square** subgrid that has all 1 s on its **border**, or 0 if such a subgrid doesn't exist in the grid .

Example 1:

Input: grid = [[1,1,1],[1,0,1],[1,1,1]]
Output: 9

Example 2:

Input: grid = [[1,1,0,0]]
Output: 1

Constraints:

- 1 <= grid.length <= 100

- $1 \leq \text{grid}[0].length \leq 100$
- $\text{grid}[i][j]$ is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1139-Largest-1-Bordered-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1140. Stone Game II

Alex and Lee continue their games with piles of stones. There are a number of piles **arranged in a row**, and each pile has a positive integer number of stones

`piles[i]` . The objective of the game is to end with the most stones.

Alex and Lee take turns, with Alex starting first. Initially, $M = 1$.

On each player's turn, that player can take **all the stones** in the **first X** remaining piles, where $1 \leq X \leq 2M$. Then, we set $M = \max(M, X)$.

The game continues until all the stones have been taken.

Assuming Alex and Lee play optimally, return the maximum number of stones Alex can get.

Example 1:

Input: `piles = [2, 7, 9, 4, 4]`

Output: 10

Explanation: If Alex takes one pile at the beginning, Lee takes

Constraints:

- $1 \leq \text{piles.length} \leq 100$
- $1 \leq \text{piles}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1140-Stone-Game-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1141. User Activity for the Past 30 Days I

Table: Activity

Column Name	Type
user_id	int
session_id	int
activity_date	date
activity_type	enum

There is no primary key for this table, it may have duplicate rows.
The activity_type column is an ENUM of type ('open_session', 'end_session').
The table shows the user activities for a social media website.
Note that each session belongs to exactly one user.

Write an SQL query to find the daily active user count for a period of 30 days ending **2019-07-27** inclusively. A user was active on some day if he/she made at least one activity on that day.

The query result format is in the following example:

Activity table:

user_id	session_id	activity_date	activity_type
1	1	2019-07-20	open_session
1	1	2019-07-20	scroll_down
1	1	2019-07-20	end_session
2	4	2019-07-20	open_session

2	4	2019-07-21	send_message
2	4	2019-07-21	end_session
3	2	2019-07-21	open_session
3	2	2019-07-21	send_message
3	2	2019-07-21	end_session
4	3	2019-06-25	open_session
4	3	2019-06-25	end_session

Result table:

day	active_users
2019-07-20	2
2019-07-21	2

Note that we do not care about days with zero active users.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1141-User-Activity-for-the-Past-30-Days-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1142. User Activity for the Past 30 Days II

Table: Activity

Column Name	Type
user_id	int
session_id	int
activity_date	date
activity_type	enum

There is no primary key for this table, it may have duplicate rows.
The activity_type column is an ENUM of type ('open_session', 'end_session').
The table shows the user activities for a social media website.
Note that each session belongs to exactly one user.

Write an SQL query to find the average number of sessions per user for a period of 30 days ending **2019-07-27 inclusively, rounded to 2 decimal places**.
The sessions we want to count for a user are those with at least one activity in that time period.

The query result format is in the following example:

Activity table:

user_id	session_id	activity_date	activity_type
1	1	2019-07-20	open_session
1	1	2019-07-20	scroll_down
1	1	2019-07-20	end_session
2	4	2019-07-20	open_session
2	4	2019-07-21	send_message
2	4	2019-07-21	end_session
3	2	2019-07-21	open_session
3	2	2019-07-21	send_message
3	2	2019-07-21	end_session
3	5	2019-07-21	open_session
3	5	2019-07-21	scroll_down
3	5	2019-07-21	end_session

```
+----+----+----+----+----+
| 4 | 3 | 2019-06-25 | open_session |
| 4 | 3 | 2019-06-25 | end_session  |
+----+----+----+----+
```

Result table:

```
+-----+
| average_sessions_per_user |
+-----+
| 1.33 |
+-----+
```

User 1 and 2 each had 1 session in the past 30 days while user 3

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1142-User-Activity-for-the-Past-30-Days-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1143. Longest Common Subsequence

Given two strings `text1` and `text2`, return the length of their longest common subsequence.

A *subsequence* of a string is a new string generated from the original string with some characters(can be none) deleted without changing the relative order of the remaining characters. (eg, "ace" is a subsequence of "abcde" while "aec" is not). A *common subsequence* of two strings is a subsequence that is common to both strings.

If there is no common subsequence, return 0.

Example 1:

Input: `text1` = "abcde", `text2` = "ace"

Output: 3

Explanation: The longest common subsequence is "ace" and its length is 3.

Example 2:

Input: `text1` = "abc", `text2` = "abc"

Output: 3

Explanation: The longest common subsequence is "abc" and its length is 3.

Example 3:

Input: `text1` = "abc", `text2` = "def"

Output: 0

Explanation: There is no such common subsequence, so the result is 0.

Constraints:

- $1 \leq \text{text1.length} \leq 1000$
- $1 \leq \text{text2.length} \leq 1000$
- The input strings consist of lowercase English characters only.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**1143-Longest-Common-Subsequence**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1144. Decrease Elements To Make Array Zigzag

Given an array `nums` of integers, a *move* consists of choosing any element and **decreasing it by 1**.

An array `A` is a *zigzag array* if either:

- Every even-indexed element is greater than adjacent elements, ie. $A[0] > A[1] < A[2] > A[3] < A[4] > \dots$
- OR, every odd-indexed element is greater than adjacent elements, ie. $A[0] < A[1] > A[2] < A[3] > A[4] < \dots$

Return the minimum number of moves to transform the given array `nums` into a zigzag array.

Example 1:

Input: `nums = [1, 2, 3]`

Output: 2

Explanation: We can decrease 2 to 0 or 3 to 1.

Example 2:

Input: `nums = [9, 6, 1, 6, 2]`

Output: 4

Constraints:

- $1 \leq \text{nums.length} \leq 1000$
- $1 \leq \text{nums}[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1144-Decrease-Elements-To-Make-Array-Zigzag](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1145. Binary Tree Coloring Game

Two players play a turn based game on a binary tree. We are given the root of this binary tree, and the number of nodes n in the tree. n is odd, and each node has a distinct value from 1 to n .

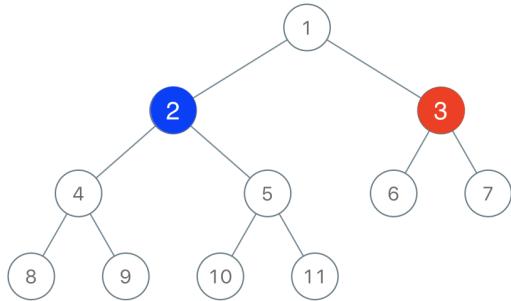
Initially, the first player names a value x with $1 \leq x \leq n$, and the second player names a value y with $1 \leq y \leq n$ and $y \neq x$. The first player colors the node with value x red, and the second player colors the node with value y blue.

Then, the players take turns starting with the first player. In each turn, that player chooses a node of their color (red if player 1, blue if player 2) and colors an **uncolored** neighbor of the chosen node (either the left child, right child, or parent of the chosen node.)

If (and only if) a player cannot choose such a node in this way, they must pass their turn. If both players pass their turn, the game ends, and the winner is the player that colored more nodes.

You are the second player. If it is possible to choose such a y to ensure you win the game, return `true`. If it is not possible, return `false`.

Example 1:



Input: `root = [1,2,3,4,5,6,7,8,9,10,11]`, `n = 11`, `x = 3`

Output: true

Explanation: The second player can choose the node with value 2.

Constraints:

- `root` is the root of a binary tree with `n` nodes and distinct node values from 1 to `n`.
- `n` is odd.
- `1 <= x <= n <= 100`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1145-Binary-Tree-Coloring-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1146. Snapshot Array

Implement a SnapshotArray that supports the following interface:

- `SnapshotArray(int length)` initializes an array-like data structure with the given length. **Initially, each element equals 0**.
- `void set(index, val)` sets the element at the given index to be equal to val .
- `int snap()` takes a snapshot of the array and returns the `snap_id` :the total number of times we called `snap()` minus 1 .
- `int get(index, snap_id)` returns the value at the given index ,at the time we took the snapshot with the given `snap_id`

Example 1:

Input: `["SnapshotArray", "set", "snap", "set", "get"]
[[3], [0, 5], [], [0, 6], [0, 0]]`

Output: `[null, null, 0, null, 5]`

Explanation:

```
SnapshotArray snapshotArr = new SnapshotArray(3); // set the length
snapshotArr.set(0, 5); // Set array[0] = 5
snapshotArr.snap(); // Take a snapshot, return snap_id = 0
snapshotArr.set(0, 6);
snapshotArr.get(0, 0); // Get the value of array[0] with snap_id = 0
```

Constraints:

- $1 \leq \text{length} \leq 50000$
- At most 50000 calls will be made to set , snap , and get .
- $0 \leq \text{index} < \text{length}$

- $0 \leq \text{snap_id} <$ (the total number of times we call snap())
- $0 \leq \text{val} \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1146-Snapshot-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1147. Longest Chunked Palindrome Decomposition

Return the largest possible k such that there exists a_1, a_2, \dots, a_k such that:

- Each a_i is a non-empty string;
- Their concatenation $a_1 + a_2 + \dots + a_k$ is equal to text ;
- For all $1 \leq i \leq k$, $a_i = a_{\{k+1 - i\}}$.

Example 1:

Input: $\text{text} = \text{"ghiabcdefhelloadamhelloabcdefghi"}$

Output: 7

Explanation: We can split the string on "(ghi)(abcdef)(hello)(ad

Example 2:

Input: $\text{text} = \text{"merchant"}$

Output: 1

Explanation: We can split the string on "(merchant)".

Example 3:

Input: $\text{text} = \text{"antaprezatepzapreanta"}$

Output: 11

Explanation: We can split the string on "(a)(nt)(a)(pre)(za)(tpe

Example 4:

Input: $\text{text} = \text{"aaa"}$

Output: 3

Explanation: We can split the string on "(a)(a)(a)".

Constraints:

- text consists only of lowercase English characters.
- $1 \leq \text{text.length} \leq 1000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1147-Longest-Chunked-Palindrome-Decomposition](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1148. Article Views I

Table: Views

Column Name	Type
article_id	int
author_id	int
viewer_id	int
view_date	date

There is no primary key for this table, it may have duplicate rows.

Each row of this table indicates that some viewer viewed an article. Note that equal author_id and viewer_id indicate the same person.

Write an SQL query to find all the authors that viewed at least one of their own articles, sorted in ascending order by their id.

The query result format is in the following example:

Views table:

article_id	author_id	viewer_id	view_date
1	3	5	2019-08-01
1	3	6	2019-08-02
2	7	7	2019-08-01
2	7	6	2019-08-02
4	7	1	2019-07-22
3	4	4	2019-07-21
3	4	4	2019-07-21

Result table:

id
4
7

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1148-Article-Views-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1149. Article Views II

Table: Views

Column Name	Type
article_id	int
author_id	int
viewer_id	int
view_date	date

There is no primary key for this table, it may have duplicate rows.
Each row of this table indicates that some viewer viewed an article.
Note that equal author_id and viewer_id indicate the same person.

Write an SQL query to find all the people who viewed more than one article on the same date, sorted in ascending order by their id.

The query result format is in the following example:

Views table:

article_id	author_id	viewer_id	view_date
1	3	5	2019-08-01
3	4	5	2019-08-01
1	3	6	2019-08-02
2	7	7	2019-08-01
2	7	6	2019-08-02
4	7	1	2019-07-22

3	4	4	2019-07-21
3	4	4	2019-07-21
+-----+	+-----+	+-----+	+-----+

Result table:

id
5
6

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1149-Article-Views-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1150. Check If a Number Is Majority Element in a Sorted Array

Given an array `nums` sorted in **non-decreasing** order, and a number `target`, return `True` if and only if `target` is a majority element.

A *majority element* is an element that appears **more than $N/2$** times in an array of length N .

Example 1:

Input: `nums = [2,4,5,5,5,5,5,6,6]`, `target = 5`

Output: `true`

Explanation:

The value 5 appears 5 times and the length of the array is 9. Thus, 5 is a majority element because $5 > 9/2$ is true.

Example 2:

Input: `nums = [10,100,101,101]`, `target = 101`

Output: `false`

Explanation:

The value 101 appears 2 times and the length of the array is 4. Thus, 101 is not a majority element because $2 > 4/2$ is false.

Note:

1. $1 \leq \text{nums.length} \leq 1000$

2. $1 \leq \text{nums}[i] \leq 10^9$

3. $1 \leq \text{target} \leq 10^9$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1150-Check-If-a-Number-Is-Majority-Element-in-a-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1151. Minimum Swaps to Group All 1's Together

Given a binary array `data` , return the minimum number of swaps required to group all 1 's present in the array together in **any place** in the array.

Example 1:

Input: [1,0,1,0,1]

Output: 1

Explanation:

There are 3 ways to group all 1's together:

[1,1,1,0,0] using 1 swap.

[0,1,1,1,0] using 2 swaps.

[0,0,1,1,1] using 1 swap.

The minimum is 1.

Example 2:

Input: [0,0,0,1,0]
Output: 0
Explanation:
Since there is only one 1 in the array, no swaps needed.

Example 3:

Input: [1,0,1,0,1,0,0,1,1,0,1]
Output: 3
Explanation:
One possible solution that uses 3 swaps is [0,0,0,0,0,1,1,1,1,1,

Note :

1. $1 \leq \text{data.length} \leq 10^5$
2. $0 \leq \text{data}[i] \leq 1$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1151-Minimum-Swaps-to-Group-All-1's-Together](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1152. Analyze User Website Visit Pattern

We are given some website visits: the user with name `username[i]` visited the website `website[i]` at time `timestamp[i]`.

A *3-sequence* is a list of websites of length 3 sorted in ascending order by the time of their visits. (The websites in a 3-sequence are not necessarily distinct.)

Find the 3-sequence visited by the largest number of users. If there is more than one solution, return the lexicographically smallest such 3-sequence.

Example 1:

Input: `username = ["joe", "joe", "joe", "james", "james", "james", "james"]`
Output: `["home", "about", "career"]`

Explanation:

The tuples in this example are:

```
["joe", 1, "home"]
["joe", 2, "about"]
["joe", 3, "career"]
["james", 4, "home"]
["james", 5, "cart"]
["james", 6, "maps"]
["james", 7, "home"]
["mary", 8, "home"]
["mary", 9, "about"]
["mary", 10, "career"]
```

The 3-sequence ("home", "about", "career") was visited at least once.

The 3-sequence ("home", "cart", "maps") was visited at least once.

The 3-sequence ("home", "cart", "home") was visited at least once.

The 3-sequence ("home", "maps", "home") was visited at least once.

The 3-sequence ("cart", "maps", "home") was visited at least once.

Note:

```
1. 3 <= N = username.length =
    timestamp.length = website.length <= 50
```

2. $1 \leq \text{username}[i].length \leq 10$
3. $0 \leq \text{timestamp}[i] \leq 10^9$
4. $1 \leq \text{website}[i].length \leq 10$
5. Both $\text{username}[i]$ and $\text{website}[i]$ contain only lowercase characters.
6. It is guaranteed that there is at least one user who visited at least 3 websites.
7. No user visits two websites at the same time.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1152-Analyze-User-Website-Visit-Pattern](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1153. String Transforms Into Another String

Given two strings `str1` and `str2` of the same length, determine whether you can transform `str1` into `str2` by doing **zero or more conversions**.

In one conversion you can convert **all** occurrences of one character in `str1` to **any** other lowercase English character.

Return `true` if and only if you can transform `str1` into `str2`.

Example 1:

Input: `str1 = "aabcc"`, `str2 = "ccdee"`

Output: `true`

Explanation: Convert 'c' to 'e' then 'b' to 'd' then 'a' to 'c'.

Example 2:

Input: `str1 = "leetcode"`, `str2 = "codeleet"`

Output: `false`

Explanation: There is no way to transform `str1` to `str2`.

Note:

1. `1 <= str1.length == str2.length <= 10^4`
2. Both `str1` and `str2` contain only lowercase English letters.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1153-String-Transforms-Into-Another-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1154. Day of the Year

Given a string date representing a [Gregorian calendar](#) date formatted as YYYY-MM-DD , return the day number of the year.

Example 1:

Input: date = "2019-01-09"

Output: 9

Explanation: Given date is the 9th day of the year in 2019.

Example 2:

Input: date = "2019-02-10"

Output: 41

Example 3:

Input: date = "2003-03-01"

Output: 60

Example 4:

```
Input: date = "2004-03-01"
Output: 61
```

Constraints:

- `date.length == 10`
- `date[4] == date[7] == '-'`, and all other `date[i]`'s are digits
- `date` represents a calendar date between Jan 1st, 1900 and Dec 31, 2019.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1154-Day-of-the-Year](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1155. Number of Dice Rolls With Target Sum

You have d dice, and each die has f faces numbered 1, 2, ..., f .

Return the number of possible ways (out of f^d total ways) **modulo** $10^9 + 7$ to roll the dice so the sum of the face up numbers equals target.

Example 1:

Input: $d = 1$, $f = 6$, target = 3

Output: 1

Explanation:

You throw one die with 6 faces. There is only one way to get a

Example 2:

Input: $d = 2$, $f = 6$, target = 7

Output: 6

Explanation:

You throw two dice, each with 6 faces. There are 6 ways to get a sum of 7: 1+6, 2+5, 3+4, 4+3, 5+2, 6+1.

Example 3:

Input: $d = 2$, $f = 5$, target = 10

Output: 1

Explanation:

You throw two dice, each with 5 faces. There is only one way to get a

Example 4:

Input: $d = 1$, $f = 2$, target = 3

Output: 0

Explanation:

You throw one die with 2 faces. There is no way to get a sum of 3.

Example 5:

Input: $d = 30$, $f = 30$, target = 500

Output: 222616187

Explanation:

The answer must be returned modulo $10^9 + 7$.

Constraints:

- $1 \leq d, f \leq 30$

- $1 \leq \text{target} \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1155-Number-of-Dice-Rolls-With-Target-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1156. Swap For Longest Repeated Character Substring

Given a string `text` , we are allowed to swap two of the characters in the string. Find the length of the longest substring with repeated characters.

Example 1:

Input: `text = "ababa"`

Output: 3

Explanation: We can swap the first 'b' with the last 'a', or the

Example 2:

Input: `text = "aaabaaa"`

Output: 6

Explanation: Swap 'b' with the last 'a' (or the first 'a'), and

Example 3:

Input: `text = "aabbaaa"`

Output: 4

Example 4:

Input: `text = "aaaaa"`

Output: 5

Explanation: No need to swap, longest repeated character substrin

Example 5:

Input: `text = "abcdef"`

Output: 1

Constraints:

- $1 \leq \text{text.length} \leq 20000$
- `text` consist of lowercase English characters only.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1156-Swap-For-Longest-Repeated-Character-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1157. Online Majority Element In Subarray

Implementing the class `MajorityChecker` , which has the following API:

- `MajorityChecker(int[] arr)` constructs an instance of `MajorityChecker` with the given array `arr` ;

- int query(int left, int right, int threshold) has arguments such that:
 - $0 \leq left \leq right < arr.length$ representing a subarray of arr ;
 - $2 * threshold > right - left + 1$, ie. the threshold is always a strict majority of the length of the subarray

Each query(...) returns the element in arr[left], arr[left+1], ..., arr[right] that occurs at least threshold times, or -1 if no such element exists.

Example:

```
MajorityChecker majorityChecker = new MajorityChecker([1,1,2,2,1]
majorityChecker.query(0,5,4); // returns 1
majorityChecker.query(0,3,3); // returns -1
majorityChecker.query(2,3,2); // returns 2
```

Constraints:

- $1 \leq arr.length \leq 20000$
- $1 \leq arr[i] \leq 20000$
- For each query, $0 \leq left \leq right < len(arr)$
- For each query, $2 * threshold > right - left + 1$
- The number of queries is at most 10000

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1157-Online-Majority-Element-In-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1158. Market Analysis I

Table: Users

Column Name	Type
user_id	int
join_date	date
favorite_brand	varchar

user_id is the primary key of this table.

This table has the info of the users of an online shopping website.

Table: Orders

Column Name	Type
order_id	int
order_date	date
item_id	int
buyer_id	int
seller_id	int

order_id is the primary key of this table.

item_id is a foreign key to the Items table.

buyer_id and seller_id are foreign keys to the Users table.

Table: Items

Column Name	Type
item_id	int
item_brand	varchar

item_id is the primary key of this table.

Write an SQL query to find for each user, the join date and the number of orders they made as a buyer in **2019**.

The query result format is in the following example:

Users table:

user_id	join_date	favorite_brand
1	2018-01-01	Lenovo
2	2018-02-09	Samsung
3	2018-01-19	LG
4	2018-05-21	HP

Orders table:

order_id	order_date	item_id	buyer_id	seller_id
1	2019-08-01	4	1	2
2	2018-08-02	2	1	3
3	2019-08-03	3	2	3
4	2018-08-04	1	4	2
5	2018-08-04	1	3	4
6	2019-08-05	2	2	4

Items table:

item_id	item_brand
1	Samsung
2	Lenovo
3	LG
4	HP

Result table:

buyer_id	join_date	orders_in_2019
1	2018-01-01	1
2	2018-02-09	2

	3		2018-01-19		0	
+	-----	+	-----	+	-----	+

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1158-Market-Analysis-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1159. Market Analysis II

Table: Users

+	-----	+	-----	+
	Column Name		Type	

user_id	int	
join_date	date	
favorite_brand	varchar	

user_id is the primary key of this table.

This table has the info of the users of an online shopping website.

Table: Orders

Column Name	Type	
order_id	int	
order_date	date	
item_id	int	
buyer_id	int	
seller_id	int	

order_id is the primary key of this table.

item_id is a foreign key to the Items table.

buyer_id and seller_id are foreign keys to the Users table.

Table: Items

Column Name	Type	
item_id	int	
item_brand	varchar	

item_id is the primary key of this table.

Write an SQL query to find for each user, whether the brand of the second item (by date) they sold is their favorite brand. If a user sold less than two items, report the answer for that user as no.

It is guaranteed that no seller sold more than one item on a day.

The query result format is in the following example:

Users table:

user_id	join_date	favorite_brand	
1	2019-01-01	Lenovo	
2	2019-02-09	Samsung	
3	2019-01-19	LG	
4	2019-05-21	HP	

Orders table:

order_id	order_date	item_id	buyer_id	seller_id
1	2019-08-01	4	1	2
2	2019-08-02	2	1	3
3	2019-08-03	3	2	3
4	2019-08-04	1	4	2
5	2019-08-04	1	3	4
6	2019-08-05	2	2	4

Items table:

item_id	item_brand
1	Samsung
2	Lenovo
3	LG
4	HP

Result table:

seller_id	2nd_item_fav_brand
1	no
2	yes
3	yes
4	no

The answer for the user with id 1 is no because they sold nothing.
The answer for the users with id 2 and 3 is yes because the brand of the item they sold was their favorite brand.
The answer for the user with id 4 is no because the brand of the item they sold was not their favorite brand.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1159-Market-Analysis-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1160. Find Words That Can Be Formed by Characters

You are given an array of strings `words` and a string `chars`.

A string is *good* if it can be formed by characters from `chars` (each character can only be used once).

Return the sum of lengths of all good strings in `words`.

Example 1:

Input: `words` = ["cat", "bt", "hat", "tree"], `chars` = "atach"
Output: 6

Explanation:

The strings that can be formed are "cat" and "hat" so the answer is 6.

Example 2:

Input: `words` = ["hello", "world", "leetcode"], `chars` = "welldonehowelldon"
Output: 10

Explanation:

The strings that can be formed are "hello" and "world" so the answer is 2.

Note:

1. $1 \leq \text{words.length} \leq 1000$
2. $1 \leq \text{words[i].length}, \text{chars.length} \leq 100$
3. All strings contain lowercase English letters only.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1160-Find-Words-That-Can-Be-Formed-by-Characters](#)

All Problems:

[Link to All Problems](#)

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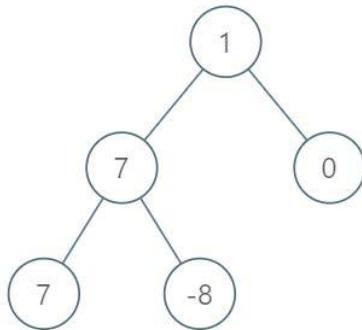
Welcome to Subscribe On Youtube:

1161. Maximum Level Sum of a Binary Tree

Given the root of a binary tree, the level of its root is 1 , the level of its children is 2 , and so on.

Return the **smallest** level X such that the sum of all the values of nodes at level X is **maximal** .

Example 1:



Input: [1,7,0,7,-8,null,null]

Output: 2

Explanation:

Level 1 sum = 1.

Level 2 sum = 7 + 0 = 7.

Level 3 sum = 7 + -8 = -1.

So we return the level with the maximum sum which is level 2.

Note:

1. The number of nodes in the given tree is between 1 and 10^4 .
2. $-10^5 \leq \text{node.val} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1161-Maximum-Level-Sum-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1162. As Far from Land as Possible

Given an $N \times N$ grid containing only values 0 and 1, where 0 represents water and 1 represents land, find a water cell such that its distance to the nearest land cell is maximized and return the distance.

The distance used in this problem is the *Manhattan distance* : the distance between two cells (x_0, y_0) and (x_1, y_1) is $|x_0 - x_1| + |y_0 - y_1|$.

If no land or water exists in the grid, return -1.

Example 1:

1	0	1
0	0	0
1	0	1

Input: [[1,0,1],[0,0,0],[1,0,1]]

Output: 2

Explanation:

The cell (1, 1) is as far as possible from all the land with dis

Example 2:

1	0	0
0	0	0
0	0	0

Input: [[1,0,0],[0,0,0],[0,0,0]]

Output: 4

Explanation:

The cell (2, 2) is as far as possible from all the land with dis

Note:

1. $1 \leq \text{grid.length} == \text{grid[0].length} \leq 100$
2. grid[i][j] is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1162-As-Far-from-Land-as-Possible](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1163. Last Substring in Lexicographical Order

Given a string s , return the last substring of s in lexicographical order.

Example 1:

Input: "abab"

Output: "bab"

Explanation: The substrings are ["a", "ab", "aba", "abab", "b",

Example 2:

Input: "leetcode"

Output: "tcode"

Note:

1. $1 \leq s.length \leq 4 * 10^5$

2. s contains only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1163-Last-Substring-in-Lexicographical-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1164. Product Price at a Given Date

Table: Products

Column Name	Type
product_id	int
new_price	int
change_date	date

(product_id, change_date) is the primary key of this table.
Each row of this table indicates that the price of some product

Write an SQL query to find the prices of all products on **2019-08-16**. Assume the price of all products before any change is **10**.

The query result format is in the following example:

Products table:

product_id	new_price	change_date
1	20	2019-08-14
2	50	2019-08-14
1	30	2019-08-15
1	35	2019-08-16
2	65	2019-08-17
3	20	2019-08-18

Result table:

product_id	price
2	50
1	35
3	10

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1164-Product-Price-at-a-Given-Date](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1165. Single-Row Keyboard

There is a special keyboard with **all keys in a single row**

Given a string `keyboard` of length 26 indicating the layout of the keyboard (indexed from 0 to 25), initially your finger is at index 0. To type a character, you have to move your finger to the index of the desired character. The time taken to move your finger from index i to index j is $|i - j|$.

You want to type a string `word`. Write a function to calculate how much time it takes to type it with one finger.

Example 1:

Input: `keyboard = "abcdefghijklmnopqrstuvwxyz"`, `word = "cba"`
Output: 4
Explanation: The index moves from 0 to 2 to write 'c' then to 1.
Total time = $2 + 1 + 1 = 4$.

Example 2:

Input: `keyboard = "pqrstuvwxyzabcdefghijklmno"`, `word = "leetcode"`
Output: 73

Constraints:

- `keyboard.length == 26`
- `keyboard` contains each English lowercase letter exactly once in some order.
- $1 \leq \text{word.length} \leq 10^4$
- `word[i]` is an English lowercase letter.

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**[1165-Single-Row-Keyboard](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1166. Design File System

You are asked to design a file system which provides two functions:

- **createPath(path, value):** Creates a new path and associates a value to it if possible and returns True . Returns False if the path already exists or its parent path doesn't exist.

- **get(path):** Returns the value associated with a path or returns -1 if the path doesn't exist.

The format of a path is one or more concatenated strings of the form: / followed by one or more lowercase English letters. For example, /leetcode and /leetcode/problems are valid paths while an empty string and / are not.

Implement the two functions.

Please refer to the examples for clarifications.

Example 1:

```
Input:
["FileSystem", "createPath", "get"]
[[], ["/a", 1], ["/a"]]
Output:
[null, true, 1]
Explanation:
FileSystem fileSystem = new FileSystem();

fileSystem.createPath("/a", 1); // return true
fileSystem.get("/a"); // return 1
```

Example 2:

```
Input:
["FileSystem", "createPath", "createPath", "get", "createPath", "get"]
[[], ["/leet", 1], ["/leet/code", 2], ["/leet/code"], ["/c/d", 1], ["/c"]
Output:
[null, true, true, 2, false, -1]
Explanation:
FileSystem fileSystem = new FileSystem();

fileSystem.createPath("/leet", 1); // return true
fileSystem.createPath("/leet/code", 2); // return true
fileSystem.get("/leet/code"); // return 2
fileSystem.createPath("/c/d", 1); // return false because the pa
fileSystem.get("/c"); // return -1 because this path doesn't exi
```

Constraints:

- The number of calls to the two functions is less than or equal to 10^4 in total.
- $2 \leq \text{path.length} \leq 100$
- $1 \leq \text{value} \leq 10^9$

NOTE: create method has been changed on August 29, 2019 to createPath. Please reset to default code definition to get new method signature.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1166-Design-File-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1167. Minimum Cost to Connect Sticks

You have some sticks with positive integer lengths.

You can connect any two sticks of lengths X and Y into one stick by paying a cost of $X + Y$. You perform this action until there is one stick remaining.

Return the minimum cost of connecting all the given sticks into one stick in this way.

Example 1:

Input: sticks = [2, 4, 3]
Output: 14

Example 2:

Input: sticks = [1, 8, 3, 5]
Output: 30

Constraints:

- $1 \leq \text{sticks.length} \leq 10^4$
- $1 \leq \text{sticks}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1167-Minimum-Cost-to-Connect-Sticks](#)

All Problems:

[Link to All Problems](#)

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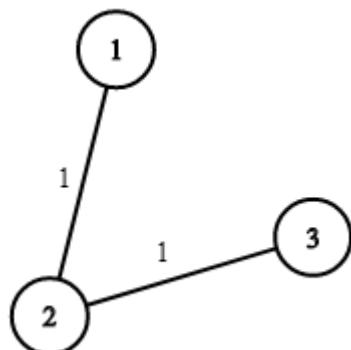
1168. Optimize Water Distribution in a Village

There are n houses in a village. We want to supply water for all the houses by building wells and laying pipes.

For each house i , we can either build a well inside it directly with cost $\text{wells}[i]$, or pipe in water from another well to it. The costs to lay pipes between houses are given by the array pipes , where each $\text{pipes}[i] = [\text{house1}, \text{house2}, \text{cost}]$ represents the cost to connect house1 and house2 together using a pipe. Connections are bidirectional.

Find the minimum total cost to supply water to all houses.

Example 1:



Input: $n = 3$, $\text{wells} = [1, 2, 2]$, $\text{pipes} = [[1, 2, 1], [2, 3, 1]]$
Output: 3

Explanation:

The image shows the costs of connecting houses using pipes.
The best strategy is to build a well in the first house with cost 1.

Constraints:

- $1 \leq n \leq 10000$
- `wells.length == n`
- $0 \leq \text{wells}[i] \leq 10^5$
- $1 \leq \text{pipes.length} \leq 10000$
- $1 \leq \text{pipes}[i][0], \text{pipes}[i][1] \leq n$
- $0 \leq \text{pipes}[i][2] \leq 10^5$
- $\text{pipes}[i][0] \neq \text{pipes}[i][1]$

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[1168-Optimize-Water-Distribution-in-a-Village](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1169. Invalid Transactions

A transaction is *possibly invalid* if:

- the amount exceeds \$1000, or;
- if it occurs within (and including) 60 minutes of another transaction with the same name in a different city.

Each transaction string `transactions[i]` consists of comma separated values representing the name, time (in minutes), amount, and city of the transaction.

Given a list of `transactions`, return a list of transactions that are possibly invalid. You may return the answer in any order.

Example 1:

```
Input: transactions = ["alice,20,800,mtv","alice,50,100,beijing"]
Output: ["alice,20,800,mtv","alice,50,100,beijing"]
Explanation: The first transaction is invalid because the second
```

Example 2:

```
Input: transactions = ["alice,20,800,mtv","alice,50,1200,mtv"]
Output: ["alice,50,1200,mtv"]
```

Example 3:

```
Input: transactions = ["alice,20,800,mtv","bob,50,1200,mtv"]
Output: ["bob,50,1200,mtv"]
```

Constraints:

- `transactions.length <= 1000`
- Each `transactions[i]` takes the form "`{name},{time},{amount},{city}`"
- Each `{name}` and `{city}` consist of lowercase English letters, and have lengths between 1 and 10.
- Each `{time}` consist of digits, and represent an integer between 0 and 1000 .
- Each `{amount}` consist of digits, and represent an integer between 0 and 2000 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1169-Invalid-Transactions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1170. Compare Strings by Frequency of the Smallest Character

Let's define a function $f(s)$ over a non-empty string s , which calculates the frequency of the smallest character

in s . For example, if $s = "dcce"$ then $f(s) = 2$ because the smallest character is "c" and its frequency is 2.

Now, given string arrays `queries` and `words`, return an integer array `answer`, where each `answer[i]` is the number of words such that $f(\text{queries}[i]) < f(W)$, where W is a word in `words`.

Example 1:

Input: `queries = ["cbd"]`, `words = ["zaaaz"]`

Output: [1]

Explanation: On the first query we have $f("cbd") = 1$, $f("zaaaz") = 2$.

Example 2:

Input: `queries = ["bbb", "cc"]`, `words = ["a", "aa", "aaa", "aaaa"]`

Output: [1,2]

Explanation: On the first query only $f("bbb") < f("aaaa")$. On the second query $f("ccc") < f("aaaa")$.

Constraints:

- $1 \leq \text{queries.length} \leq 2000$
- $1 \leq \text{words.length} \leq 2000$
- $1 \leq \text{queries}[i].length, \text{words}[i].length \leq 10$
- $\text{queries}[i][j], \text{words}[i][j]$ are English lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1170-Compare-Strings-by-Frequency-of-the-Smallest-Character](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1171. Remove Zero Sum Consecutive Nodes from Linked List

Given the head of a linked list, we repeatedly delete consecutive sequences of nodes that sum to 0 until there are no such sequences.

After doing so, return the head of the final linked list.
You may return any such answer.

(Note that in the examples below, all sequences are serializations of `ListNode` objects.)

Example 1:

Input: head = [1,2,-3,3,1]

Output: [3,1]

Note: The answer [1,2,1] would also be accepted.

Example 2:

Input: head = [1,2,3,-3,4]

Output: [1,2,4]

Example 3:

Input: head = [1,2,3,-3,-2]
Output: [1]

Constraints:

- The given linked list will contain between 1 and 1000 nodes.
- Each node in the linked list has $-1000 \leq \text{node.val} \leq 1000$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1171-Remove-Zero-Sum-Consecutive-Nodes-from-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1172. Dinner Plate Stacks

You have an infinite number of stacks arranged in a row and numbered (left to right) from 0, each of the stacks has the same maximum capacity .

Implement the DinnerPlates class:

- `DinnerPlates(int capacity)` Initializes the object with the maximum capacity of the stacks.
- `void push(int val)` pushes the given positive integer `val` into the leftmost stack with size less than `capacity` .
- `int pop()` returns the value at the top of the rightmost non-empty stack and removes it from that stack, and returns -1 if all stacks are empty.
- `int popAtStack(int index)` returns the value at the top of the stack with the given `index` and removes it from that stack, and returns -1 if the stack with that given `index` is empty.

Example:

Input:

```
["DinnerPlates","push","push","push","push","push","popAtStack",
[[2],[1],[2],[3],[4],[5],[0],[20],[21],[0],[2],[],[],[],[],[],[]]]
```

Output:

```
[null,null,null,null,null,null,2,null,null,20,21,5,4,3,1,-1]
```

Explanation:

```
DinnerPlates D = DinnerPlates(2); // Initialize with capacity = 2
D.push(1);
D.push(2);
D.push(3);
D.push(4);
D.push(5); // The stacks are now: 2 4
           1 3 5
           ⌂  ⌂  ⌂
D.popAtStack(0); // Returns 2. The stacks are now: 4
                  1 3 5
                  ⌂  ⌂  ⌂
D.push(20); // The stacks are now: 20 4
             1 3 5
             ⌂  ⌂  ⌂
D.push(21); // The stacks are now: 20 4 21
```

```

1   3   5
⠄⠄⠄
D.popAtStack(0); // Returns 20. The stacks are now: 4 21
1   3   5
⠄⠄⠄

D.popAtStack(2); // Returns 21. The stacks are now: 4
1   3   5
⠄⠄⠄

D.pop(); // Returns 5. The stacks are now: 4
1   3
⠄⠄⠄

D.pop(); // Returns 4. The stacks are now: 1 3
1   3
⠄⠄⠄

D.pop(); // Returns 3. The stacks are now: 1
1
⠄⠄⠄

D.pop(); // Returns 1. There are no stacks.
D.pop(); // Returns -1. There are still no stacks.

```

Constraints:

- $1 \leq \text{capacity} \leq 20000$
- $1 \leq \text{val} \leq 20000$
- $0 \leq \text{index} \leq 100000$
- At most 200000 calls will be made to push , pop , and popAtStack .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1172-Dinner-Plate-Stacks](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1173. Immediate Food Delivery I

Table: Delivery

Column Name	Type
delivery_id	int
customer_id	int
order_date	date
customer_pref_delivery_date	date

delivery_id is the primary key of this table.

The table holds information about food delivery to customers that

If the preferred delivery date of the customer is the same as the order date then the order is called *immediate* otherwise it's called *scheduled*.

Write an SQL query to find the percentage of immediate orders in the table, **rounded to 2 decimal places**.

The query result format is in the following example:

Delivery table:

delivery_id	customer_id	order_date	customer_pref_delivery_date
1	1	2019-08-01	2019-08-02
2	5	2019-08-02	2019-08-02
3	1	2019-08-11	2019-08-11
4	3	2019-08-24	2019-08-26

5	4	2019-08-21	2019-08-22
6	2	2019-08-11	2019-08-13

Result table:

immediate_percentage
33.33

The orders with delivery id 2 and 3 are immediate while the other ones are delayed.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1173-Immediate-Food-Delivery-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1174. Immediate Food Delivery II

Table: Delivery

Column Name	Type
delivery_id	int
customer_id	int
order_date	date
customer_pref_delivery_date	date

delivery_id is the primary key of this table.

The table holds information about food delivery to customers that

If the preferred delivery date of the customer is the same as the order date then the order is called *immediate* otherwise it's called *scheduled*.

The *first order* of a customer is the order with the earliest order date that customer made. It is guaranteed that a customer has exactly one first order.

Write an SQL query to find the percentage of immediate orders in the first orders of all customers, **rounded to 2 decimal places**.

The query result format is in the following example:

Delivery table:

delivery_id	customer_id	order_date	customer_pref_delivery_date
1	1	2019-08-01	2019-08-02
2	2	2019-08-02	2019-08-02
3	1	2019-08-11	2019-08-12
4	3	2019-08-24	2019-08-24
5	3	2019-08-21	2019-08-22
6	2	2019-08-11	2019-08-13
7	4	2019-08-09	2019-08-09

Result table:

immediate_percentage
50.00

The customer id 1 has a first order with delivery id 1 and it is
The customer id 2 has a first order with delivery id 2 and it is
The customer id 3 has a first order with delivery id 5 and it is
The customer id 4 has a first order with delivery id 7 and it is
Hence, half the customers have immediate first orders.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1174-Immediate-Food-Delivery-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1175. Prime Arrangements

Return the number of permutations of 1 to n so that prime numbers are at prime indices (1-indexed.)

(Recall that an integer is prime if and only if it is greater than 1, and cannot be written as a product of two positive integers both smaller than it.)

Since the answer may be large, return the answer **modulo** $10^9 + 7$.

Example 1:

Input: n = 5

Output: 12

Explanation: For example [1,2,5,4,3] is a valid permutation, but

Example 2:

Input: n = 100

Output: 682289015

Constraints:

- $1 \leq n \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1175-Prime-Arrangements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1176. Diet Plan Performance

A dieter consumes `calories[i]` calories on the i -th day.

Given an integer k , for **every** consecutive sequence of k days (`calories[i], calories[i+1], ..., calories[i+k-1]` for all $0 \leq i \leq n-k$), they look at T , the total calories consumed during that sequence of k days (`calories[i] + calories[i+1] + ... + calories[i+k-1]`):

- If $T < lower$, they performed poorly on their diet and lose 1 point;
- If $T > upper$, they performed well on their diet and gain 1 point;
- Otherwise, they performed normally and there is no change in points.

Initially, the dieter has zero points. Return the total number of points the dieter has after dieting for `calories.length` days.

Note that the total points can be negative.

Example 1:

Input: calories = [1,2,3,4,5], k = 1, lower = 3, upper = 3
Output: 0
Explanation: Since k = 1, we consider each element of the array calories[0] and calories[1] are less than lower so 2 points are gained. calories[3] and calories[4] are greater than upper so 2 points are lost.

Example 2:

Input: calories = [3,2], k = 2, lower = 0, upper = 1
Output: 1
Explanation: Since k = 2, we consider subarrays of length 2. calories[0] + calories[1] > upper so 1 point is gained.

Example 3:

Input: calories = [6,5,0,0], k = 2, lower = 1, upper = 5
Output: 0
Explanation:
calories[0] + calories[1] > upper so 1 point is gained.
lower <= calories[1] + calories[2] <= upper so no change in points.
calories[2] + calories[3] < lower so 1 point is lost.

Constraints:

- $1 \leq k \leq \text{calories.length} \leq 10^5$
- $0 \leq \text{calories}[i] \leq 20000$
- $0 \leq \text{lower} \leq \text{upper}$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1176-Diet-Plan-Performance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1177. Can Make Palindrome from Substring

Given a string s , we make queries on substrings of s .

For each query $\text{queries}[i] = [\text{left}, \text{right}, k]$, we may **rearrange** the substring $s[\text{left}], \dots, s[\text{right}]$, and then choose **up to k** of them to replace with any lowercase English letter.

If the substring is possible to be a palindrome string after the operations above, the result of the query is **true** . Otherwise, the result is **false** .

Return an array $\text{answer}[]$, where $\text{answer}[i]$ is the result of the i -th query $\text{queries}[i]$.

Note that: Each letter is counted **individually** for replacement so if for example $s[\text{left}..\text{right}] = "aaa"$, and $k = 2$, we can only replace two of the letters. (Also, note that the initial string s is never modified by any query.)

Example :

Input: s = "abcda", queries = [[3,3,0],[1,2,0],[0,3,1],[0,3,2],[0,3,3]]
Output: [true, false, false, true, true]
Explanation:
queries[0] : substring = "d", is palindrome.
queries[1] : substring = "bc", is not palindrome.
queries[2] : substring = "abcd", is not palindrome after replacing 'a' with 'c'.
queries[3] : substring = "bcd", could be changed to "abba" which is a palindrome.
queries[4] : substring = "abca", could be changed to "abcba" which is a palindrome.

Constraints:

- $1 \leq s.length, queries.length \leq 10^5$
- $0 \leq queries[i][0] \leq queries[i][1] < s.length$
- $0 \leq queries[i][2] \leq s.length$
- s only contains lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1177-Can-Make-Palindrome-from-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1178. Number of Valid Words for Each Puzzle

With respect to a given puzzle string, a word is *valid* if both the following conditions are satisfied:

- word contains the first letter of puzzle .
- For each letter in word , that letter is in puzzle .
For example, if the puzzle is "abcdefg", then valid words are "faced", "cabbage", and "baggage"; while invalid words are "beefed" (doesn't include "a") and "based" (includes "s" which isn't in the puzzle).

Return an array answer , where answer [i] is the number of words in the given word list words that are valid with respect to the puzzle puzzles [i] .

Example :

Input:

```
words = ["aaaa", "asas", "able", "ability", "actt", "actor", "access"]
puzzles = ["aboveyz", "abrodyz", "bsolute", "absoryz", "actresz", "ga
```

Output: [1,1,3,2,4,0]

Explanation:

```
1 valid word for "aboveyz" : "aaaa"
1 valid word for "abrodyz" : "aaaa"
3 valid words for "bsolute" : "aaaa", "asas", "able"
2 valid words for "absoryz" : "aaaa", "asas"
4 valid words for "actresz" : "aaaa", "asas", "actt", "access"
There're no valid words for "gaswxyz" cause none of the words in
```

Constraints:

- $1 \leq \text{words.length} \leq 10^5$
- $4 \leq \text{words[i].length} \leq 50$
- $1 \leq \text{puzzles.length} \leq 10^4$
- $\text{puzzles[i].length} == 7$
- words [i] [j] , puzzles [i] [j] are English lowercase letters.

- Each `puzzles[i]` doesn't contain repeated characters.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1178-Number-of-Valid-Words-for-Each-Puzzle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1179. Reformat Department Table

Table: Department

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| id          | int    |
| revenue     | int    |
| month       | varchar |
+-----+-----+
```

(id, month) is the primary key of this table.

The table has information about the revenue of each department per month.
The month has values in ["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul"]

Write an SQL query to reformat the table such that there is a department id column and a revenue column **for each month**.

The query result format is in the following example:

Department table:

```
+-----+-----+-----+
| id   | revenue | month |
+-----+-----+-----+
| 1    | 8000   | Jan   |
| 2    | 9000   | Jan   |
| 3    | 10000  | Feb   |
| 1    | 7000   | Feb   |
| 1    | 6000   | Mar   |
+-----+-----+-----+
```

Result table:

```
+-----+-----+-----+-----+-----+-----+-----+
| id   | Jan_Revenue | Feb_Revenue | Mar_Revenue | ... | Dec_Revenue |
+-----+-----+-----+-----+-----+-----+-----+
| 1    | 8000        | 7000        | 6000        | ... | null      |
| 2    | 9000        | null        | null        | ... | null      |
| 3    | null         | 10000       | null        | ... | null      |
+-----+-----+-----+-----+-----+-----+-----+
```

Note that the result table has 13 columns (1 for the department

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1179-Reformat-Department-Table](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1180. Count Substrings with Only One Distinct Letter

Given a string S , return the number of substrings that have only **one distinct** letter.

Example 1:

Input: S = "aaaba"

Output: 8

Explanation: The substrings with one distinct letter are "aaa", "aaa" occurs 1 time.

"aa" occurs 2 times.

"a" occurs 4 times.

"b" occurs 1 time.

So the answer is $1 + 2 + 4 + 1 = 8$.

Example 2:

Input: S = "aaaaaaaaaa"
Output: 55

Constraints:

- $1 \leq S.length \leq 1000$
- $S[i]$ consists of only lowercase English letters.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1180-Count-Substrings-with-Only-One-Distinct-Letter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1181. Before and After Puzzle

Given a list of phrases , generate a list of Before and After puzzles.

A *phrase* is a string that consists of lowercase English letters and spaces only. No space appears in the start or the end of a phrase. There are no consecutive spaces in a phrase.

Before and After puzzles are phrases that are formed by merging two phrases where the **last word of the first phrase** is the same as the **first word of the second phrase** .

Return the Before and After puzzles that can be formed by every two phrases `phrases[i]` and `phrases[j]` where `i != j` . Note that the order of matching two phrases matters, we want to consider both orders.

You should return a list of **distinct** strings **sorted lexicographically** .

Example 1:

```
Input: phrases = ["writing code", "code rocks"]
Output: ["writing code rocks"]
```

Example 2:

```
Input: phrases = ["mission statement",
                 "a quick bite to eat",
                 "a chip off the old block",
                 "chocolate bar",
                 "mission impossible",
                 "a man on a mission",
                 "block party",
                 "eat my words",
                 "bar of soap"]
Output: ["a chip off the old block party",
        "a man on a mission impossible",
        "a man on a mission statement",
        "a quick bite to eat my words",
        "chocolate bar of soap"]
```

Example 3:

Input: phrases = ["a", "b", "a"]
Output: ["a"]

Constraints:

- $1 \leq \text{phrases.length} \leq 100$
- $1 \leq \text{phrases[i].length} \leq 100$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1181-Before-and-After-Puzzle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1182. Shortest Distance to Target Color

You are given an array `colors` , in which there are three colors: 1 , 2 and 3 .

You are also given some queries. Each query consists of two integers `i` and `c` , return the shortest distance between the given index `i` and the target color `c` . If there is no solution return -1 .

Example 1:

Input: `colors = [1,1,2,1,3,2,2,3,3]` , `queries = [[1,3],[2,2],[6,1]]`
Output: `[3,0,3]`

Explanation:

The nearest 3 from index 1 is at index 4 (3 steps away).
The nearest 2 from index 2 is at index 2 itself (0 steps away).
The nearest 1 from index 6 is at index 3 (3 steps away).

Example 2:

Input: `colors = [1,2]` , `queries = [[0,3]]`
Output: `[-1]`

Explanation: There is no 3 in the array.

Constraints:

- `1 <= colors.length <= 5*10^4`
- `1 <= colors[i] <= 3`
- `1 <= queries.length <= 5*10^4`
- `queries[i].length == 2`
- `0 <= queries[i][0] < colors.length`
- `1 <= queries[i][1] <= 3`

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1182-Shortest-Distance-to-Target-Color](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1183. Maximum Number of Ones

Consider a matrix M with dimensions `width * height`, such that every cell has value `0` or `1`, and any **square** sub-matrix of M of size `sideLength * sideLength` has at most `maxOnes` ones.

Return the maximum possible number of ones that the matrix M can have.

Example 1:

Input: `width = 3, height = 3, sideLength = 2, maxOnes = 1`
Output: `4`

Explanation:

In a 3×3 matrix, no 2×2 sub-matrix can have more than 1 one.
The best solution that has 4 ones is:

```
[1,0,1]  
[0,0,0]  
[1,0,1]
```

Example 2:

Input: width = 3, height = 3, sideLength = 2, maxOnes = 2

Output: 6

Explanation:

[1,0,1]

[1,0,1]

[1,0,1]

Constraints:

- $1 \leq \text{width}, \text{height} \leq 100$
- $1 \leq \text{sideLength} \leq \text{width}, \text{height}$
- $0 \leq \text{maxOnes} \leq \text{sideLength} * \text{sideLength}$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1183-Maximum-Number-of-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

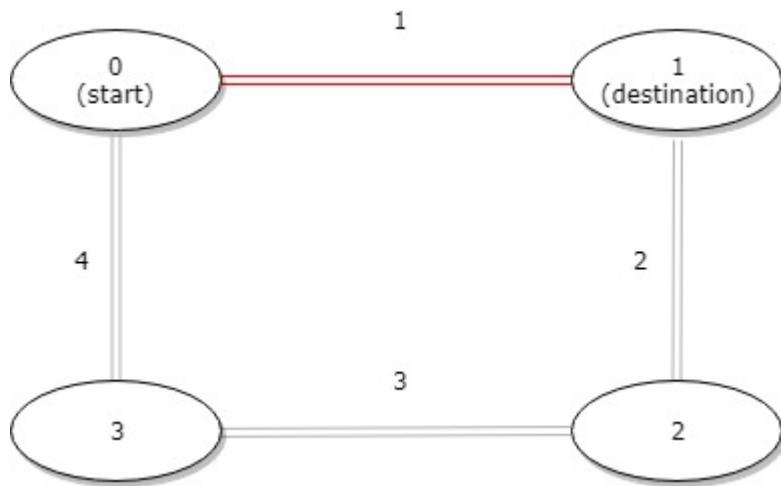
1184. Distance Between Bus Stops

A bus has n stops numbered from 0 to $n - 1$ that form a circle. We know the distance between all pairs of neighboring stops where $\text{distance}[i]$ is the distance between the stops number i and $(i + 1) \% n$.

The bus goes along both directions i.e. clockwise and counterclockwise.

Return the shortest distance between the given `start` and `destination` stops.

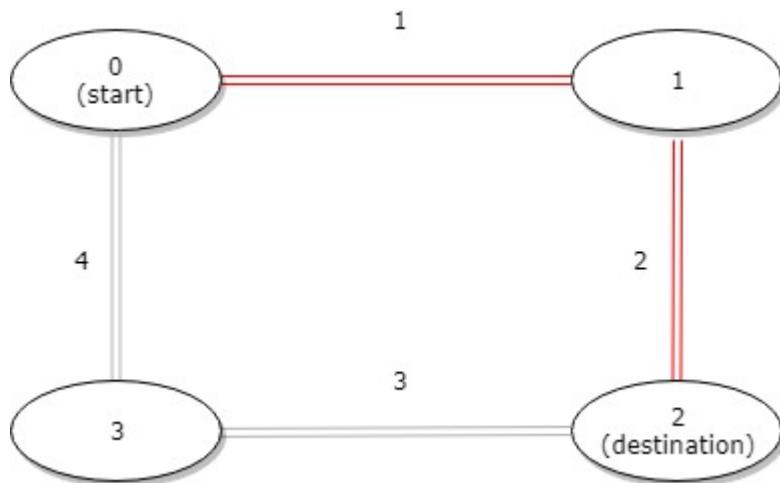
Example 1:



Input: `distance = [1, 2, 3, 4]`, `start = 0`, `destination = 1`
Output: 1

Explanation: Distance between 0 and 1 is 1 or 9, minimum is 1.

Example 2:

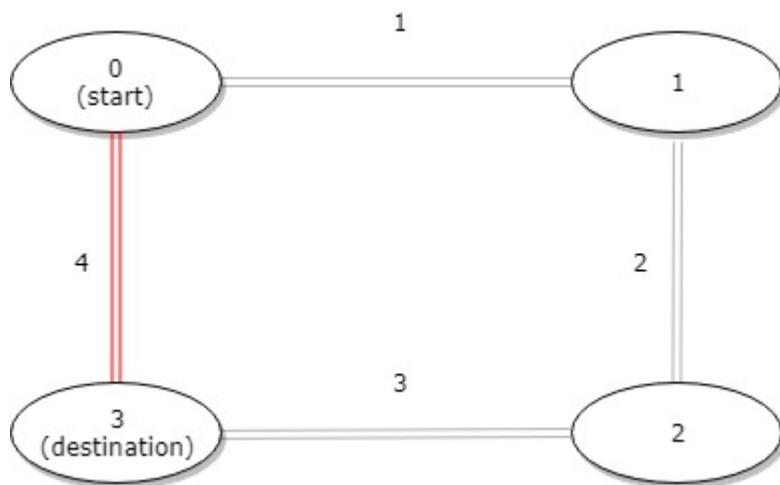


Input: distance = [1,2,3,4], start = 0, destination = 2

Output: 3

Explanation: Distance between 0 and 2 is 3 or 7, minimum is 3.

Example 3:



Input: distance = [1,2,3,4], start = 0, destination = 3

Output: 4

Explanation: Distance between 0 and 3 is 6 or 4, minimum is 4.

Constraints:

- $1 \leq n \leq 10^4$
- $\text{distance.length} == n$
- $0 \leq \text{start}, \text{destination} < n$
- $0 \leq \text{distance}[i] \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1184-Distance-Between-Bus-Stops](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1185. Day of the Week

Given a date, return the corresponding day of the week for that date.

The input is given as three integers representing the day, month and year respectively.

Return the answer as one of the following values
{ "Sunday" , "Monday" , "Tuesday" , "Wednesday" ,
"Thursday" , "Friday" , "Saturday" } .

Example 1:

Input: day = 31, month = 8, year = 2019
Output: "Saturday"

Example 2:

Input: day = 18, month = 7, year = 1999
Output: "Sunday"

Example 3:

Input: day = 15, month = 8, year = 1993
Output: "Sunday"

Constraints:

- The given dates are valid dates between the years 1971 and 2100 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1185-Day-of-the-Week](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1186. Maximum Subarray Sum with One Deletion

Given an array of integers, return the maximum sum for a **non-empty** subarray (contiguous elements) with at most one element deletion. In other words, you want to choose a subarray and optionally delete one element from it so that there is still at least one element left and the sum of the remaining elements is maximum possible.

Note that the subarray needs to be **non-empty** after deleting one element.

Example 1:

Input: arr = [1, -2, 0, 3]

Output: 4

Explanation: Because we can choose [1, -2, 0, 3] and drop -2, the

Example 2:

Input: arr = [1, -2, -2, 3]

Output: 3

Explanation: We just choose [3] and it's the maximum sum.

Example 3:

Input: arr = [-1, -1, -1, -1]

Output: -1

Explanation: The final subarray needs to be non-empty. You can't

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $-10^4 \leq \text{arr[i]} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1186-Maximum-Subarray-Sum-with-One-Deletion](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1187. Make Array Strictly Increasing

Given two integer arrays `arr1` and `arr2` , return the minimum number of operations (possibly zero) needed to make `arr1` strictly increasing.

In one operation, you can choose two indices $0 \leq i < \text{arr1.length}$ and $0 \leq j < \text{arr2.length}$ and do the assignment `arr1[i] = arr2[j]` .

If there is no way to make arr1 strictly increasing, return -1 .

Example 1:

Input: arr1 = [1,5,3,6,7], arr2 = [1,3,2,4]

Output: 1

Explanation: Replace 5 with 2, then arr1 = [1, 2, 3, 6, 7].

Example 2:

Input: arr1 = [1,5,3,6,7], arr2 = [4,3,1]

Output: 2

Explanation: Replace 5 with 3 and then replace 3 with 4. arr1 =

Example 3:

Input: arr1 = [1,5,3,6,7], arr2 = [1,6,3,3]

Output: -1

Explanation: You can't make arr1 strictly increasing.

Constraints:

- $1 \leq \text{arr1.length}, \text{arr2.length} \leq 2000$
- $0 \leq \text{arr1[i]}, \text{arr2[i]} \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1187-Make-Array-Strictly-Increasing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1188. Design Bounded Blocking Queue

Implement a thread safe bounded blocking queue that has the following methods:

- `BoundedBlockingQueue(int capacity)` The constructor initializes the queue with a maximum capacity .
- `void enqueue(int element)` Adds an element to the front of the queue. If the queue is full, the calling thread is blocked until the queue is no longer full.
- `int dequeue()` Returns the element at the rear of the queue and removes it. If the queue is empty, the calling thread is blocked until the queue is no longer empty.
- `int size()` Returns the number of elements currently in the queue.

Your implementation will be tested using multiple threads at the same time. Each thread will either be a producer thread that only makes calls to the `enqueue` method or a consumer thread that only makes calls to the `dequeue` method. The `size` method will be called after every test case.

Please do not use built-in implementations of bounded blocking queue as this will not be accepted in an interview.

Example 1:

Input:

1

1

["BoundedBlockingQueue", "enqueue", "dequeue", "dequeue", "enqueue",
[[2], [1], [], [], [0], [2], [3], [4], []]]

Output:

[1, 0, 2, 2]

Explanation:

Number of producer threads = 1

Number of consumer threads = 1

```
BoundedBlockingQueue queue = new BoundedBlockingQueue(2); // i  
  
queue.enqueue(1); // The producer thread enqueues 1 to the queue.  
queue.dequeue(); // The consumer thread calls dequeue and returns 1.  
queue.dequeue(); // Since the queue is empty, the consumer thread is blocked.  
queue.enqueue(0); // The producer thread enqueues 0 to the queue.  
queue.enqueue(2); // The producer thread enqueues 2 to the queue.  
queue.enqueue(3); // The producer thread enqueues 3 to the queue.  
queue.enqueue(4); // The producer thread is blocked because the queue is full.  
queue.dequeue(); // The consumer thread returns 2 from the queue.  
queue.size(); // 2 elements remaining in the queue. size()
```

Example 2:

Input:

3

4

["BoundedBlockingQueue", "enqueue", "enqueue", "enqueue", "enqueue", "dequeue",
[[3], [1], [0], [2], [], [], [], [3]]]

Output:

[1, 0, 2, 1]

Explanation:

Number of producer threads = 3

Number of consumer threads = 4

```
BoundedBlockingQueue queue = new BoundedBlockingQueue(3); // i  
  
queue.enqueue(1); // Producer thread P1 enqueues 1 to the queue.  
queue.enqueue(0); // Producer thread P2 enqueues 0 to the queue.  
queue.enqueue(2); // Producer thread P3 enqueues 2 to the queue.  
queue.dequeue(); // Consumer thread C1 calls dequeue.  
queue.dequeue(); // Consumer thread C2 calls dequeue.  
queue.dequeue(); // Consumer thread C3 calls dequeue.  
queue.enqueue(3); // One of the producer threads enqueues 3 to the queue.  
queue.size(); // 1 element remaining in the queue.
```

Since the number of threads for producer/consumer is greater than

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1188-Design-Bounded-Blocking-Queue](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1189. Maximum Number of Balloons

Given a string `text` , you want to use the characters of `text` to form as many instances of the word "**balloon**" as possible.

You can use each character in `text` **at most once** .
Return the maximum number of instances that can be formed.

Example 1:

nlaebolko

Input: `text` = "nlaebolko"
Output: 1

Example 2:

loonbalx**ballpoon**

Input: `text` = "loonbalxballpoon"
Output: 2

Example 3:

Input: `text` = "leetcode"
Output: 0

Constraints:

- $1 \leq \text{text.length} \leq 10^4$
- `text` consists of lower case English letters only.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**1189-Maximum-Number-of-Balloons**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1190. Reverse Substrings Between Each Pair of Parentheses

You are given a string s that consists of lower case English letters and brackets.

Reverse the strings in each pair of matching parentheses, starting from the innermost one.

Your result should **not** contain any brackets.

Example 1:

Input: $s = "(abcd)"$
Output: "dcba"

Example 2:

Input: s = "(u(love)i)"

Output: "iloveu"

Explanation: The substring "love" is reversed first, then the whole string is reversed.

Example 3:

Input: s = "(ed(et(oc))el)"

Output: "leetcode"

Explanation: First, we reverse the substring "oc", then "etco", then the whole string.

Example 4:

Input: s = "a(bcdefghijkl(mno)p)q"

Output: "apmnolkjihgfedcbq"

Constraints:

- $0 \leq s.length \leq 2000$
- s only contains lower case English characters and parentheses.
- It's guaranteed that all parentheses are balanced.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1190-Reverse-Substrings-Between-Each-Pair-of-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1191. K-Concatenation Maximum Sum

Given an integer array `arr` and an integer `k` , modify the array by repeating it `k` times.

For example, if `arr = [1, 2]` and `k = 3` then the modified array will be `[1, 2, 1, 2, 1, 2]` .

Return the maximum sub-array sum in the modified array. Note that the length of the sub-array can be `0` and its sum in that case is `0` .

As the answer can be very large, return the answer **modulo $10^9 + 7$** .

Example 1:

Input: `arr = [1, 2]` , `k = 3`
Output: 9

Example 2:

Input: `arr = [1, -2, 1]` , `k = 5`
Output: 2

Example 3:

Input: `arr = [-1, -2]` , `k = 7`
Output: 0

Constraints:

- `1 <= arr.length <= 10^5`

- $1 \leq k \leq 10^5$
- $-10^4 \leq arr[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1191-K-Concatenation-Maximum-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1192. Critical Connections in a Network

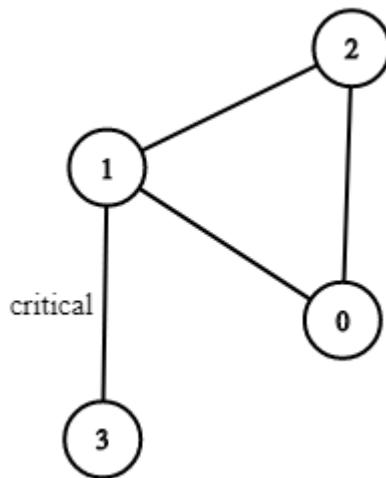
There are n servers numbered from 0 to $n-1$ connected by undirected server-to-server connections forming a

network where `connections[i] = [a, b]` represents a connection between servers a and b. Any server can reach any other server directly or indirectly through the network.

A *critical connection* is a connection that, if removed, will make some server unable to reach some other server.

Return all critical connections in the network in any order.

Example 1:



Input: `n = 4, connections = [[0,1],[1,2],[2,0],[1,3]]`

Output: `[[1,3]]`

Explanation: `[[3,1]]` is also accepted.

Constraints:

- $1 \leq n \leq 10^5$
- $n-1 \leq \text{connections.length} \leq 10^5$
- $\text{connections}[i][0] \neq \text{connections}[i][1]$
- There are no repeated connections.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1192-Critical-Connections-in-a-Network](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1193. Monthly Transactions I

Table: Transactions

Column Name	Type
id	int
country	varchar
state	enum
amount	int
trans_date	date

id is the primary key of this table.

The table has information about incoming transactions.

The state column is an enum of type ["approved", "declined"].

Write an SQL query to find for each month and country, the number of transactions and their total amount, the number of approved transactions and their total amount.

The query result format is in the following example:

Transactions table:

id	country	state	amount	trans_date
121	US	approved	1000	2018-12-18
122	US	declined	2000	2018-12-19
123	US	approved	2000	2019-01-01
124	DE	approved	2000	2019-01-07

Result table:

month	country	trans_count	approved_count	trans_total
2018-12	US	2	1	3000
2019-01	US	1	1	2000
2019-01	DE	1	1	2000

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1193-Monthly-Transactions-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1194. Tournament Winners

Table: Players

Column Name	Type
player_id	int
group_id	int

player_id is the primary key of this table.

Each row of this table indicates the group of each player.

Table: Matches

Column Name	Type
match_id	int
first_player	int
second_player	int
first_score	int
second_score	int

match_id is the primary key of this table.

Each row is a record of a match, first_player and second_player

first_score and second_score contain the number of points of the

You may assume that, in each match, players belongs to the same

The winner in each group is the player who scored the maximum total points within the group. In the case of a tie, the **lowest** player_id wins.

Write an SQL query to find the winner in each group.

The query result format is in the following example:

Players table:

player_id	group_id
15	1
25	1
30	1
45	1
10	2
35	2
50	2
20	3
40	3

Matches table:

match_id	first_player	second_player	first_score	second_score
1	15	45	3	0
2	30	25	1	2
3	30	15	2	0
4	40	20	5	2
5	35	50	1	1

Result table:

group_id	player_id
1	15
2	35
3	40

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1194-Tournament-Winners](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1195. Fizz Buzz Multithreaded

Write a program that outputs the string representation of numbers from 1 to n , however:

- If the number is divisible by 3, output "fizz".
- If the number is divisible by 5, output "buzz".
- If the number is divisible by both 3 and 5, output "fizzbuzz".

For example, for $n = 15$, we output: 1, 2, fizz, 4, buzz, fizz, 7, 8, fizz, buzz, 11, fizz, 13, 14, fizzbuzz .

Suppose you are given the following code:

```
class FizzBuzz {  
    public FizzBuzz(int n) { ... } // constructor  
    public void fizz(printFizz) { ... } // only output "fizz"  
    public void buzz(printBuzz) { ... } // only output "buzz"  
    public void fizzbuzz(printFizzBuzz) { ... } // only output "fizzbuzz"  
    public void number(printNumber) { ... } // only output the number  
}
```

Implement a multithreaded version of FizzBuzz with **four** threads. The same instance of FizzBuzz will be passed to four different threads:

1. Thread A will call `fizz()` to check for divisibility of 3 and outputs `fizz` .
2. Thread B will call `buzz()` to check for divisibility of 5 and outputs `buzz` .
3. Thread C will call `fizzbuzz()` to check for divisibility of 3 and 5 and outputs `fizzbuzz` .
4. Thread D will call `number()` which should only output the numbers.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1195-Fizz-Buzz-Multithreaded](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1196. How Many Apples Can You Put into the Basket

You have some apples, where `arr[i]` is the weight of the i -th apple. You also have a basket that can carry up to 5000 units of weight.

Return the maximum number of apples you can put in the basket.

Example 1:

Input: `arr = [100, 200, 150, 1000]`

Output: 4

Explanation: All 4 apples can be carried by the basket since the

Example 2:

Input: `arr = [900, 950, 800, 1000, 700, 800]`

Output: 5

Explanation: The sum of weights of the 6 apples exceeds 5000 so

Constraints:

- $1 \leq \text{arr.length} \leq 10^3$
- $1 \leq \text{arr}[i] \leq 10^3$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1196-How-Many-Apples-Can-You-Put-into-the-Basket](#)

All Problems:

[Link to All Problems](#)

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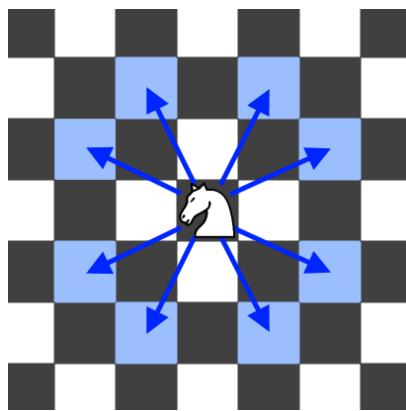
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Welcome to Subscribe On Youtube:

1197. Minimum Knight Moves

In an **infinite** chess board with coordinates from **-infinity** to **+infinity** , you have a **knight** at square **[0, 0]** .

A knight has 8 possible moves it can make, as illustrated below. Each move is two squares in a cardinal direction, then one square in an orthogonal direction.



Return the minimum number of steps needed to move the knight to the square $[x, y]$. It is guaranteed the answer exists.

Example 1:

Input: $x = 2$, $y = 1$

Output: 1

Explanation: $[0, 0] \rightarrow [2, 1]$

Example 2:

Input: $x = 5$, $y = 5$

Output: 4

Explanation: $[0, 0] \rightarrow [2, 1] \rightarrow [4, 2] \rightarrow [3, 4] \rightarrow [5, 5]$

Constraints:

- $|x| + |y| \leq 300$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1197-Minimum-Knight-Moves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1198. Find Smallest Common Element in All Rows

Given a matrix `mat` where every row is sorted in **increasing** order, return the **smallest common element** in all rows.

If there is no common element, return `-1`.

Example 1:

Input: `mat = [[1,2,3,4,5],[2,4,5,8,10],[3,5,7,9,11],[1,3,5,7,9]]`
Output: 5

Constraints:

- `1 <= mat.length, mat[i].length <= 500`
- `1 <= mat[i][j] <= 10^4`
- `mat[i]` is sorted in increasing order.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1198-Find-Smallest-Common-Element-in-All-Rows](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1199. Minimum Time to Build Blocks

You are given a list of blocks, where `blocks[i] = t` means that the `i`-th block needs `t` units of time to be built. A block can only be built by exactly one worker.

A worker can either split into two workers (number of workers increases by one) or build a block then go home. Both decisions cost some time.

The time cost of splitting one worker into two workers is given as an integer `split` . Note that if two workers split at the same time, they split in parallel so the cost would be `split` .

Output the minimum time needed to build all blocks.

Initially, there is only **one** worker.

Example 1:

Input: `blocks = [1]`, `split = 1`

Output: 1

Explanation: We use 1 worker to build 1 block in 1 time unit.

Example 2:

Input: `blocks = [1,2]`, `split = 5`

Output: 7

Explanation: We split the worker into 2 workers in 5 time units

Example 3:

Input: `blocks = [1,2,3]`, `split = 1`

Output: 4

Explanation: Split 1 worker into 2, then assign the first worker. Then, use the two unassigned workers to build the first two blocks. The cost is $1 + \max(3, 1 + \max(1, 2)) = 4$.

Constraints:

- $1 \leq \text{blocks.length} \leq 1000$
- $1 \leq \text{blocks}[i] \leq 10^5$
- $1 \leq \text{split} \leq 100$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1199-Minimum-Time-to-Build-Blocks](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1200. Minimum Absolute Difference

Given an array of **distinct** integers arr , find all pairs of elements with the minimum absolute difference of any two elements.

Return a list of pairs in ascending order(with respect to pairs), each pair [a, b] follows

- a, b are from arr
- a < b
- b - a equals to the minimum absolute difference of any two elements in arr

Example 1:

Input: arr = [4,2,1,3]

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

Explanation: The minimum absolute difference is 1. List all pairs

Example 2:

Input: arr = [1,3,6,10,15]
Output: [[1,3]]

Example 3:

Input: arr = [3,8,-10,23,19,-4,-14,27]
Output: [[-14,-10],[19,23],[23,27]]

Constraints:

- $2 \leq \text{arr.length} \leq 10^5$
- $-10^6 \leq \text{arr}[i] \leq 10^6$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1200-Minimum-Absolute-Difference](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1201. Ugly Number III

Write a program to find the n -th ugly number.

Ugly numbers are **positive integers** which are divisible by a **or** b **or** c .

Example 1:

Input: $n = 3$, $a = 2$, $b = 3$, $c = 5$

Output: 4

Explanation: The ugly numbers are 2, 3, 4, 5, 6, 8, 9, 10... The

Example 2:

Input: $n = 4$, $a = 2$, $b = 3$, $c = 4$

Output: 6

Explanation: The ugly numbers are 2, 3, 4, 6, 8, 9, 10, 12... The

Example 3:

Input: $n = 5$, $a = 2$, $b = 11$, $c = 13$

Output: 10

Explanation: The ugly numbers are 2, 4, 6, 8, 10, 11, 12, 13... The

Example 4:

Input: $n = 1000000000$, $a = 2$, $b = 217983653$, $c = 336916467$

Output: 1999999984

Constraints:

- $1 \leq n, a, b, c \leq 10^9$
- $1 \leq a * b * c \leq 10^{18}$
- It's guaranteed that the result will be in range
[1, $2 * 10^9$]

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1201-Ugly-Number-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1202. Smallest String With Swaps

You are given a string `s` , and an array of pairs of indices in the string `pairs` where `pairs[i] = [a, b]` indicates 2 indices(0-indexed) of the string.

You can swap the characters at any pair of indices in the given `pairs` **any number of times** .

Return the lexicographically smallest string that `s` can be changed to after using the swaps.

Example 1:

Input: `s = "dcab"`, `pairs = [[0,3],[1,2]]`
Output: `"bacd"`

Explanation:

Swap s[0] and s[3], s = "bcad"
Swap s[1] and s[2], s = "bacd"

Example 2:

Input: s = "dcab", pairs = [[0,3],[1,2],[0,2]]
Output: "abcd"

Explanation:

Swap s[0] and s[3], s = "bcad"
Swap s[0] and s[2], s = "acbd"
Swap s[1] and s[2], s = "abcd"

Example 3:

Input: s = "cba", pairs = [[0,1],[1,2]]
Output: "abc"

Explanation:

Swap s[0] and s[1], s = "bca"
Swap s[1] and s[2], s = "bac"
Swap s[0] and s[1], s = "abc"

Constraints:

- $1 \leq s.length \leq 10^5$
- $0 \leq pairs.length \leq 10^5$
- $0 \leq pairs[i][0], pairs[i][1] < s.length$
- s only contains lower case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1202-Smallest-String-With-Swaps](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1203. Sort Items by Groups Respecting Dependencies

There are n items each belonging to zero or one of m groups where $\text{group}[i]$ is the group that the i -th item belongs to and it's equal to -1 if the i -th item belongs to no group. The items and the groups are zero indexed. A group can have no item belonging to it.

Return a sorted list of the items such that:

- The items that belong to the same group are next to each other in the sorted list.
- There are some relations between these items where $\text{beforeItems}[i]$ is a list containing all the items that should come before the i -th item in the sorted array (to the left of the i -th item).

Return any solution if there is more than one solution and return an **empty list** if there is no solution.

Example 1:

Item	Group	Before
0	-1	
1	-1	6
2	1	5
3	0	6
4	0	3, 6
5	1	
6	0	
7	-1	

Input: n = 8, m = 2, group = [-1,-1,1,0,0,1,0,-1], beforeItems = []
Output: [6,3,4,1,5,2,0,7]

Example 2:

Input: n = 8, m = 2, group = [-1,-1,1,0,0,1,0,-1], beforeItems = []
Output: []
Explanation: This is the same as example 1 except that 4 needs to

Constraints:

- $1 \leq m \leq n \leq 3 \times 10^4$
- $\text{group.length} == \text{beforeItems.length} == n$
- $-1 \leq \text{group}[i] \leq m-1$
- $0 \leq \text{beforeItems}[i].length \leq n-1$
- $0 \leq \text{beforeItems}[i][j] \leq n-1$
- $i \neq \text{beforeItems}[i][j]$
- $\text{beforeItems}[i]$ does not contain duplicates elements.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1203-Sort-Items-by-Groups-Respecting-Dependencies](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1204. Last Person to Fit in the Elevator

Table: Queue

Column Name	Type
person_id	int
person_name	varchar
weight	int
turn	int

person_id is the primary key column for this table.

This table has the information about all people waiting for an elevator. The person_id and turn columns will contain all numbers from 1 to 1000.

The maximum weight the elevator can hold is **1000**.

Write an SQL query to find the person_name of the last person who will fit in the elevator without exceeding the weight limit. It is guaranteed that the person who is first in the queue can fit in the elevator.

The query result format is in the following example:

Queue table

person_id	person_name	weight	turn
5	George Washington	250	1
3	John Adams	350	2
6	Thomas Jefferson	400	3
2	Will Johnliams	200	4
4	Thomas Jefferson	175	5
1	James Elephant	500	6

Result table

person_name
Thomas Jefferson

Queue table is ordered by turn in the example for simplicity.
In the example George Washington(id 5), John Adams(id 3) and Thomas Jefferson(id 6) is the last person to fit in the elevator.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1204-Last-Person-to-Fit-in-the-Elevator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1205. Monthly Transactions II

Table: Transactions

Column Name	Type
id	int
country	varchar
state	enum
amount	int
trans_date	date

id is the primary key of this table.

The table has information about incoming transactions.

The state column is an enum of type ["approved", "declined"].

Table: Chargebacks

Column Name	Type
trans_id	int
charge_date	date

Chargebacks contains basic information regarding incoming chargebacks.

trans_id is a foreign key to the id column of Transactions table.

Each chargeback corresponds to a transaction made previously even if it was declined.

Write an SQL query to find for each month and country, the number of approved transactions and their total amount, the number of chargebacks and their total amount.

Note : In your query, given the month and country, ignore rows with all zeros.

The query result format is in the following example:

Transactions table:

id	country	state	amount	trans_date
101	US	approved	1000	2019-05-18
102	US	declined	2000	2019-05-19
103	US	approved	3000	2019-06-10
104	US	approved	4000	2019-06-13
105	US	approved	5000	2019-06-15

Chargebacks table:

trans_id	trans_date
102	2019-05-29
101	2019-06-30
105	2019-09-18

Result table:

month	country	approved_count	approved_amount	chargeback_count
2019-05	US	1	1000	1
2019-06	US	3	12000	1
2019-09	US	0	0	1

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1205-Monthly-Transactions-II](#)

All Problems:

[Link to All Problems](#)

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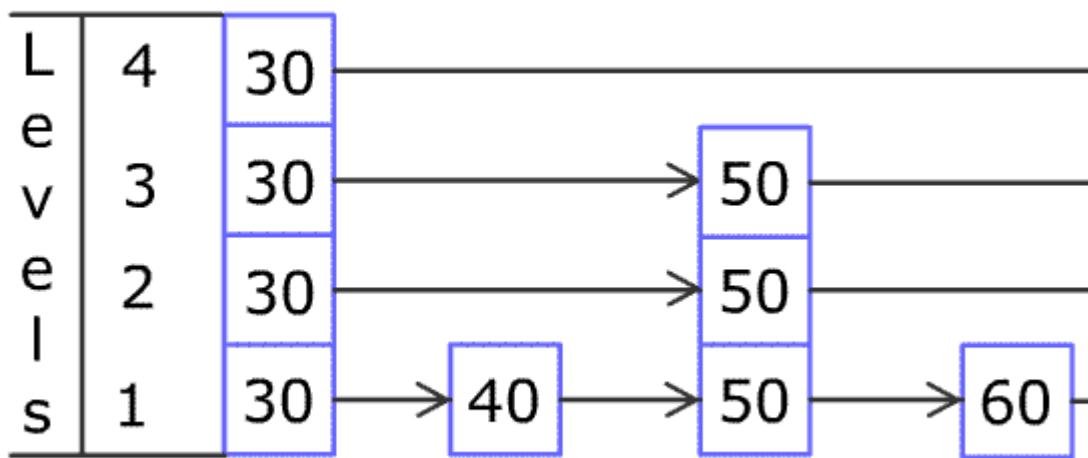
Welcome to Subscribe On Youtube:

1206. Design Skiplist

Design a Skiplist without using any built-in libraries.

A Skiplist is a data structure that takes $O(\log(n))$ time to add, erase and search. Comparing with treap and red-black tree which has the same function and performance, the code length of Skiplist can be comparatively short and the idea behind Skiplists are just simple linked lists.

For example: we have a Skiplist containing [30, 40, 50, 60, 70, 90] and we want to add 80 and 45 into it. The Skiplist works this way:



Artyom Kalinin [CC BY-SA 3.0], via [Wikimedia Commons](#)

You can see there are many layers in the SkipList. Each layer is a sorted linked list. With the help of the top layers, add , erase and search can be faster than O(n). It can be proven that the average time complexity for each operation is O(log(n)) and space complexity is O(n).

To be specific, your design should include these functions:

- `bool search(int target)` : Return whether the target exists in the SkipList or not.
- `void add(int num)` : Insert a value into the SkipList.
- `bool erase(int num)` : Remove a value in the Skiplist. If num does not exist in the SkipList, do nothing and return false. If there exists multiple num values, removing any one of them is fine.

See more about SkipList : https://en.wikipedia.org/wiki/Skip_list

Note that duplicates may exist in the SkipList, your code needs to handle this situation.

Example:

```
Skiplist skiplist = new Skiplist();
skiplist.add(1);
```

```
skiplist.add(2);
skiplist.add(3);
skiplist.search(0);    // return false.
skiplist.add(4);
skiplist.search(1);    // return true.
skiplist.erase(0);    // return false, 0 is not in skiplist.
skiplist.erase(1);    // return true.
skiplist.search(1);    // return false, 1 has already been erased
```

Constraints:

- $0 \leq \text{num}, \text{target} \leq 20000$
- At most 50000 calls will be made to search , add , and erase .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1206-Design-Skiplist](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1207. Unique Number of Occurrences

Given an array of integers arr , write a function that returns true if and only if the number of occurrences of each value in the array is unique.

Example 1:

Input: arr = [1,2,2,1,1,3]

Output: true

Explanation: The value 1 has 3 occurrences, 2 has 2 and 3 has 1.

Example 2:

Input: arr = [1,2]

Output: false

Example 3:

Input: arr = [-3,0,1,-3,1,1,1,-3,10,0]

Output: true

Constraints:

- $1 \leq \text{arr.length} \leq 1000$
- $-1000 \leq \text{arr}[i] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1207-Unique-Number-of-Occurrences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1208. Get Equal Substrings Within Budget

You are given two strings s and t of the same length. You want to change s to t . Changing the i -th character of s to i -th character of t costs $|s[i] - t[i]|$, that is, the absolute difference between the ASCII values of the characters.

You are also given an integer maxCost .

Return the maximum length of a substring of s that can be changed to be the same as the corresponding substring of t with a cost less than or equal to maxCost .

If there is no substring from s that can be changed to its corresponding substring from t , return 0.

Example 1:

Input: s = "abcd", t = "bcdf", maxCost = 3

Output: 3

Explanation: "abc" of s can change to "bcd". That costs 3, so the answer is 3.

Example 2:

Input: s = "abcd", t = "cdef", maxCost = 3

Output: 1

Explanation: Each character in s costs 2 to change to character in t. The answer is 1.

Example 3:

Input: s = "abcd", t = "acde", maxCost = 0

Output: 1

Explanation: You can't make any change, so the maximum length is 1.

Constraints:

- $1 \leq s.length, t.length \leq 10^5$
- $0 \leq \text{maxCost} \leq 10^6$
- s and t only contain lower case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1208-Get-Equal-Substrings-Within-Budget](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1209. Remove All Adjacent Duplicates in String II

Given a string s , a k *duplicate removal* consists of choosing k adjacent and equal letters from s and removing them causing the left and the right side of the deleted substring to concatenate together.

We repeatedly make k duplicate removals on s until we no longer can.

Return the final string after all such duplicate removals have been made.

It is guaranteed that the answer is unique.

Example 1:

Input: $s = "abcd"$, $k = 2$

Output: "abcd"

Explanation: There's nothing to delete.

Example 2:

Input: $s = "deeedbbcccbdaa"$, $k = 3$

Output: "aa"

Explanation:

First delete "eee" and "ccc", get "ddbbbdaa"

Then delete "bbb", get "dddaa"

Finally delete "ddd", get "aa"

Example 3:

Input: $s = "pbbcggttciiippooaais"$, $k = 2$

Output: "ps"

Constraints:

- $1 \leq s.length \leq 10^5$
- $2 \leq k \leq 10^4$
- s only contains lower case English letters.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1209-Remove-All-Adjacent-Duplicates-in-String-II](#)

All Problems:

[Link to All Problems](#)

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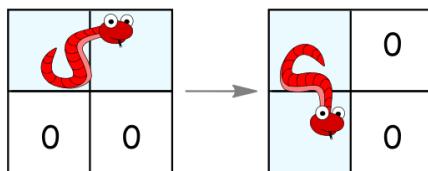
Welcome to Subscribe On Youtube:

1210. Minimum Moves to Reach Target with Rotations

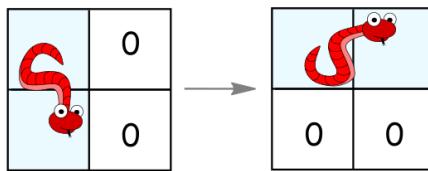
In an $n \times n$ grid, there is a snake that spans 2 cells and starts moving from the top left corner at $(0, 0)$ and $(0, 1)$. The grid has empty cells represented by zeros and blocked cells represented by ones. The snake wants to reach the lower right corner at $(n-1, n-2)$ and $(n-1, n-1)$.

In one move the snake can:

- Move one cell to the right if there are no blocked cells there. This move keeps the horizontal/vertical position of the snake as it is.
- Move down one cell if there are no blocked cells there. This move keeps the horizontal/vertical position of the snake as it is.
- Rotate clockwise if it's in a horizontal position and the two cells under it are both empty. In that case the snake moves from (r, c) and $(r, c+1)$ to (r, c) and $(r+1, c)$.



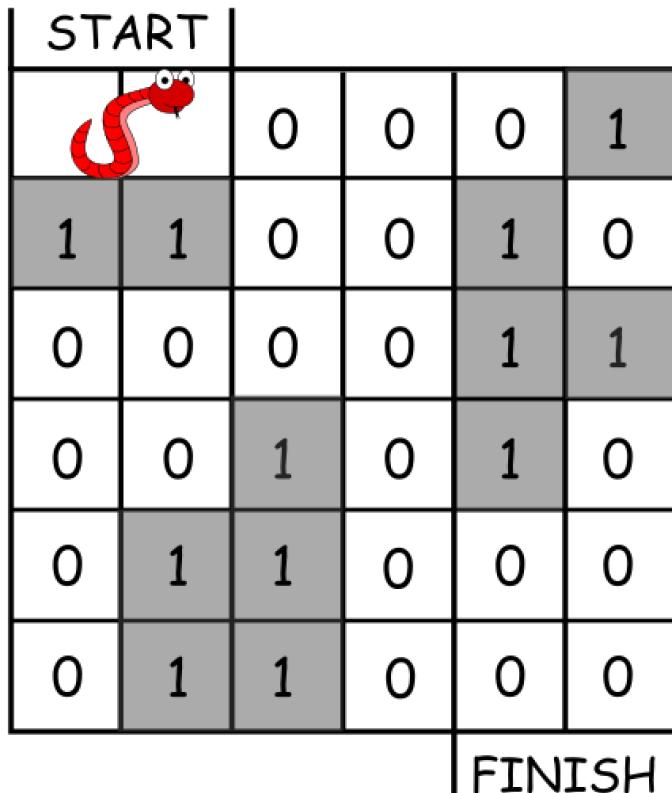
- Rotate counterclockwise if it's in a vertical position and the two cells to its right are both empty. In that case the snake moves from (r, c) and $(r+1, c)$ to (r, c) and $(r, c+1)$.



Return the minimum number of moves to reach the target.

If there is no way to reach the target, return -1 .

Example 1:



Input: grid = [[0,0,0,0,0,1],
[1,1,0,0,1,0],
[0,0,0,0,1,1],
[0,0,1,0,1,0],
[0,1,1,0,0,0],
[0,1,1,0,0,0]]

Output: 11

Explanation:

One possible solution is [right, right, rotate clockwise, right,

Example 2:

Input: grid = [[0,0,1,1,1,1],
[0,0,0,0,1,1],
[1,1,0,0,0,1],
[1,1,1,0,0,1],
[1,1,1,0,0,1],
[1,1,1,0,0,0]]

Output: 9

Constraints:

- 2 <= n <= 100

- $0 \leq \text{grid}[i][j] \leq 1$
- It is guaranteed that the snake starts at empty cells.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1210-Minimum-Moves-to-Reach-Target-with-Rotations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1211. Queries Quality and Percentage

Table: Queries

Column Name	Type
query_name	varchar
result	varchar
position	int
rating	int

There is no primary key for this table, it may have duplicate rows.
This table contains information collected from some queries on a system.
The position column has a value from 1 to 500.
The rating column has a value from 1 to 5. Query with rating less than 3 is poor.

We define query quality as:

The average of the ratio between query rating and its position.

We also define poor query percentage as:

The percentage of all queries with rating less than 3.

Write an SQL query to find each query_name , the quality and poor_query_percentage .

Both quality and poor_query_percentage should be **rounded to 2 decimal places** .

The query result format is in the following example:

Queries table:

query_name	result	position	rating
Dog	Golden Retriever	1	5
Dog	German Shepherd	2	5
Dog	Mule	200	1
Cat	Shirazi	5	2
Cat	Siamese	3	3
Cat	Sphynx	7	4

Result table:

query_name	quality	poor_query_percentage
Dog	2.50	33.33
Cat	0.66	33.33

Dog queries quality is $((5 / 1) + (5 / 2) + (1 / 200)) / 3 = 2.50$
Dog queries poor_query_percentage is $(1 / 3) * 100 = 33.33$

Cat queries quality equals $((2 / 5) + (3 / 3) + (4 / 7)) / 3 = 0.66$
Cat queries poor_query_percentage is $(1 / 3) * 100 = 33.33$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1211-Queries-Quality-and-Percentage](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1212. Team Scores in Football Tournament

Table: Teams

Column Name	Type
team_id	int
team_name	varchar

team_id is the primary key of this table.
Each row of this table represents a single football team.

Table: Matches

Column Name	Type
match_id	int
host_team	int
guest_team	int
host_goals	int
guest_goals	int

match_id is the primary key of this table.
Each row is a record of a finished match between two different teams.
Teams host_team and guest_team are represented by their IDs in the table.

You would like to compute the scores of all teams after all matches. Points are awarded as follows:

- A team receives three points if they win a match (Score strictly more goals than the opponent team).
- A team receives one point if they draw a match (Same number of goals as the opponent team).
- A team receives no points if they lose a match (Score less goals than the opponent team).

Write an SQL query that selects the **team_id**, **team_name** and **num_points** of each team in the tournament after all described matches. Result table should be ordered by **num_points** (decreasing order). In case of a tie, order the records by **team_id** (increasing order).

The query result format is in the following example:

Teams table:

team_id	team_name
10	Leetcode FC
20	NewYork FC
30	Atlanta FC
40	Chicago FC
50	Toronto FC

Matches table:

match_id	host_team	guest_team	host_goals	guest_goals
1	10	20	3	0
2	30	10	2	2
3	10	50	5	1
4	20	30	1	0
5	50	30	1	0

Result table:

team_id	team_name	num_points
10	Leetcode FC	7
20	NewYork FC	3
50	Toronto FC	3
30	Atlanta FC	1
40	Chicago FC	0

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1212-Team-Scores-in-Football-Tournament](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1213. Intersection of Three Sorted Arrays

Given three integer arrays `arr1` , `arr2` and `arr3` sorted in strictly increasing order, return a sorted array of only the integers that appeared in all three arrays.

Example 1:

Input: `arr1 = [1,2,3,4,5]` , `arr2 = [1,2,5,7,9]` , `arr3 = [1,3,4,5,8]`

Output: `[1,5]`

Explanation: Only 1 and 5 appeared in the three arrays.

Constraints:

- $1 \leq \text{arr1.length}, \text{arr2.length}, \text{arr3.length} \leq 1000$
- $1 \leq \text{arr1[i]}, \text{arr2[i]}, \text{arr3[i]} \leq 2000$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1213-Intersection-of-Three-Sorted-Arrays](#)

All Problems:

[Link to All Problems](#)

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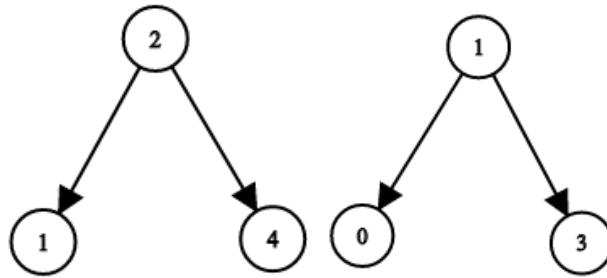
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Welcome to Subscribe On Youtube:

1214. Two Sum BSTs

Given two binary search trees, return `True` if and only if there is a node in the first tree and a node in the second tree whose values sum up to a given integer `target` .

Example 1:

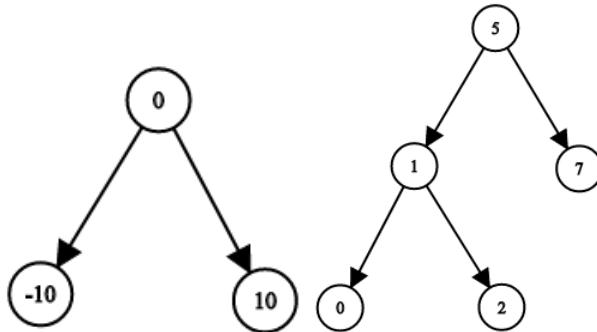


Input: `root1 = [2,1,4]`, `root2 = [1,0,3]`, `target = 5`

Output: true

Explanation: 2 and 3 sum up to 5.

Example 2:



Input: `root1 = [0,-10,10]`, `root2 = [5,1,7,0,2]`, `target = 18`

Output: false

Constraints:

- Each tree has at most 5000 nodes.
- $-10^9 \leq \text{target}, \text{node.val} \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1214-Two-Sum-BSTs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1215. Stepping Numbers

A *Stepping Number* is an integer such that all of its adjacent digits have an absolute difference of exactly 1 . For example, 321 is a Stepping Number while 421 is not.

Given two integers `low` and `high` , find and return a **sorted** list of all the Stepping Numbers in the range `[low, high]` inclusive.

Example 1:

Input: `low = 0, high = 21`
Output: `[0,1,2,3,4,5,6,7,8,9,10,12,21]`

Constraints:

- $0 \leq low \leq high \leq 2 * 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1215-Stepping-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1216. Valid Palindrome III

Given a string s and an integer k , find out if the given string is a K -*Palindrome* or not.

A string is K-Palindrome if it can be transformed into a palindrome by removing at most k characters from it.

Example 1:

Input: $s = "abcdeca"$, $k = 2$

Output: true

Explanation: Remove 'b' and 'e' characters.

Constraints:

- $1 \leq s.length \leq 1000$
- s has only lowercase English letters.
- $1 \leq k \leq s.length$

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[1216-Valid-Palindrome-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1217. Play with Chips

There are some chips, and the i -th chip is at position `chips[i]`.

You can perform any of the two following types of moves **any number of times** (possibly zero) **on any chip**:

- Move the i -th chip by 2 units to the left or to the right with a cost of **0**.
- Move the i -th chip by 1 unit to the left or to the right with a cost of **1**.

There can be two or more chips at the same position initially.

Return the minimum cost needed to move all the chips to the same position (any position).

Example 1:

Input: `chips = [1, 2, 3]`

Output: `1`

Explanation: Second chip will be moved to positon 3 with cost 1.

Example 2:

Input: `chips = [2, 2, 2, 3, 3]`

Output: `2`

Explanation: Both fourth and fifth chip will be moved to position 3 with cost 2.

Constraints:

- $1 \leq \text{chips.length} \leq 100$
- $1 \leq \text{chips}[i] \leq 10^9$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1217-Minimum-Cost-to-Move-Chips-to-The-Same-Position](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1218. Longest Arithmetic Subsequence of Given Difference

Given an integer array arr and an integer difference , return the length of the longest subsequence in arr which is an arithmetic sequence such that the difference between adjacent elements in the subsequence equals difference .

Example 1:

Input: arr = [1,2,3,4], difference = 1

Output: 4

Explanation: The longest arithmetic subsequence is [1,2,3,4].

Example 2:

```
Input: arr = [1,3,5,7], difference = 1
Output: 1
Explanation: The longest arithmetic subsequence is any single element.
```

Example 3:

```
Input: arr = [1,5,7,8,5,3,4,2,1], difference = -2
Output: 4
Explanation: The longest arithmetic subsequence is [7,5,3,1].
```

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $-10^4 \leq \text{arr}[i], \text{difference} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1218-Longest-Arithmetic-Subsequence-of-Given-Difference](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1219. Path with Maximum Gold

In a gold mine grid of size $m * n$, each cell in this mine has an integer representing the amount of gold in that cell, 0 if it is empty.

Return the maximum amount of gold you can collect under the conditions:

- Every time you are located in a cell you will collect all the gold in that cell.
- From your position you can walk one step to the left, right, up or down.
- You can't visit the same cell more than once.
- Never visit a cell with 0 gold.
- You can start and stop collecting gold from **any** position in the grid that has some gold.

Example 1:

Input: grid = [[0,6,0],[5,8,7],[0,9,0]]

Output: 24

Explanation:

[[0,6,0],
 [5,8,7],
 [0,9,0]]

Path to get the maximum gold, 9 -> 8 -> 7.

Example 2:

Input: grid = [[1,0,7],[2,0,6],[3,4,5],[0,3,0],[9,0,20]]

Output: 28

Explanation:

[[1,0,7],
 [2,0,6],
 [3,4,5],
 [0,3,0],
 [9,0,20]]

Path to get the maximum gold, 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7.

Constraints:

- $1 \leq \text{grid.length}, \text{grid}[i].length \leq 15$

- $0 \leq \text{grid}[i][j] \leq 100$
- There are at most 25 cells containing gold.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1219-Path-with-Maximum-Gold](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1220. Count Vowels Permutation

Given an integer n , your task is to count how many strings of length n can be formed under the following rules:

- Each character is a lower case vowel ('a', 'e', 'i', 'o', 'u')
- Each vowel 'a' may only be followed by an 'e'.
- Each vowel 'e' may only be followed by an 'a' or an 'i'.
- Each vowel 'i' **may not** be followed by another 'i'.
- Each vowel 'o' may only be followed by an 'i' or a 'u'.
- Each vowel 'u' may only be followed by an 'a'.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: $n = 1$

Output: 5

Explanation: All possible strings are: "a", "e", "i", "o" and "u".

Example 2:

Input: $n = 2$

Output: 10

Explanation: All possible strings are: "ae", "ea", "ei", "ia", "eu", "ui", "oi", "ie", "ao" and "eu".

Example 3:

Input: $n = 5$

Output: 68

Constraints:

- $1 \leq n \leq 2 * 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1220-Count-Vowels-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1221. Split a String in Balanced Strings

Balanced strings are those who have equal quantity of 'L' and 'R' characters.

Given a balanced string s split it in the maximum amount of balanced strings.

Return the maximum amount of splitted balanced strings.

Example 1:

Input: s = "RLRRLLRLRL"

Output: 4

Explanation: s can be split into "RL", "RRLL", "RL", "RL", each subsequence has equal number of 'L's and 'R's.

Example 2:

Input: s = "RLLLLRRRLR"

Output: 3

Explanation: s can be split into "RL", "LLLRRR", "LR", each subsequence has equal number of 'L's and 'R's.

Example 3:

Input: s = "LLLLRRRR"

Output: 1

Explanation: s can be split into "LLLLRRRR".

Constraints:

- $1 \leq s.length \leq 1000$
- $s[i] = 'L'$ or $'R'$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1221-Split-a-String-in-Balanced-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1222. Queens That Can Attack the King

On an **8x8** chessboard, there can be multiple Black Queens and one White King.

Given an array of integer coordinates `queens` that represents the positions of the Black Queens, and a pair of coordinates `king` that represent the position of the White King, return the coordinates of all the queens (in any order) that can attack the King.

Example 1:

Input: `queens` = `[[0,1],[1,0],[4,0],[0,4],[3,3],[2,4]]`, `king` = `[0,0]`
Output: `[[0,1],[1,0],[3,3]]`

Explanation:

The queen at `[0,1]` can attack the king cause they're in the same row.
The queen at `[1,0]` can attack the king cause they're in the same column.
The queen at `[3,3]` can attack the king cause they're in the same diagonal.
The queen at `[0,4]` can't attack the king cause it's blocked by the queen at `[1,0]`.
The queen at `[4,0]` can't attack the king cause it's blocked by the queen at `[0,1]`.
The queen at `[2,4]` can't attack the king cause it's not in the same row, column, or diagonal.

Example 2:

Input: `queens` = `[[0,0],[1,1],[2,2],[3,4],[3,5],[4,4],[4,5]]`, `king` = `[0,0]`
Output: `[[2,2],[3,4],[4,4]]`

Example 3:

Input: `queens` = `[[5,6],[7,7],[2,1],[0,7],[1,6],[5,1],[3,7],[0,3]]`
Output: `[[2,3],[1,4],[1,6],[3,7],[4,3],[5,4],[4,5]]`

Constraints:

- $1 \leq \text{queens.length} \leq 63$
- $\text{queens}[0].length == 2$
- $0 \leq \text{queens}[i][j] < 8$
- $\text{king.length} == 2$
- $0 \leq \text{king}[0], \text{king}[1] < 8$
- At most one piece is allowed in a cell.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1222-Queens-That-Can-Attack-the-King](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1223. Dice Roll Simulation

A die simulator generates a random number from 1 to 6 for each roll. You introduced a constraint to the generator such that it cannot roll the number i more than $\text{rollMax}[i]$ (1-indexed) **consecutive** times.

Given an array of integers rollMax and an integer n , return the number of distinct sequences that can be obtained with exact n rolls.

Two sequences are considered different if at least one element differs from each other. Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: $n = 2$, $\text{rollMax} = [1, 1, 2, 2, 2, 3]$

Output: 34

Explanation: There will be 2 rolls of die, if there are no const

Example 2:

Input: $n = 2$, $\text{rollMax} = [1, 1, 1, 1, 1, 1]$

Output: 30

Example 3:

Input: $n = 3$, $\text{rollMax} = [1, 1, 1, 2, 2, 3]$

Output: 181

Constraints:

- $1 \leq n \leq 5000$
- $\text{rollMax.length} == 6$
- $1 \leq \text{rollMax}[i] \leq 15$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1223-Dice-Roll-Simulation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1224. Maximum Equal Frequency

Given an array `nums` of positive integers, return the longest possible length of an array prefix of `nums`, such that it is possible to remove **exactly one** element from this prefix so that every number that has appeared in it will have the same number of occurrences.

If after removing one element there are no remaining elements, it's still considered that every appeared number has the same number of occurrences (0).

Example 1:

Input: nums = [2,2,1,1,5,3,3,5]

Output: 7

Explanation: For the subarray [2,2,1,1,5,3,3] of length 7, if we

Example 2:

Input: nums = [1,1,1,2,2,2,3,3,3,4,4,4,5]

Output: 13

Example 3:

Input: nums = [1,1,1,2,2,2]

Output: 5

Example 4:

Input: nums = [10,2,8,9,3,8,1,5,2,3,7,6]

Output: 8

Constraints:

- $2 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[**1224-Maximum-Equal-Frequency**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1225. Report Contiguous Dates

Table: Failed

Column Name	Type
fail_date	date

Primary key for this table is fail_date.
Failed table contains the days of failed tasks.

Table: Succeeded

Column Name	Type
success_date	date

Primary key for this table is success_date.
Succeeded table contains the days of succeeded tasks.

A system is running one task **every day**. Every task is independent of the previous tasks. The tasks can fail or succeed.

Write an SQL query to generate a report of period_state for each continuous interval of days in the period from **2019-01-01** to **2019-12-31**.

period_state is '*failed*' if tasks in this interval failed or '*succeeded*' if tasks in this interval succeeded. Interval of days are retrieved as start_date and end_date.

Order result by start_date .

The query result format is in the following example:

Failed table:

fail_date
2018-12-28
2018-12-29
2019-01-04
2019-01-05

Succeeded table:

success_date
2018-12-30
2018-12-31
2019-01-01
2019-01-02
2019-01-03
2019-01-06

Result table:

period_state	start_date	end_date
succeeded	2019-01-01	2019-01-03
failed	2019-01-04	2019-01-05
succeeded	2019-01-06	2019-01-06

The report ignored the system state in 2018 as we care about the From 2019-01-01 to 2019-01-03 all tasks succeeded and the system From 2019-01-04 to 2019-01-05 all tasks failed and system state From 2019-01-06 to 2019-01-06 all tasks succeeded and system sta

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1225-Report-Contiguous-Dates](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1226. The Dining Philosophers

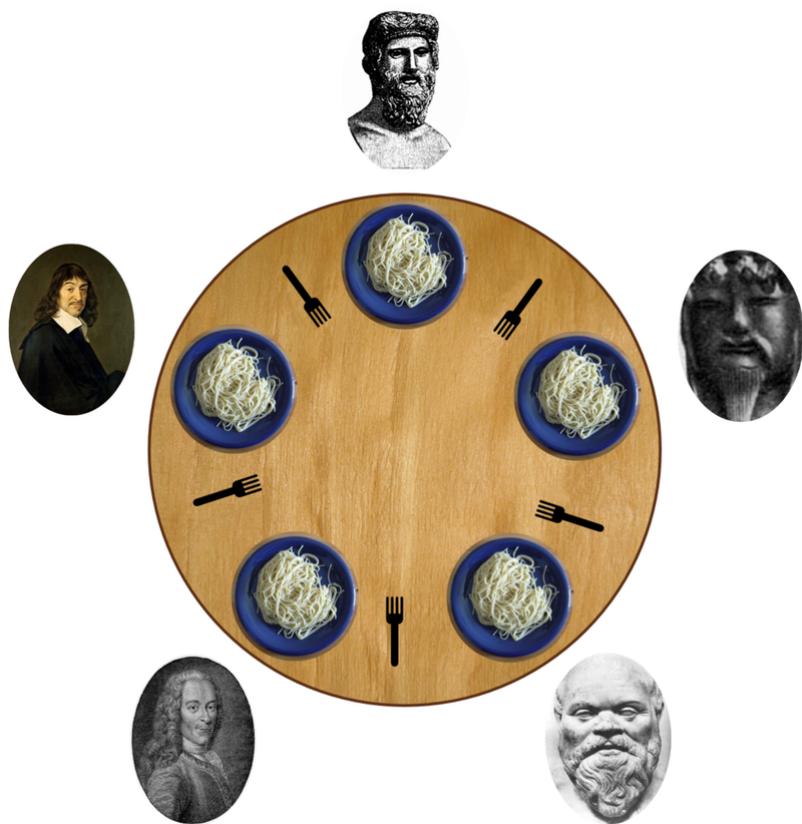
Five silent philosophers sit at a round table with bowls of spaghetti. Forks are placed between each pair of adjacent philosophers.

Each philosopher must alternately think and eat. However, a philosopher can only eat spaghetti when they have both left and right forks. Each fork can be held by only one philosopher and so a philosopher can use the fork only if it is not being used by another philosopher. After an individual philosopher finishes eating, they need to put down both forks so that the forks become available to others. A philosopher can take the fork on

their right or the one on their left as they become available, but cannot start eating before getting both forks.

Eating is not limited by the remaining amounts of spaghetti or stomach space; an infinite supply and an infinite demand are assumed.

Design a discipline of behavior (a concurrent algorithm) such that no philosopher will starve; *i.e.*, each can forever continue to alternate between eating and thinking, assuming that no philosopher can know when others may want to eat or think.



The problem statement and the image above are taken from [wikipedia.org](https://en.wikipedia.org)

The philosophers' ids are numbered from **0** to **4** in a **clockwise** order. Implement the function `void wantsToEat(philosopher, pickLeftFork, pickRightFork, eat, putLeftFork, putRightFork)` where:

- `philosopher` is the id of the philosopher who wants to eat.

- `pickLeftFork` and `pickRightFork` are functions you can call to pick the corresponding forks of that philosopher.
- `eat` is a function you can call to let the philosopher eat once he has picked both forks.
- `putLeftFork` and `pickRightFork` are functions you can call to put down the corresponding forks of that philosopher.
- The philosophers are assumed to be thinking as long as they are not asking to eat (the function is not being called with their number).

Five threads, each representing a philosopher, will simultaneously use one object of your class to simulate the process. It is possible that the function will be called for the same philosopher more than once, even before the last call ends.

Example 1:

Input: `n = 1`

Output: `[[4,2,1], [4,1,1], [0,1,1], [2,2,1], [2,1,1], [2,0,3], [2,1,2]]`

Explanation:

`n` is the number of times each philosopher will call the function

The output array describes the calls you made to the functions `c`

`output[i] = [a, b, c]` (three integers)

- `a` is the id of a philosopher.

- `b` specifies the fork: {1 : left, 2 : right}.

- `c` specifies the operation: {1 : pick, 2 : put, 3 : eat}.

Constraints:

- `1 <= n <= 60`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1226-The-Dining-Philosophers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1227. Airplane Seat Assignment Probability

n passengers board an airplane with exactly n seats. The first passenger has lost the ticket and picks a seat randomly. But after that, the rest of passengers will:

- Take their own seat if it is still available,
- Pick other seats randomly when they find their seat occupied

What is the probability that the n -th person can get his own seat?

Example 1:

Input: $n = 1$

Output: 1.00000

Explanation: The first person can only get the first seat.

Example 2:

Input: n = 2
Output: 0.50000
Explanation: The second person has a probability of 0.5 to get the seat assigned to them.

Constraints:

- $1 \leq n \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1227-Airplane-Seat-Assignment-Probability](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1228. Missing Number In Arithmetic Progression

In some array `arr` , the values were in arithmetic progression: the values `arr[i+1] - arr[i]` are all equal for every `0 <= i < arr.length - 1` .

Then, a value from `arr` was removed that **was not the first or last value in the array** .

Return the removed value.

Example 1:

Input: `arr = [5, 7, 11, 13]`

Output: 9

Explanation: The previous array was `[5, 7, 9, 11, 13]` .

Example 2:

Input: `arr = [15, 13, 12]`

Output: 14

Explanation: The previous array was `[15, 14, 13, 12]` .

Constraints:

- $3 \leq \text{arr.length} \leq 1000$
- $0 \leq \text{arr}[i] \leq 10^5$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1228-Missing-Number-In-Arithmetic-Progression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1229. Meeting Scheduler

Given the availability time slots arrays `slots1` and `slots2` of two people and a meeting duration `duration`, return the **earliest time slot** that works for both of them and is of duration `duration`.

If there is no common time slot that satisfies the requirements, return an **empty array**.

The format of a time slot is an array of two elements `[start, end]` representing an inclusive time range from `start` to `end`.

It is guaranteed that no two availability slots of the same person intersect with each other. That is, for any two time slots `[start1, end1]` and `[start2, end2]` of the same person, either `start1 > end2` or `start2 > end1`.

Example 1:

Input: `slots1 = [[10,50],[60,120],[140,210]]`, `slots2 = [[0,15],[60,68]]`
Output: `[60,68]`

Example 2:

```
Input: slots1 = [[10,50],[60,120],[140,210]], slots2 = [[0,15],[
```

Output: []

Constraints:

- $1 \leq \text{slots1.length}, \text{slots2.length} \leq 10^4$
- $\text{slots1[i].length}, \text{slots2[i].length} == 2$
- $\text{slots1[i][0]} < \text{slots1[i][1]}$
- $\text{slots2[i][0]} < \text{slots2[i][1]}$
- $0 \leq \text{slots1[i][j]}, \text{slots2[i][j]} \leq 10^9$
- $1 \leq \text{duration} \leq 10^6$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1229-Meeting-Scheduler](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1230. Toss Strange Coins

You have some coins. The i -th coin has a probability $\text{prob}[i]$ of facing heads when tossed.

Return the probability that the number of coins facing heads equals target if you toss every coin exactly once.

Example 1:

Input: $\text{prob} = [0.4]$, $\text{target} = 1$
Output: 0.40000

Example 2:

Input: $\text{prob} = [0.5, 0.5, 0.5, 0.5, 0.5]$, $\text{target} = 0$
Output: 0.03125

Constraints:

- $1 \leq \text{prob.length} \leq 1000$
- $0 \leq \text{prob}[i] \leq 1$
- $0 \leq \text{target} \leq \text{prob.length}$
- Answers will be accepted as correct if they are within 10^{-5} of the correct answer.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1230-Toss-Strange-Coins](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1231. Divide Chocolate

You have one chocolate bar that consists of some chunks. Each chunk has its own sweetness given by the array `sweetness`.

You want to share the chocolate with your `K` friends so you start cutting the chocolate bar into `K+1` pieces using `K` cuts, each piece consists of some **consecutive** chunks.

Being generous, you will eat the piece with the **minimum total sweetness** and give the other pieces to your friends.

Find the **maximum total sweetness** of the piece you can get by cutting the chocolate bar optimally.

Example 1:

Input: `sweetness = [1,2,3,4,5,6,7,8,9]`, `K = 5`

Output: 6

Explanation: You can divide the chocolate to `[1,2,3]`, `[4,5]`, `[6]`

Example 2:

Input: `sweetness = [5,6,7,8,9,1,2,3,4]`, `K = 8`
Output: 1
Explanation: There is only one way to cut the bar into 9 pieces.

Example 3:

Input: `sweetness = [1,2,2,1,2,2,1,2,2]`, `K = 2`
Output: 5
Explanation: You can divide the chocolate to `[1,2,2]`, `[1,2,2]`, `[1,2,2]`.

Constraints:

- $0 \leq K < \text{sweetness.length} \leq 10^4$
- $1 \leq \text{sweetness}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1231-Divide-Chocolate](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

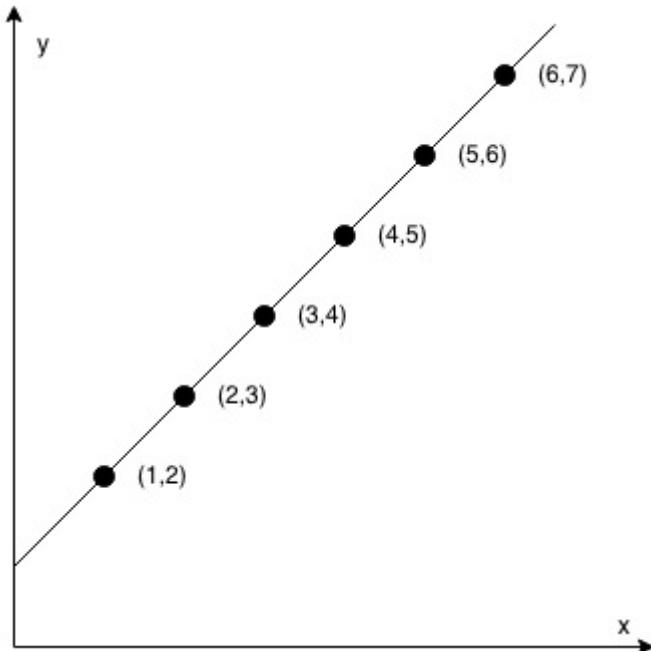
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Welcome to Subscribe On Youtube:

1232. Check If It Is a Straight Line

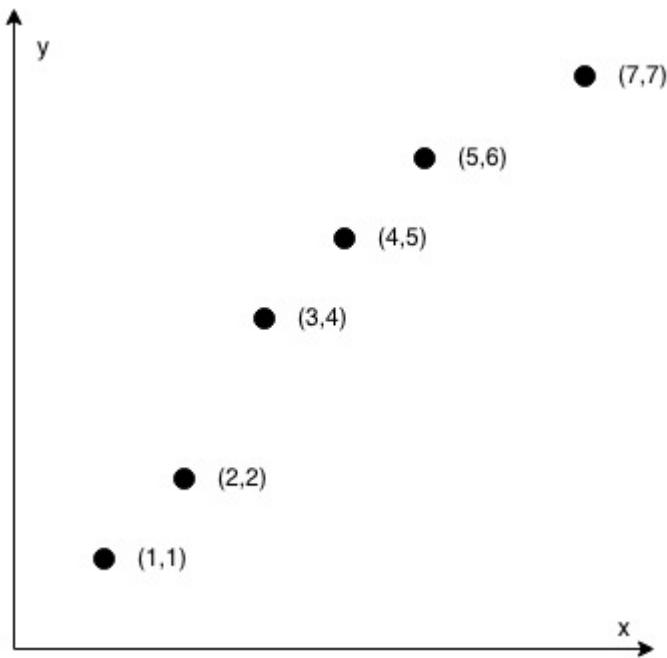
You are given an array coordinates , coordinates[i] = [x, y] , where [x, y] represents the coordinate of a point. Check if these points make a straight line in the XY plane.

Example 1:



Input: coordinates = [[1,2],[2,3],[3,4],[4,5],[5,6],[6,7]]
Output: true

Example 2:



Input: coordinates = [[1,1],[2,2],[3,4],[4,5],[5,6],[7,7]]
 Output: false

Constraints:

- $2 \leq \text{coordinates.length} \leq 1000$
- $\text{coordinates[i].length} == 2$
- $-10^4 \leq \text{coordinates[i][0]}, \text{coordinates[i][1]} \leq 10^4$
- coordinates contains no duplicate point.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1232-Check-If-It-Is-a-Straight-Line](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1233. Remove Sub-Folders from the Filesystem

Given a list of folders, remove all sub-folders in those folders and return in **any order** the folders after removing.

If a `folder[i]` is located within another `folder[j]`, it is called a sub-folder of it.

The format of a path is one or more concatenated strings of the form: / followed by one or more lowercase English letters. For example, /leetcode and /leetcode/problems are valid paths while an empty string and / are not.

Example 1:

Input: `folder = ["/a", "/a/b", "/c/d", "/c/d/e", "/c/f"]`

Output: `["/a", "/c/d", "/c/f"]`

Explanation: Folders "/a/b/" is a subfolder of "/a" and "/c/d/e"

Example 2:

```
Input: folder = ["/a", "/a/b/c", "/a/b/d"]
Output: ["/a"]
Explanation: Folders "/a/b/c" and "/a/b/d/" will be removed because they contain no files.
```

Example 3:

```
Input: folder = ["/a/b/c", "/a/b/ca", "/a/b/d"]
Output: ["/a/b/c", "/a/b/ca", "/a/b/d"]
```

Constraints:

- $1 \leq \text{folder.length} \leq 4 * 10^4$
- $2 \leq \text{folder[i].length} \leq 100$
- folder[i] contains only lowercase letters and '/'
- folder[i] always starts with character '/'
- Each folder name is unique.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1233-Remove-Sub-Folders-from-the-Filesystem](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1234. Replace the Substring for Balanced String

You are given a string containing only 4 kinds of characters 'Q' , 'W' , 'E' and 'R' .

A string is said to be **balanced** if each of its characters appears $n/4$ times where n is the length of the string.

Return the minimum length of the substring that can be replaced with **any** other string of the same length to make the original string s **balanced** .

Return 0 if the string is already **balanced** .

Example 1:

Input: $s = "QWER"$

Output: 0

Explanation: s is already balanced.

Example 2:

Input: $s = "QQWE"$

Output: 1

Explanation: We need to replace a 'Q' to 'R', so that "RQWE" (or

Example 3:

Input: $s = "QQQW"$

Output: 2

Explanation: We can replace the first "QQ" to "ER".

Example 4:

Input: $s = "QQQQ"$

Output: 3

Explanation: We can replace the last 3 'Q' to make $s = "QWER"$.

Constraints:

- $1 \leq s.length \leq 10^5$
- $s.length$ is a multiple of 4
- s contains only 'Q' , 'W' , 'E' and 'R' .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1234-Replace-the-Substring-for-Balanced-String](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

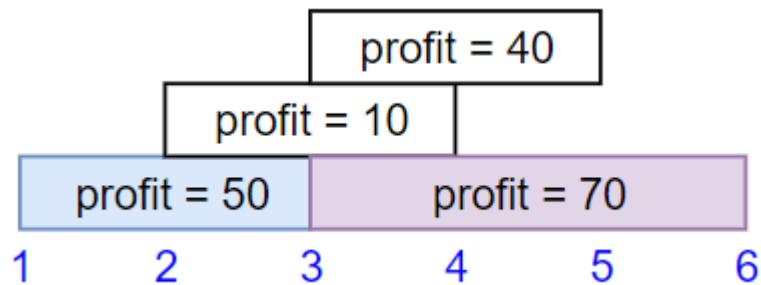
1235. Maximum Profit in Job Scheduling

We have n jobs, where every job is scheduled to be done from $\text{startTime}[i]$ to $\text{endTime}[i]$, obtaining a profit of $\text{profit}[i]$.

You're given the startTime , endTime and profit arrays, you need to output the maximum profit you can take such that there are no 2 jobs in the subset with overlapping time range.

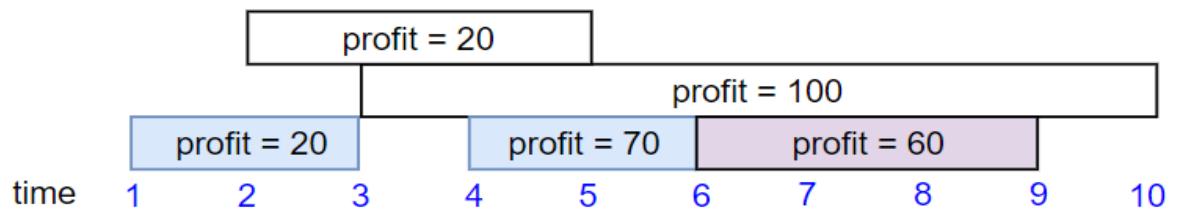
If you choose a job that ends at time X you will be able to start another job that starts at time X .

Example 1:



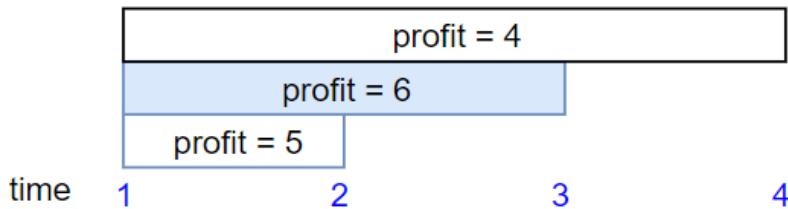
Input: $\text{startTime} = [1, 2, 3, 3]$, $\text{endTime} = [3, 4, 5, 6]$, $\text{profit} = [50, 10, 70]$
Output: 120
Explanation: The subset chosen is the first and fourth job.
Time range $[1-3] + [3-6]$, we get profit of $120 = 50 + 70$.

Example 2:



Input: $\text{startTime} = [1, 2, 3, 4, 6]$, $\text{endTime} = [3, 5, 10, 6, 9]$, $\text{profit} = [20, 100, 20, 70, 60]$
Output: 150
Explanation: The subset chosen is the first, fourth and fifth job.
Profit obtained $150 = 20 + 70 + 60$.

Example 3:



Input: startTime = [1,1,1], endTime = [2,3,4], profit = [5,6,4]
 Output: 6

Constraints:

- $1 \leq \text{startTime.length} == \text{endTime.length} == \text{profit.length} \leq 5 * 10^4$
- $1 \leq \text{startTime}[i] < \text{endTime}[i] \leq 10^9$
- $1 \leq \text{profit}[i] \leq 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1235-Maximum-Profit-in-Job-Scheduling](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1236. Web Crawler

Given a url `startUrl` and an interface `HtmlParser` , implement a web crawler to crawl all links that are under the **same hostname** as `startUrl` .

Returns all urls obtained by your web crawler in **any** order.

Your crawler should:

- Start from the page: `startUrl`
- Call `HtmlParser.getUrls(url)` to get all urls from a webpage of given url.
- Do not crawl the same link twice.
- Only the links that are under the **same hostname** as `startUrl` should be explored by the crawler

As shown in the example url above, the hostname is `example.org` . For simplicity sake, you may assume all urls use **http protocol** without any **port** specified.

The function interface is defined like this:

```
interface HtmlParser {  
public:  
    // Returns a list of urls contained in url .  
    public List<String> getUrls(String url);  
}
```

Below there are two examples explaining the functionality of the problem, for custom testing purposes you'll have 3 variables `urls` , `edges` and `startUrl` . Notice that you will only have access to `startUrl` , while `urls` and `edges` are secret to you on the rest of the testcases.

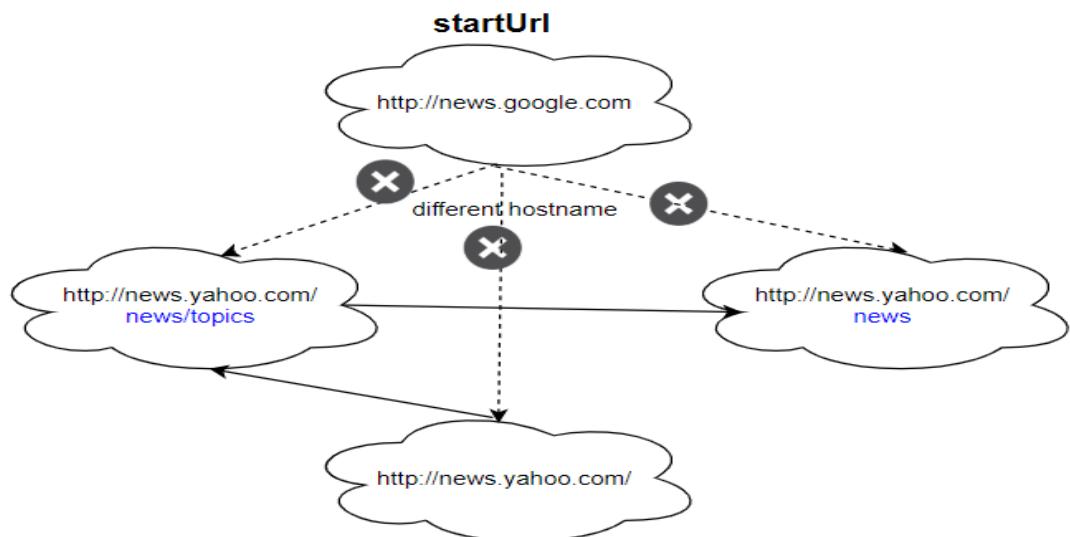
Example 1:

```

Input:
urls = [
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.google.com",
    "http://news.yahoo.com/us"
]
edges = [[2,0],[2,1],[3,2],[3,1],[0,4]]
startUrl = "http://news.yahoo.com/news/topics/"
Output: [
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.yahoo.com/us"
]

```

Example 2:



```

Input:
urls = [
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.google.com"
]
edges = [[0,2],[2,1],[3,2],[3,1],[3,0]]
startUrl = "http://news.google.com"
Output: ["http://news.google.com"]
Explanation: The startUrl links to all other pages that do not s

```

Constraints:

- $1 \leq \text{urls.length} \leq 1000$
- $1 \leq \text{urls}[i].length \leq 300$
- `startUrl` is one of the `urls`.

- Hostname label must be from 1 to 63 characters long, including the dots, may contain only the ASCII letters from 'a' to 'z', digits from '0' to '9' and the hyphen-minus character ('-').
- The hostname may not start or end with the hyphen-minus character ('-').
- See: [https://en.wikipedia.org/wiki/Hostname#Restrictions on valid hostnames](https://en.wikipedia.org/wiki/Hostname#Restrictions_on_valid_hostnames)
- You may assume there're no duplicates in url library.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1236-Web-Crawler](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1237. Find Positive Integer Solution for a Given Equation

Given a function $f(x, y)$ and a value z , return all positive integer pairs x and y where $f(x, y) == z$.

The function is constantly increasing, i.e.:

- $f(x, y) < f(x + 1, y)$
- $f(x, y) < f(x, y + 1)$

The function interface is defined like this:

```
interface CustomFunction {  
public:  
    // Returns positive integer f(x, y) for any given positive int  
    int f(int x, int y);  
};
```

For custom testing purposes you're given an integer `function_id` and a target `z` as input, where `function_id` represent one function from an secret internal list, on the examples you'll know only two functions from the list.

You may return the solutions in any order.

Example 1:

Input: `function_id = 1, z = 5`
Output: `[[1,4],[2,3],[3,2],[4,1]]`
Explanation: `function_id = 1` means that $f(x, y) = x + y$

Example 2:

Input: `function_id = 2, z = 5`
Output: `[[1,5],[5,1]]`
Explanation: `function_id = 2` means that $f(x, y) = x * y$

Constraints:

- $1 \leq \text{function_id} \leq 9$
- $1 \leq z \leq 100$
- It's guaranteed that the solutions of $f(x, y) == z$ will be on the range $1 \leq x, y \leq 1000$

- It's also guaranteed that $f(x, y)$ will fit in 32 bit signed integer if $1 \leq x, y \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1237-Find-Positive-Integer-Solution-for-a-Given-Equation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1238. Circular Permutation in Binary Representation

Given 2 integers n and $start$. Your task is return **any** permutation p of $(0, 1, 2, \dots, 2^n - 1)$ such that :

- $p[0] = start$
- $p[i]$ and $p[i+1]$ differ by only one bit in their binary representation.
- $p[0]$ and $p[2^n - 1]$ must also differ by only one bit in their binary representation.

Example 1:

Input: $n = 2$, $start = 3$

Output: $[3, 2, 0, 1]$

Explanation: The binary representation of the permutation is $(11, 10, 01, 00)$. All the adjacent elements differ by one bit. Another valid permutation is $(00, 01, 10, 11)$.

Example 2:

Input: $n = 3$, $start = 2$

Output: $[2, 6, 7, 5, 4, 0, 1, 3]$

Explanation: The binary representation of the permutation is $(010, 110, 111, 101, 100, 000, 001, 011)$.

Constraints:

- $1 \leq n \leq 16$
- $0 \leq start < 2^n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1238-Circular-Permutation-in-Binary-Representation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1239. Maximum Length of a Concatenated String with Unique Characters

Given an array of strings `arr`. String `s` is a concatenation of a sub-sequence of `arr` which have **unique characters**.

Return *the maximum possible length* of `s`.

Example 1:

Input: `arr = ["un", "iq", "ue"]`
Output: 4

Explanation: All possible concatenations are "", "un", "iq", "ue",
Maximum length is 4.

Example 2:

```
Input: arr = ["cha", "r", "act", "ers"]
Output: 6
Explanation: Possible solutions are "chaers" and "acters".
```

Example 3:

```
Input: arr = ["abcdefghijklmnopqrstuvwxyz"]
Output: 26
```

Constraints:

- $1 \leq \text{arr.length} \leq 16$
- $1 \leq \text{arr[i].length} \leq 26$
- arr[i] contains only lower case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1239-Maximum-Length-of-a-Concatenated-String-with-Unique-Characters](#)

All Problems:

[Link to All Problems](#)

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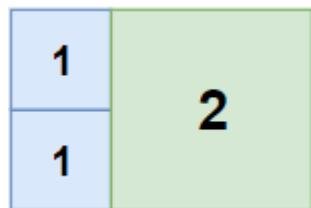
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Welcome to Subscribe On Youtube:

1240. Tiling a Rectangle with the Fewest Squares

Given a rectangle of size $n \times m$, find the minimum number of integer-sided squares that tile the rectangle.

Example 1:



Input: $n = 2$, $m = 3$

Output: 3

Explanation: 3 squares are necessary to cover the rectangle.

2 (squares of 1x1)

1 (square of 2x2)

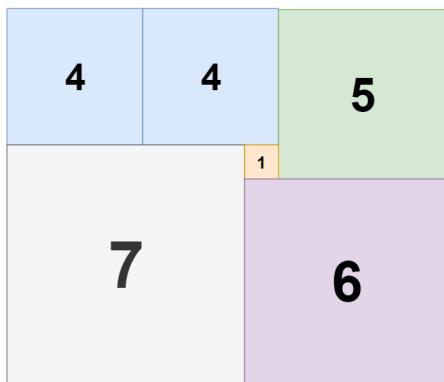
Example 2:



Input: $n = 5$, $m = 8$

Output: 5

Example 3:



Input: $n = 11$, $m = 13$
Output: 6

Constraints:

- $1 \leq n \leq 13$
- $1 \leq m \leq 13$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1240-Tiling-a-Rectangle-with-the-Fewest-Squares](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1241. Number of Comments per Post

Table: Submissions

Column Name	Type
sub_id	int
parent_id	int

There is no primary key for this table, it may have duplicate rows.
Each row can be a post or comment on the post.
parent_id is null for posts.
parent_id for comments is sub_id for another post in the table.

Write an SQL query to find number of comments per each post.

Result table should contain post_id and its corresponding number_of_comments , and must be sorted by post_id in ascending order.

Submissions may contain duplicate comments. You should count the number of **unique comments** per post.

Submissions may contain duplicate posts. You should treat them as one post.

The query result format is in the following example:

Submissions table:

sub_id	parent_id
1	Null
2	Null
1	Null

12	Null
3	1
5	2
3	1
4	1
9	1
10	2
6	7

Result table:

post_id	number_of_comments
1	3
2	2
12	0

The post with id 1 has three comments in the table with id 3, 4 and 5.
The post with id 2 has two comments in the table with id 5 and 10.
The post with id 12 has no comments in the table.
The comment with id 6 is a comment on a deleted post with id 7 so it has no post_id.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1241-Number-of-Comments-per-Post](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1242. Web Crawler Multithreaded

Given a url `startUrl` and an interface `HtmlParser` , implement a **Multi-threaded web crawler** to crawl all links that are under the **same hostname** as `startUrl` .

Return all urls obtained by your web crawler in **any** order.

Your crawler should:

- Start from the page: `startUrl`
- Call `HtmlParser.getUrls(url)` to get all urls from a webpage of given url.
- Do not crawl the same link twice.
- Explore only the links that are under the **same hostname** as `startUrl` .

As shown in the example url above, the hostname is `example.org` . For simplicity sake, you may assume all urls use **http protocol** without any **port** specified. For example, the urls `http://leetcode.com/problems` and `http://leetcode.com/contest` are under the same hostname, while urls `http://example.org/test` and `http://example.com/abc` are not under the same hostname.

The `HtmlParser` interface is defined as such:

```
interface HtmlParser {  
    // Return a list of all urls from a webpage of given url.  
    // This is a blocking call, that means it will do HTTP request  
    public List<String> getUrls(String url);  
}
```

Note that `getUrls(String url)` simulates performing a HTTP request. You can treat it as a blocking function call which waits for a HTTP request to finish. It is guaranteed that `getUrls(String url)` will return the urls within **15ms**. Single-threaded solutions will exceed the time limit so, can your multi-threaded web crawler do better?

Below are two examples explaining the functionality of the problem, for custom testing purposes you'll have three variables `urls` , `edges` and `startUrl` . Notice that you will only have access to `startUrl` in your code, while `urls` and `edges` are not directly accessible to you in code.

Follow up:

1. Assume we have 10,000 nodes and 1 billion URLs to crawl. We will deploy the same software onto each node. The software can know about all the nodes. We have to minimize communication between machines and make sure each node does equal amount of work. How would your web crawler design change?
2. What if one node fails or does not work?
3. How do you know when the crawler is done?

Example 1:

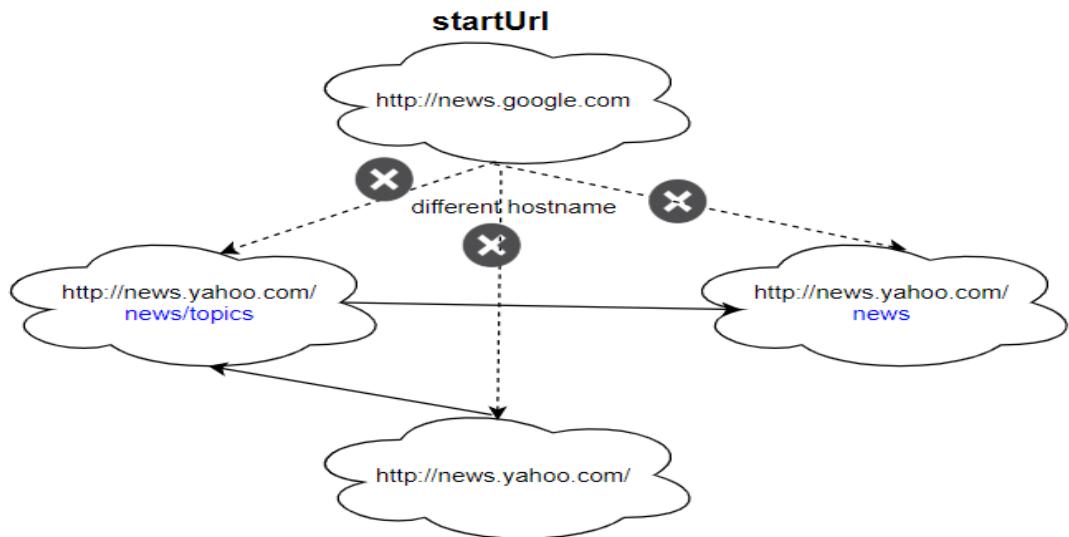
Input:

```
urls = [
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.google.com",
    "http://news.yahoo.com/us"
]
edges = [[2,0],[2,1],[3,2],[3,1],[0,4]]
startUrl = "http://news.yahoo.com/news/topics/"
```

Output:

```
[
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.yahoo.com/us"
]
```

Example 2:



Input:

```
urls = [
    "http://news.yahoo.com",
    "http://news.yahoo.com/news",
    "http://news.yahoo.com/news/topics/",
    "http://news.google.com"
]
```

```
edges = [[0,2],[2,1],[3,2],[3,1],[3,0]]
startUrl = "http://news.google.com"
```

Output: ["http://news.google.com"]

Explanation: The startUrl links to all other pages that do not share the same hostname.

Constraints:

- $1 \leq \text{urls.length} \leq 1000$
- $1 \leq \text{urls}[i].length \leq 300$
- `startUrl` is one of the `urls`.
- Hostname label must be from 1 to 63 characters long, including the dots, may contain only the ASCII letters from 'a' to 'z', digits from '0' to '9' and the hyphen-minus character ('-').
- The hostname may not start or end with the hyphen-minus character ('-').
- See: https://en.wikipedia.org/wiki/Hostname#Restrictions_on_valid_hostnames
- You may assume there're no duplicates in url library.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1242-Web-Crawler-Multithreaded](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1243. Array Transformation

Given an initial array `arr` , every day you produce a new array using the array of the previous day.

On the i -th day, you do the following operations on the array of day $i - 1$ to produce the array of day i :

1. If an element is smaller than both its left neighbor and its right neighbor, then this element is incremented.

2. If an element is bigger than both its left neighbor and its right neighbor, then this element is decremented.
3. The first and last elements never change.

After some days, the array does not change. Return that final array.

Example 1:

Input: arr = [6, 2, 3, 4]

Output: [6, 3, 3, 4]

Explanation:

On the first day, the array is changed from [6, 2, 3, 4] to [6, 3, 3, 4].
No more operations can be done to this array.

Example 2:

Input: arr = [1, 6, 3, 4, 3, 5]

Output: [1, 4, 4, 4, 4, 5]

Explanation:

On the first day, the array is changed from [1, 6, 3, 4, 3, 5] to [1, 4, 4, 4, 4, 5].
On the second day, the array is changed from [1, 4, 4, 4, 4, 5] to [1, 4, 4, 4, 4, 5].
No more operations can be done to this array.

Constraints:

- $1 \leq \text{arr.length} \leq 100$
- $1 \leq \text{arr}[i] \leq 100$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1243-Array-Transformation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1244. Design A Leaderboard

Design a Leaderboard class, which has 3 functions:

1. `addScore(playerId, score)` : Update the leaderboard by adding `score` to the given player's score. If there is no player with such id in the leaderboard, add him to the leaderboard with the given `score` .
2. `top(K)` : Return the score sum of the top `K` players.
3. `reset(playerId)` : Reset the score of the player with the given id to 0. It is guaranteed that the player was added to the leaderboard before calling this function.

Initially, the leaderboard is empty.

Example 1:

Input:

```
["Leaderboard", "addScore", "addScore", "addScore", "addScore", "addScore",  
[], [1, 73], [2, 56], [3, 39], [4, 51], [5, 4], [1], [1], [2], [2, 51], [3]]
```

Output:

```
[null, null, null, null, null, null, 73, null, null, null, 141]
```

Explanation:

```
Leaderboard leaderboard = new Leaderboard ();
leaderboard.addScore(1,73);    // leaderboard = [[1,73]];
leaderboard.addScore(2,56);    // leaderboard = [[1,73],[2,56]];
leaderboard.addScore(3,39);    // leaderboard = [[1,73],[2,56],[3,39]];
leaderboard.addScore(4,51);    // leaderboard = [[1,73],[2,56],[3,39],[4,51]];
leaderboard.addScore(5,4);     // leaderboard = [[1,73],[2,56],[3,39],[4,51],[5,4]];
leaderboard.top(1);          // returns 73;
leaderboard.reset(1);        // leaderboard = [[2,56],[3,39],[4,51]];
leaderboard.reset(2);        // leaderboard = [[3,39],[4,51],[5,4]];
leaderboard.addScore(2,51);   // leaderboard = [[2,51],[3,39],[4,51],[5,4]];
leaderboard.top(3);          // returns 141 = 51 + 51 + 39;
```

Constraints:

- $1 \leq \text{playerId}, K \leq 10000$
- It's guaranteed that K is less than or equal to the current number of players.
- $1 \leq \text{score} \leq 100$
- There will be at most 1000 function calls.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1244-Design-A-Leaderboard](#)

All Problems:

[Link to All Problems](#)

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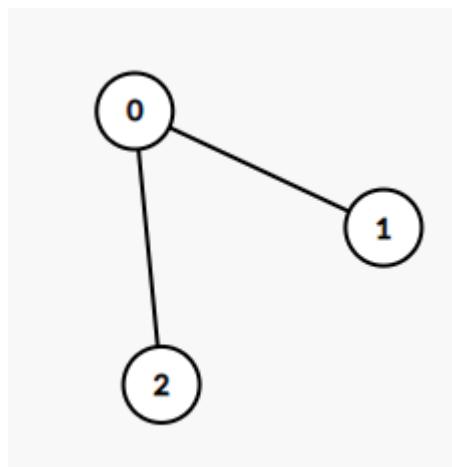
Welcome to Subscribe On Youtube:

1245. Tree Diameter

Given an undirected tree, return its diameter: the number of **edges** in a longest path in that tree.

The tree is given as an array of edges where edges[i] = [u, v] is a bidirectional edge between nodes u and v. Each node has labels in the set {0, 1, ..., edges.length} .

Example 1:



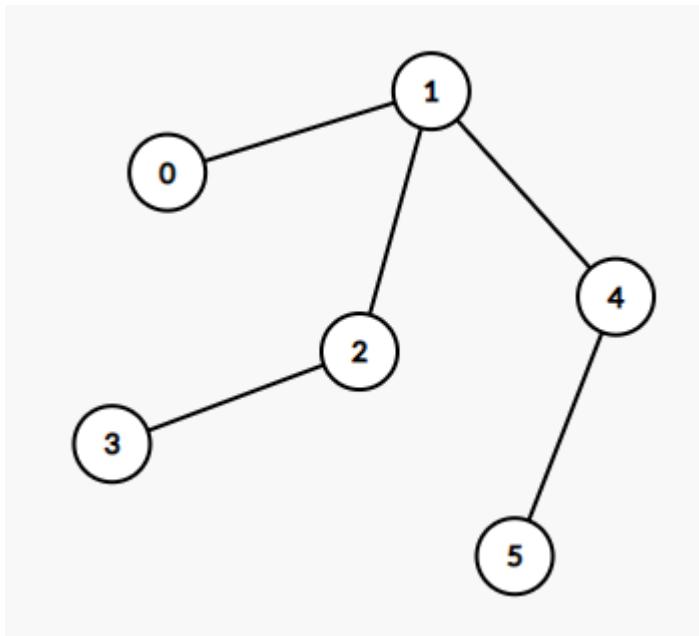
Input: edges = [[0,1],[0,2]]

Output: 2

Explanation:

A longest path of the tree is the path 1 - 0 - 2.

Example 2:



Input: edges = [[0,1],[1,2],[2,3],[1,4],[4,5]]

Output: 4

Explanation:

A longest path of the tree is the path 3 - 2 - 1 - 4 - 5.

Constraints:

- $0 \leq \text{edges.length} < 10^4$
- $\text{edges}[i][0] \neq \text{edges}[i][1]$
- $0 \leq \text{edges}[i][j] \leq \text{edges.length}$
- The given edges form an undirected tree.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1245-Tree-Diameter](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1246. Palindrome Removal

Given an integer array arr , in one move you can select a **palindromic** subarray arr[i] , arr[i+1] , . . . , arr[j] where i <= j , and remove that subarray from the given array. Note that after removing a subarray, the elements on the left and on the right of that subarray move to fill the gap left by the removal.

Return the minimum number of moves needed to remove all numbers from the array.

Example 1:

Input: arr = [1,2]
Output: 2

Example 2:

Input: arr = [1,3,4,1,5]
Output: 3
Explanation: Remove [4] then remove [1,3,1] then remove [5].

Constraints:

- 1 <= arr.length <= 100
- 1 <= arr[i] <= 20

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**

[1246-Palindrome-Removal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1247. Minimum Swaps to Make Strings Equal

You are given two strings s_1 and s_2 of equal length consisting of letters "x" and "y" **only**. Your task is to make these two strings equal to each other. You can

swap any two characters that belong to **different** strings, which means: swap $s1[i]$ and $s2[j]$.

Return the minimum number of swaps required to make $s1$ and $s2$ equal, or return -1 if it is impossible to do so.

Example 1:

Input: $s1 = "xx"$, $s2 = "yy"$

Output: 1

Explanation:

Swap $s1[0]$ and $s2[1]$, $s1 = "yx"$, $s2 = "yx"$.

Example 2:

Input: $s1 = "xy"$, $s2 = "yx"$

Output: 2

Explanation:

Swap $s1[0]$ and $s2[0]$, $s1 = "yy"$, $s2 = "xx"$.

Swap $s1[0]$ and $s2[1]$, $s1 = "xy"$, $s2 = "xy"$.

Note that you can't swap $s1[0]$ and $s1[1]$ to make $s1$ equal to "yx".

Example 3:

Input: $s1 = "xx"$, $s2 = "xy"$

Output: -1

Example 4:

Input: $s1 = "xxyyxyxyxx"$, $s2 = "xyyxxyxxxx"$

Output: 4

Constraints:

- $1 \leq s1.length, s2.length \leq 1000$
- $s1, s2$ only contain 'x' or 'y' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1247-Minimum-Swaps-to-Make-Strings-Equal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1248. Count Number of Nice Subarrays

Given an array of integers `nums` and an integer `k` . A subarray is called **nice** if there are `k` odd numbers on it.

Return the number of **nice** sub-arrays.

Example 1:

Input: `nums = [1,1,2,1,1]` , `k = 3`

Output: 2

Explanation: The only sub-arrays with 3 odd numbers are `[1,1,2,1]`

Example 2:

Input: `nums = [2,4,6]` , `k = 1`

Output: 0

Explanation: There is no odd numbers in the array.

Example 3:

Input: nums = [2,2,2,1,2,2,1,2,2,2], k = 2
Output: 16

Constraints:

- $1 \leq \text{nums.length} \leq 50000$
- $1 \leq \text{nums}[i] \leq 10^5$
- $1 \leq k \leq \text{nums.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1248-Count-Number-of-Nice-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1249. Minimum Remove to Make Valid Parentheses

Given a string s of '`(`' , '`)`' and lowercase English characters.

Your task is to remove the minimum number of parentheses (`'(` or `')` , in any positions) so that the resulting *parentheses string* is valid and return **any** valid string.

Formally, a *parentheses string* is valid if and only if:

- It is the empty string, contains only lowercase characters, or
- It can be written as AB (A concatenated with B), where A and B are valid strings, or
- It can be written as (A) , where A is a valid string.

Example 1:

Input: $s = \text{"lee(t(c)o)de")}$

Output: "lee(t(c)o)de"

Explanation: "lee(t(co)de)" , $\text{"lee(t(c)o(de)}"$ would also be accepted.

Example 2:

Input: $s = \text{"a)b(c)d")}$

Output: "ab(c)d")

Example 3:

Input: $s = \text{""))((")}$

Output: ""

Explanation: An empty string is also valid.

Example 4:

Input: $s = \text{"(a(b(c)d))"}$

Output: "a(b(c)d))"

Constraints:

- $1 \leq s.length \leq 10^5$
- $s[i]$ is one of '`(`' , '`)`' and lowercase English letters .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1249-Minimum-Remove-to-Make-Valid-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1250. Check If It Is a Good Array

Given an array `nums` of positive integers. Your task is to select some subset of `nums`, multiply each element by an integer and add all these numbers. The array is said to be

good if you can obtain a sum of 1 from the array by any possible subset and multiplicand.

Return True if the array is **good** otherwise return False .

Example 1:

Input: nums = [12, 5, 7, 23]

Output: true

Explanation: Pick numbers 5 and 7.

$$5*3 + 7*(-2) = 1$$

Example 2:

Input: nums = [29, 6, 10]

Output: true

Explanation: Pick numbers 29, 6 and 10.

$$29*1 + 6*(-3) + 10*(-1) = 1$$

Example 3:

Input: nums = [3, 6]

Output: false

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1250-Check-If-It-Is-a-Good-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1251. Average Selling Price

Table: Prices

Column Name	Type
product_id	int
start_date	date
end_date	date
price	int

(product_id, start_date, end_date) is the primary key for this table.
Each row of this table indicates the price of the product_id in that period.
For each product_id there will be no two overlapping periods. That means
for a product_id there will be one start_date and one end_date.

Table: UnitsSold

Column Name	Type
product_id	int
purchase_date	date
units	int

There is no primary key for this table, it may contain duplicates.
Each row of this table indicates the date, units and product_id of that sale.

Write an SQL query to find the average selling price for each product.

average_price should be **rounded to 2 decimal places**.

The query result format is in the following example:

Prices table:

product_id	start_date	end_date	price
1	2019-02-17	2019-02-28	5
1	2019-03-01	2019-03-22	20
2	2019-02-01	2019-02-20	15
2	2019-02-21	2019-03-31	30

UnitsSold table:

product_id	purchase_date	units
1	2019-02-25	100
1	2019-03-01	15
2	2019-02-10	200
2	2019-03-22	30

Result table:

product_id	average_price
1	6.96
2	16.96

Average selling price = Total Price of Product / Number of products

Average selling price for product 1 = $((100 * 5) + (15 * 20)) / 115$

Average selling price for product 2 = $((200 * 15) + (30 * 30)) / 230$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1251-Average-Selling-Price](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1252. Cells with Odd Values in a Matrix

Given n and m which are the dimensions of a matrix initialized by zeros and given an array `indices` where `indices[i] = [ri, ci]`. For each pair of `[ri, ci]` you have to increment all cells in row r_i and column c_i by 1.

Return *the number of cells with odd values* in the matrix after applying the increment to all `indices`.

Example 1:

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 3 & 1 \\ 1 & 3 & 1 \end{bmatrix}$$

Input: n = 2, m = 3, indices = [[0,1],[1,1]]

Output: 6

Explanation: Initial matrix = [[0,0,0],[0,0,0]].

After applying first increment it becomes [[1,2,1],[0,1,0]].

The final matrix will be [[1,3,1],[1,3,1]] which contains 6 odd numbers.

Example 2:

$$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 1 \\ 1 & 2 \end{bmatrix} \rightarrow \begin{bmatrix} 2 & 2 \\ 2 & 2 \end{bmatrix}$$

Input: n = 2, m = 2, indices = [[1,1],[0,0]]

Output: 0

Explanation: Final matrix = [[2,2],[2,2]]. There is no odd number.

Constraints:

- 1 <= n <= 50
- 1 <= m <= 50
- 1 <= indices.length <= 100
- 0 <= indices[i][0] < n
- 0 <= indices[i][1] < m

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1252-Cells-with-Odd-Values-in-a-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1253. Reconstruct a 2-Row Binary Matrix

Given the following details of a matrix with n columns and 2 rows :

- The matrix is a binary matrix, which means each element in the matrix can be 0 or 1 .
- The sum of elements of the 0-th(upper) row is given as `upper` .
- The sum of elements of the 1-st(lower) row is given as `lower` .
- The sum of elements in the i -th column(0-indexed) is `colsum[i]` , where `colsum` is given as an integer array with length n .

Your task is to reconstruct the matrix with `upper` , `lower` and `colsum` .

Return it as a 2-D integer array.

If there are more than one valid solution, any of them will be accepted.

If no valid solution exists, return an empty 2-D array.

Example 1:

Input: upper = 2, lower = 1, colsum = [1,1,1]
Output: [[1,1,0],[0,0,1]]
Explanation: [[1,0,1],[0,1,0]], and [[0,1,1],[1,0,0]] are also correct.

Example 2:

Input: upper = 2, lower = 3, colsum = [2,2,1,1]
Output: []

Example 3:

Input: upper = 5, lower = 5, colsum = [2,1,2,0,1,0,1,2,0,1]
Output: [[1,1,1,0,1,0,0,1,0,0],[1,0,1,0,0,0,1,1,0,1]]

Constraints:

- $1 \leq \text{colsum.length} \leq 10^5$
- $0 \leq \text{upper}, \text{lower} \leq \text{colsum.length}$
- $0 \leq \text{colsum}[i] \leq 2$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1253-Reconstruct-a-2-Row-Binary-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1254. Number of Closed Islands

Given a 2D grid consists of 0s (land) and 1s (water). An *island* is a maximal 4-directionally connected group of 0 s and a *closed island* is an island **totally** (all left, top, right, bottom) surrounded by 1s .

Return the number of *closed islands* .

Example 1:

1	1	1	1	1	1	1	0
1	0	0	0	0	1	1	0
1	0	1	0	1	1	1	0
1	0	0	0	0	1	0	1
1	1	1	1	1	1	1	0

Input: grid = [[1,1,1,1,1,1,1,0],[1,0,0,0,0,1,1,0],[1,0,1,0,1,1,1,1],
Output: 2

Explanation:

Islands in gray are closed because they are completely surrounded by water.

Example 2:

0	0	1	0	0
0	1	0	1	0
0	1	1	1	0

Input: grid = [[0,0,1,0,0],[0,1,0,1,0],[0,1,1,1,0]]
Output: 1

Example 3:

Input: grid = [[1,1,1,1,1,1],[1,0,0,0,0,1],

```
[1,0,1,1,1,0,1],  
[1,0,1,0,1,0,1],  
[1,0,1,1,1,0,1],  
[1,0,0,0,0,0,1],  
[1,1,1,1,1,1,1]]
```

Output: 2

Constraints:

- $1 \leq \text{grid.length}, \text{grid}[0].length \leq 100$
- $0 \leq \text{grid}[i][j] \leq 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1254-Number-of-Closed-Islands](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1255. Maximum Score Words Formed by Letters

Given a list of words , list of single letters (might be repeating) and score of every character.

Return the maximum score of **any** valid set of words formed by using the given letters (words[i] cannot be used two or more times).

It is not necessary to use all characters in letters and each letter can only be used once. Score of letters 'a' , 'b' , 'c' ,..., 'z' is given by score[0] , score[1] ,..., score[25] respectively.

Example 1:

Input: words = ["dog", "cat", "dad", "good"], letters = ["a", "a", "c", "d", "d", "d", "g", "o", "o", "o"]
Output: 23
Explanation:
Score a=1, c=9, d=5, g=3, o=2
Given letters, we can form the words "dad" (5+1+5) and "good" (3+9+9).
Words "dad" and "dog" only get a score of 21.

Example 2:

Input: words = ["xxxz", "ax", "bx", "cx"], letters = ["z", "a", "b", "c", "x", "x", "x"]
Output: 27
Explanation:
Score a=4, b=4, c=4, x=5, z=10
Given letters, we can form the words "ax" (4+5), "bx" (4+5) and Word "xxxz" only get a score of 25.

Example 3:

Input: words = ["leetcode"], letters = ["l", "e", "t", "c", "o", "d"]
Output: 0
Explanation:
Letter "e" can only be used once.

Constraints:

- $1 \leq \text{words.length} \leq 14$
- $1 \leq \text{words[i].length} \leq 15$
- $1 \leq \text{letters.length} \leq 100$
- $\text{letters[i].length} == 1$
- $\text{score.length} == 26$
- $0 \leq \text{score[i]} \leq 10$

- `words[i]` , `letters[i]` contains only lower case English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1255-Maximum-Score-Words-Formed-by-Letters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1256. Encode Number

Given a non-negative integer `num` , Return its *encoding* string.

The encoding is done by converting the integer to a string using a secret function that you should deduce from the following table:

n	f(n)
0	""
1	"0"
2	"1"
3	"00"
4	"01"
5	"10"
6	"11"
7	"000"

Example 1:

Input: num = 23
Output: "1000"

Example 2:

Input: num = 107
Output: "101100"

Constraints:

- $0 \leq \text{num} \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1256-Encode-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1257. Smallest Common Region

You are given some lists of regions where the first region of each list includes all other regions in that list.

Naturally, if a region X contains another region Y then X is bigger than Y . Also by definition a region X contains itself.

Given two regions `region1` , `region2` , find out the **smallest** region that contains both of them.

If you are given regions `r1` , `r2` and `r3` such that `r1` includes `r3` , it is guaranteed there is no `r2` such that `r2` includes `r3` .

It's guaranteed the smallest region exists.

Example 1:

Input:
regions = [["Earth", "North America", "South America"], ["North America", "United States", "Canada"], ["United States", "New York", "Boston"], ["Canada", "Ontario", "Quebec"], ["South America", "Brazil"]],
region1 = "Quebec",
region2 = "New York"
Output: "North America"

Constraints:

- $2 \leq \text{regions.length} \leq 10^4$
- $\text{region1} \neq \text{region2}$
- All strings consist of English letters and spaces with at most 20 letters.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1257-Smallest-Common-Region](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1258. Synonymous Sentences

Given a list of pairs of equivalent words `synonyms` and a sentence `text`, Return all possible synonymous sentences **sorted lexicographically**.

Example 1:

Input:

```
synonyms = [["happy", "joy"], ["sad", "sorrow"], ["joy", "cheerful"]]
text = "I am happy today but was sad yesterday"
```

Output:

```
["I am cheerful today but was sad yesterday",
 "I am happy today but was sorrow yesterday",
 "I am happy today but was sad yesterday",
 "I am happy today but was sorrow yesterday",
 "I am joy today but was sad yesterday",
 "I am joy today but was sorrow yesterday"]
```

Constraints:

- $0 \leq \text{synonyms.length} \leq 10$
- $\text{synonyms}[i].length == 2$
- $\text{synonyms}[0] \neq \text{synonyms}[1]$
- All words consist of at most 10 English letters only.
- `text` is a single space separated sentence of at most 10 words.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1258-Synonymous-Sentences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1259. Handshakes That Don't Cross

You are given an **even** number of people `num_people` that stand around a circle and each person shakes hands with someone else, so that there are `num_people / 2` handshakes total.

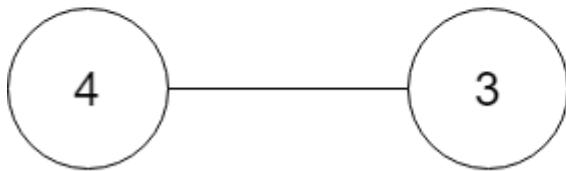
Return the number of ways these handshakes could occur such that none of the handshakes cross.

Since this number could be very big, return the answer **mod $10^9 + 7$**

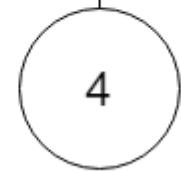
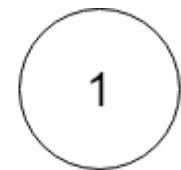
Example 1:

Input: num_people = 2
Output: 1

Example 2:



[1]

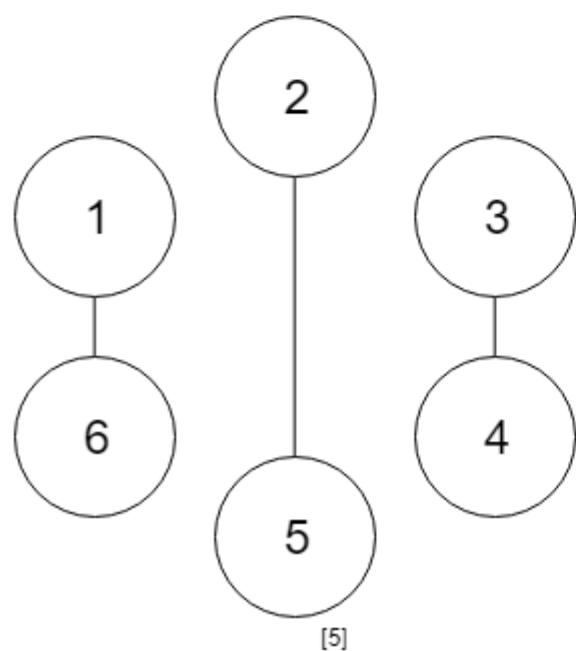
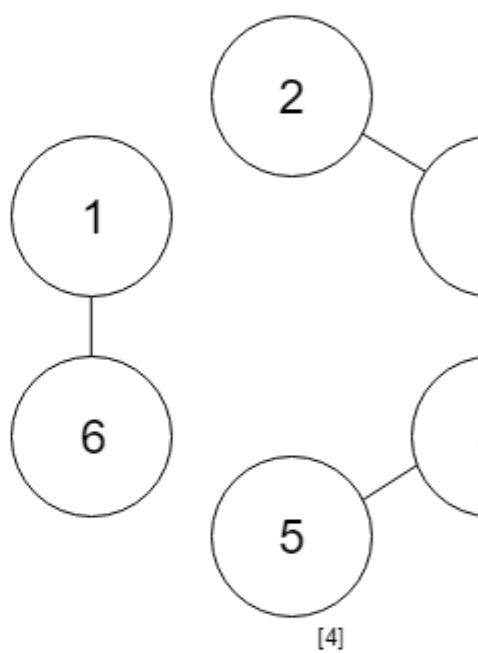
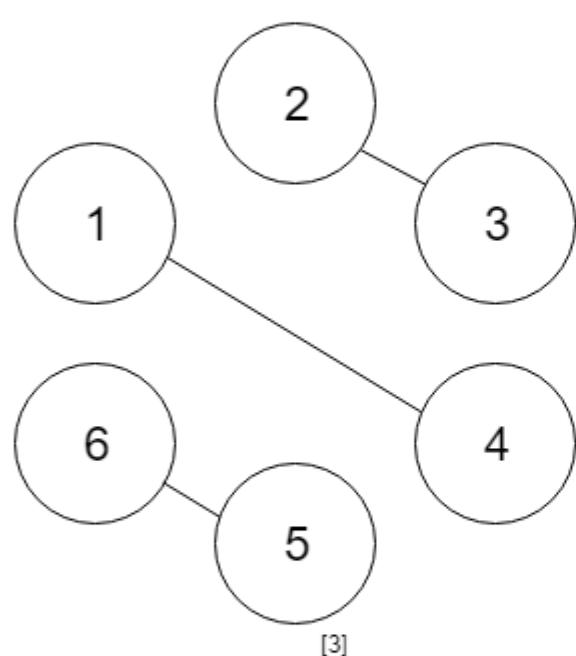
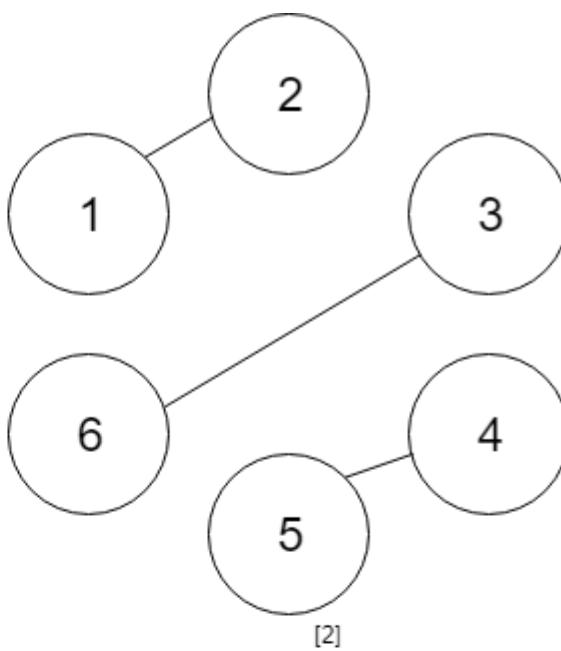
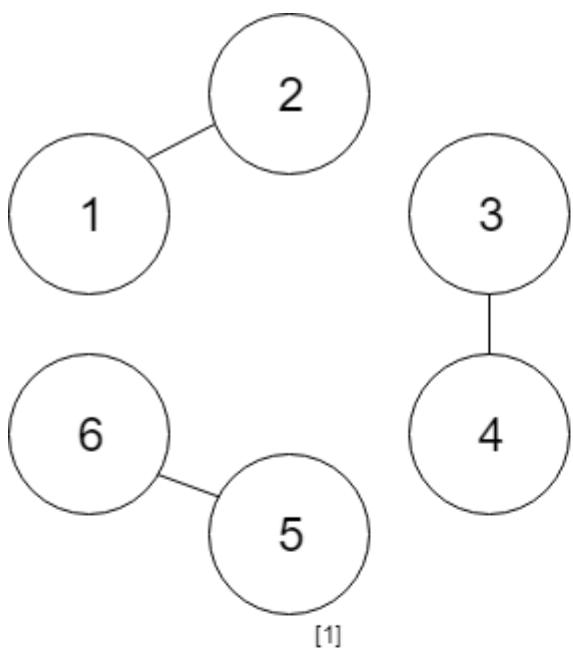


[2]

Input: num_people = 4
Output: 2

Explanation: There are two ways to do it, the first way is [(1,2

Example 3:



Input: num_people = 6
Output: 5

Example 4:

Input: num_people = 8
Output: 14

Constraints:

- $2 \leq \text{num_people} \leq 1000$
- $\text{num_people} \% 2 == 0$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1259-Handshakes-That-Don't-Cross](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1260. Shift 2D Grid

Given a 2D grid of size $m \times n$ and an integer k . You need to shift the grid k times.

In one shift operation:

- Element at $\text{grid}[i][j]$ becomes at $\text{grid}[i][j + 1]$.
- Element at $\text{grid}[i][n - 1]$ becomes at $\text{grid}[i + 1][0]$.
- Element at $\text{grid}[n - 1][n - 1]$ becomes at $\text{grid}[0][0]$.

Return the 2D grid after applying shift operation k times.

Example 1:

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \rightarrow \begin{bmatrix} 9 & 1 & 2 \\ 3 & 4 & 5 \\ 6 & 7 & 8 \end{bmatrix}$$

Input: $\text{grid} = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]$, $k = 1$
Output: $[[9, 1, 2], [3, 4, 5], [6, 7, 8]]$

Example 2:

$$\begin{bmatrix} 3 & 8 & 1 & 9 \\ 19 & 7 & 2 & 5 \\ 4 & 6 & 11 & 10 \\ 12 & 0 & 21 & 13 \end{bmatrix} \rightarrow \begin{bmatrix} 13 & 3 & 8 & 1 \\ 9 & 19 & 7 & 2 \\ 5 & 4 & 6 & 11 \\ 10 & 12 & 0 & 21 \end{bmatrix} \rightarrow \begin{bmatrix} 21 & 13 & 3 & 8 \\ 1 & 9 & 19 & 7 \\ 2 & 5 & 4 & 6 \\ 11 & 10 & 12 & 0 \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} 0 & 21 & 13 & 3 \\ 8 & 1 & 9 & 19 \\ 7 & 2 & 5 & 4 \\ 6 & 11 & 10 & 12 \end{bmatrix} \rightarrow \begin{bmatrix} 12 & 0 & 21 & 13 \\ 3 & 8 & 1 & 9 \\ 19 & 7 & 2 & 5 \\ 4 & 6 & 11 & 10 \end{bmatrix}$$

Input: $\text{grid} = [[3, 8, 1, 9], [19, 7, 2, 5], [4, 6, 11, 10], [12, 0, 21, 13]]$, $k = 2$
Output: $[[12, 0, 21, 13], [3, 8, 1, 9], [19, 7, 2, 5], [4, 6, 11, 10]]$

Example 3:

Input: grid = [[1,2,3],[4,5,6],[7,8,9]], k = 9
Output: [[1,2,3],[4,5,6],[7,8,9]]

Constraints:

- m == grid.length
- n == grid[i].length
- 1 <= m <= 50
- 1 <= n <= 50
- -1000 <= grid[i][j] <= 1000
- 0 <= k <= 100

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1260-Shift-2D-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1261. Find Elements in a Contaminated Binary Tree

Given a binary tree with the following rules:

1. `root.val == 0`
2. If `treeNode.val == x` and `treeNode.left != null`, then `treeNode.left.val == 2 * x + 1`
3. If `treeNode.val == x` and `treeNode.right != null`, then `treeNode.right.val == 2 * x + 2`

Now the binary tree is contaminated, which means all `treeNode.val` have been changed to -1 .

You need to first recover the binary tree and then implement the `FindElements` class:

- `FindElements(TreeNode* root)` Initializes the object with a contaminated binary tree, you need to recover it first.
- `bool find(int target)` Return if the target value exists in the recovered binary tree.

Example 1:

Input
["FindElements","find","find"]
[[[-1,null,-1]],[1],[2]]
Output
[null,false,true]
Explanation
`FindElements findElements = new FindElements([-1,null,-1]);`
`findElements.find(1); // return False`
`findElements.find(2); // return True`

Example 2:

Input
["FindElements","find","find","find"]
[[[-1,-1,-1,-1,-1]],[1],[3],[5]]
Output
[null,true,true,false]

Explanation

```
FindElements findElements = new FindElements([-1,-1,-1,-1,-1]);  
findElements.find(1); // return True  
findElements.find(3); // return True  
findElements.find(5); // return False
```

Example 3:

Input

```
["FindElements","find","find","find","find"]  
[[[-1,null,-1,-1,null,-1]],[2],[3],[4],[5]]
```

Output

```
[null,true,false,false,true]
```

Explanation

```
FindElements findElements = new FindElements([-1,null,-1,-1,null]  
findElements.find(2); // return True  
findElements.find(3); // return False  
findElements.find(4); // return False  
findElements.find(5); // return True
```

Constraints:

- `TreeNode.val == -1`
- The height of the binary tree is less than or equal to 20
- The total number of nodes is between [1, 10^4]
- Total calls of `find()` is between [1, 10^4]
- $0 \leq \text{target} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1261-Find-Elements-in-a-Contaminated-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1262. Greatest Sum Divisible by Three

Given an array `nums` of integers, we need to find the maximum possible sum of elements of the array such that it is divisible by three.

Example 1:

Input: `nums = [3, 6, 5, 1, 8]`

Output: 18

Explanation: Pick numbers 3, 6, 1 and 8 their sum is 18 (maximum)

Example 2:

Input: `nums = [4]`

Output: 0

Explanation: Since 4 is not divisible by 3, do not pick any number

Example 3:

Input: `nums = [1, 2, 3, 4, 4]`

Output: 12

Explanation: Pick numbers 1, 3, 4 and 4 their sum is 12 (maximum)

Constraints:

- $1 \leq \text{nums.length} \leq 4 * 10^4$
- $1 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1262-Greatest-Sum-Divisible-by-Three](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1263. Minimum Moves to Move a Box to Their Target Location

Storekeeper is a game in which the player pushes boxes around in a warehouse trying to get them to target locations.

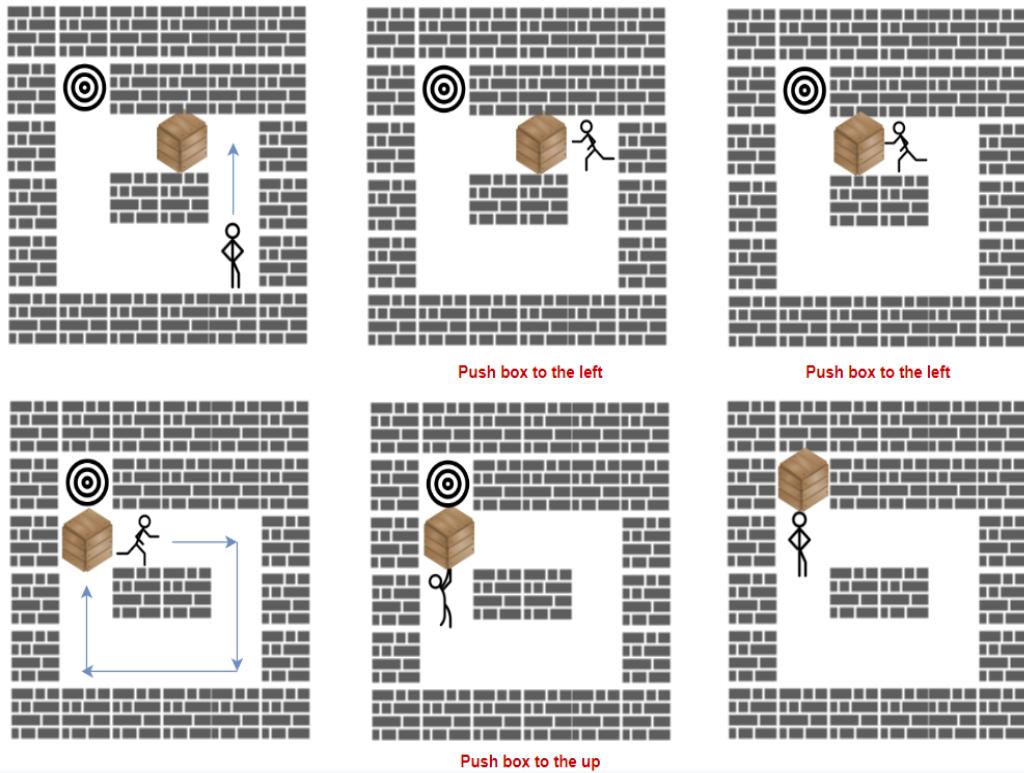
The game is represented by a grid of size $m \times n$, where each element is a wall, floor, or a box.

Your task is move the box 'B' to the target position 'T' under the following rules:

- Player is represented by character 'S' and can move up, down, left, right in the grid if it is a floor (empty cell).
- Floor is represented by character '.' that means free cell to walk.
- Wall is represented by character '#' that means obstacle (impossible to walk there).
- There is only one box 'B' and one target cell 'T' in the grid .
- The box can be moved to an adjacent free cell by standing next to the box and then moving in the direction of the box. This is a **push** .
- The player cannot walk through the box.

Return the minimum number of **pushes** to move the box to the target. If there is no way to reach the target, return -1 .

Example 1:



Input: grid = [[#, #, #, #, #, #],
 [#, T, #, #, #, #],
 [#, ., ., B, ., #],
 [#, ., #, #, ., #],
 [#, ., ., ., S, #],
 [#, #, #, #, #, #]]

Output: 3

Explanation: We return only the number of times the box is pushed.

Example 2:

Input: grid = [[#, #, #, #, #, #],
 [#, T, #, #, #, #],
 [#, ., ., B, ., #],
 [#, #, #, #, ., #],
 [#, ., ., ., S, #],
 [#, #, #, #, #, #]]

Output: -1

Example 3:

Input: grid = [[#, #, #, #, #, #],
 [#, T, ., ., #, #],
 [#, ., #, B, ., #],
 [#, ., ., ., ., #],
 [#, ., ., ., S, #],
 [#, #, #, #, #, #]]

Output: 5

Explanation: push the box down, left, left, up and up.

Example 4:

```
Input: grid = [[#, #, #, #, #, #, #],  
               [# , S , #, ., B , T , #],  
               [# , #, #, #, #, #, #]]  
Output: -1
```

Constraints:

- $m == \text{grid.length}$
- $n == \text{grid[i].length}$
- $1 \leq m \leq 20$
- $1 \leq n \leq 20$
- grid contains only characters '.', '#', 'S', 'T', or 'B'.
- There is only one character 'S', 'B' and 'T' in the grid .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1263-Minimum-Moves-to-Move-a-Box-to-Their-Target-Location](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1264. Page Recommendations

SQL Schema >

Table: Friendship

Column Name	Type
user1_id	int
user2_id	int

(user1_id, user2_id) is the primary key for this table.
Each row of this table indicates that there is a friendship relation between user1_id and user2_id.

Table: Likes

Column Name	Type
user_id	int
page_id	int

(user_id, page_id) is the primary key for this table.
Each row of this table indicates that user_id likes page_id.

Write an SQL query to recommend pages to the user with user_id = 1 using the pages that your friends liked. It should not recommend pages you already liked.

Return result table in any order without duplicates.

The query result format is in the following example:

Friendship table:

user1_id	user2_id
1	2
1	3
1	4

2	3
2	4
2	5
6	1

Likes table:

user_id	page_id
1	88
2	23
3	24
4	56
5	11
6	33
2	77
3	77
6	88

Result table:

recommended_page
23
24
56
33
77

User one is friend with users 2, 3, 4 and 6.

Suggested pages are 23 from user 2, 24 from user 3, 56 from user

Page 77 is suggested from both user 2 and user 3.

Page 88 is not suggested because user 1 already likes it.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1264-Page-Recommendations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1265. Print Immutable Linked List in Reverse

You are given an immutable linked list, print out all values of each node in reverse with the help of the following interface:

- `ImmutableListNode` : An interface of immutable linked list, you are given the head of the list.

You need to use the following functions to access the linked list (you **can't** access the `ImmutableListNode` directly):

- `ImmutableListNode.printValue()` : Print value of the current node.
- `ImmutableListNode.getNext()` : Return the next node.

The input is only given to initialize the linked list internally. You must solve this problem without modifying the linked list. In other words, you must operate the linked list using only the mentioned APIs.

Follow up:

Could you solve this problem in:

- Constant space complexity?
- Linear time complexity and less than linear space complexity?

Example 1:

Input: head = [1, 2, 3, 4]
Output: [4, 3, 2, 1]

Example 2:

Input: head = [0, -4, -1, 3, -5]
Output: [-5, 3, -1, -4, 0]

Example 3:

Input: head = [-2, 0, 6, 4, 4, -6]
Output: [-6, 4, 4, 6, 0, -2]

Constraints:

- The length of the linked list is between [1, 1000] .
- The value of each node in the linked list is between [-1000, 1000] .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1265-Print-Immutable-Linked-List-in-Reverse](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1266. Minimum Time Visiting All Points

On a plane there are n points with integer coordinates $\text{points}[i] = [x_i, y_i]$. Your task is to find the minimum time in seconds to visit all points.

You can move according to the next rules:

- In one second always you can either move vertically, horizontally by one unit or diagonally (it means to move one unit vertically and one unit horizontally in one second).
- You have to visit the points in the same order as they appear in the array.

Example 1:



Input: points = [[1,1],[3,4],[-1,0]]

Output: 7

Explanation: One optimal path is [1,1] -> [2,2] -> [3,3] -> [3,4]

Time from [1,1] to [2,2] = 3 seconds

Time from [3,4] to [-1,0] = 4 seconds

Total time = 7 seconds

Example 2:

Input: points = [[3,2],[-2,2]]

Output: 5

Constraints:

- `points.length == n`
- `1 <= n <= 100`
- `points[i].length == 2`
- `-1000 <= points[i][0], points[i][1] <= 1000`

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1266-Minimum-Time-Visiting-All-Points](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1267. Count Servers that Communicate

You are given a map of a server center, represented as a $m * n$ integer matrix `grid`, where 1 means that on that cell there is a server and 0 means that it is no server. Two servers are said to communicate if they are on the same row or on the same column.

Return the number of servers that communicate with any other server.

Example 1:

Input: grid = [[1,0],[0,1]]

Output: 0

Explanation: No servers can communicate with others.

Example 2:

Input: grid = [[1,0],[1,1]]

Output: 3

Explanation: All three servers can communicate with at least one other server.

Example 3:

Input: grid = [[1,1,0,0],[0,0,1,0],[0,0,1,0],[0,0,0,1]]

Output: 4

Explanation: The two servers in the first row can communicate with each other, and the two servers in the third row can communicate with each other.

Constraints:

- m == grid.length
- n == grid[i].length
- 1 <= m <= 250
- 1 <= n <= 250
- grid[i][j] == 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1267-Count-Servers-that-Communicate](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1268. Search Suggestions System

Given an array of strings `products` and a string `searchWord`. We want to design a system that suggests at most three product names from `products` after each character of `searchWord` is typed. Suggested products should have common prefix with the `searchWord`. If there are more than three products with a common prefix return the three lexicographically minimums products.

Return *list of lists* of the suggested products after each character of `searchWord` is typed.

Example 1:

```
Input: products = ["mobile", "mouse", "moneypot", "monitor", "mousepad"]
Output: [
  ["mobile", "moneypot", "monitor"],
  ["mobile", "moneypot", "monitor"],
  ["mouse", "mousepad"],
  ["mouse", "mousepad"],
  ["mouse", "mousepad"]
]
Explanation: products sorted lexicographically = ["mobile", "moneypot", "monitor", "mouse", "mousepad"]
After typing m and mo all products match and we show user ["mobile", "moneypot", "monitor"]
After typing mou, mous and mouse the system suggests ["mouse", "mousepad"]
```

Example 2:

```
Input: products = ["havana"], searchWord = "havana"
Output: [["havana"], ["havana"], ["havana"], ["havana"], ["havana"]],
```

Example 3:

```
Input: products = ["bags", "baggage", "banner", "box", "cloths"], se
Output: [["baggage", "bags", "banner"], ["baggage", "bags", "banner"]]
```

Example 4:

```
Input: products = ["havana"], searchWord = "tatiana"
Output: [[], [], [], [], [], [], []]
```

Constraints:

- $1 \leq \text{products.length} \leq 1000$
- There are no repeated elements in products .
- $1 \leq \text{products[i].length} \leq 2 * 10^4$
- All characters of products[i] are lower-case English letters.
- $1 \leq \text{searchWord.length} \leq 1000$
- All characters of searchWord are lower-case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1268-Search-Suggestions-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1269. Number of Ways to Stay in the Same Place After Some Steps

You have a pointer at index 0 in an array of size arrLen . At each step, you can move 1 position to the left, 1 position to the right in the array or stay in the same place (The pointer should not be placed outside the array at any time).

Given two integers steps and arrLen , return the number of ways such that your pointer still at index 0 after **exactly** steps steps.

Since the answer may be too large, return it **modulo** $10^9 + 7$.

Example 1:

Input: $\text{steps} = 3$, $\text{arrLen} = 2$
Output: 4

Explanation: There are 4 differents ways to stay at index 0 after 3 steps:
Right, Left, Stay
Stay, Right, Left
Right, Stay, Left
Stay, Stay, Stay

Example 2:

Input: $\text{steps} = 2$, $\text{arrLen} = 4$
Output: 2

Explanation: There are 2 differents ways to stay at index 0 after 2 steps:

Right, Left
Stay, Stay

Example 3:

Input: steps = 4, arrLen = 2
Output: 8

Constraints:

- $1 \leq \text{steps} \leq 500$
- $1 \leq \text{arrLen} \leq 10^6$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1269-Number-of-Ways-to-Stay-in-the-Same-Place-After-Some-Steps](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1270. All People Report to the Given Manager

SQL Schema >

Table: Employees

Column Name	Type
employee_id	int
employee_name	varchar
manager_id	int

employee_id is the primary key for this table.

Each row of this table indicates that the employee with ID employee_id reports directly to manager with ID manager_id. The head of the company is the employee with employee_id = 1.

Write an SQL query to find employee_id of all employees that directly or indirectly report their work to the head of the company.

The indirect relation between managers will not exceed 3 managers as the company is small.

Return result table in any order without duplicates.

The query result format is in the following example:

Employees table:

employee_id	employee_name	manager_id
1	Boss	1
3	Alice	3
2	Bob	1
4	Daniel	2
7	Luis	4
8	Jhon	3
9	Angela	8
77	Robert	1

Result table:

--

employee_id
2
77
4
7

The head of the company is the employee with employee_id 1.
The employees with employee_id 2 and 77 report their work directly to the head.
The employee with employee_id 4 report his work indirectly to the head.
The employee with employee_id 7 report his work indirectly to the head.
The employees with employee_id 3, 8 and 9 don't report their work.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1270-All-People-Report-to-the-Given-Manager](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1271. Hексспек

A decimal number can be converted to its *Hексспек representation* by first converting it to an uppercase hexadecimal string, then replacing all occurrences of the digit 0 with the letter O , and the digit 1 with the letter I. Such a representation is *valid* if and only if it consists only of the letters in the set { "A" , "B" , "C" , "D" , "E" , "F" , "I" , "O" } .

Given a string num representing a decimal integer N , return the Hексспек representation of N if it is valid, otherwise return "ERROR" .

Example 1:

Input: num = "257"
Output: "IOI"
Explanation: 257 is 101 in hexadecimal.

Example 2:

Input: num = "3"
Output: "ERROR"

Constraints:

- $1 \leq N \leq 10^{12}$
- There are no leading zeros in the given string.
- All answers must be in uppercase letters.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1271-Hexspeak](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1272. Remove Interval

Given a **sorted** list of disjoint intervals , each interval `intervals[i] = [a, b]` represents the set of real numbers x such that $a \leq x < b$.

We remove the intersections between any interval in `intervals` and the interval `toBeRemoved` .

Return a **sorted** list of `intervals` after all such removals.

Example 1:

Input: `intervals = [[0,2],[3,4],[5,7]]`, `toBeRemoved = [1,6]`
Output: `[[0,1],[6,7]]`

Example 2:

Input: `intervals = [[0,5]]`, `toBeRemoved = [2,3]`
Output: `[[0,2],[3,5]]`

Constraints:

- $1 \leq \text{intervals.length} \leq 10^4$
- $-10^9 \leq \text{intervals}[i][0] < \text{intervals}[i][1] \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1272-Remove-Interval](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1273. Delete Tree Nodes

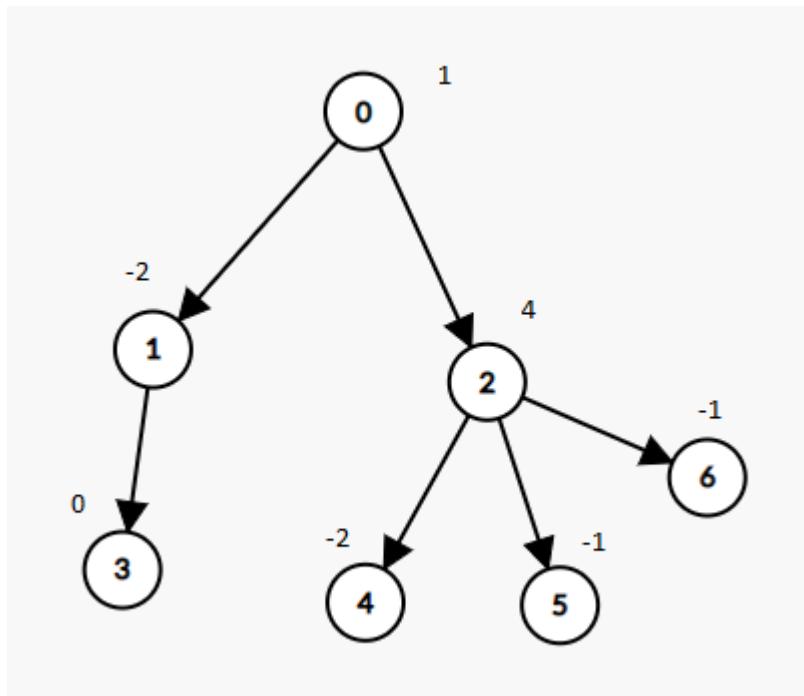
A tree rooted at node 0 is given as follows:

- The number of nodes is `nodes` ;
- The value of the i -th node is `value[i]` ;
- The parent of the i -th node is `parent[i]` .

Remove every subtree whose sum of values of nodes is zero.

After doing so, return the number of nodes remaining in the tree.

Example 1:



Input: `nodes` = 7, `parent` = [-1, 0, 0, 1, 2, 2, 2], `value` = [1, -2, 4, 0, -1, -1, 2]
Output: 2

Constraints:

- $1 \leq \text{nodes} \leq 10^4$
- $-10^5 \leq \text{value}[i] \leq 10^5$
- `parent.length == nodes`
- `parent[0] == -1` which indicates that 0 is the root.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1273-Delete-Tree-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1274. Number of Ships in a Rectangle

*(This problem is an **interactive problem** .)*

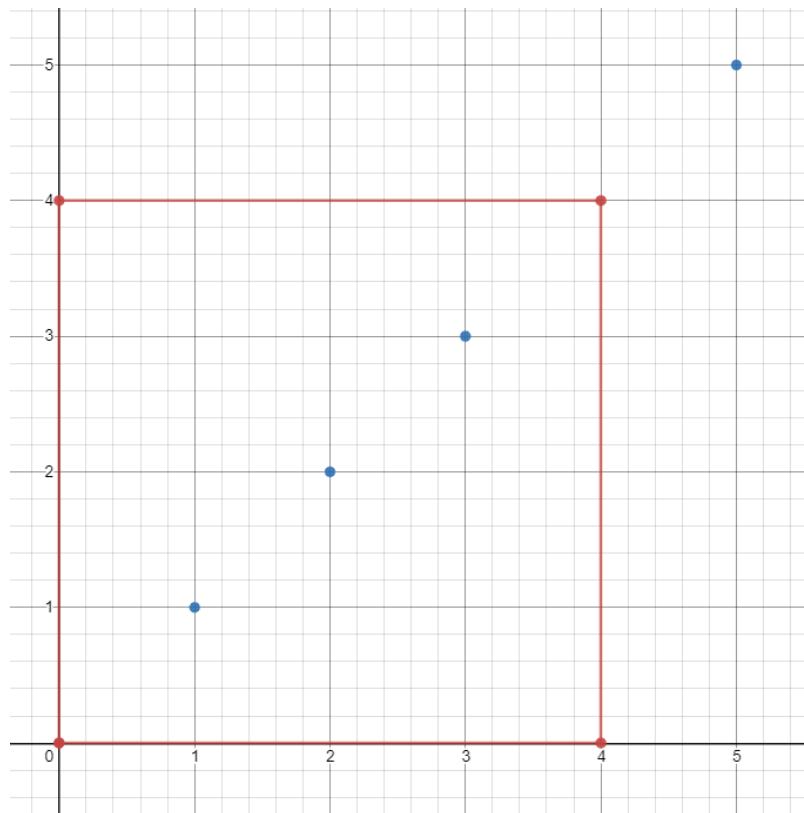
On the sea represented by a cartesian plane, each ship is located at an integer point, and each integer point may contain at most 1 ship.

You have a function `Sea.hasShips(topRight, bottomLeft)` which takes two points as arguments and returns `true` if and only if there is at least one ship in the rectangle represented by the two points, including on the boundary.

Given two points, which are the top right and bottom left corners of a rectangle, return the number of ships present in that rectangle. It is guaranteed that there are **at most 10 ships** in that rectangle.

Submissions making **more than 400 calls** to `hasShips` will be judged *Wrong Answer*. Also, any solutions that attempt to circumvent the judge will result in disqualification.

Example :



Input:

`ships = [[1,1],[2,2],[3,3],[5,5]], topRight = [4,4], bottomLeft = [0,0]`

Output: 3

Explanation: From [0,0] to [4,4] we can count 3 ships within the rectangle.

Constraints:

- On the input `ships` is only given to initialize the map internally. You must solve this problem

"blindfolded". In other words, you must find the answer using the given hasShips API, without knowing the ships position.

- $0 \leq \text{bottomLeft}[0] \leq \text{topRight}[0] \leq 1000$
- $0 \leq \text{bottomLeft}[1] \leq \text{topRight}[1] \leq 1000$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1274-Number-of-Ships-in-a-Rectangle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1275. Find Winner on a Tic Tac Toe Game

Tic-tac-toe is played by two players *A* and *B* on a 3×3 grid.

Here are the rules of Tic-Tac-Toe:

- Players take turns placing characters into empty squares (" ").
- The first player *A* always places "X" characters, while the second player *B* always places "O" characters.
- "X" and "O" characters are always placed into empty squares, never on filled ones.
- The game ends when there are 3 of the same (non-empty) character filling any row, column, or diagonal.
- The game also ends if all squares are non-empty.
- No more moves can be played if the game is over.

Given an array `moves` where each element is another array of size 2 corresponding to the row and column of the grid where they mark their respective character in the order in which *A* and *B* play.

Return the winner of the game if it exists (*A* or *B*), in case the game ends in a draw return "Draw", if there are still movements to play return "Pending".

You can assume that `moves` is **valid** (It follows the rules of Tic-Tac-Toe), the grid is initially empty and *A* will play **first**.

Example 1:

```
Input: moves = [[0,0],[2,0],[1,1],[2,1],[2,2]]  
Output: "A"  
Explanation: "A" wins, he always plays first.  
"X" "X" "X" "X" "X"  
" " -> " " -> " X " -> " X " -> " X "  
" " "0" "0" "00" "00X"
```

Example 2:

```
Input: moves = [[0,0],[1,1],[0,1],[0,2],[1,0],[2,0]]
Output: "B"
Explanation: "B" wins.
"X" "X" "XX" "XX0" "XX0" "XX0"
" " -> "0" -> "0" -> "0" -> "X0" -> "X0"
" " " " " " " " " " " "0"
```

Example 3:

```
Input: moves = [[0,0],[1,1],[2,0],[1,0],[1,2],[2,1],[0,1],[0,2],
Output: "Draw"
Explanation: The game ends in a draw since there are no moves to
"XX0"
"OOX"
"XOX"
```

Example 4:

```
Input: moves = [[0,0],[1,1]]
Output: "Pending"
Explanation: The game has not finished yet.
"X"
"0"
" "
```

Constraints:

- $1 \leq \text{moves.length} \leq 9$
- $\text{moves[i].length} == 2$
- $0 \leq \text{moves[i][j]} \leq 2$
- There are no repeated elements on moves .
- moves follow the rules of tic tac toe.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1275-Find-Winner-on-a-Tic-Tac-Toe-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1276. Number of Burgers with No Waste of Ingredients

Given two integers `tomatoSlices` and `cheeseSlices` .
The ingredients of different burgers are as follows:

- **Jumbo Burger:** 4 tomato slices and 1 cheese slice.
- **Small Burger:** 2 Tomato slices and 1 cheese slice.

Return `[total_jumbo, total_small]` so that the number of remaining `tomatoSlices` equal to 0 and the number of remaining `cheeseSlices` equal to 0. If it is not possible to make the remaining `tomatoSlices` and `cheeseSlices` equal to 0 return `[]` .

Example 1:

Input: `tomatoSlices = 16, cheeseSlices = 7`

Output: `[1,6]`

Explanation: To make one jumbo burger and 6 small burgers we need

Example 2:

Input: tomatoSlices = 17, cheeseSlices = 4

Output: []

Explanation: There will be no way to use all ingredients to make a burger.

Example 3:

Input: tomatoSlices = 4, cheeseSlices = 17

Output: []

Explanation: Making 1 jumbo burger there will be 16 cheese remaining.

Example 4:

Input: tomatoSlices = 0, cheeseSlices = 0

Output: [0,0]

Example 5:

Input: tomatoSlices = 2, cheeseSlices = 1

Output: [0,1]

Constraints:

- $0 \leq \text{tomatoSlices} \leq 10^7$
- $0 \leq \text{cheeseSlices} \leq 10^7$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1276-Number-of-Burgers-with-No-Waste-of-Ingredients](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1277. Count Square Submatrices with All Ones

Given a $m * n$ matrix of ones and zeros, return how many **square** submatrices have all ones.

Example 1:

```
Input: matrix =  
[  
    [0,1,1,1],  
    [1,1,1,1],  
    [0,1,1,1]  
]  
Output: 15  
Explanation:  
There are 10 squares of side 1.  
There are 4 squares of side 2.  
There is 1 square of side 3.  
Total number of squares = 10 + 4 + 1 = 15.
```

Example 2:

```
Input: matrix =  
[  
    [1,0,1],  
    [1,1,0],  
    [1,1,0]  
]  
Output: 7  
Explanation:  
There are 6 squares of side 1.  
There is 1 square of side 2.  
Total number of squares = 6 + 1 = 7.
```

Constraints:

- $1 \leq \text{arr.length} \leq 300$
- $1 \leq \text{arr[0].length} \leq 300$
- $0 \leq \text{arr[i][j]} \leq 1$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1277-Count-Square-Submatrices-with-All-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1278. Palindrome Partitioning III

You are given a string s containing lowercase letters and an integer k . You need to :

- First, change some characters of s to other lowercase English letters.
- Then divide s into k non-empty disjoint substrings such that each substring is palindrome.

Return the minimal number of characters that you need to change to divide the string.

Example 1:

Input: $s = "abc"$, $k = 2$

Output: 1

Explanation: You can split the string into "ab" and "c", and change one character in "ab" to make it a palindrome.

Example 2:

Input: $s = "aabbc"$, $k = 3$

Output: 0

Explanation: You can split the string into "aa", "bb" and "c", and change one character in "aa" and one character in "bb" to make them palindromes.

Example 3:

Input: $s = "leetcode"$, $k = 8$

Output: 0

Constraints:

- $1 \leq k \leq s.length \leq 100$.
- s only contains lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1278-Palindrome-Partitioning-III](#)

All Problems:

[Link to All Problems](#)

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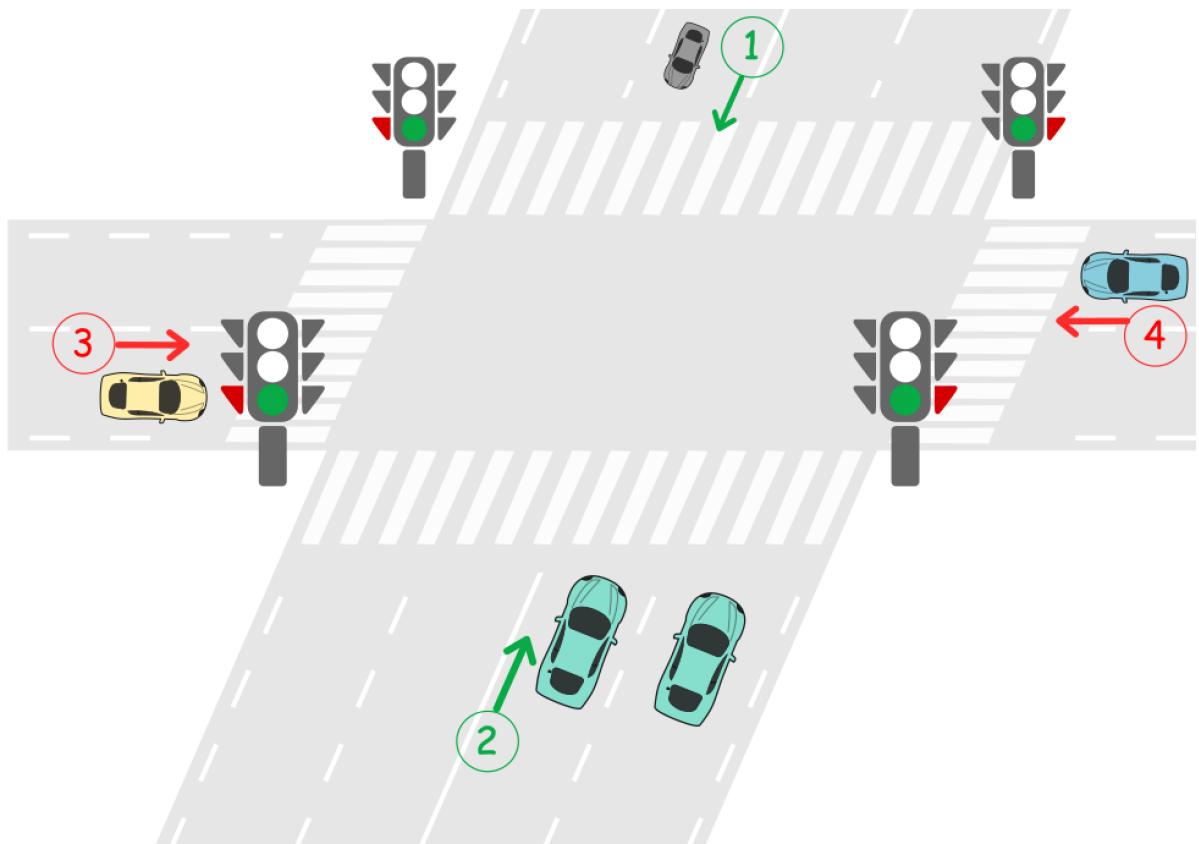
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Welcome to Subscribe On Youtube:

1279. Traffic Light Controlled Intersection

There is an intersection of two roads. First road is road A where cars travel from North to South in direction 1 and from South to North in direction 2. Second road is road B where cars travel from West to East in direction 3 and from East to West in direction 4.



There is a traffic light located on each road before the intersection. A traffic light can either be green or red.

1. **Green** means cars can cross the intersection in both directions of the road.
2. **Red** means cars in both directions cannot cross the intersection and must wait until the light turns green.

The traffic lights cannot be green on both roads at the same time. That means when the light is green on road A, it is red on road B and when the light is green on road B, it is red on road A.

Initially, the traffic light is **green** on road A and **red** on road B. When the light is green on one road, all cars can cross the intersection in both directions until the light becomes green on the other road. No two cars traveling on different roads should cross at the same time.

Design a deadlock-free traffic light controlled system at this intersection.

Implement the function `void carArrived(carId, roadId, direction, turnGreen, crossCar)` where:

- `carId` is the id of the car that arrived.
- `roadId` is the id of the road that the car travels on.
- `direction` is the direction of the car.
- `turnGreen` is a function you can call to turn the traffic light to green on the current road.
- `crossCar` is a function you can call to let the current car cross the intersection.

Your answer is considered correct if it avoids cars deadlock in the intersection. Turning the light green on a road when it was already green is considered a wrong answer.

Example 1:

```
Input: cars = [1,3,5,2,4], directions = [2,1,2,4,3], arrivalTimes = [1,2,3,4,5]
Output: [
    "Car 1 Has Passed Road A In Direction 2",           // Traffic light on
    "Car 3 Has Passed Road A In Direction 1",           // Car 3 crosses the
    "Car 5 Has Passed Road A In Direction 2",           // Car 5 crosses the
    "Traffic Light On Road B Is Green",                 // Car 2 requests green
    "Car 2 Has Passed Road B In Direction 4",           // Car 2 crosses as
    "Car 4 Has Passed Road B In Direction 3"            // Car 4 crosses the
]
```

Example 2:

```
Input: cars = [1,2,3,4,5], directions = [2,4,3,3,1], arrivalTimes = [1,2,3,4,5]
Output: [
    "Car 1 Has Passed Road A In Direction 2",           // Traffic light on
    "Traffic Light On Road B Is Green",                 // Car 2 requests green
    "Car 2 Has Passed Road B In Direction 4",           // Car 2 crosses as
    "Car 3 Has Passed Road B In Direction 3",           // Car 3 crosses as
    "Traffic Light On Road A Is Green",                 // Car 5 requests green
    "Car 5 Has Passed Road A In Direction 1",           // Car 5 crosses as
    "Traffic Light On Road B Is Green",                 // Car 4 requests green
    "Car 4 Has Passed Road B In Direction 3"            // Car 4 crosses as
]
```

Explanation: This is a dead-lock free scenario. Note that the scenario is different from Example 1.

Constraints:

- $1 \leq \text{cars.length} \leq 20$
- $\text{cars.length} = \text{directions.length}$
- $\text{cars.length} = \text{arrivalTimes.length}$
- All values of `cars` are unique
- $1 \leq \text{directions}[i] \leq 4$

- `arrivalTimes` is non-decreasing

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1279-Traffic-Light-Controlled-Intersection](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1280. Students and Examinations

SQL Schema >

Table: Students

Column Name	Type
student_id	int
student_name	varchar

student_id is the primary key for this table.

Each row of this table contains the ID and the name of one student.

Table: Subjects

Column Name	Type
subject_name	varchar

subject_name is the primary key for this table.

Each row of this table contains a name of one subject in the school.

Table: Examinations

Column Name	Type
student_id	int
subject_name	varchar

There is no primary key for this table. It may contain duplicates.

Each student from Students table takes every course from Subjects table.

Each row of this table indicates that a student with ID student_id

Write an SQL query to find the number of times each student attended each exam.

Order the result table by student_id and subject_name .

The query result format is in the following example:

Students table:

student_id	student_name
1	Alice
2	Bob
13	John
6	Alex

Subjects table:

subject_name
Math

```

| Physics      |
| Programming |
+-----+
Examinations table:
+-----+-----+
| student_id | subject_name |
+-----+-----+
| 1          | Math           |
| 1          | Physics         |
| 1          | Programming    |
| 2          | Programming    |
| 1          | Physics         |
| 1          | Math            |
| 13         | Math            |
| 13         | Programming    |
| 13         | Physics         |
| 2          | Math            |
| 1          | Math            |
+-----+-----+
Result table:
+-----+-----+-----+-----+
| student_id | student_name | subject_name | attended_exams |
+-----+-----+-----+-----+
| 1          | Alice          | Math          | 3              |
| 1          | Alice          | Physics        | 2              |
| 1          | Alice          | Programming   | 1              |
| 2          | Bob            | Math          | 1              |
| 2          | Bob            | Physics        | 0              |
| 2          | Bob            | Programming   | 1              |
| 6          | Alex           | Math          | 0              |
| 6          | Alex           | Physics        | 0              |
| 6          | Alex           | Programming   | 0              |
| 13         | John           | Math          | 1              |
| 13         | John           | Physics        | 1              |
| 13         | John           | Programming   | 1              |
+-----+-----+-----+-----+

```

The result table should contain all students and all subjects.
Alice attended Math exam 3 times, Physics exam 2 times and Programming exam 1 time.
Bob attended Math exam 1 time, Programming exam 1 time and didn't attend Physics exam.
Alex didn't attend any exam.
John attended Math exam 1 time, Physics exam 1 time and Programming exam 1 time.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1280-Students-and-Examinations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1281. Subtract the Product and Sum of Digits of an Integer

Given an integer number n , return the difference between the product of its digits and the sum of its digits.

Example 1:

Input: $n = 234$

Output: 15

Explanation:

Product of digits = $2 * 3 * 4 = 24$

Sum of digits = $2 + 3 + 4 = 9$

Result = $24 - 9 = 15$

Example 2:

Input: n = 4421
Output: 21
Explanation:
Product of digits = $4 * 4 * 2 * 1 = 32$
Sum of digits = $4 + 4 + 2 + 1 = 11$
Result = $32 - 11 = 21$

Constraints:

- $1 \leq n \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1281-Subtract-the-Product-and-Sum-of-Digits-of-an-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1282. Group the People Given the Group Size They Belong To

There are n people whose **IDs** go from 0 to $n - 1$ and each person belongs **exactly** to one group. Given the array `groupSizes` of length n telling the group size each person belongs to, return the groups there are and the people's **IDs** each group includes.

You can return any solution in any order and the same applies for IDs. Also, it is guaranteed that there exists at least one solution.

Example 1:

Input: `groupSizes = [3,3,3,3,3,1,3]`

Output: `[[5],[0,1,2],[3,4,6]]`

Explanation:

Other possible solutions are `[[2,1,6],[5],[0,4,3]]` and `[[5],[0,6,1,2,3],[4,5,6]]`

Example 2:

Input: `groupSizes = [2,1,3,3,3,2]`

Output: `[[1],[0,5],[2,3,4]]`

Constraints:

- `groupSizes.length == n`
- $1 \leq n \leq 500$
- $1 \leq \text{groupSizes}[i] \leq n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1282-Group-the-People-Given-the-Group-Size-They-Belong-To](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1283. Find the Smallest Divisor Given a Threshold

Given an array of integers `nums` and an integer `threshold`, we will choose a positive integer divisor and divide all the array by it and sum the result of the division. Find the **smallest** divisor such that the result mentioned above is less than or equal to `threshold`.

Each result of division is rounded to the nearest integer greater than or equal to that element. (For example: $7/3 = 3$ and $10/2 = 5$).

It is guaranteed that there will be an answer.

Example 1:

Input: nums = [1,2,5,9], threshold = 6

Output: 5

Explanation: We can get a sum to 17 (1+2+5+9) if the divisor is 3.
If the divisor is 4 we can get a sum to 7 (1+1+2+3) and if the divisor is 5 we can get a sum to 10 (1+2+5).

Example 2:

Input: nums = [2,3,5,7,11], threshold = 11

Output: 3

Example 3:

Input: nums = [19], threshold = 5

Output: 4

Constraints:

- $1 \leq \text{nums.length} \leq 5 * 10^4$
- $1 \leq \text{nums}[i] \leq 10^6$
- $\text{nums.length} \leq \text{threshold} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1283-Find-the-Smallest-Divisor-Given-a-Threshold](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1284. Minimum Number of Flips to Convert Binary Matrix to Zero Matrix

Given a $m \times n$ binary matrix mat . In one step, you can choose one cell and flip it and all the four neighbours of it if they exist (Flip is changing 1 to 0 and 0 to 1). A pair of cells are called neighbors if they share one edge.

Return the *minimum number of steps* required to convert mat to a zero matrix or **-1** if you cannot.

Binary matrix is a matrix with all cells equal to 0 or 1 only.

Zero matrix is a matrix with all cells equal to 0.

Example 1:

$$\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

Input: $\text{mat} = [[0,0],[0,1]]$

Output: 3

Explanation: One possible solution is to flip (1, 0) then (0, 1)

Example 2:

Input: mat = [[0]]
Output: 0
Explanation: Given matrix is a zero matrix. We don't need to change it.

Example 3:

Input: mat = [[1,1,1],[1,0,1],[0,0,0]]
Output: 6

Example 4:

Input: mat = [[1,0,0],[1,0,0]]
Output: -1
Explanation: Given matrix can't be a zero matrix

Constraints:

- m == mat.length
- n == mat[0].length
- 1 <= m <= 3
- 1 <= n <= 3
- mat[i][j] is 0 or 1.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1284-Minimum-Number-of-Flips-to-Convert-Binary-Matrix-to-Zero-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1285. Find the Start and End Number of Continuous Ranges

SQL Schema >

Table: Logs

Column Name	Type
log_id	int

id is the primary key for this table.
Each row of this table contains the ID in a log Table.

Since some IDs have been removed from Logs . Write an SQL query to find the start and end number of continuous ranges in table Logs .

Order the result table by start_id .

The query result format is in the following example:

Logs table:

1	
2	
3	
7	

8
10

Result table:

start_id	end_id
1	3
7	8
10	10

The result table should contain all ranges in table Logs.

From 1 to 3 is contained in the table.

From 4 to 6 is missing in the table

From 7 to 8 is contained in the table.

Number 9 is missing in the table.

Number 10 is contained in the table.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1285-Find-the-Start-and-End-Number-of-Continuous-Ranges](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1286. Iterator for Combination

Design an Iterator class, which has:

- A constructor that takes a string `characters` of **sorted distinct** lowercase English letters and a number `combinationLength` as arguments.
- A function `next()` that returns the next combination of length `combinationLength` in **lexicographical order**.
- A function `hasNext()` that returns True if and only if there exists a next combination.

Example:

```
CombinationIterator iterator = new CombinationIterator("abc", 2)

iterator.next(); // returns "ab"
iterator.hasNext(); // returns true
iterator.next(); // returns "ac"
iterator.hasNext(); // returns true
iterator.next(); // returns "bc"
iterator.hasNext(); // returns false
```

Constraints:

- $1 \leq \text{combinationLength} \leq \text{characters.length} \leq 15$
- There will be at most 10^4 function calls per test.
- It's guaranteed that all calls of the function `next` are valid.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1286-Iterator-for-Combination](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1287. Element Appearing More Than 25% In Sorted Array

Given an integer array **sorted** in non-decreasing order, there is exactly one integer in the array that occurs more than 25% of the time.

Return that integer.

Example 1:

Input: arr = [1, 2, 2, 6, 6, 6, 7, 10]
Output: 6

Constraints:

- $1 \leq \text{arr.length} \leq 10^4$
- $0 \leq \text{arr}[i] \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1287-Element-Appearing-More-Than-25-In-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1288. Remove Covered Intervals

Given a list of intervals, remove all intervals that are covered by another interval in the list. Interval $[a, b)$ is covered by interval $[c, d)$ if and only if $c \leq a$ and $b \leq d$.

After doing so, return the number of remaining intervals.

Example 1:

Input: intervals = [[1,4],[3,6],[2,8]]
Output: 2

Explanation: Interval [3,6] is covered by [2,8], therefore it is

Constraints:

- $1 \leq \text{intervals.length} \leq 1000$
- $0 \leq \text{intervals}[i][0] < \text{intervals}[i][1] \leq 10^5$
- $\text{intervals}[i] \neq \text{intervals}[j]$ for all $i \neq j$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1288-Remove-Covered-Intervals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1289. Minimum Falling Path Sum II

Given a square grid of integers `arr` , a *falling path with non-zero shifts* is a choice of exactly one element from each row of `arr` , such that no two elements chosen in adjacent rows are in the same column.

Return the minimum sum of a falling path with non-zero shifts.

Example 1:

Input: `arr = [[1,2,3],[4,5,6],[7,8,9]]`

Output: 13

Explanation:

The possible falling paths are:

`[1,5,9], [1,5,7], [1,6,7], [1,6,8],
[2,4,8], [2,4,9], [2,6,7], [2,6,8],
[3,4,8], [3,4,9], [3,5,7], [3,5,9]`

The falling path with the smallest sum is `[1,5,7]` , so the answer

Constraints:

- `1 <= arr.length == arr[i].length <= 200`
- `-99 <= arr[i][j] <= 99`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1289-Minimum-Falling-Path-Sum-II](#)

All Problems:

[Link to All Problems](#)

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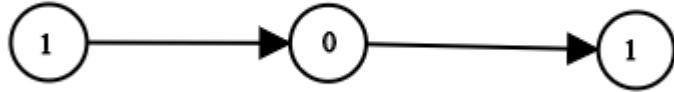
Welcome to Subscribe On Youtube:

1290. Convert Binary Number in a Linked List to Integer

Given `head` which is a reference node to a singly-linked list. The value of each node in the linked list is either 0 or 1. The linked list holds the binary representation of a number.

Return the *decimal value* of the number in the linked list.

Example 1:



Input: head = [1, 0, 1]

Output: 5

Explanation: (101) in base 2 = (5) in base 10

Example 2:

Input: head = [0]

Output: 0

Example 3:

Input: head = [1]

Output: 1

Example 4:

Input: head = [1, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0]

Output: 18880

Example 5:

Input: head = [0, 0]

Output: 0

Constraints:

- The Linked List is not empty.
- Number of nodes will not exceed 30 .
- Each node's value is either 0 or 1 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1290-Convert-Binary-Number-in-a-Linked-List-to-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1291. Sequential Digits

An integer has *sequential digits* if and only if each digit in the number is one more than the previous digit.

Return a **sorted** list of all the integers in the range [low, high] inclusive that have sequential digits.

Example 1:

Input: low = 100, high = 300
Output: [123,234]

Example 2:

Input: low = 1000, high = 13000
Output: [1234,2345,3456,4567,5678,6789,12345]

Constraints:

- $10 \leq \text{low} \leq \text{high} \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1291-Sequential-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1292. Maximum Side Length of a Square with Sum Less than or Equal to Threshold

Given a $m \times n$ matrix `mat` and an integer `threshold`. Return the maximum side-length of a square with a sum less than or equal to `threshold` or return `0` if there is no such square.

Example 1:

1	1	3	2	4	3	2
1	1	3	2	4	3	2
1	1	3	2	4	3	2

Input: `mat` = `[[1,1,3,2,4,3,2], [1,1,3,2,4,3,2], [1,1,3,2,4,3,2]]`,
Output: 2

Explanation: The maximum side length of square with sum less than or equal to threshold is 2.

Example 2:

Input: `mat` = `[[2,2,2,2,2], [2,2,2,2,2], [2,2,2,2,2], [2,2,2,2,2], [2,2,2,2,2]]`,
Output: 0

Example 3:

Input: `mat` = `[[1,1,1,1], [1,0,0,0], [1,0,0,0], [1,0,0,0]]`, `threshold` = 3
Output: 3

Example 4:

Input: `mat` = `[[18,70], [61,1], [25,85], [14,40], [11,96], [97,96], [63,1]]`,
Output: 2

Constraints:

- $1 \leq m, n \leq 300$
- $m == mat.length$

- $n == \text{mat}[i].length$
- $0 \leq \text{mat}[i][j] \leq 10000$
- $0 \leq \text{threshold} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1292-Maximum-Side-Length-of-a-Square-with-Sum-Less-than-or-Equal-to-Threshold](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1293. Shortest Path in a Grid with Obstacles Elimination

Given a $m * n$ grid, where each cell is either 0 (empty) or 1 (obstacle). In one step, you can move up, down, left or right from and to an empty cell.

Return the minimum number of steps to walk from the upper left corner ($0, 0$) to the lower right corner ($m-1, n-1$) given that you can eliminate **at most** k obstacles. If it is not possible to find such walk return -1.

Example 1:

Input:
grid =
[[0,0,0],
 [1,1,0],
 [0,0,0],
 [0,1,1],
 [0,0,0]],
k = 1

Output: 6

Explanation:

The shortest path without eliminating any obstacle is 10.
The shortest path with one obstacle elimination at position (3,2)

Example 2:

Input:
grid =
[[0,1,1],
 [1,1,1],
 [1,0,0]],
k = 1

Output: -1

Explanation:

We need to eliminate at least two obstacles to find such a walk.

Constraints:

- $\text{grid.length} == m$
- $\text{grid[0].length} == n$
- $1 \leq m, n \leq 40$
- $1 \leq k \leq m*n$
- $\text{grid[i][j]} == 0$ or 1

• `grid[0][0] == grid[m-1][n-1] == 0`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1293-Shortest-Path-in-a-Grid-with-Obstacles-Elimination](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1294. Weather Type in Each Country

SQL Schema >

Table: Countries

Column Name	Type
country_id	int
country_name	varchar

country_id is the primary key for this table.

Each row of this table contains the ID and the name of one count

Table: Weather

Column Name	Type
country_id	int
weather_state	varchar
day	date

(country_id, day) is the primary key for this table.

Each row of this table indicates the weather state in a country

Write an SQL query to find the type of weather in each country for November 2019.

The type of weather is **Cold** if the average weather_state is less than or equal 15, **Hot** if the average weather_state is greater than or equal 25 and **Warm** otherwise.

Return result table in any order.

The query result format is in the following example:

Countries table:

country_id	country_name
2	USA
3	Australia
7	Peru
5	China
8	Morocco
9	Spain

Weather table:

country_id	weather_state	day
2	15	2019-11-01
2	12	2019-10-28

2	12	2019-10-27
3	-2	2019-11-10
3	0	2019-11-11
3	3	2019-11-12
5	16	2019-11-07
5	18	2019-11-09
5	21	2019-11-23
7	25	2019-11-28
7	22	2019-12-01
7	20	2019-12-02
8	25	2019-11-05
8	27	2019-11-15
8	31	2019-11-25
9	7	2019-10-23
9	3	2019-12-23

Result table:

country_name	weather_type
USA	Cold
Austraila	Cold
Peru	Hot
China	Warm
Morocco	Hot

Average weather_state in USA in November is $(15) / 1 = 15$ so weather_type is Cold
 Average weather_state in Austraila in November is $(-2 + 0 + 3) / 3 = 1$ so weather_type is Cold
 Average weather_state in Peru in November is $(25) / 1 = 25$ so weather_type is Hot
 Average weather_state in China in November is $(16 + 18 + 21) / 3 = 19$ so weather_type is Warm
 Average weather_state in Morocco in November is $(25 + 27 + 31) / 3 = 27$ so weather_type is Hot
 We know nothing about average weather_state in Spain in November

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1294-Weather-Type-in-Each-Country](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1295. Find Numbers with Even Number of Digits

Given an array `nums` of integers, return how many of them contain an **even number** of digits.

Example 1:

Input: `nums = [12,345,2,6,7896]`
Output: 2
Explanation:
12 contains 2 digits (even number of digits).
345 contains 3 digits (odd number of digits).
2 contains 1 digit (odd number of digits).
6 contains 1 digit (odd number of digits).
7896 contains 4 digits (even number of digits).
Therefore only 12 and 7896 contain an even number of digits.

Example 2:

Input: `nums = [555,901,482,1771]`
Output: 1
Explanation:
Only 1771 contains an even number of digits.

Constraints:

- $1 \leq \text{nums.length} \leq 500$
- $1 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1295-Find-Numbers-with-Even-Number-of-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1296. Divide Array in Sets of K Consecutive Numbers

Given an array of integers `nums` and a positive integer `k` , find whether it's possible to divide this array into sets of `k` consecutive numbers

Return `True` if its possible otherwise return `False` .

Example 1:

Input: `nums = [1,2,3,3,4,4,5,6]` , `k = 4`

Output: `true`

Explanation: Array can be divided into `[1,2,3,4]` and `[3,4,5,6]`.

Example 2:

Input: `nums = [3,2,1,2,3,4,3,4,5,9,10,11]` , `k = 3`

Output: `true`

Explanation: Array can be divided into `[1,2,3]` , `[2,3,4]` , `[3,4,5]`

Example 3:

Input: `nums = [3,3,2,2,1,1]` , `k = 3`

Output: `true`

Example 4:

Input: `nums = [1,2,3,4]` , `k = 3`

Output: `false`

Explanation: Each array should be divided in subarrays of size 3

Constraints:

- `1 <= nums.length <= 10^5`
- `1 <= nums[i] <= 10^9`
- `1 <= k <= nums.length`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1296-Divide-Array-in-Sets-of-K-Consecutive-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1297. Maximum Number of Occurrences of a Substring

Given a string `s` , return the maximum number of occurrences of **any** substring under the following rules:

- The number of unique characters in the substring must be less than or equal to `maxLetters` .
- The substring size must be between `minSize` and `maxSize` inclusive.

Example 1:

Input: `s = "aababcaab"`, `maxLetters = 2`, `minSize = 3`, `maxSize = 4`
Output: 2

Explanation: Substring "aab" has 2 occurrences in the original string.
It satisfies the conditions, 2 unique letters and size 3 (between 2 and 3).

Example 2:

Input: s = "aaaa", maxLetters = 1, minSize = 3, maxSize = 3

Output: 2

Explanation: Substring "aaa" occurs 2 times in the string. It can have at most 1 unique letter.

Example 3:

Input: s = "aabcabcab", maxLetters = 2, minSize = 2, maxSize = 3

Output: 3

Example 4:

Input: s = "abcde", maxLetters = 2, minSize = 3, maxSize = 3

Output: 0

Constraints:

- $1 \leq s.length \leq 10^5$
- $1 \leq \text{maxLetters} \leq 26$
- $1 \leq \text{minSize} \leq \text{maxSize} \leq \min(26, s.length)$
- s only contains lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1297-Maximum-Number-of-Occurrences-of-a-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1298. Maximum Candies You Can Get from Boxes

Given n boxes, each box is given in the format [status, candies, keys, containedBoxes] where:

- `status[i]` : an integer which is **1** if `box[i]` is open and **0** if `box[i]` is closed.
- `candies[i]` : an integer representing the number of candies in `box[i]`.
- `keys[i]` : an array contains the indices of the boxes you can open with the key in `box[i]`.
- `containedBoxes[i]` : an array contains the indices of the boxes found in `box[i]`.

You will start with some boxes given in `initialBoxes` array. You can take all the candies in any open box and you can use the keys in it to open new boxes and you also can use the boxes you find in it.

Return *the maximum number of candies* you can get following the rules above.

Example 1:

Input: `status = [1,0,1,0]`, `candies = [7,5,4,100]`, `keys = [[],[],[]]`
Output: 16
Explanation: You will be initially given box 0. You will find 7

In box 1, you will find 5 candies and box 3 but you will not find box 2. Total number of candies collected = 7 + 4 + 5 = 16 candy.

Example 2:

Input: status = [1,0,0,0,0,0], candies = [1,1,1,1,1,1], keys = [[],[],[]]
Output: 6

Explanation: You have initially box 0. Opening it you can find boxes 1, 2, 3.

Example 3:

Input: status = [1,1,1], candies = [100,1,100], keys = [[],[],[0,2]]
Output: 1

Example 4:

Input: status = [1], candies = [100], keys = [[[]]], containedBoxes = [[],[],[]]
Output: 0

Example 5:

Input: status = [1,1,1], candies = [2,3,2], keys = [[],[],[]], containedBoxes = [[],[],[]]
Output: 7

Constraints:

- $1 \leq \text{status.length} \leq 1000$
- $\text{status.length} == \text{candies.length} == \text{keys.length} == \text{containedBoxes.length} == n$
- $\text{status}[i]$ is 0 or 1 .
- $1 \leq \text{candies}[i] \leq 1000$
- $0 \leq \text{keys}[i].length \leq \text{status.length}$
- $0 \leq \text{keys}[i][j] < \text{status.length}$
- All values in $\text{keys}[i]$ are unique.
- $0 \leq \text{containedBoxes}[i].length \leq \text{status.length}$
- $0 \leq \text{containedBoxes}[i][j] < \text{status.length}$
- All values in $\text{containedBoxes}[i]$ are unique.
- Each box is contained in one box at most.
- $0 \leq \text{initialBoxes.length} \leq \text{status.length}$
- $0 \leq \text{initialBoxes}[i] < \text{status.length}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1298-Maximum-Candies-You-Can-Get-from-Boxes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1299. Replace Elements with Greatest Element on Right Side

Given an array `arr` , replace every element in that array with the greatest element among the elements to its right, and replace the last element with -1 .

After doing so, return the array.

Example 1:

Input: `arr = [17,18,5,4,6,1]`
Output: `[18,6,6,6,1,-1]`

Constraints:

- $1 \leq \text{arr.length} \leq 10^4$
- $1 \leq \text{arr}[i] \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1299-Replace-Elements-with-Greatest-Element-on-Right-Side](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1300. Sum of Mutated Array Closest to Target

Given an integer array `arr` and a target value `target` , return the integer value `value` such that when we change all the integers larger than `value` in the given array to be equal to `value` , the sum of the array gets as close as possible (in absolute difference) to `target` .

In case of a tie, return the minimum such integer.

Notice that the answer is not necessarily a number from `arr` .

Example 1:

Input: `arr = [4,9,3]` , `target = 10`

Output: 3

Explanation: When using 3 `arr` converts to `[3, 3, 3]` which sums 9

Example 2:

Input: `arr = [2,3,5]` , `target = 10`

Output: 5

Example 3:

Input: `arr = [60864,25176,27249,21296,20204]` , `target = 56803`

Output: 11361

Constraints:

- $1 \leq \text{arr.length} \leq 10^4$
- $1 \leq \text{arr}[i] , \text{target} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1300-Sum-of-Mutated-Array-Closest-to-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1301. Number of Paths with Max Score

You are given a square board of characters. You can move on the board starting at the bottom right square marked with the character 'S' .

You need to reach the top left square marked with the character 'E' . The rest of the squares are labeled either with a numeric character 1, 2, ..., 9 or with an obstacle 'X' . In one move you can go up, left or up-left (diagonally) only if there is no obstacle there.

Return a list of two integers: the first integer is the maximum sum of numeric characters you can collect, and the second is the number of such paths that you can take to get that maximum sum, **taken modulo $10^9 + 7$**

In case there is no path, return [0, 0] .

Example 1:

Input: board = ["E23", "2X2", "12S"]
Output: [7,1]

Example 2:

Input: board = ["E12", "1X1", "21S"]
Output: [4,2]

Example 3:

Input: board = ["E11", "XXX", "11S"]
Output: [0,0]

Constraints:

- $2 \leq \text{board.length} == \text{board[i].length} \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1301-Number-of-Paths-with-Max-Score](#)

All Problems:

[Link to All Problems](#)

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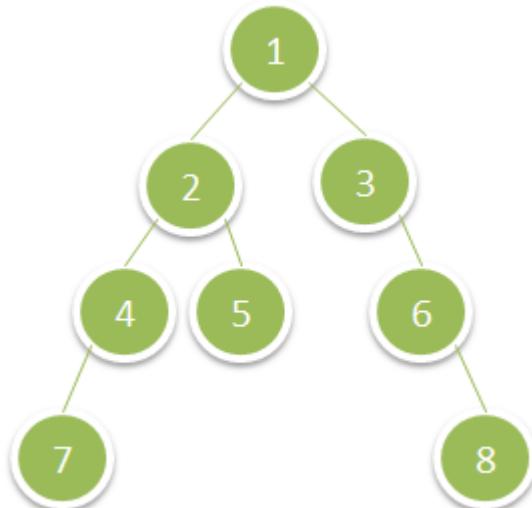
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Welcome to Subscribe On Youtube:

1302. Deepest Leaves Sum

Given a binary tree, return the sum of values of its deepest leaves.

Example 1:



Input: root = [1,2,3,4,5,null,6,7,null,null,null,null,8]
Output: 15

Constraints:

- The number of nodes in the tree is between 1 and 10^4 .
- The value of nodes is between 1 and 100 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1302-Deepest-Leaves-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1303. Find the Team Size

[SQL Schema](#) >

Table: Employee

Column Name	Type
employee_id	int
team_id	int

employee_id is the primary key for this table.
Each row of this table contains the ID of each employee and thei

Write an SQL query to find the team size of each of the employees.

Return result table in any order.

The query result format is in the following example:

Employee Table:

employee_id	team_id
1	8
2	8
3	8
4	7
5	9
6	9

Result table:

employee_id	team_size
1	3
2	3
3	3
4	1
5	2
6	2

Employees with Id 1,2,3 are part of a team with team_id = 8.

Employees with Id 4 is part of a team with team_id = 7.

Employees with Id 5,6 are part of a team with team_id = 9.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1303-Find-the-Team-Size](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1304. Find N Unique Integers Sum up to Zero

Given an integer n , return **any** array containing n **unique** integers such that they add up to 0.

Example 1:

Input: $n = 5$

Output: $[-7, -1, 1, 3, 4]$

Explanation: These arrays also are accepted $[-5, -1, 1, 2, 3]$, $[-3,$

Example 2:

Input: $n = 3$

Output: $[-1, 0, 1]$

Example 3:

Input: $n = 1$

Output: $[0]$

Constraints:

- $1 \leq n \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1304-Find-N-Unique-Integers-Sum-up-to-Zero](#)

All Problems:

[Link to All Problems](#)

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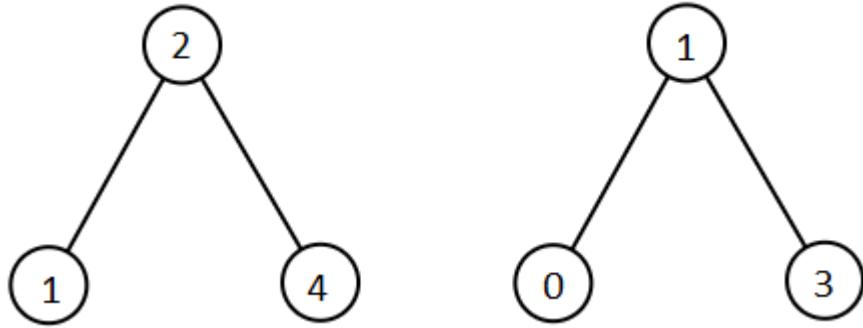
Welcome to Subscribe On Youtube:

1305. All Elements in Two Binary Search Trees

Given two binary search trees `root1` and `root2` .

Return a list containing *all the integers* from *both trees* sorted in **ascending** order.

Example 1:



Input: `root1 = [2,1,4]`, `root2 = [1,0,3]`
 Output: `[0,1,1,2,3,4]`

Example 2:

Input: `root1 = [0,-10,10]`, `root2 = [5,1,7,0,2]`
 Output: `[-10,0,0,1,2,5,7,10]`

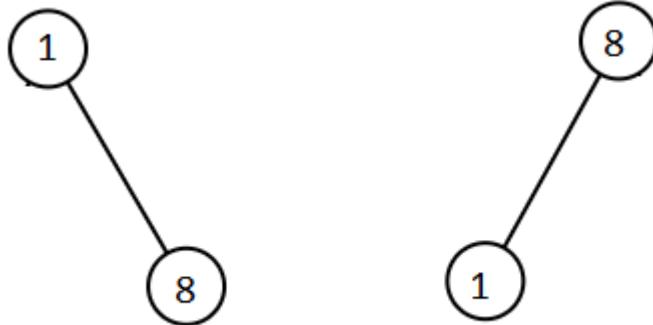
Example 3:

Input: `root1 = []`, `root2 = [5,1,7,0,2]`
 Output: `[0,1,2,5,7]`

Example 4:

Input: `root1 = [0,-10,10]`, `root2 = []`
 Output: `[-10,0,10]`

Example 5:



Input: `root1 = [1,null,8]`, `root2 = [8,1]`
 Output: `[1,1,8,8]`

Constraints:

- Each tree has at most 5000 nodes.
- Each node's value is between $[-10^5, 10^5]$.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1305-All-Elements-in-Two-Binary-Search-Trees](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1306. Jump Game III

Given an array of non-negative integers `arr` , you are initially positioned at `start_index` of the array. When you are at index `i` , you can jump to `i + arr[i]` or `i - arr[i]` , check if you can reach to **any** index with value 0.

Notice that you can not jump outside of the array at any time.

Example 1:

Input: arr = [4,2,3,0,3,1,2], start = 5
Output: true
Explanation:
All possible ways to reach at index 3 with value 0 are:
index 5 -> index 4 -> index 1 -> index 3
index 5 -> index 6 -> index 4 -> index 1 -> index 3

Example 2:

Input: arr = [4,2,3,0,3,1,2], start = 0
Output: true
Explanation:
One possible way to reach at index 3 with value 0 is:
index 0 -> index 4 -> index 1 -> index 3

Example 3:

Input: arr = [3,0,2,1,2], start = 2
Output: false
Explanation: There is no way to reach at index 1 with value 0.

Constraints:

- $1 \leq \text{arr.length} \leq 5 * 10^4$
- $0 \leq \text{arr}[i] < \text{arr.length}$
- $0 \leq \text{start} < \text{arr.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1306-Jump-Game-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1307. Verbal Arithmetic Puzzle

Given an equation, represented by words on left side and the result on right side.

You need to check if the equation is solvable under the following rules:

- Each character is decoded as one digit (0 - 9).
- Every pair of different characters they must map to different digits.
- Each words[i] and result are decoded as one number **without** leading zeros.
- Sum of numbers on left side (words) will equal to the number on right side (result).

Return True if the equation is solvable otherwise return False .

Example 1:

Input: words = ["SEND", "MORE"], result = "MONEY"
Output: true

Explanation: Map 'S'-> 9, 'E'->5, 'N'->6, 'D'->7, 'M'->1, 'O'->0
Such that: "SEND" + "MORE" = "MONEY" , 9567 + 1085 = 10652

Example 2:

Input: words = ["SIX", "SEVEN", "SEVEN"], result = "TWENTY"

Output: true

Explanation: Map 'S'-> 6, 'I'->5, 'X'->0, 'E'->8, 'V'->7, 'N'->2

Such that: "SIX" + "SEVEN" + "SEVEN" = "TWENTY" , 650 + 68782 +

Example 3:

Input: words = ["THIS", "IS", "TOO"], result = "FUNNY"

Output: true

Example 4:

Input: words = ["LEET", "CODE"], result = "POINT"

Output: false

Constraints:

- $2 \leq \text{words.length} \leq 5$
- $1 \leq \text{words[i].length}, \text{result.length} \leq 7$
- $\text{words[i]}, \text{result}$ contains only upper case English letters.
- Number of different characters used on the expression is at most 10.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1307-Verbal-Arithmetic-Puzzle](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1308. Running Total for Different Genders

[SQL Schema](#) >

Table: Scores

Column Name	Type
player_name	varchar
gender	varchar
day	date
score_points	int

(gender, day) is the primary key for this table.

A competition is held between females team and males team.

Each row of this table indicates that a player_name and with gender is 'F' if the player is in females team and 'M' if the pl

Write an SQL query to find the total score for each gender at each day.

Order the result table by gender and day

The query result format is in the following example:

Scores table:

player_name	gender	day	score_points
-------------	--------	-----	--------------

Aron	F	2020-01-01	17
Alice	F	2020-01-07	23
Bajrang	M	2020-01-07	7
Khali	M	2019-12-25	11
Slaman	M	2019-12-30	13
Joe	M	2019-12-31	3
Jose	M	2019-12-18	2
Priya	F	2019-12-31	23
Priyanka	F	2019-12-30	17

Result table:

gender	day	total
F	2019-12-30	17
F	2019-12-31	40
F	2020-01-01	57
F	2020-01-07	80
M	2019-12-18	2
M	2019-12-25	13
M	2019-12-30	26
M	2019-12-31	29
M	2020-01-07	36

For females team:

First day is 2019-12-30, Priyanka scored 17 points and the total score is 17.

Second day is 2019-12-31, Priya scored 23 points and the total score is 40.

Third day is 2020-01-01, Aron scored 17 points and the total score is 57.

Fourth day is 2020-01-07, Alice scored 23 points and the total score is 80.

For males team:

First day is 2019-12-18, Jose scored 2 points and the total score is 2.

Second day is 2019-12-25, Khali scored 11 points and the total score is 13.

Third day is 2019-12-30, Slaman scored 13 points and the total score is 26.

Fourth day is 2019-12-31, Joe scored 3 points and the total score is 29.

Fifth day is 2020-01-07, Bajrang scored 7 points and the total score is 36.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1308-Running-Total-for-Different-Genders](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1309. Decrypt String from Alphabet to Integer Mapping

Given a string s formed by digits ('0' - '9') and '#'. We want to map s to English lowercase characters as follows:

- Characters ('a' to 'i') are represented by ('1' to '9') respectively.
- Characters ('j' to 'z') are represented by ('10#' to '26#') respectively.

Return the string formed after mapping.

It's guaranteed that a unique mapping will always exist.

Example 1:

Input: s = "10#11#12"

Output: "jkab"

Explanation: "j" -> "10#" , "k" -> "11#" , "a" -> "1" , "b" -> "0"

Example 2:

Input: s = "1326#"

Output: "acz"

Example 3:

Input: s = "25#"

Output: "y"

Example 4:

Input: s = "12345678910#11#12#13#14#15#16#17#18#19#20#21#22#23#24#25#26#27#28#29#2A#2B#2C#2D#2E#2F#2G#2H#2I#2J#2K#2L#2M#2N#2O#2P#2Q#2R#2S#2T#2U#2V#2W#2X#2Y#2Z"
Output: "abcdefghijklmnopqrstuvwxyz"

Constraints:

- $1 \leq s.length \leq 1000$
 - $s[i]$ only contains digits letters ('0' - '9') and '#' letter.
 - s will be valid string such that mapping is always possible.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

1309-Decrypt-String-from-Alphabet-to-Integer-Mapping

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1310. XOR Queries of a Subarray

Given the array `arr` of positive integers and the array `queries` where `queries[i] = [Li, Ri]`, for each query *i* compute the **XOR** of elements from L_i to R_i (that is, `arr[Li] xor arr[Li+1] xor ... xor arr[Ri]`). Return an array containing the result for the given queries .

Example 1:

Input: `arr = [1,3,4,8]`, `queries = [[0,1],[1,2],[0,3],[3,3]]`
Output: `[2,7,14,8]`

Explanation:

The binary representation of the elements in the array are:

1 = 0001

3 = 0011

4 = 0100

8 = 1000

The XOR values for queries are:

`[0,1] = 1 xor 3 = 2`

`[1,2] = 3 xor 4 = 7`

`[0,3] = 1 xor 3 xor 4 xor 8 = 14`

`[3,3] = 8`

Example 2:

```
Input: arr = [4,8,2,10], queries = [[2,3],[1,3],[0,0],[0,3]]  
Output: [8,0,4,4]
```

Constraints:

- $1 \leq \text{arr.length} \leq 3 * 10^4$
- $1 \leq \text{arr[i]} \leq 10^9$
- $1 \leq \text{queries.length} \leq 3 * 10^4$
- $\text{queries[i].length} == 2$
- $0 \leq \text{queries[i][0]} \leq \text{queries[i][1]} < \text{arr.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1310-XOR-Queries-of-a-Subarray](#)

All Problems:

[Link to All Problems](#)

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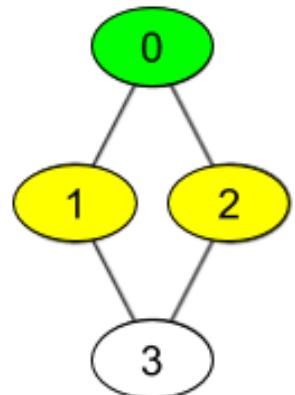
Welcome to Subscribe On Youtube:

1311. Get Watched Videos by Your Friends

There are n people, each person has a unique id between 0 and $n-1$. Given the arrays `watchedVideos` and `friends`, where `watchedVideos[i]` and `friends[i]` contain the list of watched videos and the list of friends respectively for the person with $id = i$.

Level 1 of videos are all watched videos by your friends, level 2 of videos are all watched videos by the friends of your friends and so on. In general, the level k of videos are all watched videos by people with the shortest path equal to k with you. Given your id and the level of videos, return the list of videos ordered by their frequencies (increasing). For videos with the same frequency order them alphabetically from least to greatest.

Example 1:



Input: `watchedVideos = [["A", "B"], ["C"], ["B", "C"], ["D"]]`, `friends = [1, 2]`

Explanation:

You have $id = 0$ (green color in the figure) and your friends are Person with $id = 1 \rightarrow$ `watchedVideos = ["C"]`

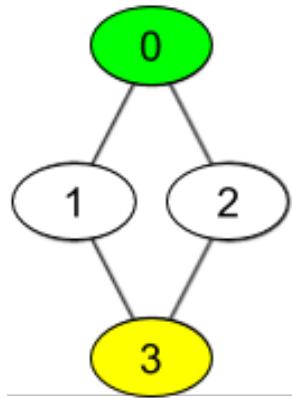
Person with $id = 2 \rightarrow$ `watchedVideos = ["B", "C"]`

The frequencies of `watchedVideos` by your friends are:

B \rightarrow 1

C \rightarrow 2

Example 2:



Input: watchedVideos = [["A","B"],["C"],["B","C"],["D"]],

Output: ["D"]

Explanation:

You have id = 0 (green color in the figure) and the only friend

Constraints:

- $n == \text{watchedVideos.length} == \text{friends.length}$
- $2 \leq n \leq 100$
- $1 \leq \text{watchedVideos}[i].length \leq 100$
- $1 \leq \text{watchedVideos}[i][j].length \leq 8$
- $0 \leq \text{friends}[i].length < n$
- $0 \leq \text{friends}[i][j] < n$
- $0 \leq \text{id} < n$
- $1 \leq \text{level} < n$
- if $\text{friends}[i]$ contains j , then $\text{friends}[j]$ contains i

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1311-Get-Watched-Videos-by-Your-Friends](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1312. Minimum Insertion Steps to Make a String Palindrome

Given a string s . In one step you can insert any character at any index of the string.

Return *the minimum number of steps* to make s palindrome.

A **Palindrome String** is one that reads the same backward as well as forward.

Example 1:

Input: $s = "zzazz"$

Output: 0

Explanation: The string "zzazz" is already palindrome we don't need to insert anything.

Example 2:

Input: $s = "mbadm"$

Output: 2

Explanation: String can be "mbdadbm" or "mdbabdm".

Example 3:

Input: s = "leetcode"

Output: 5

Explanation: Inserting 5 characters the string becomes "leetcodo

Example 4:

Input: s = "g"

Output: 0

Example 5:

Input: s = "no"

Output: 1

Constraints:

- $1 \leq s.length \leq 500$
- All characters of s are lower case English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1312-Minimum-Insertion-Steps-to-Make-a-String-Palindrome](#)

All Problems:

[Link to All Problems](#)

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1313. Decompress Run-Length Encoded List

We are given a list `nums` of integers representing a list compressed with run-length encoding.

Consider each adjacent pair of elements `[a, b] = [nums[2*i], nums[2*i+1]]` (with $i \geq 0$). For each such pair, there are `a` elements with value `b` in the decompressed list.

Return the decompressed list.

Example 1:

Input: `nums = [1, 2, 3, 4]`
Output: `[2, 4, 4, 4]`

Constraints:

- $2 \leq \text{nums.length} \leq 100$
- $\text{nums.length \% 2} == 0$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1313-Decompress-Run-Length-Encoded-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1314. Matrix Block Sum

Given a $m * n$ matrix `mat` and an integer `K` , return a matrix `answer` where each `answer[i][j]` is the sum of all elements `mat[r][c]` for $i - K \leq r \leq i + K$, $j - K \leq c \leq j + K$, and (r, c) is a valid position in the matrix.

Example 1:

Input: `mat = [[1,2,3],[4,5,6],[7,8,9]]`, `K = 1`
Output: `[[12,21,16],[27,45,33],[24,39,28]]`

Example 2:

Input: `mat = [[1,2,3],[4,5,6],[7,8,9]]`, `K = 2`
Output: `[[45,45,45],[45,45,45],[45,45,45]]`

Constraints:

- $m == \text{mat.length}$
- $n == \text{mat[i].length}$
- $1 \leq m, n, K \leq 100$
- $1 \leq \text{mat[i][j]} \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**1314-Matrix-Block-Sum**](#)**All Problems:**[**Link to All Problems**](#)

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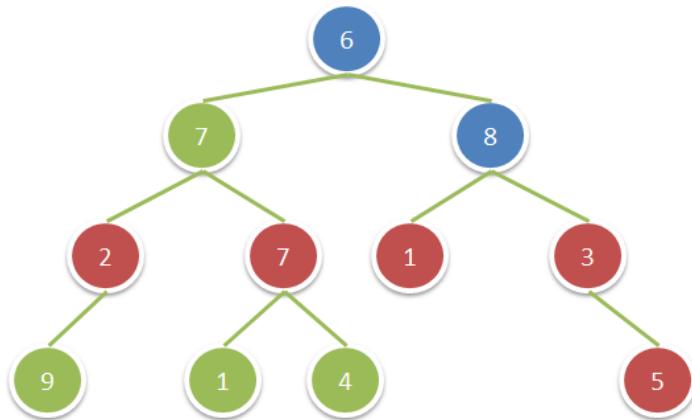
Welcome to Subscribe On Youtube:

1315. Sum of Nodes with Even-Valued Grandparent

Given a binary tree, return the sum of values of nodes with even-valued grandparent. (A *grandparent* of a node is the parent of its parent, if it exists.)

If there are no nodes with an even-valued grandparent, return 0 .

Example 1:



Input: root = [6,7,8,2,7,1,3,9,null,1,4,null,null,null,5]
Output: 18

Explanation: The red nodes are the nodes with even-value grandpa

Constraints:

- The number of nodes in the tree is between 1 and 10^4 .
- The value of nodes is between 1 and 100 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1315-Sum-of-Nodes-with-Even-Valued-Grandparent](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1316. Distinct Echo Substrings

Return the number of **distinct** non-empty substrings of `text` that can be written as the concatenation of some string with itself.

Example 1:

Input: `text = "abcabcabc"`

Output: 3

Explanation: The 3 substrings are "abcabc", "bcabca" and "cabcab".

Example 2:

Input: `text = "leetcodeleetcode"`

Output: 2

Explanation: The 2 substrings are "ee" and "leetcodeleetcode".

Constraints:

- $1 \leq \text{text.length} \leq 2000$
- text has only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1316-Distinct-Echo-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1317. Convert Integer to the Sum of Two No-Zero Integers

Given an integer n . No-Zero integer is a positive integer which **doesn't contain any 0** in its decimal representation.

Return *a list of two integers* $[A, B]$ where:

- A and B are No-Zero integers.
- $A + B = n$

It's guaranteed that there is at least one valid solution. If there are many valid solutions you can return any of them.

Example 1:

Input: $n = 2$

Output: $[1, 1]$

Explanation: $A = 1$, $B = 1$. $A + B = n$ and both A and B don't contain 0.

Example 2:

Input: $n = 11$

Output: $[2, 9]$

Example 3:

Input: $n = 10000$

Output: $[1, 9999]$

Example 4:

Input: $n = 69$

Output: $[1, 68]$

Example 5:

Input: $n = 1010$

Output: $[11, 999]$

Constraints:

- $2 \leq n \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1317-Convert-Integer-to-the-Sum-of-Two-No-Zero-Integers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1318. Minimum Flips to Make a OR b Equal to c

Given 3 positives numbers a , b and c . Return the minimum flips required in some bits of a and b to make (a OR b == c). (bitwise OR operation).

Flip operation consists of change **any** single bit 1 to 0 or change the bit 0 to 1 in their binary representation.

Example 1:

00 10 -> a	00 01 -> a
01 10 -> b	01 00 -> b
-----	-----
0101 -> c	0101 -> c

Input: a = 2, b = 6, c = 5

Output: 3

Explanation: After flips a = 1, b = 4, c = 5 such that (a OR b) = 5

Example 2:

Input: a = 4, b = 2, c = 7

Output: 1

Example 3:

Input: a = 1, b = 2, c = 3

Output: 0

Constraints:

- $1 \leq a \leq 10^9$
- $1 \leq b \leq 10^9$
- $1 \leq c \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1318-Minimum-Flips-to-Make-a-OR-b-Equal-to-c](#)

All Problems:

[Link to All Problems](#)

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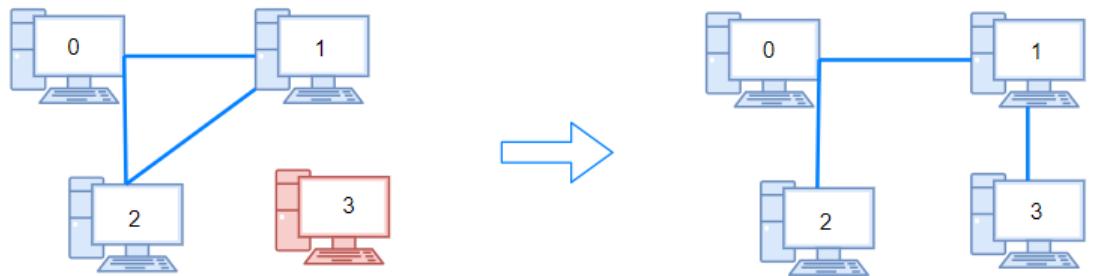
Welcome to Subscribe On Youtube:

1319. Number of Operations to Make Network Connected

There are n computers numbered from 0 to $n-1$ connected by ethernet cables connections forming a network where $\text{connections}[i] = [a, b]$ represents a connection between computers a and b . Any computer can reach any other computer directly or indirectly through the network.

Given an initial computer network connections . You can extract certain cables between two directly connected computers, and place them between any pair of disconnected computers to make them directly connected. Return the *minimum number of times* you need to do this in order to make all the computers connected. If it's not possible, return -1 .

Example 1:

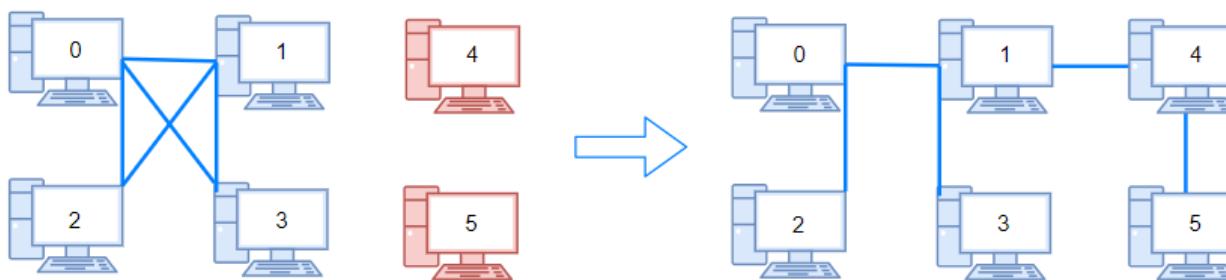


Input: $n = 4$, connections = $[[0,1],[0,2],[1,2]]$

Output: 1

Explanation: Remove cable between computer 1 and 2 and place betw

Example 2:



Input: $n = 6$, connections = $[[0,1],[0,2],[0,3],[1,2],[1,3]]$

Output: 2

Example 3:

Input: $n = 6$, connections = $[[0,1],[0,2],[0,3],[1,2]]$

Output: -1

Explanation: There are not enough cables.

Example 4:

Input: $n = 5$, connections = $[[0,1],[0,2],[3,4],[2,3]]$

Output: 0

Constraints:

- $1 \leq n \leq 10^5$
- $1 \leq \text{connections.length} \leq \min(n*(n-1)/2, 10^5)$
- $\text{connections}[i].length == 2$
- $0 \leq \text{connections}[i][0], \text{connections}[i][1] < n$
- $\text{connections}[i][0] \neq \text{connections}[i][1]$
- There are no repeated connections.

- No two computers are connected by more than one cable.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1319-Number-of-Operations-to-Make-Network-Connected](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1320. Minimum Distance to Type a Word Using Two Fingers

A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z				

You have a keyboard layout as shown above in the XY plane, where each English uppercase letter is located at some coordinate, for example, the letter A is located at coordinate **(0,0)** , the letter B is located at coordinate **(0,1)** , the letter P is located at coordinate **(2,3)** and the letter Z is located at coordinate **(4,1)** .

Given the string `word` , return the minimum total distance to type such string using only two fingers. The distance between coordinates (x_1, y_1) and (x_2, y_2) is $|x_1 - x_2| + |y_1 - y_2|$.

Note that the initial positions of your two fingers are considered free so don't count towards your total distance, also your two fingers do not have to start at the first letter or the first two letters.

Example 1:

Input: `word = "CAKE"`

Output: 3

Explanation:

Using two fingers, one optimal way to type "CAKE" is:

Finger 1 on letter 'C' -> cost = 0

Finger 1 on letter 'A' -> cost = Distance from letter 'C' to let

Finger 2 on letter 'K' -> cost = 0

Finger 2 on letter 'E' -> cost = Distance from letter 'K' to letter 'E'
Total distance = 3

Example 2:

Input: word = "HAPPY"

Output: 6

Explanation:

Using two fingers, one optimal way to type "HAPPY" is:

Finger 1 on letter 'H' -> cost = 0

Finger 1 on letter 'A' -> cost = Distance from letter 'H' to letter 'A'

Finger 2 on letter 'P' -> cost = 0

Finger 2 on letter 'P' -> cost = Distance from letter 'P' to letter 'P'

Finger 1 on letter 'Y' -> cost = Distance from letter 'A' to letter 'Y'

Total distance = 6

Example 3:

Input: word = "NEW"

Output: 3

Example 4:

Input: word = "YEAR"

Output: 7

Constraints:

- $2 \leq \text{word.length} \leq 300$
- Each $\text{word}[i]$ is an English uppercase letter.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1320-Minimum-Distance-to-Type-a-Word-Using-Two-Fingers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1321. Restaurant Growth

SQL Schema >

Table: Customer

Column Name	Type
customer_id	int
name	varchar
visited_on	date
amount	int

(customer_id, visited_on) is the primary key for this table.
This table contains data about customer transactions in a restaurant.
visited_on is the date on which the customer with ID (customer_id)
amount is the total paid by a customer.

You are the restaurant owner and you want to analyze a possible expansion (there will be at least one customer every day).

Write an SQL query to compute moving average of how much customer paid in a 7 days window (current day + 6 days before) .

The query result format is in the following example:

Return result table ordered by visited_on.

average_amount should be **rounded to 2 decimal places**, all dates are in the format ('YYYY-MM-DD').

Customer table:

customer_id	name	visited_on	amount
1	Jhon	2019-01-01	100
2	Daniel	2019-01-02	110
3	Jade	2019-01-03	120
4	Khaled	2019-01-04	130
5	Winston	2019-01-05	110
6	Elvis	2019-01-06	140
7	Anna	2019-01-07	150
8	Maria	2019-01-08	80
9	Jaze	2019-01-09	110
1	Jhon	2019-01-10	130
3	Jade	2019-01-10	150

Result table:

visited_on	amount	average_amount
2019-01-07	860	122.86
2019-01-08	840	120
2019-01-09	840	120
2019-01-10	1000	142.86

1st moving average from 2019-01-01 to 2019-01-07 has an average
2nd moving average from 2019-01-02 to 2019-01-08 has an average
3rd moving average from 2019-01-03 to 2019-01-09 has an average
4th moving average from 2019-01-04 to 2019-01-10 has an average

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1321-Restaurant-Growth](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1322. Ads Performance

SQL Schema >

Table: Ads

Column Name	Type
ad_id	int
user_id	int
action	enum

(ad_id, user_id) is the primary key for this table.

Each row of this table contains the ID of an Ad, the ID of a user who interacted with the Ad, and the type of interaction. The action column is an ENUM type of ('Clicked', 'Viewed', 'Ignored').

A company is running Ads and wants to calculate the performance of each Ad.

Performance of the Ad is measured using Click-Through Rate (CTR) where:

$$CTR = \begin{cases} 0, & \text{if Ad total clicks + Ad total views} = 0 \\ \frac{\text{Ad total clicks}}{\text{Ad total clicks} + \text{Ad total views}} \times 100, & \text{otherwise} \end{cases}$$

Write an SQL query to find the `ctr` of each Ad.

Round `ctr` to 2 decimal points. **Order** the result table by `ctr` in descending order and by `ad_id` in ascending order in case of a tie.

The query result format is in the following example:

Ads table:

ad_id	user_id	action
1	1	Clicked
2	2	Clicked
3	3	Viewed
5	5	Ignored
1	7	Ignored
2	7	Viewed
3	5	Clicked
1	4	Viewed
2	11	Viewed
1	2	Clicked

Result table:

ad_id	ctr
1	66.67
3	50.00
2	33.33
5	0.00

for `ad_id` = 1, `ctr` = $(2/(2+1)) * 100 = 66.67$

for `ad_id` = 2, `ctr` = $(1/(1+2)) * 100 = 33.33$

for `ad_id` = 3, `ctr` = $(1/(1+1)) * 100 = 50.00$

for `ad_id` = 5, `ctr` = 0.00, Note that `ad_id` = 5 has no clicks or views. Note that we don't care about Ignored Ads.

Result table is ordered by the `ctr`. in case of a tie we order the ads by `ad_id`.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1322-Ads-Performance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1323. 1323. Maximum 69 Number

Given a positive integer `num` consisting only of digits 6 and 9.

Return the maximum number you can get by changing **at most** one digit (6 becomes 9, and 9 becomes 6).

Example 1:

Input: num = 9669
Output: 9969
Explanation:
Changing the first digit results in 6669.
Changing the second digit results in 9969.
Changing the third digit results in 9699.
Changing the fourth digit results in 9666.
The maximum number is 9969.

Example 2:

Input: num = 9996

Output: 9999

Explanation: Changing the last digit 6 to 9 results in the maximum number.

Example 3:

Input: num = 9999

Output: 9999

Explanation: It is better not to apply any change.

Constraints:

- $1 \leq \text{num} \leq 10^4$
- num 's digits are 6 or 9.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1323-Maximum-69-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1324. Print Words Vertically

Given a string s . Return all the words vertically in the same order in which they appear in s .

Words are returned as a list of strings, complete with spaces when necessary. (Trailing spaces are not allowed).

Each word would be put on only one column and that in one column there will be only one word.

Example 1:

Input: $s = \text{"HOW ARE YOU"}$

Output: $[\text{"HAY"}, \text{"ORO"}, \text{"WEU"}]$

Explanation: Each word is printed vertically.

"HAY"

"ORO"

"WEU"

Example 2:

Input: $s = \text{"TO BE OR NOT TO BE"}$

Output: $[\text{"TBONTB"}, \text{"OEROOE"}, \text{" T"}]$

Explanation: Trailing spaces is not allowed.

"TBONTB"

"OEROOE"

" T"

Example 3:

Input: $s = \text{"CONTEST IS COMING"}$

Output: $[\text{"CIC"}, \text{"OSO"}, \text{"N M"}, \text{"T I"}, \text{"E N"}, \text{"S G"}, \text{"T"}]$

Constraints:

- $1 \leq s.length \leq 200$
- s contains only upper case English letters.
- It's guaranteed that there is only one space between 2 words.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1324-Print-Words-Vertically](#)

All Problems:

[Link to All Problems](#)

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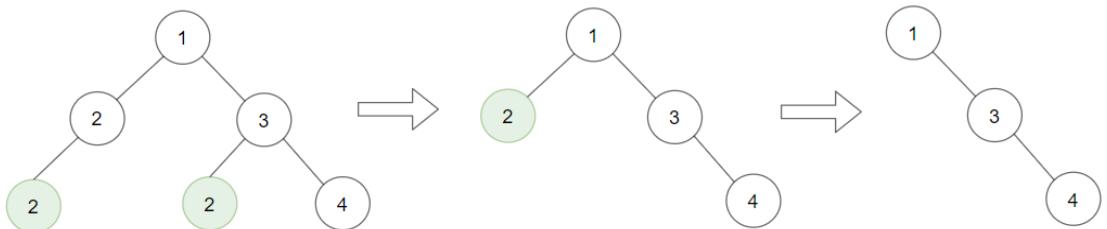
Welcome to Subscribe On Youtube:

1325. Delete Leaves With a Given Value

Given a binary tree root and an integer target , delete all the **leaf nodes** with value target .

Note that once you delete a leaf node with value target , if it's parent node becomes a leaf node and has the value target , it should also be deleted (you need to continue doing that until you can't).

Example 1:

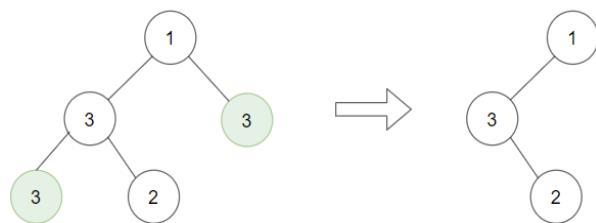


Input: root = [1,2,3,2,null,2,4] , target = 2

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

Explanation: Leaf nodes in green with value (target = 2) are removed.
After removing, new nodes become leaf nodes with value (target = 2)

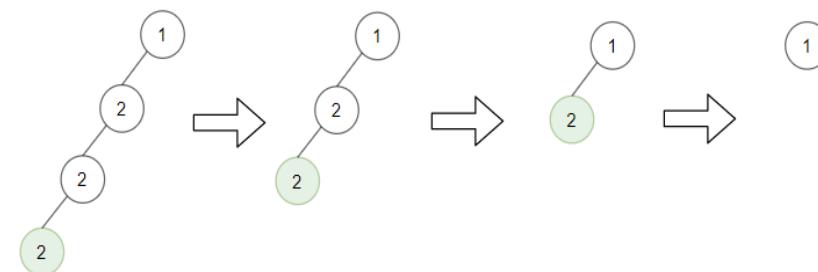
Example 2:



Input: root = [1,3,3,3,2] , target = 3

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

Example 3:



Input: root = [1,2,null,2,null,2], target = 2

Output: [1]

Explanation: Leaf nodes in green with value (target = 2) are removed.

Example 4:

Input: root = [1,1,1], target = 1

Output: []

Example 5:

Input: root = [1,2,3], target = 1

Output: [1,2,3]

Constraints:

- $1 \leq \text{target} \leq 1000$
- Each tree has at most 3000 nodes.
- Each node's value is between $[1, 1000]$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1325-Delete-Leaves-With-a-Given-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1326. Minimum Number of Taps to Open to Water a Garden

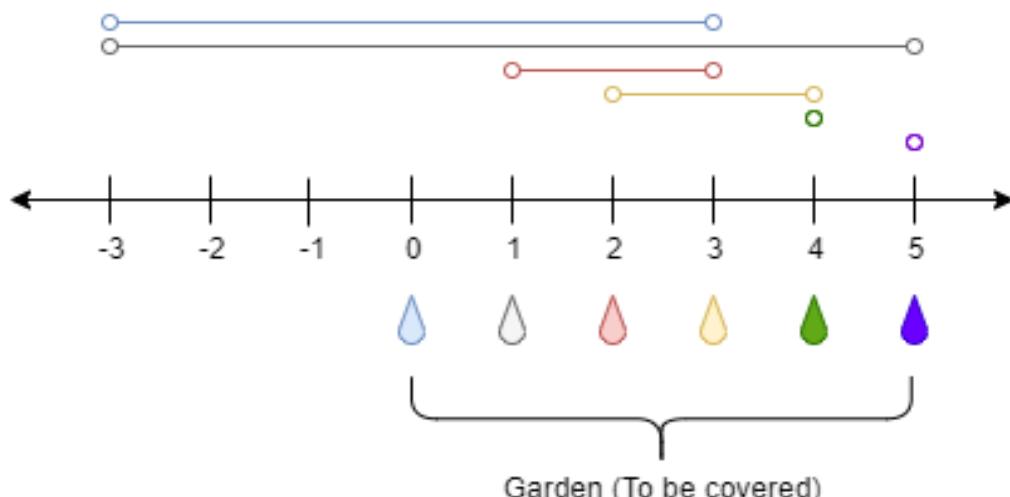
There is a one-dimensional garden on the x-axis. The garden starts at the point 0 and ends at the point n . (i.e The length of the garden is n).

There are $n + 1$ taps located at points $[0, 1, \dots, n]$ in the garden.

Given an integer n and an integer array `ranges` of length $n + 1$ where `ranges[i]` (0-indexed) means the i -th tap can water the area $[i - ranges[i], i + ranges[i]]$ if it was open.

Return *the minimum number of taps* that should be open to water the whole garden, If the garden cannot be watered return **-1**.

Example 1:



Input: n = 5, ranges = [3,4,1,1,0,0]
Output: 1
Explanation: The tap at point 0 can cover the interval [-3,3]
The tap at point 1 can cover the interval [-3,5]
The tap at point 2 can cover the interval [1,3]
The tap at point 3 can cover the interval [2,4]
The tap at point 4 can cover the interval [4,4]
The tap at point 5 can cover the interval [5,5]
Opening Only the second tap will water the whole garden [0,5]

Example 2:

Input: n = 3, ranges = [0,0,0,0]

Output: -1

Explanation: Even if you activate all the four taps you cannot water the garden.

Example 3:

Input: n = 7, ranges = [1,2,1,0,2,1,0,1]

Output: 3

Example 4:

Input: n = 8, ranges = [4,0,0,0,0,0,0,0,4]

Output: 2

Example 5:

Input: n = 8, ranges = [4,0,0,0,4,0,0,0,4]

Output: 1

Constraints:

- $1 \leq n \leq 10^4$
- $\text{ranges.length} == n + 1$
- $0 \leq \text{ranges}[i] \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1326-Minimum-Number-of-Taps-to-Open-to-Water-a-Garden](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1327. List the Products Ordered in a Period

[SQL Schema](#) >

Table: Products

Column Name	Type
product_id	int
product_name	varchar
product_category	varchar

product_id is the primary key for this table.
This table contains data about the company's products.

Table: Orders

Column Name	Type

product_id	int	
order_date	date	
unit	int	

There is no primary key for this table. It may have duplicate rows.
 product_id is a foreign key to Products table.
 unit is the number of products ordered in order_date.

Write an SQL query to get the names of products with greater than or equal to 100 units ordered in February 2020 and their amount.

Return result table in any order.

The query result format is in the following example:

Products table:

product_id	product_name	Java	Python	C++				Book
1	Leetcode Solutions							
2	Jewels of Stringology	Book						
3	HP		Laptop					
4	Lenovo		Laptop					
5	Leetcode Kit			T-shirt				

Orders table:

product_id	order_date	unit	
1	2020-02-05	60	
1	2020-02-10	70	
2	2020-01-18	30	
2	2020-02-11	80	
3	2020-02-17	2	
3	2020-02-24	3	
4	2020-03-01	20	
4	2020-03-04	30	
4	2020-03-04	60	
5	2020-02-25	50	
5	2020-02-27	50	
5	2020-03-01	50	

Result table:

product_name	unit						
Leetcode Solutions	Java	Python	C++	130			
Leetcode Kit	100						

Products with product_id = 1 is ordered in February a total of 0
Products with product_id = 2 is ordered in February a total of 80
Products with product_id = 3 is ordered in February a total of 0
Products with product_id = 4 was not ordered in February 2020.
Products with product_id = 5 is ordered in February a total of 0

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1327-List-the-Products-Ordered-in-a-Period](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1328. Break a Palindrome

Given a palindromic string `palindrome` , replace **exactly one** character by any lowercase English letter so that the string becomes the lexicographically smallest possible string that **isn't** a palindrome.

After doing so, return the final string. If there is no way to do so, return the empty string.

Example 1:

Input: `palindrome` = "abccba"
Output: "aaccba"

Example 2:

Input: `palindrome` = "a"
Output: ""

Constraints:

- $1 \leq \text{palindrome.length} \leq 1000$
- `palindrome` consists of only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1328-Break-a-Palindrome](#)

All Problems:

[Link to All Problems](#)

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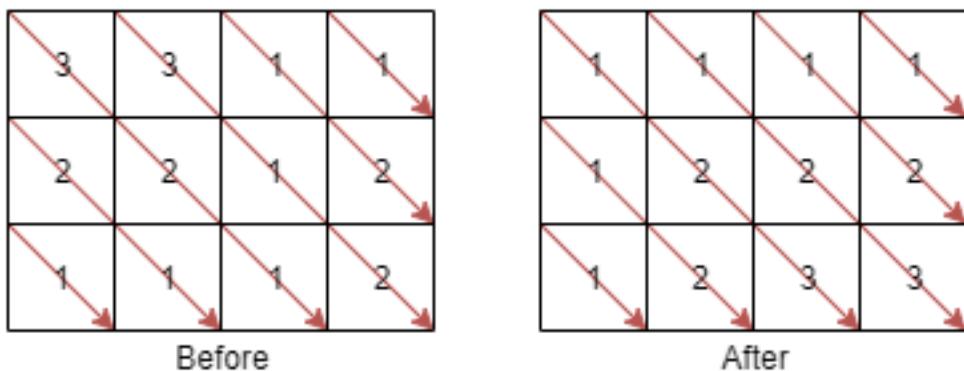
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Welcome to Subscribe On Youtube:

1329. Sort the Matrix Diagonally

Given a $m * n$ matrix mat of integers, sort it diagonally in ascending order from the top-left to the bottom-right then return the sorted array.

Example 1:



Input: $\text{mat} = [[3, 3, 1, 1], [2, 2, 1, 2], [1, 1, 1, 2]]$
Output: $[[1, 1, 1, 1], [1, 2, 2, 2], [1, 2, 3, 3]]$

Constraints:

- $m == \text{mat.length}$
- $n == \text{mat[i].length}$
- $1 \leq m, n \leq 100$
- $1 \leq \text{mat[i][j]} \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1329-Sort-the-Matrix-Diagonally](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1330. Reverse Subarray To Maximize Array Value

You are given an integer array `nums` . The *value* of this array is defined as the sum of $|nums[i] - nums[i+1]|$ for all $0 \leq i < \text{nums.length} - 1$.

You are allowed to select any subarray of the given array and reverse it. You can perform this operation **only once**

Find maximum possible value of the final array.

Example 1:

Input: nums = [2,3,1,5,4]

Output: 10

Explanation: By reversing the subarray [3,1,5] the array becomes

Example 2:

Input: nums = [2,4,9,24,2,1,10]

Output: 68

Constraints:

- $1 \leq \text{nums.length} \leq 3 \times 10^4$
- $-10^5 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1330-Reverse-Subarray-To-Maximize-Array-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1331. Rank Transform of an Array

Given an array of integers `arr` , replace each element with its rank.

The rank represents how large the element is. The rank has the following rules:

- Rank is an integer starting from 1.
- The larger the element, the larger the rank. If two elements are equal, their rank must be the same.
- Rank should be as small as possible.

Example 1:

Input: `arr = [40,10,20,30]`

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

Explanation: 40 is the largest element. 10 is the smallest. 20 is the second largest element, so it has rank 2, and so on.

Example 2:

Input: `arr = [100,100,100]`

Output: `[1,1,1]`

Explanation: Same elements share the same rank.

Example 3:

Input: `arr = [37,12,28,9,100,56,80,5,12]`

Output: `[5,3,4,2,8,6,7,1,3]`

Constraints:

- $0 \leq \text{arr.length} \leq 10^5$

• $-10^9 \leq \text{arr}[i] \leq 10^9$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1331-Rank-Transform-of-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1332. Remove Palindromic Subsequences

Given a string s consisting only of letters 'a' and 'b'. In a single step you can remove one palindromic **subsequence** from s .

Return the minimum number of steps to make the given string empty.

A string is a subsequence of a given string, if it is generated by deleting some characters of a given string without changing its order.

A string is called palindrome if is one that reads the same backward as well as forward.

Example 1:

Input: $s = "ababa"$

Output: 1

Explanation: String is already palindrome

Example 2:

Input: $s = "abb"$

Output: 2

Explanation: "abb" \rightarrow "bb" \rightarrow "".

Remove palindromic subsequence "a" then "bb".

Example 3:

Input: $s = "baabb"$

Output: 2

Explanation: "baabb" \rightarrow "b" \rightarrow "".

Remove palindromic subsequence "baab" then "b".

Example 4:

Input: $s = ""$

Output: 0

Constraints:

- $0 \leq s.length \leq 1000$
- s only consists of letters 'a' and 'b'

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1332-Remove-Palindromic-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1333. Filter Restaurants by Vegan-Friendly, Price and Distance

Given the array restaurants where restaurants[i] = [id_i, rating_i, veganFriendly_i, price]

`i , distance i]`. You have to filter the restaurants using three filters.

The `veganFriendly` filter will be either `true` (meaning you should only include restaurants with `veganFriendly i` set to `true`) or `false` (meaning you can include any restaurant). In addition, you have the filters `maxPrice` and `maxDistance` which are the maximum value for price and distance of restaurants you should consider respectively.

Return the array of restaurant ***IDs*** after filtering, ordered by **rating** from highest to lowest. For restaurants with the same rating, order them by ***id*** from highest to lowest. For simplicity `veganFriendly i` and `veganFriendly` take value `1` when it is `true`, and `0` when it is `false`.

Example 1:

Input: `restaurants = [[1,4,1,40,10],[2,8,0,50,5],[3,8,1,30,4],[4,1,1,15,20]]`
Output: `[3,1,5]`

Explanation:

The restaurants are:

Restaurant 1 [`id=1, rating=4, veganFriendly=1, price=40, distance=10`]
Restaurant 2 [`id=2, rating=8, veganFriendly=0, price=50, distance=5`]
Restaurant 3 [`id=3, rating=8, veganFriendly=1, price=30, distance=4`]
Restaurant 4 [`id=4, rating=10, veganFriendly=0, price=15, distance=20`]
Restaurant 5 [`id=5, rating=1, veganFriendly=1, price=15, distance=1`]
After filter restaurants with `veganFriendly = 1, maxPrice = 50 and maxDistance = 10`

Example 2:

Input: `restaurants = [[1,4,1,40,10],[2,8,0,50,5],[3,8,1,30,4],[4,1,1,15,20]]`
Output: `[4,3,2,1,5]`
Explanation: The restaurants are the same as in example 1, but in reverse order.

Example 3:

Input: `restaurants = [[1,4,1,40,10],[2,8,0,50,5],[3,8,1,30,4],[4,1,1,15,20]]`
Output: `[4,5]`

Constraints:

- `1 <= restaurants.length <= 10^4`
- `restaurants[i].length == 5`
- `1 <= id i , rating i , price i , distance i <= 10^5`
- `1 <= maxPrice , maxDistance <= 10^5`

- veganFriendly_i and veganFriendly are 0 or 1.
- All id_i are distinct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1333-Filter-Restaurants-by-Vegan-Friendly-Price-and-Distance](#)

All Problems:

[Link to All Problems](#)

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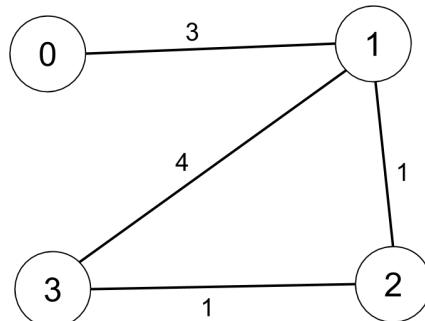
1334. Find the City With the Smallest Number of Neighbors at a Threshold Distance

There are n cities numbered from 0 to $n-1$. Given the array edges where $\text{edges}[i] = [\text{from}_i, \text{to}_i, \text{weight}_i]$ represents a bidirectional and weighted edge between cities from_i and to_i , and given the integer distanceThreshold .

Return the city with the smallest number of cities that are reachable through some path and whose distance is **at most** distanceThreshold . If there are multiple such cities, return the city with the greatest number.

Notice that the distance of a path connecting cities i and j is equal to the sum of the edges' weights along that path.

Example 1:



Input: $n = 4$, $\text{edges} = [[0, 1, 3], [1, 2, 1], [1, 3, 4], [2, 3, 1]]$, $\text{distanceThreshold} = 4$
Output: 3

Explanation: The figure above describes the graph.

The neighboring cities at a $\text{distanceThreshold} = 4$ for each city are:

City 0 -> [City 1, City 2]

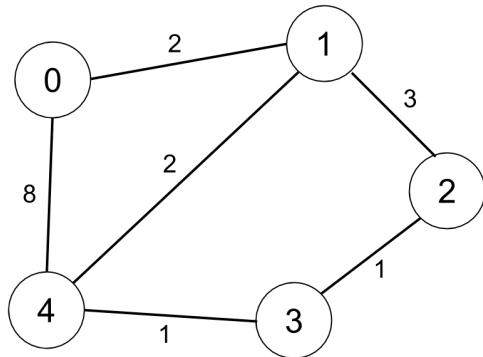
City 1 -> [City 0, City 2, City 3]

City 2 -> [City 0, City 1, City 3]

City 3 -> [City 1, City 2]

Cities 0 and 3 have 2 neighboring cities at a $\text{distanceThreshold} = 4$.

Example 2:



Input: $n = 5$, edges = $[[0,1,2], [0,4,8], [1,2,3], [1,4,2], [2,3,1], [3,0,1]]$
Output: 0

Explanation: The figure above describes the graph.
The neighboring cities at a distanceThreshold = 2 for each city
City 0 -> [City 1]
City 1 -> [City 0, City 4]
City 2 -> [City 3, City 4]
City 3 -> [City 2, City 4]
City 4 -> [City 1, City 2, City 3]
The city 0 has 1 neighboring city at a distanceThreshold = 2.

Constraints:

- $2 \leq n \leq 100$
- $1 \leq \text{edges.length} \leq n * (n - 1) / 2$
- $\text{edges}[i].length == 3$
- $0 \leq \text{from}_i < \text{to}_i < n$
- $1 \leq \text{weight}_i, \text{distanceThreshold} \leq 10^4$
- All pairs ($\text{from}_i, \text{to}_i$) are distinct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1334-Find-the-City-With-the-Smallest-Number-of-Neighbors-at-a-Threshold-Distance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1335. Minimum Difficulty of a Job Schedule

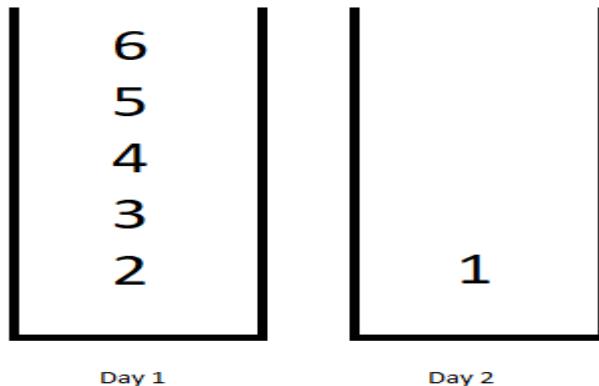
You want to schedule a list of jobs in d days. Jobs are dependent (i.e To work on the i -th job, you have to finish all the jobs j where $0 \leq j < i$).

You have to finish **at least** one task every day. The difficulty of a job schedule is the sum of difficulties of each day of the d days. The difficulty of a day is the maximum difficulty of a job done in that day.

Given an array of integers `jobDifficulty` and an integer d . The difficulty of the i -th job is `jobDifficulty[i]`.

Return *the minimum difficulty* of a job schedule. If you cannot find a schedule for the jobs return -1 .

Example 1:



Input: jobDifficulty = [6,5,4,3,2,1], d = 2
Output: 7

Explanation: First day you can finish the first 5 jobs, total difficulty = 6 + 5 + 4 + 3 + 2 = 20. Second day you can finish the last job, total difficulty = 1. The difficulty of the schedule = 20 + 1 = 21.

Example 2:

Input: jobDifficulty = [9,9,9], d = 4
Output: -1

Explanation: If you finish a job per day you will still have a difficulty of 27.

Example 3:

Input: jobDifficulty = [1,1,1], d = 3
Output: 3

Explanation: The schedule is one job per day. total difficulty = 3.

Example 4:

Input: jobDifficulty = [7,1,7,1,7,1], d = 3
Output: 15

Example 5:

Input: jobDifficulty = [11,111,22,222,33,333,44,444], d = 6
Output: 843

Constraints:

- $1 \leq \text{jobDifficulty.length} \leq 300$
- $0 \leq \text{jobDifficulty}[i] \leq 1000$
- $1 \leq d \leq 10$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1335-Minimum-Difficulty-of-a-Job-Schedule](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1336. Number of Transactions per Visit

SQL Schema ›

Table: Visits

```

+-----+-----+
| Column Name | Type   |
+-----+-----+
| user_id     | int    |
| visit_date   | date   |
+-----+-----+
(user_id, visit_date) is the primary key for this table.
Each row of this table indicates that user_id has visited the bank.

```

Table: Transactions

```

+-----+-----+
| Column Name | Type   |
+-----+-----+
| user_id     | int    |
| transaction_date | date   |
| amount       | int    |
+-----+-----+

```

There is no primary key for this table, it may contain duplicates.
 Each row of this table indicates that user_id has done a transaction.
 It is guaranteed that the user has visited the bank in the transaction.

A bank wants to draw a chart of the number of transactions bank visitors did in one visit to the bank and the corresponding number of visitors who have done this number of transaction in one visit.

Write an SQL query to find how many users visited the bank and didn't do any transactions, how many visited the bank and did one transaction and so on.

The result table will contain two columns:

- `transactions_count` which is the number of transactions done in one visit.
- `visits_count` which is the corresponding number of users who did `transactions_count` in one visit to the bank.

`transactions_count` should take all values from 0 to `max(transactions_count)` done by one or more users.

Order the result table by `transactions_count`.

The query result format is in the following example:

Visits table:

```

+-----+-----+
| user_id | visit_date |
+-----+-----+
| 1        | 2020-01-01 |

```

2	2020-01-02
12	2020-01-01
19	2020-01-03
1	2020-01-02
2	2020-01-03
1	2020-01-04
7	2020-01-11
9	2020-01-25
8	2020-01-28

Transactions table:

user_id	transaction_date	amount
1	2020-01-02	120
2	2020-01-03	22
7	2020-01-11	232
1	2020-01-04	7
9	2020-01-25	33
9	2020-01-25	66
8	2020-01-28	1
9	2020-01-25	99

Result table:

transactions_count	visits_count
0	4
1	5
2	0
3	1

- * For transactions_count = 0, The visits (1, "2020-01-01"), (2,
- * For transactions_count = 1, The visits (2, "2020-01-03"), (7,
- * For transactions_count = 2, No customers visited the bank and o
- * For transactions_count = 3, The visit (9, "2020-01-25") did th
- * For transactions_count >= 4, No customers visited the bank and

The chart drawn for this example is as follows:

BANK TRANSACTIONS



Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1336-Number-of-Transactions-per-Visit](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1337. The K Weakest Rows in a Matrix

Given a $m * n$ matrix mat of *ones* (representing soldiers) and *zeros* (representing civilians), return the indexes of the k weakest rows in the matrix ordered from the weakest to the strongest.

A row i is weaker than row j , if the number of soldiers in row i is less than the number of soldiers in row j , or they have the same number of soldiers but i is less than j .
Soldiers are **always** stand in the frontier of a row, that is, always *ones* may appear first and then *zeros*.

Example 1:

```
Input: mat =
[[1,1,0,0,0],
 [1,1,1,1,0],
 [1,0,0,0,0],
 [1,1,0,0,0],
 [1,1,1,1,1]],
k = 3
Output: [2,0,3]
Explanation:
The number of soldiers for each row is:
row 0 -> 2
row 1 -> 4
row 2 -> 1
row 3 -> 2
row 4 -> 5
Rows ordered from the weakest to the strongest are [2,0,3,1,4]
```

Example 2:

```
Input: mat =
[[1,0,0,0],
 [1,1,1,1],
```

```
[1,0,0,0],  
[1,0,0,0]],  
k = 2  
Output: [0,2]  
Explanation:  
The number of soldiers for each row is:  
row 0 -> 1  
row 1 -> 4  
row 2 -> 1  
row 3 -> 1  
Rows ordered from the weakest to the strongest are [0,2,3,1]
```

Constraints:

- $m == \text{mat.length}$
- $n == \text{mat[i].length}$
- $2 \leq n, m \leq 100$
- $1 \leq k \leq m$
- $\text{matrix}[i][j]$ is either 0 or 1.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1337-The-K-Weakest-Rows-in-a-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1338. Reduce Array Size to The Half

Given an array `arr` . You can choose a set of integers and remove all the occurrences of these integers in the array.

Return *the minimum size of the set* so that **at least** half of the integers of the array are removed.

Example 1:

Input: `arr = [3,3,3,3,5,5,5,2,2,7]`
Output: 2

Explanation: Choosing `{3,7}` will make the new array `[5,5,5,2,2]`.
Possible sets of size 2 are `{3,5}, {3,2}, {5,2}`.
Choosing set `{2,7}` is not possible as it will make the new array

Example 2:

Input: `arr = [7,7,7,7,7,7]`
Output: 1

Explanation: The only possible set you can choose is `{7}`. This w

Example 3:

Input: `arr = [1,9]`
Output: 1

Example 4:

Input: `arr = [1000,1000,3,7]`
Output: 1

Example 5:

Input: `arr = [1,2,3,4,5,6,7,8,9,10]`
Output: 5

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- arr.length is even.
- $1 \leq \text{arr}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1338-Reduce-Array-Size-to-The-Half](#)

All Problems:

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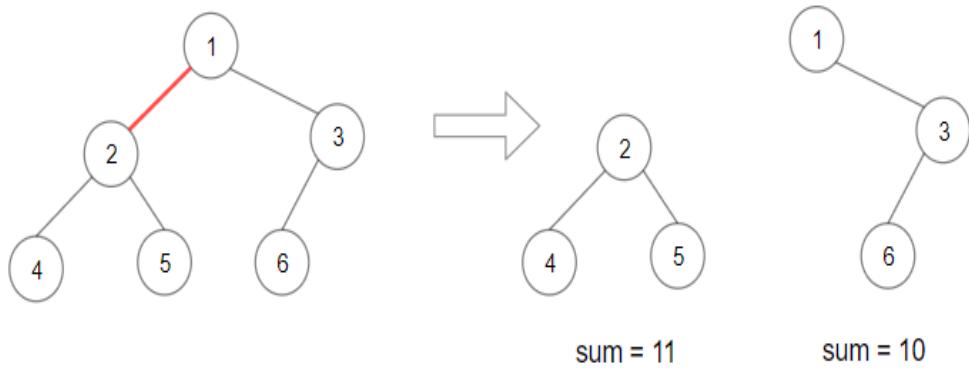
Welcome to Subscribe On Youtube:

1339. Maximum Product of Splitted Binary Tree

Given a binary tree root . Split the binary tree into two subtrees by removing 1 edge such that the product of the sums of the subtrees are maximized.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

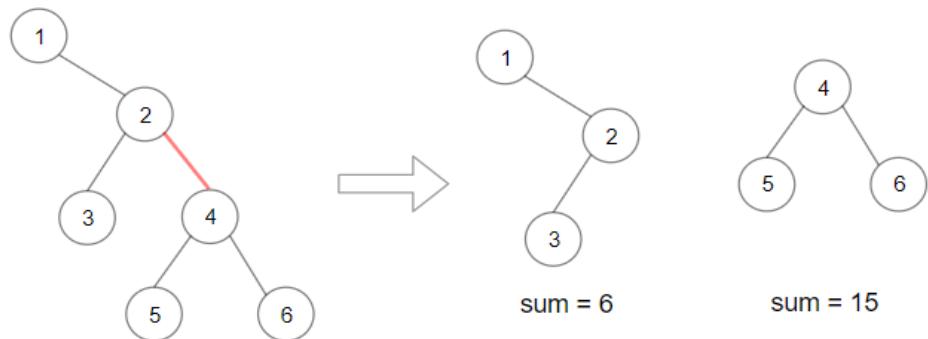


Input: root = [1,2,3,4,5,6]

Output: 110

Explanation: Remove the red edge and get 2 binary trees with sum

Example 2:



Input: root = [1,null,2,3,4,null,null,5,6]

Output: 90

Explanation: Remove the red edge and get 2 binary trees with sum

Example 3:

Input: root = [2,3,9,10,7,8,6,5,4,11,1]
Output: 1025

Example 4:

Input: root = [1,1]
Output: 1

Constraints:

- Each tree has at most 50000 nodes and at least 2 nodes.
- Each node's value is between [1, 10000] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1339-Maximum-Product-of-Splitted-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1340. Jump Game V

Given an array of integers arr and an integer d . In one step you can jump from index i to index:

- $i + x$ where: $i + x < \text{arr.length}$ and $0 < x \leq d$.
- $i - x$ where: $i - x \geq 0$ and $0 < x \leq d$.

In addition, you can only jump from index i to index j if $\text{arr}[i] > \text{arr}[j]$ and $\text{arr}[i] > \text{arr}[k]$ for all indices k between i and j (More formally $\min(i, j) < k < \max(i, j)$).

You can choose any index of the array and start jumping. Return *the maximum number of indices* you can visit.

Notice that you can not jump outside of the array at any time.

Example 1:

Input: arr = [6,4,14,6,8,13,9,7,10,6,12], d = 2
Output: 4

Explanation: You can start at index 10. You can jump 10 --> 8 --> 6. Note that if you start at index 6 you can only jump to index 7. Similarly You cannot jump from index 3 to index 2 or index 1.

Example 2:

Input: arr = [3,3,3,3,3], d = 3

Output: 1

Explanation: You can start at any index. You always cannot jump

Example 3:

Input: arr = [7,6,5,4,3,2,1], d = 1

Output: 7

Explanation: Start at index 0. You can visit all the indices.

Example 4:

Input: arr = [7,1,7,1,7,1], d = 2

Output: 2

Example 5:

Input: arr = [66], d = 1
Output: 1

Constraints:

- $1 \leq \text{arr.length} \leq 1000$
- $1 \leq \text{arr}[i] \leq 10^5$
- $1 \leq d \leq \text{arr.length}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1340-Jump-Game-V](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1341. Movie Rating

SQL Schema >

Table: Movies

Column Name	Type
movie_id	int
title	varchar

movie_id is the primary key for this table.
title is the name of the movie.

Table: Users

Column Name	Type
user_id	int
name	varchar

user_id is the primary key for this table.

Table: Movie_Rating

Column Name	Type
movie_id	int
user_id	int
rating	int
created_at	date

(movie_id, user_id) is the primary key for this table.
This table contains the rating of a movie by a user in their review.
created_at is the user's review date.

Write the following SQL query:

- Find the name of the user who has rated the greatest number of the movies.

In case of a tie, return lexicographically smaller user name.

- Find the movie name with the ***highest average*** rating in **February 2020** .

In case of a tie, return lexicographically smaller movie name..

Query is returned in 2 rows, the query result format is in the following example:

Movies table:

movie_id	title
1	Avengers
2	Frozen 2
3	Joker

Users table:

user_id	name
1	Daniel
2	Monica
3	Maria
4	James

Movie_Rating table:

movie_id	user_id	rating	created_at
1	1	3	2020-01-12
1	2	4	2020-02-11
1	3	2	2020-02-12
1	4	1	2020-01-01
2	1	5	2020-02-17
2	2	2	2020-02-01
2	3	2	2020-03-01
3	1	3	2020-02-22
3	2	4	2020-02-25

Result table:

results
Daniel
Frozen 2

Daniel and Maria have rated 3 movies ("Avengers", "Frozen 2" and Frozen 2 and Joker have a rating average of 3.5 in February but

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**[1341-Movie-Rating](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1342. Number of Steps to Reduce a Number to Zero

Given a non-negative integer `num` , return the number of steps to reduce it to zero. If the current number is even, you have to divide it by 2, otherwise, you have to subtract 1 from it.

Example 1:

Input: num = 14

Output: 6

Explanation:

Step 1) 14 is even; divide by 2 and obtain 7.

Step 2) 7 is odd; subtract 1 and obtain 6.

Step 3) 6 is even; divide by 2 and obtain 3.

Step 4) 3 is odd; subtract 1 and obtain 2.

Step 5) 2 is even; divide by 2 and obtain 1.

Step 6) 1 is odd; subtract 1 and obtain 0.

Example 2:

Input: num = 8

Output: 4

Explanation:

Step 1) 8 is even; divide by 2 and obtain 4.

Step 2) 4 is even; divide by 2 and obtain 2.

Step 3) 2 is even; divide by 2 and obtain 1.

Step 4) 1 is odd; subtract 1 and obtain 0.

Example 3:

Input: num = 123

Output: 12

Constraints:

- $0 \leq \text{num} \leq 10^6$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1342-Number-of-Steps-to-Reduce-a-Number-to-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1343. Number of Sub-arrays of Size K and Average Greater than or Equal to Threshold

Given an array of integers arr and two integers k and threshold .

Return *the number of sub-arrays* of size k and average greater than or equal to threshold .

Example 1:

Input: arr = [2,2,2,2,5,5,5,8], k = 3, threshold = 4
Output: 3

Explanation: Sub-arrays [2,5,5],[5,5,5] and [5,5,8] have average

Example 2:

Input: arr = [1,1,1,1,1], k = 1, threshold = 0
Output: 5

Example 3:

Input: arr = [11,13,17,23,29,31,7,5,2,3], k = 3, threshold = 5
Output: 6
Explanation: The first 6 sub-arrays of size 3 have averages greater than or equal to 5.

Example 4:

Input: arr = [7,7,7,7,7,7,7], k = 7, threshold = 7
Output: 1

Example 5:

Input: arr = [4,4,4,4], k = 4, threshold = 1
Output: 1

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 10^4$
- $1 \leq k \leq \text{arr.length}$
- $0 \leq \text{threshold} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1343-Number-of-Sub-arrays-of-Size-K-and-Average-Greater-than-or-Equal-to-Threshold](#)

All Problems:

[Link to All Problems](#)

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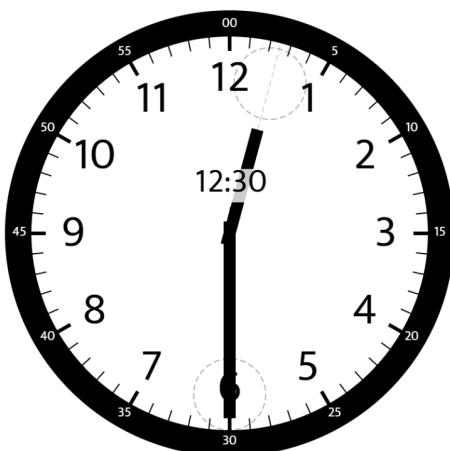
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Welcome to Subscribe On Youtube:

1344. Angle Between Hands of a Clock

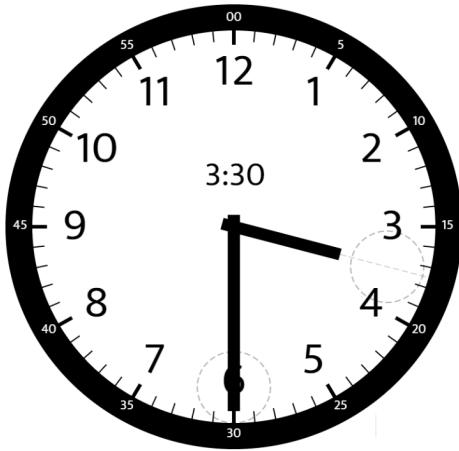
Given two numbers, `hour` and `minutes`. Return the smaller angle (in sexagesimal units) formed between the hour and the minute hand.

Example 1:



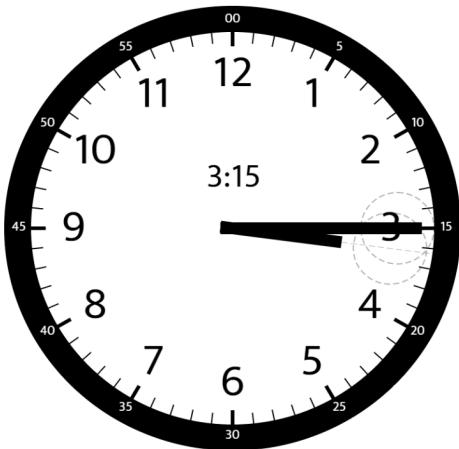
Input: `hour` = 12, `minutes` = 30
Output: 165

Example 2:



Input: hour = 3, minutes = 30
Output: 75

Example 3:



Input: hour = 3, minutes = 15
Output: 7.5

Example 4:

Input: hour = 4, minutes = 50
Output: 155

Example 5:

Input: hour = 12, minutes = 0
Output: 0

Constraints:

- $1 \leq \text{hour} \leq 12$
- $0 \leq \text{minutes} \leq 59$
- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1344-Angle-Between-Hands-of-a-Clock](#)

All Problems:

[Link to All Problems](#)

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1345. Jump Game IV

Given an array of integers `arr` , you are initially positioned at the first index of the array.

In one step you can jump from index `i` to index:

- `i + 1` where: $i + 1 < \text{arr.length}$.
- `i - 1` where: $i - 1 \geq 0$.

- j where: $\text{arr}[i] == \text{arr}[j]$ and $i \neq j$.

Return *the minimum number of steps* to reach the **last index** of the array.

Notice that you can not jump outside of the array at any time.

Example 1:

Input: $\text{arr} = [100, -23, -23, 404, 100, 23, 23, 23, 3, 404]$

Output: 3

Explanation: You need three jumps from index 0 \rightarrow 4 \rightarrow 3 \rightarrow 9.

Example 2:

Input: $\text{arr} = [7]$

Output: 0

Explanation: Start index is the last index. You don't need to jump.

Example 3:

Input: $\text{arr} = [7, 6, 9, 6, 9, 6, 9, 7]$

Output: 1

Explanation: You can jump directly from index 0 to index 7 which is the last index.

Example 4:

Input: $\text{arr} = [6, 1, 9]$

Output: 2

Example 5:

Input: $\text{arr} = [11, 22, 7, 7, 7, 7, 7, 7, 7, 22, 13]$

Output: 3

Constraints:

- $1 \leq \text{arr.length} \leq 5 * 10^4$
- $-10^8 \leq \text{arr}[i] \leq 10^8$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1345-Jump-Game-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1346. Check If N and Its Double Exist

Given an array `arr` of integers, check if there exists two integers `N` and `M` such that `N` is the double of `M` (i.e. `N = 2 * M`).

More formally check if there exists two indices `i` and `j` such that :

- `i != j`
- `0 <= i, j < arr.length`
- `arr[i] == 2 * arr[j]`

Example 1:

Input: arr = [10, 2, 5, 3]
Output: true
Explanation: N = 10 is the double of M = 5, that is, $10 = 2 * 5$.

Example 2:

Input: arr = [7, 1, 14, 11]
Output: true
Explanation: N = 14 is the double of M = 7, that is, $14 = 2 * 7$.

Example 3:

Input: arr = [3, 1, 7, 11]
Output: false
Explanation: In this case does not exist N and M, such that $N = 2 * M$.

Constraints:

- $2 \leq \text{arr.length} \leq 500$
- $-10^3 \leq \text{arr}[i] \leq 10^3$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1346-Check-If-N-and-Its-Double-Exist](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1347. Minimum Number of Steps to Make Two Strings Anagram

Given two equal-size strings s and t . In one step you can choose **any character** of t and replace it with **another character**.

Return *the minimum number of steps* to make t an anagram of s .

An **Anagram** of a string is a string that contains the same characters with a different (or the same) ordering.

Example 1:

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

Output: 1

Explanation: Replace the first 'a' in t with b, $t = \text{"bba"}$ which

Example 2:

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

Output: 5

Explanation: Replace 'p', 'r', 'a', 'i' and 'c' from t with prop

Example 3:

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

Output: 0

Explanation: "anagram" and "mangaar" are anagrams.

Example 4:

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

Output: 0

Example 5:

Input: s = "friend", t = "family"
Output: 4

Constraints:

- $1 \leq s.length \leq 50000$
- $s.length == t.length$
- s and t contain lower-case English letters only.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1347-Minimum-Number-of-Steps-to-Make-Two-Strings-Anagram](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1348. Tweet Counts Per Frequency

Implement the class `TweetCounts` that supports two methods:

1. `recordTweet(string tweetName, int time)`
 - Stores the `tweetName` at the recorded `time` (in **seconds**).
2. `getTweetCountsPerFrequency(string freq, string tweetName, int startTime, int endTime)`
 - Returns the total number of occurrences for the given `tweetName` per **minute**, **hour**, or **day** (depending on `freq`) starting from the `startTime` (in **seconds**) and ending at the `endTime` (in **seconds**).
 - `freq` is always **minute**, **hour** or **day**, representing the time interval to get the total number of occurrences for the given `tweetName`.
 - The first time interval always starts from the `startTime`, so the time intervals are $[\text{startTime}, \text{startTime} + \text{delta}*1]$, $[\text{startTime} + \text{delta}*1, \text{startTime} + \text{delta}*2]$, $[\text{startTime} + \text{delta}*2, \text{startTime} + \text{delta}*3]$, ..., $[\text{startTime} + \text{delta}*(i+1), \text{endTime} + 1]$ for some non-negative number `i` and `delta` (which depends on `freq`).

Example:

Input

```
["TweetCounts","recordTweet","recordTweet","recordTweet","getTweetCountsPerFrequency"]
[[[],["tweet3",0],["tweet3",60],["tweet3",10],["minute","tweet3",0,60]]]
```

Output

```
[null,null,null,null,[2],[2,1],null,[4]]
```

Explanation

```
TweetCounts tweetCounts = new TweetCounts();
tweetCounts.recordTweet("tweet3", 0);
tweetCounts.recordTweet("tweet3", 60);
tweetCounts.recordTweet("tweet3", 10);
tweetCounts.getTweetCountsPerFrequency("minute", "tweet3", 0, 59);
tweetCounts.getTweetCountsPerFrequency("minute", "tweet3", 0, 60);
tweetCounts.recordTweet("tweet3", 120);
tweetCounts.getTweetCountsPerFrequency("hour", "tweet3", 0, 210);
```

Constraints:

- There will be at most 10000 operations considering both recordTweet and getTweetCountsPerFrequency .
- $0 \leq \text{time}, \text{startTime}, \text{endTime} \leq 10^9$
- $0 \leq \text{endTime} - \text{startTime} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1348-Tweet-Counts-Per-Frequency](#)

All Problems:

[Link to All Problems](#)

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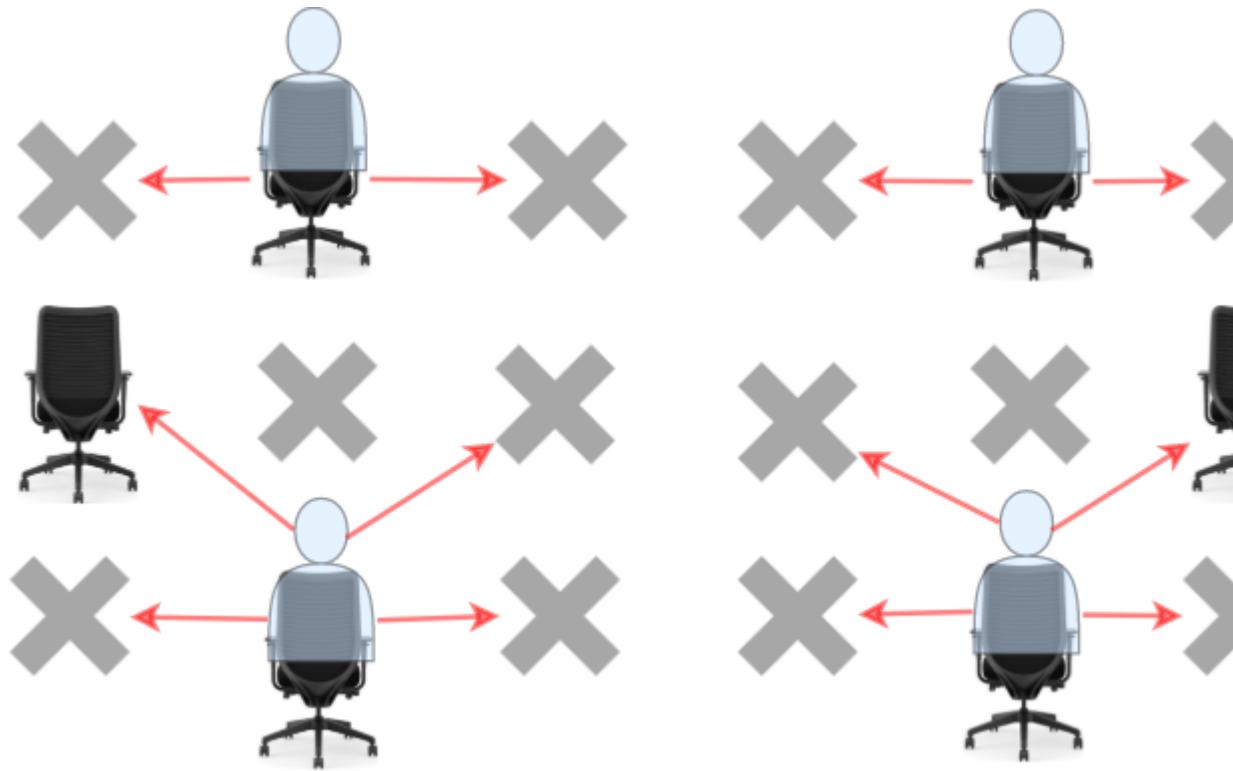
1349. Maximum Students Taking Exam

Given a $m * n$ matrix seats that represent seats distributions in a classroom. If a seat is broken, it is denoted by '#' character otherwise it is denoted by a '.' character.

Students can see the answers of those sitting next to the left, right, upper left and upper right, but he cannot see the answers of the student sitting directly in front or behind him. Return the **maximum** number of students that can take the exam together without any cheating being possible..

Students must be placed in seats in good condition.

Example 1:



Input: seats = `[["#", ".", "#", "#", ".", "#"],
[".", "#", "#", "#", "#", "."],
["#", ".", "#", "#", ".", "#"]]`

Output: 4

Explanation: Teacher can place 4 students in available seats so that no two students are in the same row or column.

Example 2:

Input: seats = `[[".", "#"],
["#", "#"],
["#", "."],
["#", "#"],
[".", "#"]]`

Output: 3

Explanation: Place all students in available seats.

Example 3:

Input: seats = `[["#", ".", ".", ".", ".", "#"],
[".", "#", ".", "#", ".", "."],
[".", ".", "#", ".", "."],
[".", "#", ".", "#", "."],
["#", ".", ".", ".", "#"]]`

Output: 10

Explanation: Place students in available seats in column 1, 3 and 5.

Constraints:

- seats contains only characters '.' and '#'.

- $m == \text{seats.length}$
- $n == \text{seats}[i].length$
- $1 \leq m \leq 8$
- $1 \leq n \leq 8$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1349-Maximum-Students-Taking-Exam](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1350. Students With Invalid Departments

[SQL Schema](#) >

Table: Departments

Column Name	Type
id	int
name	varchar

id is the primary key of this table.

The table has information about the id of each department of a university.

Table: Students

Column Name	Type
id	int
name	varchar
department_id	int

id is the primary key of this table.

The table has information about the id of each student at a university.

Write an SQL query to find the id and the name of all students who are enrolled in departments that no longer exists.

Return the result table in any order.

The query result format is in the following example:

Departments table:

id	name
1	Electrical Engineering
7	Computer Engineering
13	Bussiness Administration

Students table:

id	name	department_id
23	Alice	1

1	Bob	7
5	Jennifer	13
2	John	14
4	Jasmine	77
3	Steve	74
6	Luis	1
8	Jonathan	7
7	Daiana	33
11	Madelynn	1

Result table:

id	name
2	John
7	Daiana
4	Jasmine
3	Steve

John, Daiana, Steve and Jasmine are enrolled in departments 14, 7, 4 and 3 respectively.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1350-Students-With-Invalid-Departments](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1351. Count Negative Numbers in a Sorted Matrix

Given a $m * n$ matrix `grid` which is sorted in non-increasing order both row-wise and column-wise.

Return the number of **negative** numbers in `grid`.

Example 1:

Input: `grid = [[4,3,2,-1],[3,2,1,-1],[1,1,-1,-2],[-1,-1,-2,-3]]`
Output: 8
Explanation: There are 8 negatives number in the matrix.

Example 2:

Input: `grid = [[3,2],[1,0]]`
Output: 0

Example 3:

Input: `grid = [[1,-1],[-1,-1]]`
Output: 3

Example 4:

Input: `grid = [[-1]]`
Output: 1

Constraints:

- $m == \text{grid.length}$
- $n == \text{grid[i].length}$
- $1 \leq m, n \leq 100$
- $-100 \leq \text{grid[i][j]} \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1351-Count-Negative-Numbers-in-a-Sorted-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1352. Product of the Last K Numbers

Implement the class `ProductOfNumbers` that supports two methods:

1. add(int num)

- Adds the number num to the back of the current list of numbers.

2. getProduct(int k)

- Returns the product of the last k numbers in the current list.
- You can assume that always the current list has **at least** k numbers.

At any time, the product of any contiguous sequence of numbers will fit into a single 32-bit integer without overflowing.

Example:

Input

```
["ProductOfNumbers","add","add","add","add","add","getProduct",[],[3],[0],[2],[5],[4],[2],[3],[4],[8],[2]]
```

Output

```
[null,null,null,null,null,null,20,40,0,null,32]
```

Explanation

```
ProductOfNumbers productOfNumbers = new ProductOfNumbers();
productOfNumbers.add(3);           // [3]
productOfNumbers.add(0);           // [3,0]
productOfNumbers.add(2);           // [3,0,2]
productOfNumbers.add(5);           // [3,0,2,5]
productOfNumbers.add(4);           // [3,0,2,5,4]
productOfNumbers.getProduct(2);   // return 20. The product of the last 2 numbers
productOfNumbers.getProduct(3);   // return 40. The product of the last 3 numbers
productOfNumbers.getProduct(4);   // return 0. The product of the last 4 numbers
productOfNumbers.add(8);           // [3,0,2,5,4,8]
productOfNumbers.getProduct(2);   // return 32. The product of the last 2 numbers
```

Constraints:

- There will be at most 40000 operations considering both add and getProduct .
- $0 \leq num \leq 100$
- $1 \leq k \leq 40000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1352-Product-of-the-Last-K-Numbers](#)

All Problems:

[Link to All Problems](#)

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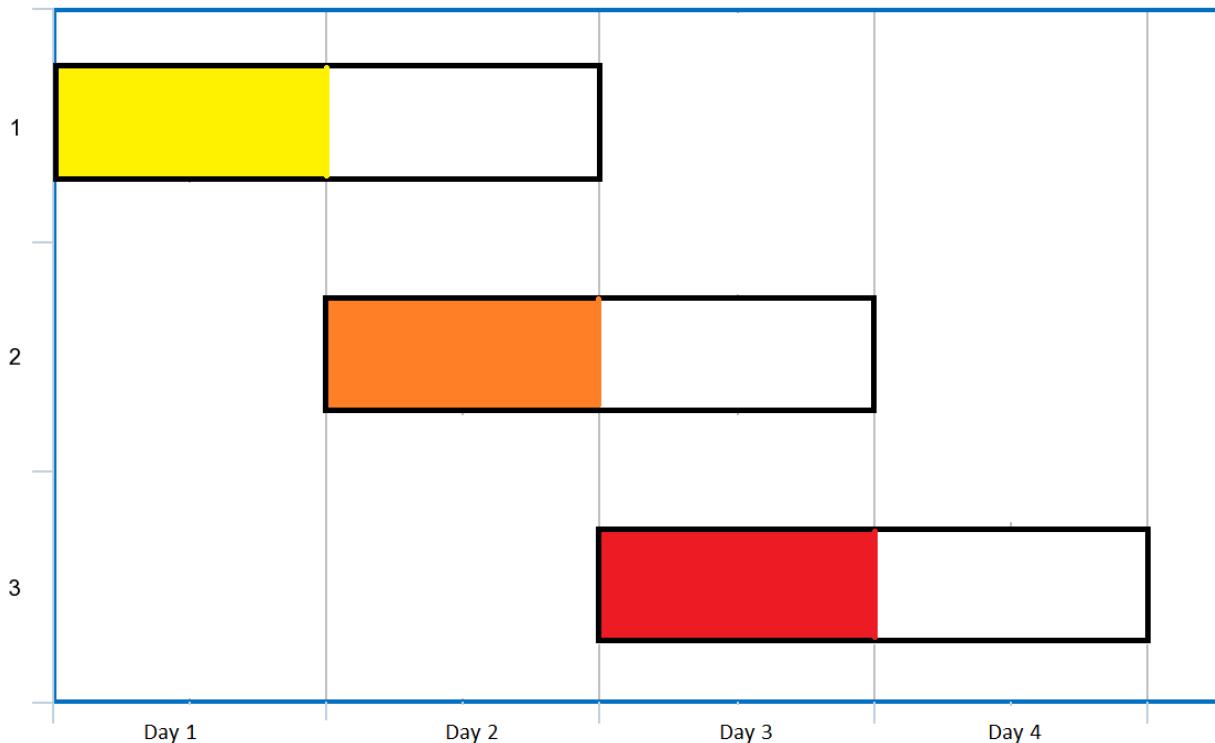
1353. Maximum Number of Events That Can Be Attended

Given an array of events where `events[i] = [startDayi, endDayi]`. Every event i starts at `startDayi` and ends at `endDayi`.

You can attend an event i at any day d where $\text{startTime}_i \leq d \leq \text{endTime}_i$. Notice that you can only attend one event at any time d .

Return *the maximum number of events* you can attend.

Example 1:



Input: events = [[1,2],[2,3],[3,4]]
Output: 3

Explanation: You can attend all the three events.
One way to attend them all is as shown.
Attend the first event on day 1.
Attend the second event on day 2.
Attend the third event on day 3.

Example 2:

Input: events= [[1,2],[2,3],[3,4],[1,2]]
Output: 4

Example 3:

Input: events = [[1,4],[4,4],[2,2],[3,4],[1,1]]
Output: 4

Example 4:

```
Input: events = [[1,100000]]  
Output: 1
```

Example 5:

```
Input: events = [[1,1],[1,2],[1,3],[1,4],[1,5],[1,6],[1,7]]  
Output: 7
```

Constraints:

- $1 \leq \text{events.length} \leq 10^5$
- $\text{events[i].length} == 2$
- $1 \leq \text{events[i][0]} \leq \text{events[i][1]} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1353-Maximum-Number-of-Events-That-Can-Be-Attended](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1354. Construct Target Array With Multiple Sums

Given an array of integers target . From a starting array, A consisting of all 1's, you may perform the following procedure :

- let x be the sum of all elements currently in your array.
- choose index i , such that $0 \leq i < \text{target.size}$ and set the value of A at index i to x .
- You may repeat this procedure as many times as needed.

Return True if it is possible to construct the target array from A otherwise return False.

Example 1:

```
Input: target = [9,3,5]
Output: true
Explanation: Start with [1, 1, 1]
[1, 1, 1], sum = 3 choose index 1
[1, 3, 1], sum = 5 choose index 2
[1, 3, 5], sum = 9 choose index 0
[9, 3, 5] Done
```

Example 2:

```
Input: target = [1,1,1,2]
Output: false
Explanation: Impossible to create target array from [1,1,1,1].
```

Example 3:

```
Input: target = [8,5]
Output: true
```

Constraints:

- $N == \text{target.length}$
- $1 \leq \text{target.length} \leq 5 * 10^4$
- $1 \leq \text{target}[i] \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1354-Construct-Target-Array-With-Multiple-Sums](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1355. Activity Participants

SQL Schema >

Table: Friends

Column Name	Type
-------------	------

id	int	
name	varchar	
activity	varchar	

id is the id of the friend and primary key for this table.

name is the name of the friend.

activity is the name of the activity which the friend takes part

Table: Activities

Column Name	Type	
id	int	
name	varchar	

id is the primary key for this table.

name is the name of the activity.

Write an SQL query to find the names of all the activities with neither maximum, nor minimum number of participants.

Return the result table in any order. Each activity in table Activities is performed by any person in the table Friends.

The query result format is in the following example:

Friends table:

id	name	activity	
1	Jonathan D.	Eating	
2	Jade W.	Singing	
3	Victor J.	Singing	
4	Elvis Q.	Eating	
5	Daniel A.	Eating	
6	Bob B.	Horse Riding	

Activities table:

id	name
1	Eating
2	Singing
3	Horse Riding

Result table:

|--|--|

```
| results      |
+-----+
| Singing     |
+-----+
```

Eating activity is performed by 3 friends, maximum number of participants
Horse Riding activity is performed by 1 friend, minimum number of participants
Singing is performed by 2 friends (Victor J. and Jade W.)

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1355-Activity-Participants](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1356. Sort Integers by The Number of 1 Bits

Given an integer array `arr` . You have to sort the integers in the array in ascending order by the number of 1's in their binary representation and in case of two or more integers have the same number of 1's you have to sort them in ascending order.

Return *the sorted array* .

Example 1:

Input: arr = [0,1,2,3,4,5,6,7,8]
Output: [0,1,2,4,8,3,5,6,7]
Explanation: [0] is the only integer with 0 bits.
[1,2,4,8] all have 1 bit.
[3,5,6] have 2 bits.
[7] has 3 bits.
The sorted array by bits is [0,1,2,4,8,3,5,6,7]

Example 2:

Input: arr = [1024,512,256,128,64,32,16,8,4,2,1]
Output: [1,2,4,8,16,32,64,128,256,512,1024]
Explanation: All integers have 1 bit in the binary representation

Example 3:

Input: arr = [10000,10000]
Output: [10000,10000]

Example 4:

Input: arr = [2,3,5,7,11,13,17,19]
Output: [2,3,5,17,7,11,13,19]

Example 5:

Input: arr = [10,100,1000,10000]
Output: [10,100,10000,1000]

Constraints:

- $1 \leq \text{arr.length} \leq 500$
- $0 \leq \text{arr}[i] \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1356-Sort-Integers-by-The-Number-of-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1357. Apply Discount Every n Orders

There is a sale in a supermarket, there will be a discount every n customer.

There are some products in the supermarket where the id of the i -th product is $\text{products}[i]$ and the price

per unit of this product is `prices[i]` .
 The system will count the number of customers and when the n -th customer arrive he/she will have a discount on the bill. (i.e if the cost is x the new cost is $x - (\text{discount} * x) / 100$). Then the system will start counting customers again.

The customer orders a certain amount of each product where `product[i]` is the id of the i -th product the customer ordered and `amount[i]` is the number of units the customer ordered of that product.

Implement the `Cashier` class:

- `Cashier(int n, int discount, int[] products, int[] prices)` Initializes the object with n , the `discount`, the `products` and their `prices`.
- `double getBill(int[] product, int[] amount)` returns the value of the bill and apply the discount if needed. Answers within 10^{-5} of the actual value will be accepted as correct.

Example 1:

Input

```
["Cashier","getBill","getBill","getBill","getBill","getBill","getBill"]
[[3,50,[1,2,3,4,5,6,7],[100,200,300,400,300,200,100]],[[1,2],[1,2,3,4,5,6,7],[100,200,300,400,300,200,100]]]
```

Output

```
[null,500.0,4000.0,800.0,4000.0,4000.0,7350.0,2500.0]
```

Explanation

```
Cashier cashier = new Cashier(3,50,[1,2,3,4,5,6,7],[100,200,300,400,300,200,100]);
cashier.getBill([1,2],[1,2]); // return 500.0
cashier.getBill([3,7],[10,10]); // return 800.0
cashier.getBill([1,2,3,4,5,6,7],[1,1,1,1,1,1,1]); // return 4000.0
cashier.getBill([4],[10]); // return 4000.0
cashier.getBill([7,3],[10,10]); // return 7350.0
cashier.getBill([7,5,3,1,6,4,2],[10,10,10,9,9,9,7]); // return 2500.0
```

Constraints:

- $1 \leq n \leq 10^4$
- $0 \leq \text{discount} \leq 100$
- $1 \leq \text{products.length} \leq 200$
- $1 \leq \text{products}[i] \leq 200$
- There are **not** repeated elements in the array `products` .
- `prices.length == products.length`

- $1 \leq \text{prices}[i] \leq 1000$
- $1 \leq \text{product.length} \leq \text{products.length}$
- $\text{product}[i]$ exists in products .
- $\text{amount.length} == \text{product.length}$
- $1 \leq \text{amount}[i] \leq 1000$
- At most 1000 calls will be made to `getBill`.
- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1357-Apply-Discount-Every-n-Orders](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1358. Number of Substrings Containing All Three Characters

Given a string s consisting only of characters a , b and c .

Return the number of substrings containing **at least** one occurrence of all these characters a , b and c .

Example 1:

Input: $s = "abcabc"$

Output: 10

Explanation: The substrings containing at least one occurrence of all three characters are "abca", "abcbc", "abcabc", "bcabc", "cabcabc", "abc", "bc", "c", "abca", "abcbc".

Example 2:

Input: $s = "aaacb"$

Output: 3

Explanation: The substrings containing at least one occurrence of all three characters are "aaac", "aacb", "aaacb".

Example 3:

Input: $s = "abc"$

Output: 1

Constraints:

- $3 \leq s.length \leq 5 \times 10^4$
- s only consists of a , b or c characters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1358-Number-of-Substrings-Containing-All-Three-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1359. Count All Valid Pickup and Delivery Options

Given n orders, each order consist in pickup and delivery services.

Count all valid pickup/delivery possible sequences such that delivery(i) is always after of pickup(i).

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: $n = 1$

Output: 1

Explanation: Unique order (P1, D1), Delivery 1 always is after o

Example 2:

Input: n = 2

Output: 6

Explanation: All possible orders:

(P1,P2,D1,D2), (P1,P2,D2,D1), (P1,D1,P2,D2), (P2,P1,D1,D2), (P2,D1,P1,D2)

This is an invalid order (P1,D2,P2,D1) because Pickup 2 is after Delivery 1.

Example 3:

Input: n = 3

Output: 90

Constraints:

- $1 \leq n \leq 500$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1359-Count-All-Valid-Pickup-and-Delivery-Options](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1360. Number of Days Between Two Dates

Write a program to count the number of days between two dates.

The two dates are given as strings, their format is YYYY-MM-DD as shown in the examples.

Example 1:

```
Input: date1 = "2019-06-29", date2 = "2019-06-30"  
Output: 1
```

Example 2:

```
Input: date1 = "2020-01-15", date2 = "2019-12-31"  
Output: 15
```

Constraints:

- The given dates are valid dates between the years 1971 and 2100 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1360-Number-of-Days-Between-Two-Dates](#)

All Problems:

[Link to All Problems](#)

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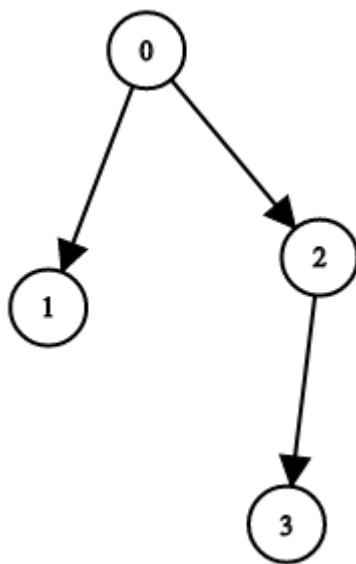
1361. Validate Binary Tree Nodes

You have n binary tree nodes numbered from 0 to $n - 1$ where node i has two children $\text{leftChild}[i]$ and $\text{rightChild}[i]$, return `true` if and only if **all** the given nodes form **exactly one** valid binary tree.

If node i has no left child then $\text{leftChild}[i]$ will equal -1 , similarly for the right child.

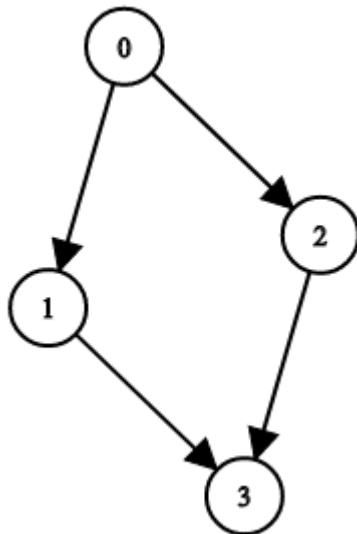
Note that the nodes have no values and that we only use the node numbers in this problem.

Example 1:



Input: $n = 4$, `leftChild` = [1, -1, 3, -1], `rightChild` = [2, -1, -1, -1]
Output: true

Example 2:



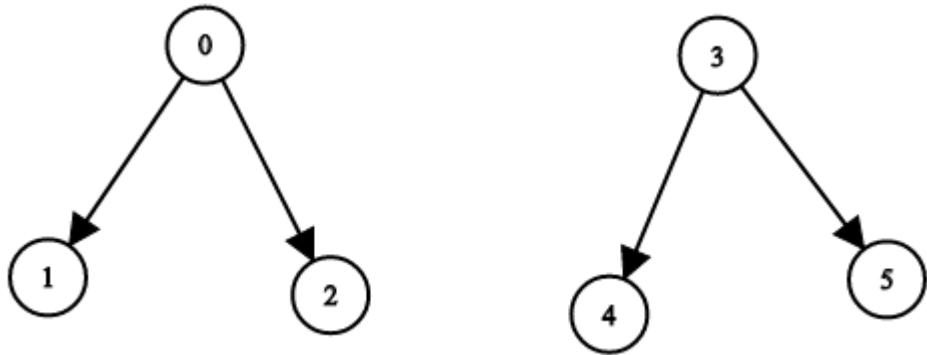
Input: $n = 4$, `leftChild` = [1, -1, 3, -1], `rightChild` = [2, 3, -1, -1]
Output: false

Example 3:



Input: n = 2, leftChild = [1,0], rightChild = [-1,-1]
Output: false

Example 4:



Input: n = 6, leftChild = [1,-1,-1,4,-1,-1], rightChild = [2,-1,-1,5,-1,-1]
Output: false

Constraints:

- $1 \leq n \leq 10^4$
- $\text{leftChild.length} == \text{rightChild.length} == n$
- $-1 \leq \text{leftChild}[i], \text{rightChild}[i] \leq n - 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1361-Validate-Binary-Tree-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1362. Closest Divisors

Given an integer `num` , find the closest two integers in absolute difference whose product equals `num + 1` or `num + 2` .

Return the two integers in any order.

Example 1:

Input: `num = 8`

Output: `[3,3]`

Explanation: For `num + 1 = 9`, the closest divisors are 3 & 3, fo

Example 2:

Input: `num = 123`

Output: `[5,25]`

Example 3:

Input: `num = 999`

Output: `[40,25]`

Constraints:

- $1 \leq num \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1362-Closest-Divisors](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1363. Largest Multiple of Three

Given an integer array of `digits` , return the largest multiple of `three` that can be formed by concatenating some of the given digits in any order.

Since the answer may not fit in an integer data type, return the answer as a string.

If there is no answer return an empty string.

Example 1:

Input: digits = [8,1,9]
Output: "981"

Example 2:

Input: digits = [8,6,7,1,0]
Output: "8760"

Example 3:

Input: digits = [1]
Output: ""

Example 4:

Input: digits = [0,0,0,0,0,0]
Output: "0"

Constraints:

- $1 \leq \text{digits.length} \leq 10^4$
- $0 \leq \text{digits}[i] \leq 9$
- The returning answer must not contain unnecessary leading zeros.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1363-Largest-Multiple-of-Three](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1364. Number of Trusted Contacts of a Customer

SQL Schema >

Table: Customers

Column Name	Type
customer_id	int
customer_name	varchar
email	varchar

customer_id is the primary key for this table.

Each row of this table contains the name and the email of a customer.

Table: Contacts

Column Name	Type
user_id	id
contact_name	varchar
contact_email	varchar

(user_id, contact_email) is the primary key for this table.

Each row of this table contains the name and email of one contact.

This table contains information about people each customer trusts.

Table: Invoices

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| invoice_id  | int    |
| price        | int    |
| user_id      | int    |
+-----+-----+
```

invoice_id is the primary key for this table.

Each row of this table indicates that user_id has an invoice with

Write an SQL query to find the following for each invoice_id :

- customer_name : The name of the customer the invoice is related to.
- price : The price of the invoice.
- contacts_cnt : The number of contacts related to the customer.
- trusted_contacts_cnt : The number of contacts related to the customer and at the same time they are customers to the shop. (i.e His/Her email exists in the Customers table.)

Order the result table by invoice_id .

The query result format is in the following example:

Customers table:

```
+-----+-----+-----+
| customer_id | customer_name | email           |
+-----+-----+-----+
| 1           | Alice          | alice@leetcode.com |
| 2           | Bob            | bob@leetcode.com  |
| 13          | John           | john@leetcode.com |
| 6           | Alex           | alex@leetcode.com |
+-----+-----+-----+
```

Contacts table:

```
+-----+-----+-----+
| user_id     | contact_name  | contact_email   |
+-----+-----+-----+
| 1           | Bob           | bob@leetcode.com |
| 1           | John          | john@leetcode.com |
| 1           | Jal            | jal@leetcode.com |
| 2           | Omar          | omar@leetcode.com |
| 2           | Meir          | meir@leetcode.com |
| 6           | Alice          | alice@leetcode.com |
+-----+-----+-----+
```

Invoices table:

```
+-----+-----+-----+
| invoice_id | price | user_id |
+-----+-----+-----+
```

77	100	1
88	200	1
99	300	2
66	400	2
55	500	13
44	60	6

Result table:

invoice_id	customer_name	price	contacts_cnt	trusted_contacts_cnt
44	Alex	60	1	1
55	John	500	0	0
66	Bob	400	2	0
77	Alice	100	3	2
88	Alice	200	3	2
99	Bob	300	2	0

Alice has three contacts, two of them are trusted contacts (Bob and Alice).
 Bob has two contacts, none of them is a trusted contact.
 Alex has one contact and it is a trusted contact (Alice).
 John doesn't have any contacts.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1364-Number-of-Trusted-Contacts-of-a-Customer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1365. How Many Numbers Are Smaller Than the Current Number

Given the array `nums` , for each `nums[i]` find out how many numbers in the array are smaller than it. That is, for each `nums[i]` you have to count the number of valid `j`'s such that `j != i` **and** `nums[j] < nums[i]` .

Return the answer in an array.

Example 1:

Input: `nums = [8,1,2,2,3]`

Output: `[4,0,1,1,3]`

Explanation:

For `nums[0]=8` there exist four smaller numbers than it (1, 2, 2, 3).

For `nums[1]=1` does not exist any smaller number than it.

For `nums[2]=2` there exist one smaller number than it (1).

For `nums[3]=2` there exist one smaller number than it (1).

For `nums[4]=3` there exist three smaller numbers than it (1, 2 and 3).

Example 2:

Input: `nums = [6,5,4,8]`

Output: `[2,1,0,3]`

Example 3:

Input: `nums = [7,7,7,7]`

Output: `[0,0,0,0]`

Constraints:

- $2 \leq \text{nums.length} \leq 500$
- $0 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1365-How-Many-Numbers-Are-Smaller-Than-the-Current-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1366. Rank Teams by Votes

In a special ranking system, each voter gives a rank from highest to lowest to all teams participated in the competition.

The ordering of teams is decided by who received the most position-one votes. If two or more teams tie in the first position, we consider the second position to resolve the conflict, if they tie again, we continue this process until the ties are resolved. If two or more teams are still tied after considering all positions, we rank them alphabetically based on their team letter.

Given an array of strings `votes` which is the votes of all voters in the ranking systems. Sort all teams according to the ranking system described above.

Return *a string of all teams sorted* by the ranking system.

Example 1:

Input: `votes = ["ABC", "ACB", "ABC", "ACB", "ACB"]`
Output: "ACB"

Explanation: Team A was ranked first place by 5 voters. No other Team B was ranked second by 2 voters and was ranked third by 3 voters. Team C was ranked second by 3 voters and was ranked third by 2 voters. As most of the voters ranked C second, team C is the second team.

Example 2:

Input: `votes = ["WXYZ", "XYZW"]`
Output: "XWYZ"

Explanation: X is the winner due to tie-breaking rule. X has same votes as Y, but is ranked first in the input.

Example 3:

Input: `votes = ["ZMNAGUEDSJYLBOPHRQICWFXTVK"]`
Output: "ZMNAGUEDSJYLBOPHRQICWFXTVK"

Explanation: Only one voter so his votes are used for the ranking.

Example 4:

Input: `votes = ["BCA", "CAB", "CBA", "ABC", "ACB", "BAC"]`
Output: "ABC"

Explanation:

Team A was ranked first by 2 voters, second by 2 voters and third by 2 voters.
Team B was ranked first by 2 voters, second by 2 voters and third by 2 voters.

Team C was ranked first by 2 voters, second by 2 voters and third by 1 voter. There is a tie and we rank teams ascending by their IDs.

Example 5:

Input: votes = ["M", "M", "M", "M"]

Output: "M"

Explanation: Only team M is in the competition so it has the first rank.

Constraints:

- $1 \leq \text{votes.length} \leq 1000$
- $1 \leq \text{votes[i].length} \leq 26$
- $\text{votes[i].length} == \text{votes[j].length}$ for $0 \leq i, j < \text{votes.length}$.
- votes[i][j] is an English **upper-case** letter.
- All characters of votes[i] are unique.
- All the characters that occur in votes[0] also occur in votes[j] where $1 \leq j < \text{votes.length}$.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1366-Rank-Teams-by-Votes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

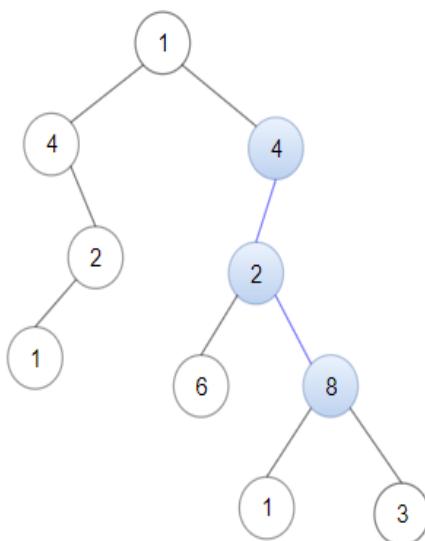
1367. Linked List in Binary Tree

Given a binary tree `root` and a linked list with `head` as the first node.

Return True if all the elements in the linked list starting from the `head` correspond to some *downward path* connected in the binary tree otherwise return False.

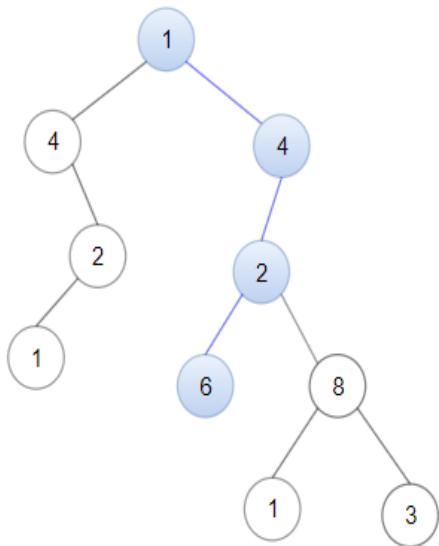
In this context downward path means a path that starts at some node and goes downwards.

Example 1:



Input: `head = [4,2,8]`, `root = [1,4,4,null,2,2,null,1,null,6,8,null]`
Output: true
Explanation: Nodes in blue form a subpath in the binary Tree.

Example 2:



Input: head = [1,4,2,6], root = [1,4,4,null,2,2,null,1,null,6,8,1]
 Output: true

Example 3:

Input: head = [1,4,2,6,8], root = [1,4,4,null,2,2,null,1,null,6,8,1]
 Output: false
 Explanation: There is no path in the binary tree that contains a

Constraints:

- $1 \leq \text{node.val} \leq 100$ for each node in the linked list and binary tree.
- The given linked list will contain between 1 and 100 nodes.
- The given binary tree will contain between 1 and 2500 nodes.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1367-Linked-List-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1368. Minimum Cost to Make at Least One Valid Path in a Grid

Given a $m \times n$ grid . Each cell of the grid has a sign pointing to the next cell you should visit if you are currently in this cell. The sign of $\text{grid}[i][j]$ can be:

- 1 which means go to the cell to the right. (i.e go from $\text{grid}[i][j]$ to $\text{grid}[i][j + 1]$)
- 2 which means go to the cell to the left. (i.e go from $\text{grid}[i][j]$ to $\text{grid}[i][j - 1]$)
- 3 which means go to the lower cell. (i.e go from $\text{grid}[i][j]$ to $\text{grid}[i + 1][j]$)
- 4 which means go to the upper cell. (i.e go from $\text{grid}[i][j]$ to $\text{grid}[i - 1][j]$)

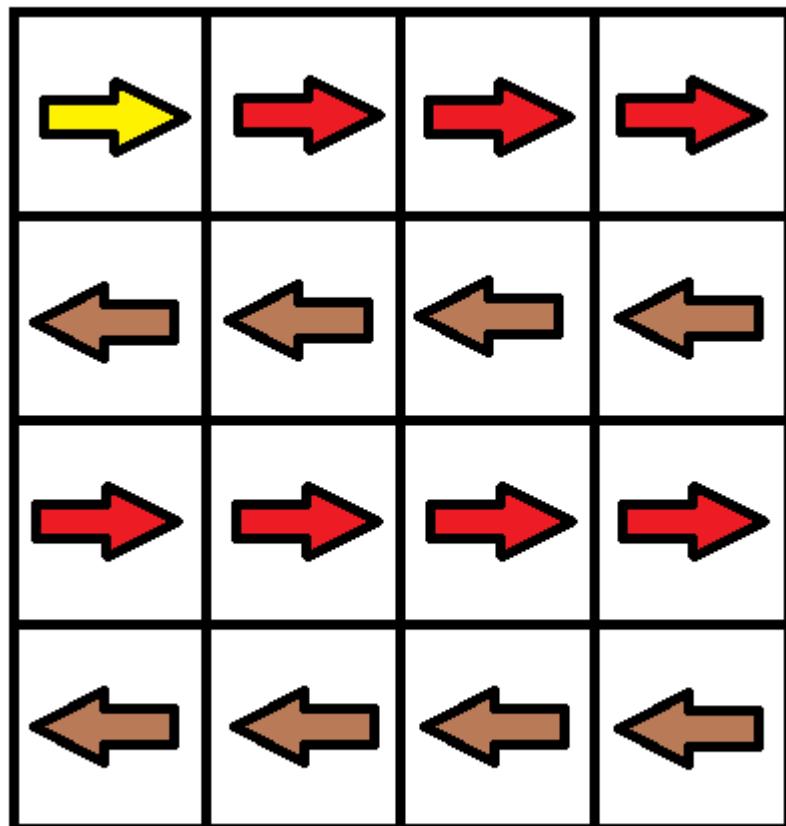
Notice that there could be some **invalid signs** on the cells of the grid which points outside the grid .

You will initially start at the upper left cell $(0, 0)$. A valid path in the grid is a path which starts from the upper left cell $(0, 0)$ and ends at the bottom-right cell $(m - 1, n - 1)$ following the signs on the grid. The valid path **doesn't have to be the shortest**.

You can modify the sign on a cell with $\text{cost} = 1$. You can modify the sign on a cell **one time only**.

Return *the minimum cost* to make the grid have at least one valid path.

Example 1:

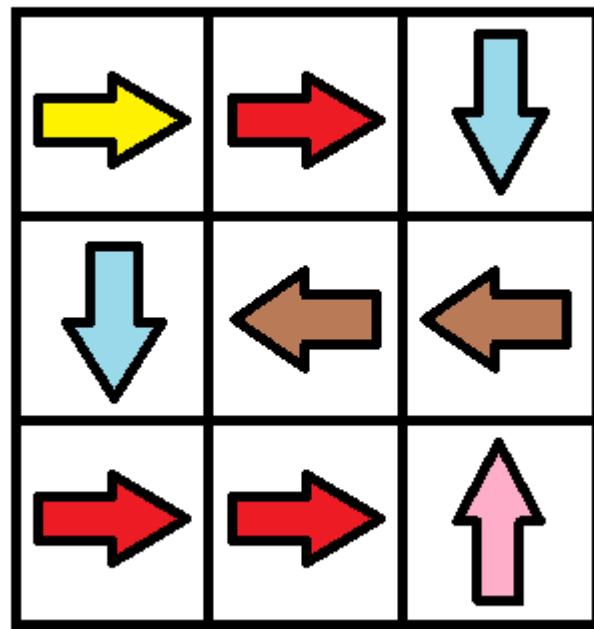


Input: `grid = [[1,1,1,1],[2,2,2,2],[1,1,1,1],[2,2,2,2]]`
Output: 3

Explanation: You will start at point $(0, 0)$.

The path to $(3, 3)$ is as follows. $(0, 0) \rightarrow (0, 1) \rightarrow (0, 2) \rightarrow (1, 2) \rightarrow (1, 3) \rightarrow (2, 3) \rightarrow (3, 3)$.
The total cost = 3.

Example 2:

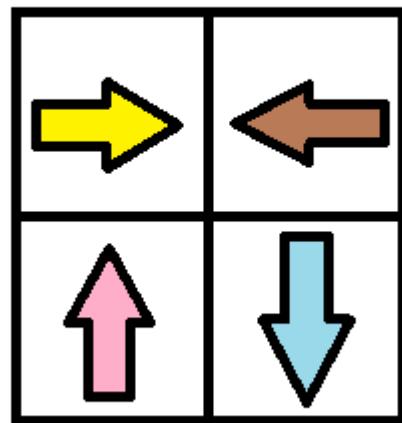


Input: `grid = [[1,1,3],[3,2,2],[1,1,4]]`

Output: `0`

Explanation: You can follow the path from $(0, 0)$ to $(2, 2)$.

Example 3:



Input: `grid = [[1,2],[4,3]]`

Output: `1`

Example 4:

Input: grid = [[2,2,2],[2,2,2]]
Output: 3

Example 5:

Input: grid = [[4]]
Output: 0

Constraints:

- m == grid.length
- n == grid[i].length
- 1 <= m, n <= 100

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1368-Minimum-Cost-to-Make-at-Least-One-Valid-Path-in-a-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1369. Get the Second Most Recent Activity

SQL Schema >

Table: UserActivity

Column Name	Type
username	varchar
activity	varchar
startDate	Date
endDate	Date

This table does not contain primary key.

This table contain information about the activity performed of each user.
A person with username performed a activity from startDate to endDate.

Write an SQL query to show the **second most recent activity** of each user.

If the user only has one activity, return that one.

A user can't perform more than one activity at the same time. Return the result table in **any** order.

The query result format is in the following example:

UserActivity table:

username	activity	startDate	endDate
Alice	Travel	2020-02-12	2020-02-20
Alice	Dancing	2020-02-21	2020-02-23
Alice	Travel	2020-02-24	2020-02-28
Bob	Travel	2020-02-11	2020-02-18

Result table:

username	activity	startDate	endDate
Alice	Dancing	2020-02-21	2020-02-23
Bob	Travel	2020-02-11	2020-02-18

+-----+-----+-----+-----+

The most recent activity of Alice is Travel from 2020-02-24 to 2020-02-24.
Bob only has one record, we just take that one.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1369-Get-the-Second-Most-Recent-Activity](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1370. Increasing Decreasing String

Given a string s . You should re-order the string using the following algorithm:

1. Pick the **smallest** character from s and **append** it to the result.
2. Pick the **smallest** character from s which is greater than the last appended character to the result and **append** it.
3. Repeat step 2 until you cannot pick more characters.
4. Pick the **largest** character from s and **append** it to the result.
5. Pick the **largest** character from s which is smaller than the last appended character to the result and **append** it.
6. Repeat step 5 until you cannot pick more characters.
7. Repeat the steps from 1 to 6 until you pick all characters from s .

In each step, If the smallest or the largest character appears more than once you can choose any occurrence and append it to the result.

Return *the result string* after sorting s with this algorithm.

Example 1:

Input: $s = "aaaabbbbcccc"$

Output: "abccbaabccba"

Explanation: After steps 1, 2 and 3 of the first iteration, result = "abccbaabccba".

After steps 4, 5 and 6 of the first iteration, result = "abccbaabccba".

First iteration is done. Now $s = "aabbcc"$ and we go back to step 1.

After steps 1, 2 and 3 of the second iteration, result = "abccbaabccba".

After steps 4, 5 and 6 of the second iteration, result = "abccbaabccba".

Example 2:

Input: $s = "rat"$

Output: "art"

Explanation: The word "rat" becomes "art" after re-ordering it with the algorithm.

Example 3:

Input: s = "leetcode"
Output: "cdelotee"

Example 4:

Input: s = "ggggggg"
Output: "ggggggg"

Example 5:

Input: s = "spo"
Output: "ops"

Constraints:

- $1 \leq s.length \leq 500$
- s contains only lower-case English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1370-Increasing-Decreasing-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1371. Find the Longest Substring Containing Vowels in Even Counts

Given the string s , return the size of the longest substring containing each vowel an even number of times. That is, 'a', 'e', 'i', 'o', and 'u' must appear an even number of times.

Example 1:

Input: $s = \text{"leetminicoworoep"}$

Output: 13

Explanation: The longest substring is "leetminicowor" which contains two 'e's, one 'i', and one 'o'.

Example 2:

Input: $s = \text{"leetcodeisgreat"}$

Output: 5

Explanation: The longest substring is "leetc" which contains two 'e's and two 't's.

Example 3:

Input: $s = \text{"bcbcbc"}$

Output: 6

Explanation: In this case, the given string "bcbcbc" is the longest substring where all vowels have even counts.

Constraints:

- $1 \leq s.length \leq 5 \times 10^5$
- s contains only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1371-Find-the-Longest-Substring-Containing-Vowels-in-Even-Counts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1372. Longest ZigZag Path in a Binary Tree

Given a binary tree `root` , a ZigZag path for a binary tree is defined as follow:

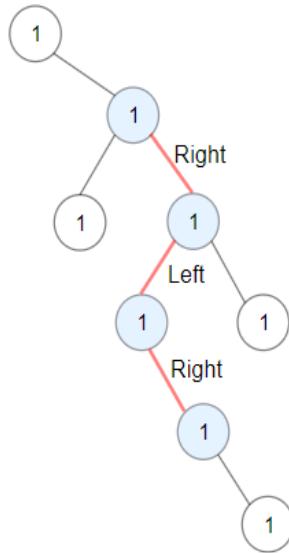
- Choose **any** node in the binary tree and a direction (right or left).
- If the current direction is right then move to the right child of the current node otherwise move to the left child.
- Change the direction from right to left or right to left.

- Repeat the second and third step until you can't move in the tree.

Zigzag length is defined as the number of nodes visited -
1. (A single node has a length of 0).

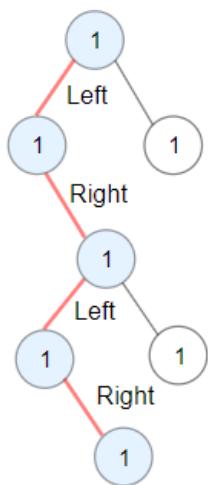
Return the longest ZigZag path contained in that tree.

Example 1:



Input: root = [1,null,1,1,1,null,null,1,1,null,1,null,null,null]
Output: 3
Explanation: Longest ZigZag path in blue nodes (right -> left ->

Example 2:



Input: root = [1,1,1,null,1,null,null,1,1,null,1]
Output: 4
Explanation: Longest ZigZag path in blue nodes (left -> right ->

Example 3:

Input: root = [1]
Output: 0

Constraints:

- Each tree has at most 50000 nodes..
- Each node's value is between [1, 100] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1372-Longest-ZigZag-Path-in-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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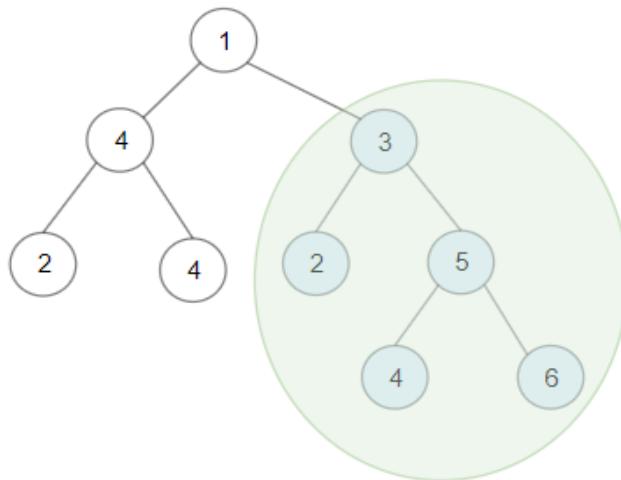
1373. Maximum Sum BST in Binary Tree

Given a **binary tree root**, the task is to return the maximum sum of all keys of **any** sub-tree which is also a Binary Search Tree (BST).

Assume a BST is defined as follows:

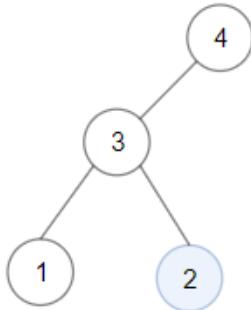
- The left subtree of a node contains only nodes with keys **less than** the node's key.
- The right subtree of a node contains only nodes with keys **greater than** the node's key.
- Both the left and right subtrees must also be binary search trees.

Example 1:



Input: `root = [1,4,3,2,4,2,5,null,null,null,null,null,null,4,6]`
Output: 20
Explanation: Maximum sum in a valid Binary search tree is obtained

Example 2:



Input: root = [4,3,null,1,2]

Output: 2

Explanation: Maximum sum in a valid Binary search tree is obtained.

Example 3:

Input: root = [-4,-2,-5]

Output: 0

Explanation: All values are negatives. Return an empty BST.

Example 4:

Input: root = [2,1,3]

Output: 6

Example 5:

Input: root = [5,4,8,3,null,6,3]

Output: 7

Constraints:

- Each tree has at most 40000 nodes..
- Each node's value is between [-4 * 10^4 , 4 * 10^4] .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1373-Maximum-Sum-BST-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1374. Generate a String With Characters That Have Odd Counts

Given an integer n , return a string with n characters such that each character in such string occurs **an odd number of times** .

The returned string must contain only lowercase English letters. If there are multiples valid strings, return **any** of them.

Example 1:

Input: $n = 4$

Output: "pppz"

Explanation: "pppz" is a valid string since the character 'p' occurs 3 times and the character 'z' occurs 1 time.

Example 2:

Input: n = 2
Output: "xy"
Explanation: "xy" is a valid string since the characters 'x' and

Example 3:

Input: n = 7
Output: "holasss"

Constraints:

- $1 \leq n \leq 500$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1374-Generate-a-String-With-Characters-That-Have-Odd-Counts](#)

All Problems:

[Link to All Problems](#)

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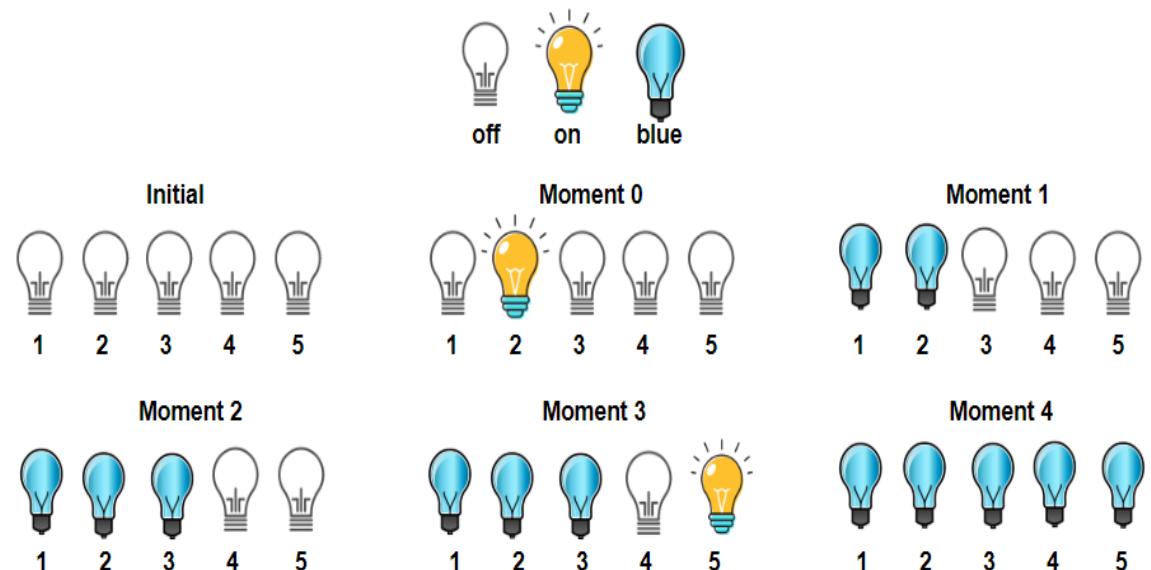
1375. Bulb Switcher III

There is a room with n bulbs, numbered from 1 to n , arranged in a row from left to right. Initially, all the bulbs are turned off.

At moment k (for k from 0 to $n - 1$), we turn on the light $[k]$ bulb. A bulb **change color to blue** only if it is on and all the previous bulbs (to the left) are turned on too.

Return the number of moments in which **all turned on bulbs are blue**.

Example 1:



Input: `light = [2, 1, 3, 5, 4]`

Output: 3

Explanation: All bulbs turned on, are blue at the moment 1, 2 and 3.

Example 2:

Input: `light = [3, 2, 4, 1, 5]`

Output: 2

Explanation: All bulbs turned on, are blue at the moment 3, and 4.

Example 3:

Input: light = [4,1,2,3]

Output: 1

Explanation: All bulbs turned on, are blue at the moment 3 (index 3).

Bulb 4th changes to blue at the moment 3.

Example 4:

Input: light = [2,1,4,3,6,5]

Output: 3

Example 5:

Input: light = [1,2,3,4,5,6]

Output: 6

Constraints:

- $n == \text{light.length}$
- $1 \leq n \leq 5 * 10^4$
- light is a permutation of $[1, 2, \dots, n]$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1375-Bulb-Switcher-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1376. Time Needed to Inform All Employees

A company has n employees with a unique ID for each employee from 0 to $n - 1$. The head of the company has is the one with headID .

Each employee has one direct manager given in the `manager` array where `manager[i]` is the direct manager of the i -th employee, `manager[headID] = -1`. Also it's guaranteed that the subordination relationships have a tree structure.

The head of the company wants to inform all the employees of the company of an urgent piece of news. He will inform his direct subordinates and they will inform their subordinates and so on until all employees know about the urgent news.

The i -th employee needs `informTime[i]` minutes to inform all of his direct subordinates (i.e After `informTime[i]` minutes, all his direct subordinates can start spreading the news).

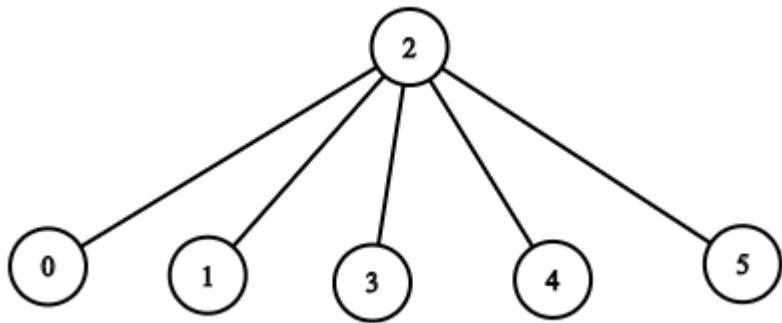
Return *the number of minutes* needed to inform all the employees about the urgent news.

Example 1:

Input: $n = 1$, $\text{headID} = 0$, $\text{manager} = [-1]$, $\text{informTime} = [0]$
Output: 0

Explanation: The head of the company is the only employee in the

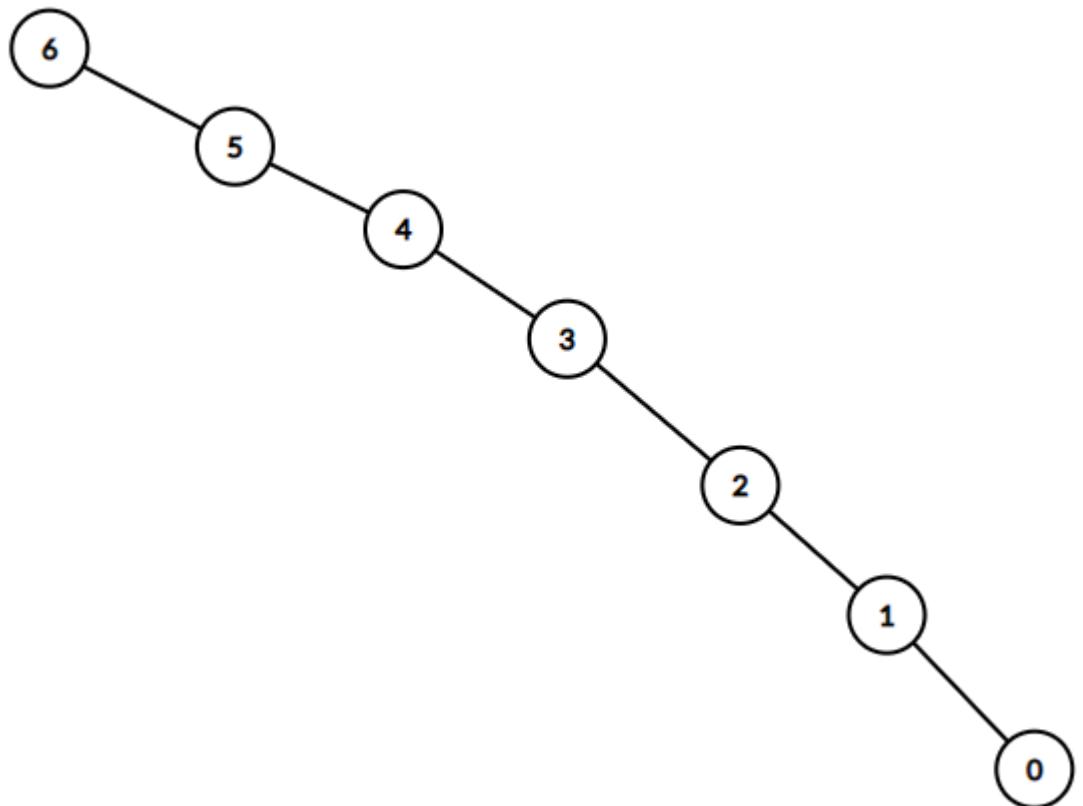
Example 2:



Input: $n = 6$, $\text{headID} = 2$, $\text{manager} = [2, 2, -1, 2, 2, 2]$, $\text{informTime} = [0, 0, 16, 1, 0, 4]$
 Output: 1

Explanation: The head of the company with id = 2 is the direct manager of employees 0, 1, 4, and 5.
 The tree structure of the employees in the company is shown.

Example 3:



Input: $n = 7$, $\text{headID} = 6$, $\text{manager} = [1, 2, 3, 4, 5, 6, -1]$, $\text{informTime} = [0, 1, 2, 1, 0, 4, 0]$
 Output: 21

Explanation: The head has id = 6. He will inform employee with id = 1 in time 0. The employee with id = 5 will inform the employee with id = 4 in time 1. The employee with id = 4 will inform the employee with id = 3 in time 2. The employee with id = 3 will inform the employee with id = 2 in time 1. The employee with id = 2 will inform the employee with id = 1 in time 0. The employee with id = 1 will inform the employee with id = 0 in time 0. Needed time = $1 + 2 + 3 + 4 + 5 + 6 = 21$.

Example 4:

Input: n = 15, headID = 0, manager = [-1,0,0,1,1,2,2,3,3,4,4,5,5,6,7]
Output: 3

Explanation: The first minute the head will inform employees 1 and 2.
The second minute they will inform employees 3, 4, 5 and 6.
The third minute they will inform the rest of employees.

Example 5:

Input: n = 4, headID = 2, manager = [3,3,-1,2], informTime = [0,1,2,1]
Output: 1076

Constraints:

- $1 \leq n \leq 10^5$
- $0 \leq \text{headID} < n$
- $\text{manager.length} == n$
- $0 \leq \text{manager}[i] < n$
- $\text{manager}[\text{headID}] == -1$
- $\text{informTime.length} == n$
- $0 \leq \text{informTime}[i] \leq 1000$
- $\text{informTime}[i] == 0$ if employee i has no subordinates.
- It is **guaranteed** that all the employees can be informed.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1376-Time-Needed-to-Inform-All-Employees](#)

All Problems:

[Link to All Problems](#)

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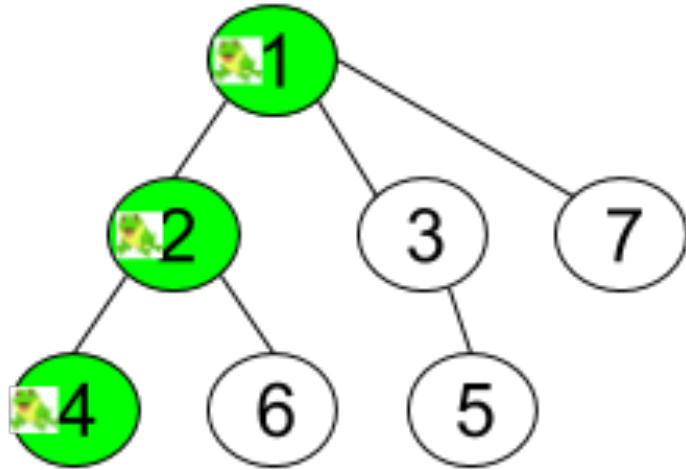
1377. Frog Position After T Seconds

Given an undirected tree consisting of n vertices numbered from 1 to n . A frog starts jumping from the **vertex 1**. In one second, the frog jumps from its current vertex to another **unvisited** vertex if they are directly connected. The frog can not jump back to a visited vertex. In case the frog can jump to several vertices it jumps randomly to one of them with the same probability, otherwise, when the frog can not jump to any unvisited vertex it jumps forever on the same vertex.

The edges of the undirected tree are given in the array `edges`, where `edges[i] = [fromi, toi]` means that exists an edge connecting directly the vertices `fromi` and `toi`.

Return the probability that after t seconds the frog is on the vertex target.

Example 1:

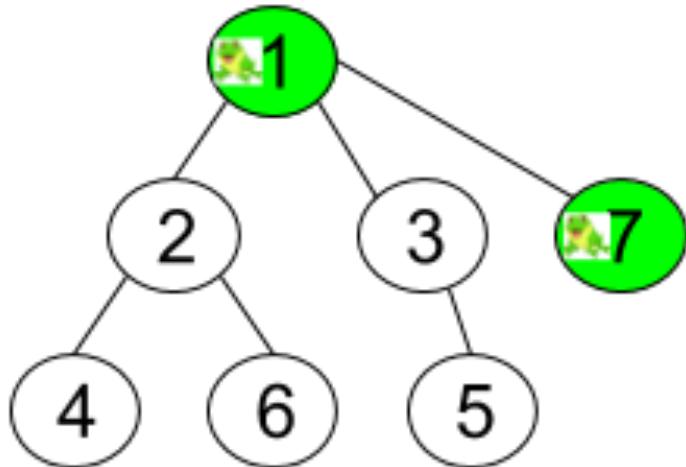


Input: $n = 7$, edges = $[[1,2],[1,3],[1,7],[2,4],[2,6],[3,5]]$, $t =$

Output: 0.1666666666666666

Explanation: The figure above shows the given graph. The frog starts at node 1.

Example 2:



Input: $n = 7$, edges = $[[1,2],[1,3],[1,7],[2,4],[2,6],[3,5]]$, $t =$

Output: 0.3333333333333333

Explanation: The figure above shows the given graph. The frog starts at node 1.

Example 3:

Input: $n = 7$, edges = $[[1,2],[1,3],[1,7],[2,4],[2,6],[3,5]]$, $t =$

Output: 0.1666666666666666

Constraints:

- $1 \leq n \leq 100$
- $\text{edges.length} == n-1$
- $\text{edges}[i].length == 2$
- $1 \leq \text{edges}[i][0], \text{edges}[i][1] \leq n$
- $1 \leq t \leq 50$
- $1 \leq \text{target} \leq n$

- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1377-Frog-Position-After-T-Seconds](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1378. Replace Employee ID With The Unique Identifier

[SQL Schema](#) >

Table: Employees

Column Name	Type
id	int
name	varchar

id is the primary key for this table.

Each row of this table contains the id and the name of an employee.

Table: EmployeeUNI

Column Name	Type
id	int
unique_id	int

(id, unique_id) is the primary key for this table.

Each row of this table contains the id and the corresponding unique id.

Write an SQL query to show the **unique ID** of each user,
If a user doesn't have a unique ID replace just show null.

Return the result table in **any** order.

The query result format is in the following example:

Employees table:

id	name
1	Alice
7	Bob
11	Meir
90	Winston
3	Jonathan

EmployeeUNI table:

id	unique_id
3	1
11	2
90	3

EmployeeUNI table:

unique_id	name
-----------	------

null	Alice
null	Bob
2	Meir
3	Winston
1	Jonathan

Alice and Bob don't have a unique ID, We will show null instead.
The unique ID of Meir is 2.
The unique ID of Winston is 3.
The unique ID of Jonathan is 1.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1378-Replace-Employee-ID-With-The-Unique-Identifier](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1379. Find a Corresponding Node of a Binary Tree in a Clone of That Tree

Given two binary trees `original` and `cloned` and given a reference to a node `target` in the original tree.

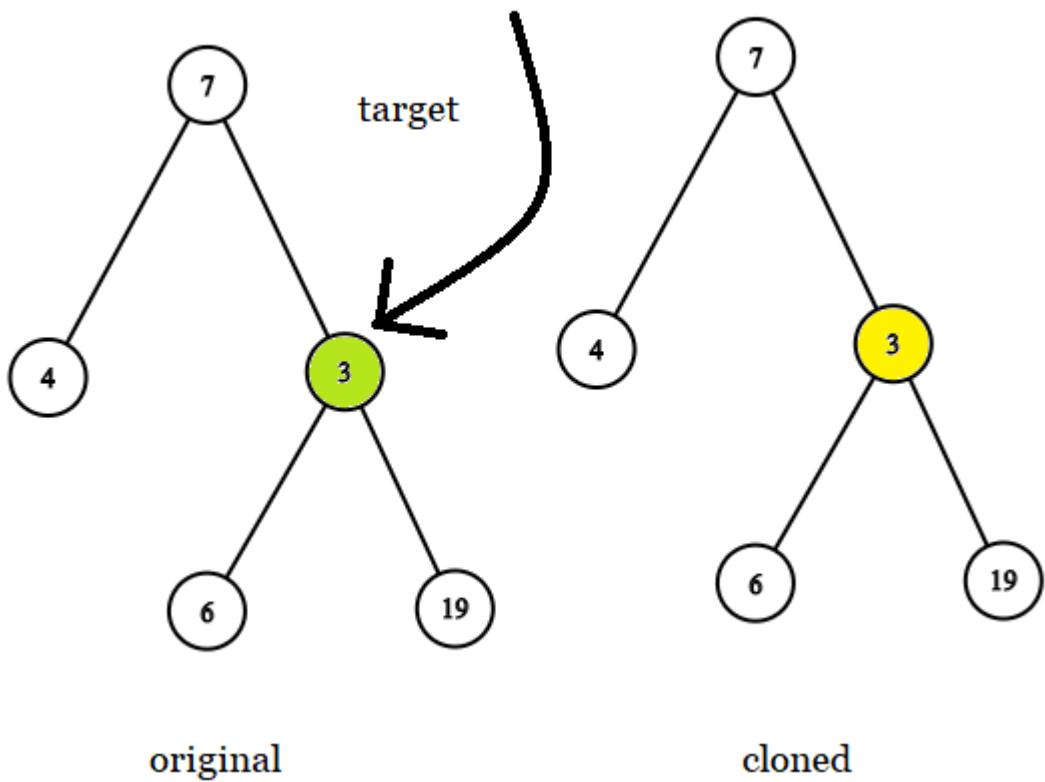
The `cloned` tree is a **copy of** the `original` tree.

Return *a reference to the same node* in the `cloned` tree.

Note that you are **not allowed** to change any of the two trees or the `target` node and the answer **must be** a reference to a node in the `cloned` tree.

Follow up: Solve the problem if repeated values on the tree are allowed.

Example 1:

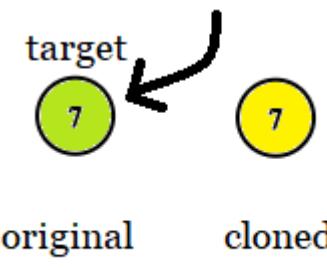


Input: tree = [7,4,3,null,null,6,19], target = 3

Output: 3

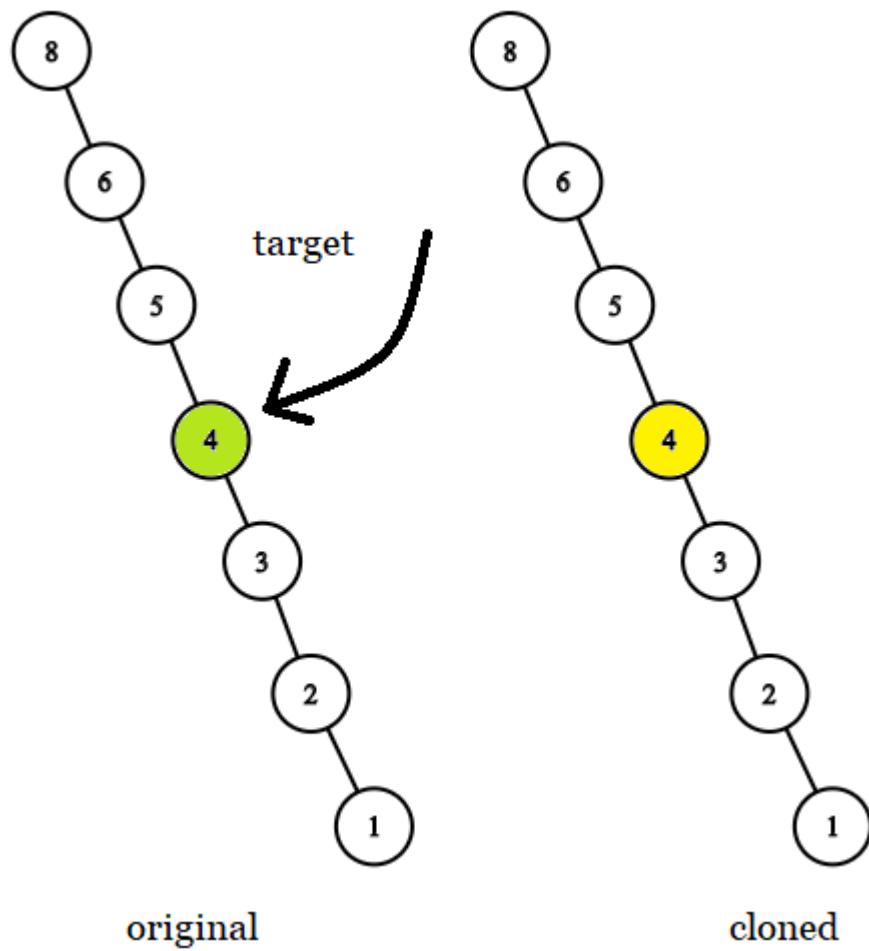
Explanation: In all examples the original and cloned trees are s

Example 2:



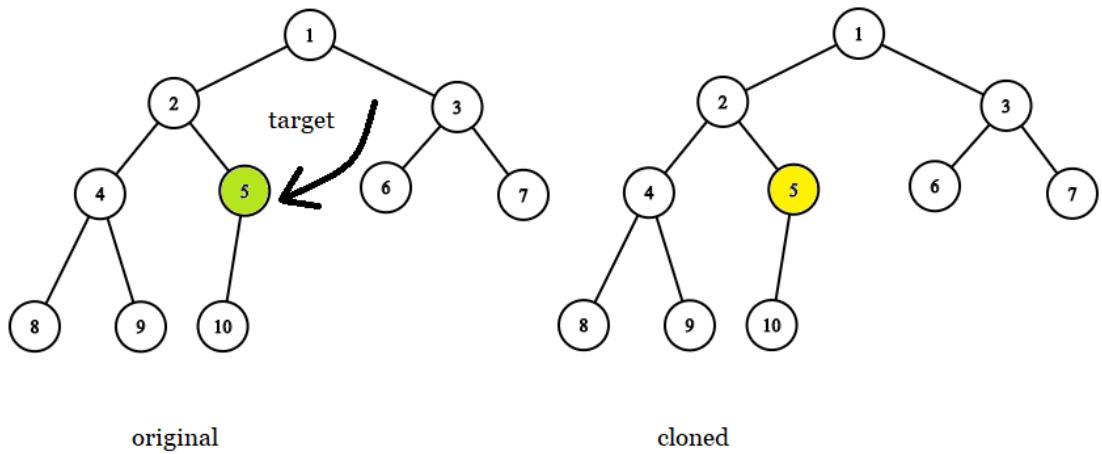
```
Input: tree = [7], target = 7
Output: 7
```

Example 3:



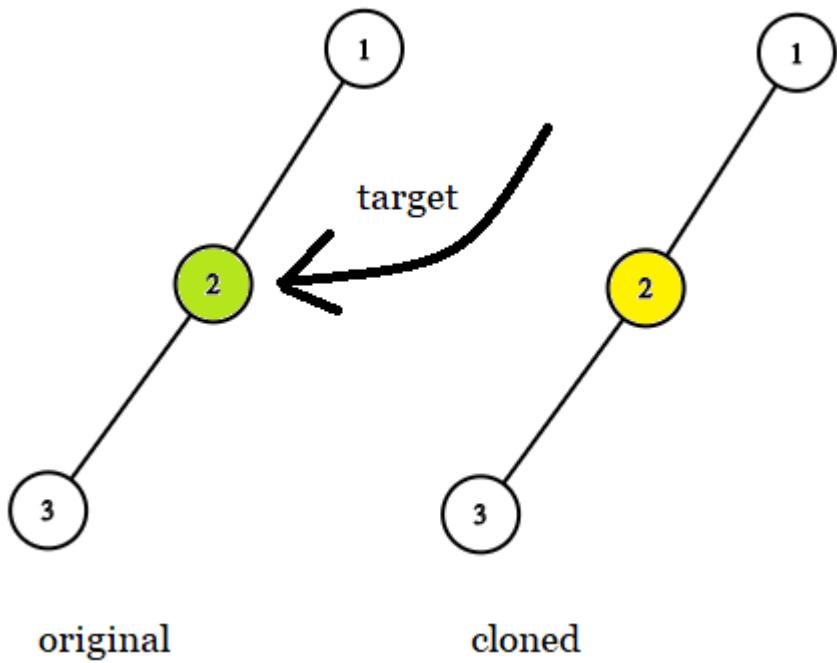
Input: tree = [8,null,6,null,5,null,4,null,3,null,2,null,1], targetSum = 11
Output: 4

Example 4:



Input: tree = [1,2,3,4,5,6,7,8,9,10], target = 5
Output: 5

Example 5:



Input: tree = [1,2,null,3], target = 2
 Output: 2

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- The values of the nodes of the tree are unique.
- target node is a node from the original tree and is not null .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1379-Find-a-Corresponding-Node-of-a-Binary-Tree-in-a-Clone-of-That-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1380. Lucky Numbers in a Matrix

Given a $m * n$ matrix of **distinct** numbers, return all lucky numbers in the matrix in **any** order.

A lucky number is an element of the matrix such that it is the minimum element in its row and maximum in its column.

Example 1:

Input: matrix = [[3,7,8],[9,11,13],[15,16,17]]

Output: [15]

Explanation: 15 is the only lucky number since it is the minimum

Example 2:

Input: matrix = [[1,10,4,2],[9,3,8,7],[15,16,17,12]]

Output: [12]

Explanation: 12 is the only lucky number since it is the minimum

Example 3:

Input: matrix = [[7,8],[1,2]]

Output: [7]

Constraints:

- $m == \text{mat.length}$
- $n == \text{mat[i].length}$
- $1 \leq n, m \leq 50$
- $1 \leq \text{matrix}[i][j] \leq 10^5$.
- All elements in the matrix are distinct.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1380-Lucky-Numbers-in-a-Matrix](#)

All Problems:[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1381. Design a Stack With Increment Operation

Design a stack which supports the following operations.

Implement the `CustomStack` class:

- `CustomStack(int maxSize)` Initializes the object with `maxSize` which is the maximum number of elements in the stack or do nothing if the stack reached the `maxSize`.
- `void push(int x)` Adds `x` to the top of the stack if the stack hasn't reached the `maxSize`.
- `int pop()` Pops and returns the top of stack or `-1` if the stack is empty.
- `void inc(int k, int val)` Increments the bottom `k` elements of the stack by `val`. If there are less than `k` elements in the stack, just increment all the elements in the stack.

Example 1:

```
Input
["CustomStack","push","push","pop","push","push","push","increment"]
[[3],[1],[2],[],[2],[3],[4],[5,100],[2,100],[],[],[],[]]
Output
[null,null,null,2,null,null,null,null,103,202,201,-1]
Explanation
CustomStack customStack = new CustomStack(3); // Stack is Empty
customStack.push(1); // stack becomes [1]
customStack.push(2); // stack becomes [1, 2]
customStack.pop(); // return 2 --> Result [1]
customStack.push(2); // stack becomes [1, 2]
customStack.push(3); // stack becomes [1, 2, 3]
customStack.push(4); // stack still [1, 2, 3]
customStack.increment(5, 100); // stack becomes [1, 2, 3, 103]
customStack.increment(2, 100); // stack becomes [1, 2, 3, 103, 202]
customStack.pop(); // return 103 --> Result [1, 2, 3, 202]
customStack.pop(); // return 202 --> Result [1, 2, 3]
customStack.pop(); // return 201 --> Result [1, 2]
customStack.pop(); // return -1 --> Result []
```

Constraints:

- `1 <= maxSize <= 1000`
- `1 <= x <= 1000`
- `1 <= k <= 1000`

- $0 \leq val \leq 100$
- At most 1000 calls will be made to each method of increment, push and pop each separately.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1381-Design-a-Stack-With-Increment-Operation](#)

All Problems:

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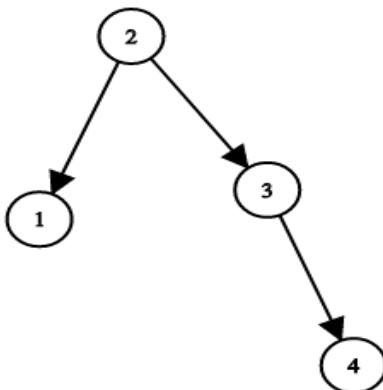
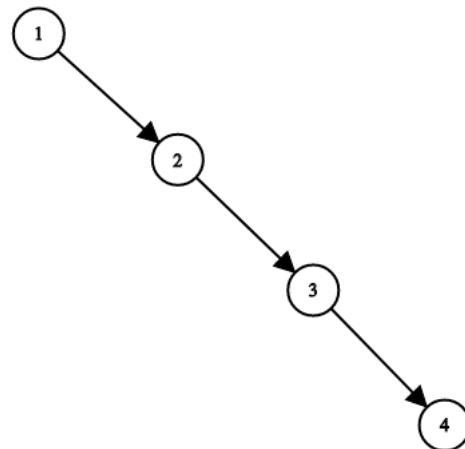
1382. Balance a Binary Search Tree

Given a binary search tree, return a **balanced** binary search tree with the same node values.

A binary search tree is *balanced* if and only if the depth of the two subtrees of every node never differ by more than 1.

If there is more than one answer, return any of them.

Example 1:



Input: `root = [1,null,2,null,3,null,4,null,null]`

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

Explanation: This is not the only correct answer, `[3,1,4,null,2,1]`

Constraints:

- The number of nodes in the tree is between 1 and 10^4 .

- The tree nodes will have distinct values between 1 and 10^5 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1382-Balance-a-Binary-Search-Tree](#)

All Problems:

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Welcome to Subscribe On Youtube:

1383. Maximum Performance of a Team

There are n engineers numbered from 1 to n and two arrays: `speed` and `efficiency`, where `speed[i]` and

`efficiency[i]` represent the speed and efficiency for the i -th engineer respectively. *Return the maximum performance of a team composed of at most k engineers, since the answer can be a huge number, return this modulo $10^9 + 7$.*

The **performance** of a team is the sum of their engineers' speeds multiplied by the minimum efficiency among their engineers.

Example 1:

Input: $n = 6$, `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`
Output: 60

Explanation:

We have the maximum performance of the team by selecting engineer

Example 2:

Input: $n = 6$, `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`
Output: 68

Explanation:

This is the same example as the first but $k = 3$. We can select engineer

Example 3:

Input: $n = 6$, `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`
Output: 72

Constraints:

- $1 \leq n \leq 10^5$
- `speed.length == n`
- `efficiency.length == n`
- $1 \leq \text{speed}[i] \leq 10^5$
- $1 \leq \text{efficiency}[i] \leq 10^8$
- $1 \leq k \leq n$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1383-Maximum-Performance-of-a-Team](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1384. Total Sales Amount by Year

SQL Schema >

Table: Product

Column Name	Type
product_id	int
product_name	varchar

product_id is the primary key for this table.
product_name is the name of the product.

Table: Sales

Column Name	Type
product_id	int

```

| period_start      | varchar |
| period_end        | date   |
| average_daily_sales | int    |
+-----+-----+
product_id is the primary key for this table.
period_start and period_end indicates the start and end date for
The average_daily_sales column holds the average daily sales amo

```

Write an SQL query to report the Total sales amount of each item for each year, with corresponding product name, product_id, product_name and report_year.

Dates of the sales years are between 2018 to 2020. Return the result table **ordered** by product_id and report_year.

The query result format is in the following example:

Product table:

product_id	product_name
1	LC Phone
2	LC T-Shirt
3	LC Keychain

Sales table:

product_id	period_start	period_end	average_daily_sales
1	2019-01-25	2019-02-28	100
2	2018-12-01	2020-01-01	10
3	2019-12-01	2020-01-31	1

Result table:

product_id	product_name	report_year	total_amount
1	LC Phone	2019	3500
2	LC T-Shirt	2018	310
2	LC T-Shirt	2019	3650
2	LC T-Shirt	2020	10
3	LC Keychain	2019	31
3	LC Keychain	2020	31

LC Phone was sold for the period of 2019-01-25 to 2019-02-28, and
 LC T-shirt was sold for the period of 2018-12-01 to 2020-01-01,
 LC Keychain was sold for the period of 2019-12-01 to 2020-01-31,

Difficulty:

Hard

Lock:

Prime

Company:**Problem Solution**[1384-Total-Sales-Amount-by-Year](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1385. Find the Distance Value Between Two Arrays

Given two integer arrays `arr1` and `arr2` , and the integer `d` , *return the distance value between the two arrays .*

The distance value is defined as the number of elements $\text{arr1}[i]$ such that there is not any element $\text{arr2}[j]$ where $|\text{arr1}[i] - \text{arr2}[j]| \leq d$.

Example 1:

Input: $\text{arr1} = [4, 5, 8]$, $\text{arr2} = [10, 9, 1, 8]$, $d = 2$

Output: 2

Explanation:

For $\text{arr1}[0]=4$ we have:

$|4-10|=6 > d=2$

$|4-9|=5 > d=2$

$|4-1|=3 > d=2$

$|4-8|=4 > d=2$

For $\text{arr1}[1]=5$ we have:

$|5-10|=5 > d=2$

$|5-9|=4 > d=2$

$|5-1|=4 > d=2$

$|5-8|=3 > d=2$

For $\text{arr1}[2]=8$ we have:

$|8-10|=2 \leq d=2$

$|8-9|=1 \leq d=2$

$|8-1|=7 > d=2$

$|8-8|=0 \leq d=2$

Example 2:

Input: $\text{arr1} = [1, 4, 2, 3]$, $\text{arr2} = [-4, -3, 6, 10, 20, 30]$, $d = 3$

Output: 2

Example 3:

Input: $\text{arr1} = [2, 1, 100, 3]$, $\text{arr2} = [-5, -2, 10, -3, 7]$, $d = 6$

Output: 1

Constraints:

- $1 \leq \text{arr1.length}, \text{arr2.length} \leq 500$
- $-10^3 \leq \text{arr1}[i], \text{arr2}[j] \leq 10^3$
- $0 \leq d \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1385-Find-the-Distance-Value-Between-Two-Arrays](#)

All Problems:

[Link to All Problems](#)

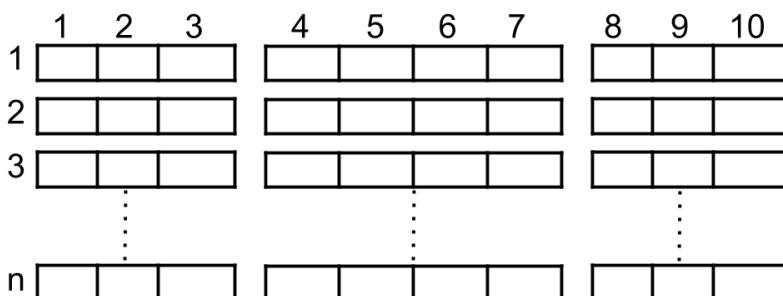
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Welcome to Subscribe On Youtube:

1386. Cinema Seat Allocation

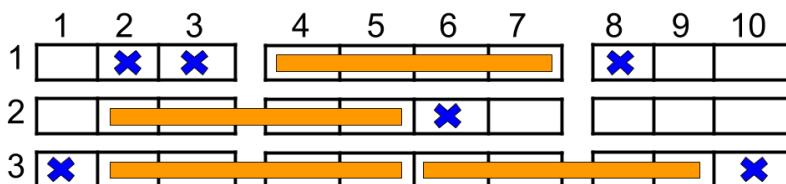


A cinema has n rows of seats, numbered from 1 to n and there are ten seats in each row, labelled from 1 to 10 as shown in the figure above.

Given the array `reservedSeats` containing the numbers of seats already reserved, for example, `reservedSeats[i]=[3,8]` means the seat located in row 3 and labelled with 8 is already reserved.

Return the maximum number of four-person families you can allocate on the cinema seats. A four-person family occupies fours seats in one row , that are next to each other . Seats across an aisle (such as [3,3] and [3,4]) are not considered to be next to each other, however, It is permissible for the four-person family to be separated by an aisle, but in that case, exactly two people have to sit on each side of the aisle.

Example 1:



Input: `n = 3, reservedSeats = [[1,2],[1,3],[1,8],[2,6],[3,1],[3,2]]`
Output: 4

Explanation: The figure above shows the optimal allocation for four families.

Example 2:

Input: `n = 2, reservedSeats = [[2,1],[1,8],[2,6]]`
Output: 2

Example 3:

Input: `n = 4, reservedSeats = [[4,3],[1,4],[4,6],[1,7]]`
Output: 4

Constraints:

- `1 <= n <= 10^9`
- `1 <= reservedSeats.length <= min(10*n, 10^4)`
- `reservedSeats[i].length == 2`
- `1 <= reservedSeats[i][0] <= n`
- `1 <= reservedSeats[i][1] <= 10`
- All `reservedSeats[i]` are distinct.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**1386-Cinema-Seat-Allocation**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1387. Sort Integers by The Power Value

The power of an integer x is defined as the number of steps needed to transform x into 1 using the following steps:

- if x is even then $x = x / 2$

- if x is odd then $x = 3 * x + 1$

For example, the power of $x = 3$ is 7 because 3 needs 7 steps to become 1 ($3 \rightarrow 10 \rightarrow 5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$).

Given three integers lo , hi and k . The task is to sort all integers in the interval $[lo, hi]$ by the power value in **ascending order**, if two or more integers have **the same** power value sort them by **ascending order**.

Return the k -th integer in the range $[lo, hi]$ sorted by the power value.

Notice that for any integer x ($lo \leq x \leq hi$) it is **guaranteed** that x will transform into 1 using these steps and that the power of x is will **fit** in 32 bit signed integer.

Example 1:

Input: $lo = 12$, $hi = 15$, $k = 2$
Output: 13

Explanation: The power of 12 is 9 ($12 \rightarrow 6 \rightarrow 3 \rightarrow 10 \rightarrow 5 \rightarrow 1$)
The power of 13 is 9
The power of 14 is 17
The power of 15 is 17
The interval sorted by the power value $[12, 13, 14, 15]$. For $k = 2$.
Notice that 12 and 13 have the same power value and we sorted them.

Example 2:

Input: $lo = 1$, $hi = 1$, $k = 1$
Output: 1

Example 3:

Input: $lo = 7$, $hi = 11$, $k = 4$
Output: 7

Explanation: The power array corresponding to the interval $[7, 8, 9, 10, 11]$ is $[8, 10, 11, 7, 9]$.
The interval sorted by power is $[8, 10, 11, 7, 9]$.
The fourth number in the sorted array is 7.

Example 4:

Input: $lo = 10$, $hi = 20$, $k = 5$
Output: 13

Example 5:

Input: $lo = 1$, $hi = 1000$, $k = 777$
Output: 570

Constraints:

- $1 \leq lo \leq hi \leq 1000$
- $1 \leq k \leq hi - lo + 1$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1387-Sort-Integers-by-The-Power-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1388. Pizza With 3n Slices

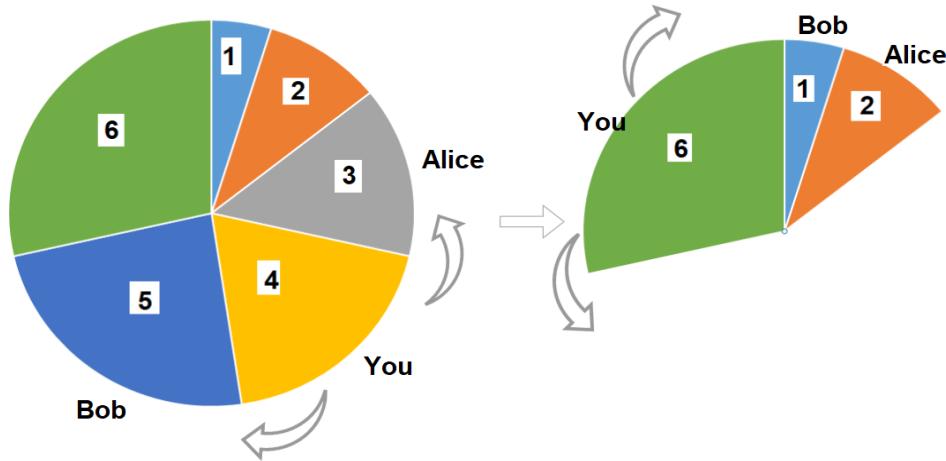
There is a pizza with $3n$ slices of varying size, you and your friends will take slices of pizza as follows:

- You will pick **any** pizza slice.
- Your friend Alice will pick next slice in anti clockwise direction of your pick.
- Your friend Bob will pick next slice in clockwise direction of your pick.
- Repeat until there are no more slices of pizzas.

Sizes of Pizza slices is represented by circular array `slices` in clockwise direction.

Return the maximum possible sum of slice sizes which you can have.

Example 1:

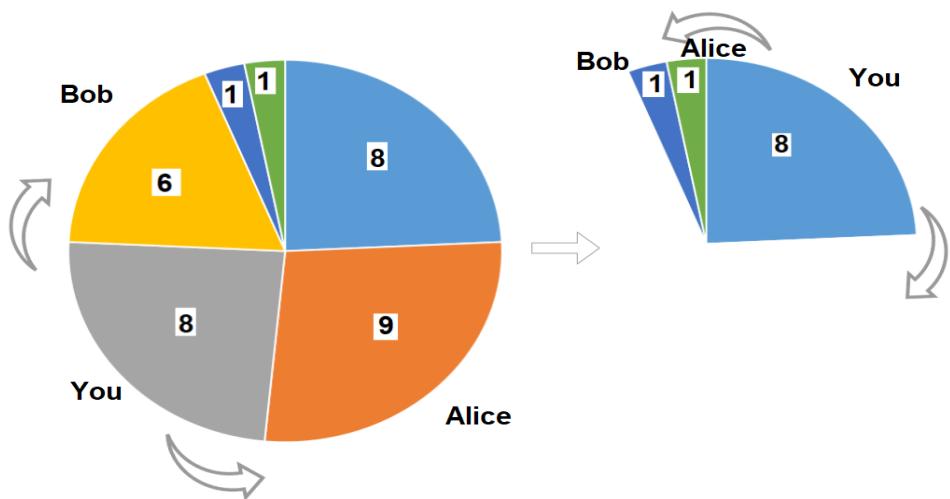


Input: `slices = [1,2,3,4,5,6]`

Output: 10

Explanation: Pick pizza slice of size 4, Alice and Bob will pick

Example 2:



Input: slices = [8,9,8,6,1,1]

Output: 16

Output: Pick pizza slice of size 8 in each turn. If you pick slice

Example 3:

Input: slices = [4,1,2,5,8,3,1,9,7]

Output: 21

Example 4:

Input: slices = [3,1,2]

Output: 3

Constraints:

- $1 \leq \text{slices.length} \leq 500$
- $\text{slices.length} \% 3 == 0$
- $1 \leq \text{slices}[i] \leq 1000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1388-Pizza-With-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1389. Create Target Array in the Given Order

Given two arrays of integers `nums` and `index`. Your task is to create *target* array under the following rules:

- Initially *target* array is empty.
- From left to right read `nums[i]` and `index[i]`, insert at index `index[i]` the value `nums[i]` in *target* array.
- Repeat the previous step until there are no elements to read in `nums` and `index`.

Return the *target* array.

It is guaranteed that the insertion operations will be valid.

Example 1:

Input: `nums = [0,1,2,3,4]`, `index = [0,1,2,2,1]`
Output: `[0,4,1,3,2]`

Explanation:

nums	index	target
0	0	[0]
1	1	[0,1]

2	2	[0, 1, 2]
3	2	[0, 1, 3, 2]
4	1	[0, 4, 1, 3, 2]

Example 2:

Input: nums = [1, 2, 3, 4, 0], index = [0, 1, 2, 3, 0]

Output: [0, 1, 2, 3, 4]

Explanation:

nums	index	target
1	0	[1]
2	1	[1, 2]
3	2	[1, 2, 3]
4	3	[1, 2, 3, 4]
0	0	[0, 1, 2, 3, 4]

Example 3:

Input: nums = [1], index = [0]

Output: [1]

Constraints:

- $1 \leq \text{nums.length}, \text{index.length} \leq 100$
- $\text{nums.length} == \text{index.length}$
- $0 \leq \text{nums}[i] \leq 100$
- $0 \leq \text{index}[i] \leq i$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1389-Create-Target-Array-in-the-Given-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1390. Four Divisors

Given an integer array `nums` , return the sum of divisors of the integers in that array that have exactly four divisors.

If there is no such integer in the array, return `0` .

Example 1:

Input: `nums = [21,4,7]`
Output: 32
Explanation:
21 has 4 divisors: 1, 3, 7, 21
4 has 3 divisors: 1, 2, 4
7 has 2 divisors: 1, 7
The answer is the sum of divisors of 21 only.

Constraints:

- $1 \leq \text{nums.length} \leq 10^4$
- $1 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1390-Four-Divisors](#)

All Problems:

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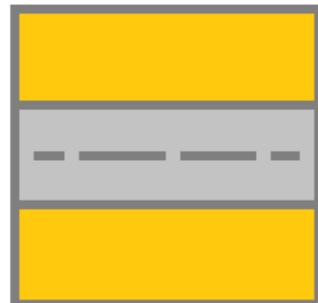
Welcome to Subscribe On Youtube:

1391. Check if There is a Valid Path in a Grid

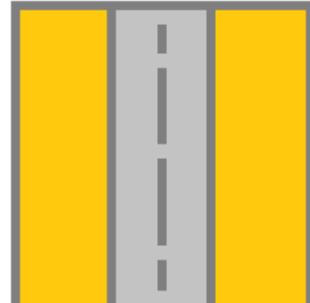
Given a $m \times n$ grid . Each cell of the grid represents a street. The street of $\text{grid}[i][j]$ can be:

- 1 which means a street connecting the left cell and the right cell.
- 2 which means a street connecting the upper cell and the lower cell.
- 3 which means a street connecting the left cell and the lower cell.
- 4 which means a street connecting the right cell and the lower cell.

- 5 which means a street connecting the left cell and the upper cell.
- 6 which means a street connecting the right cell and the upper cell.



Street 1



Street 2



Street 3



Street 4



Street 5



Street 6

You will initially start at the street of the upper-left cell $(0, 0)$. A valid path in the grid is a path which starts from the upper left cell $(0, 0)$ and ends at the bottom-right cell $(m - 1, n - 1)$. **The path should only follow the streets**.

Notice that you are **not allowed** to change any street.

Return *true* if there is a valid path in the grid or *false* otherwise.

Example 1:

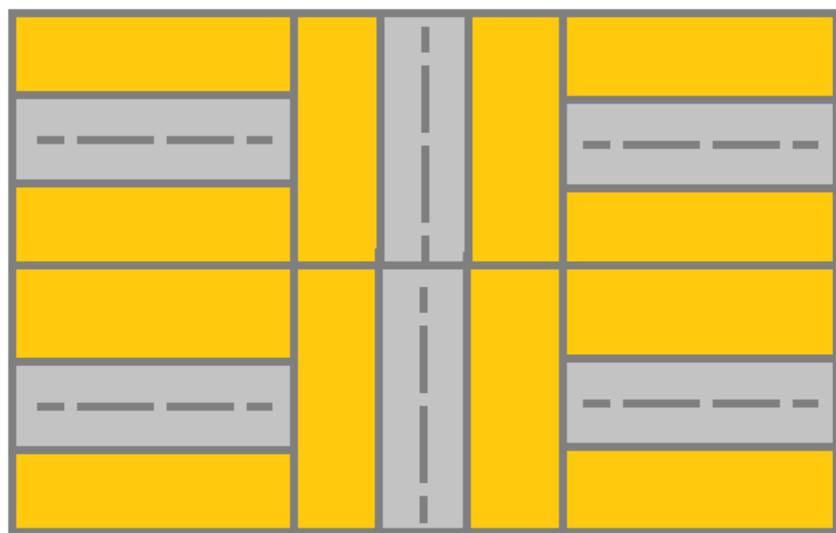


Input: grid = [[2,4,3],[6,5,2]]

Output: true

Explanation: As shown you can start at cell $(0, 0)$ and visit all

Example 2:



Input: grid = [[1,2,1],[1,2,1]]

Output: false

Explanation: As shown you the street at cell (0, 0) is not connected.

Example 3:

Input: grid = [[1,1,2]]

Output: false

Explanation: You will get stuck at cell (0, 1) and you cannot re-

Example 4:

Input: grid = [[1,1,1,1,1,1,3]]

Output: true

Example 5:

Input: grid = [[2],[2],[2],[2],[2],[2],[6]]

Output: true

Constraints:

- m == grid.length
- n == grid[i].length
- 1 <= m, n <= 300
- 1 <= grid[i][j] <= 6

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1391-Check-if-There-is-a-Valid-Path-in-a-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1392. Longest Happy Prefix

A string is called a *happy prefix* if it is a **non-empty** prefix which is also a suffix (excluding itself).

Given a string s . Return the **longest happy prefix** of s .

Return an empty string if no such prefix exists.

Example 1:

Input: $s = \text{"level"}$

Output: "l"

Explanation: s contains 4 prefix excluding itself ("l", "le", "lev", "leve").

Example 2:

Input: $s = \text{"ababab"}$

Output: "abab"

Explanation: "abab" is the largest prefix which is also suffix. ("ababab", "babab", "ababab").

Example 3:

Input: $s = \text{"leetcodeleet"}$

Output: "leet"

Example 4:

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

Output: ""

Constraints:

- $1 \leq s.length \leq 10^5$
- s contains only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1392-Longest-Happy-Prefix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1393. Capital Gain/Loss

SQL Schema >

Table: Stocks

Column Name	Type
stock_name	varchar

```

| operation      | enum      |
| operation_day | int       |
| price         | int       |
+-----+-----+
(stock_name, day) is the primary key for this table.
The operation column is an ENUM of type ('Sell', 'Buy')
Each row of this table indicates that the stock which has stock_
It is guaranteed that each 'Sell' operation for a stock has a co_

```

Write an SQL query to report the Capital gain/loss for each stock.

The capital gain/loss of a stock is total gain or loss after buying and selling the stock one or many times.

Return the result table in any order.

The query result format is in the following example:

Stocks table:

stock_name	operation	operation_day	price
Leetcode	Buy	1	1000
Corona Masks	Buy	2	10
Leetcode	Sell	5	9000
Handbags	Buy	17	30000
Corona Masks	Sell	3	1010
Corona Masks	Buy	4	1000
Corona Masks	Sell	5	500
Corona Masks	Buy	6	1000
Handbags	Sell	29	7000
Corona Masks	Sell	10	10000

Result table:

stock_name	capital_gain_loss
Corona Masks	9500
Leetcode	8000
Handbags	-23000

Leetcode stock was bought at day 1 for 1000\$ and was sold at day 5 for 9000\$. Total gain = 9000 - 1000 = 8000\$
 Handbags stock was bought at day 17 for 30000\$ and was sold at day 29 for 7000\$. Total loss = 7000 - 30000 = -23000\$
 Corona Masks stock was bought at day 1 for 10\$ and was sold at day 10 for 10000\$. Total gain = 10000 - 10 = 9990\$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1393-Capital-Gain-Loss](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1394. Find Lucky Integer in an Array

Given an array of integers `arr` , a lucky integer is an integer which has a frequency in the array equal to its value.

Return *a lucky integer* in the array. If there are multiple lucky integers return the **largest** of them. If there is no lucky integer return **-1** .

Example 1:

Input: arr = [2,2,3,4]

Output: 2

Explanation: The only lucky number in the array is 2 because frequency of 2 is 2.

Example 2:

Input: arr = [1,2,2,3,3,3]

Output: 3

Explanation: 1, 2 and 3 are all lucky numbers, return the largest one.

Example 3:

Input: arr = [2,2,2,3,3]

Output: -1

Explanation: There are no lucky numbers in the array.

Example 4:

Input: arr = [5]

Output: -1

Example 5:

Input: arr = [7,7,7,7,7,7,7]

Output: 7

Constraints:

- $1 \leq \text{arr.length} \leq 500$
- $1 \leq \text{arr}[i] \leq 500$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1394-Find-Lucky-Integer-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1395. Count Number of Teams

There are n soldiers standing in a line. Each soldier is assigned a **unique rating** value.

You have to form a team of 3 soldiers amongst them under the following rules:

- Choose 3 soldiers with index (i, j, k) with rating ($\text{rating}[i], \text{rating}[j], \text{rating}[k]$).
- A team is valid if: $(\text{rating}[i] < \text{rating}[j] < \text{rating}[k])$ or $(\text{rating}[i] > \text{rating}[j] > \text{rating}[k])$ where $(0 \leq i < j < k \leq n)$.

Return the number of teams you can form given the conditions. (soldiers can be part of multiple teams).

Example 1:

Input: `rating = [2,5,3,4,1]`

Output: 3

Explanation: We can form three teams given the conditions. (2,3,1), (5,3,1) and (5,4,1).

Example 2:

Input: rating = [2,1,3]

Output: 0

Explanation: We can't form any team given the conditions.

Example 3:

Input: rating = [1,2,3,4]

Output: 4

Constraints:

- $n == \text{rating.length}$
- $1 \leq n \leq 200$
- $1 \leq \text{rating}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1395-Count-Number-of-Teams](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1396. Design Underground System

Implement the class `UndergroundSystem` that supports three methods:

1. checkIn(int id, string stationName, int t)

- A customer with id card equal to `i d` , gets in the station `stationName` at time `t` .
 - A customer can only be checked into one place at a time.

2. checkOut(int id, string stationName, int t)

- A customer with id card equal to id , gets out from the station stationName at time t .

```
3. getAverageTime(string startStation, string  
endStation)
```

- Returns the average time to travel between the startStation and the endStation .
 - The average time is computed from all the previous traveling from startStation to endStation that happened **directly** .
 - Call to getAverageTime is always valid.

You can assume all calls to `checkIn` and `checkOut` methods are consistent. That is, if a customer gets in at time t_1 at some station, then it gets out at time t_2 with $t_2 > t_1$. All events happen in chronological order.

Example 1:

Input

```
["UndergroundSystem", "checkIn", "checkIn", "checkIn", "checkOut", "cl  
[[], [45, "Leyton", 3], [32, "Paradise", 8], [27, "Leyton", 10], [45, "Wate
```

```
Output  
[null,null,null,null,null,null,null,14.0,11.0,null,11.0,null,12.0]
```

Explanation

```
UndergroundSystem undergroundSystem = new UndergroundSystem();  
undergroundSystem.checkIn(45, "Leyton", 3);  
undergroundSystem.checkIn(32, "Paradise", 8);  
undergroundSystem.checkIn(27, "Leyton", 10);  
undergroundSystem.checkOut(45, "Waterloo", 15);  
undergroundSystem.checkOut(27, "Waterloo", 20);  
undergroundSystem.checkOut(32, "Cambridge", 22);  
undergroundSystem.getAverageTime("Paradise", "Cambridge");  
undergroundSystem.getAverageTime("Leyton", "Waterloo");  
undergroundSystem.checkIn(10, "Leyton", 24);  
undergroundSystem.getAverageTime("Leyton", "Waterloo");  
undergroundSystem.checkOut(10, "Waterloo", 38);  
undergroundSystem.getAverageTime("Leyton", "Waterloo");
```

Constraints:

- There will be at most 20000 operations.
- $1 \leq id, t \leq 10^6$
- All strings consist of uppercase, lowercase English letters and digits.
- $1 \leq stationName.length \leq 10$
- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1396-Design-Underground-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1397. Find All Good Strings

Given the strings s_1 and s_2 of size n , and the string $evil$. Return the number of **good** strings.

A **good** string has size n , it is alphabetically greater than or equal to s_1 , it is alphabetically smaller than or equal to s_2 , and it does not contain the string `evil` as a substring. Since the answer can be a huge number, return this modulo $10^9 + 7$.

Example 1:

Input: n = 2, s1 = "aa", s2 = "da", evil = "b"
Output: 51

Explanation: There are 25 good strings starting with 'aa': "aa", "aaa",

Example 2:

Input: n = 8, s1 = "leetcode", s2 = "leetgoes", evil = "leet"
Output: 0

Explanation: All strings greater than or equal to s1 and smaller than s2

Example 3:

Input: n = 2, s1 = "gx", s2 = "gz", evil = "x"
Output: ?

Constraints:

- $s_1.length == n$

- $s2.length == n$
- $1 \leq n \leq 500$
- $1 \leq evil.length \leq 50$
- All strings consist of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1397-Find-All-Good-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1398. Customers Who Bought Products A and B but Not C

SQL Schema >

Table: Customers

Column Name	Type
customer_id	int
customer_name	varchar

customer_id is the primary key for this table.
customer_name is the name of the customer.

Table: Orders

Column Name	Type
order_id	int
customer_id	int
product_name	varchar

order_id is the primary key for this table.
customer_id is the id of the customer who bought the product "pro

Write an SQL query to report the customer_id and customer_name of customers who bought products "A", "B" but did not buy the product "C" since we want to recommend them buy this product.

Return the result table **ordered** by customer_id.

The query result format is in the following example.

Customers table:

customer_id	customer_name
1	Daniel
2	Diana
3	Elizabeth
4	Jhon

Orders table:

order_id	customer_id	product_name
10	1	A
20	1	B
30	1	D
40	1	C
50	2	A
60	3	A
70	3	B
80	3	D
90	4	C

Result table:

customer_id	customer_name
3	Elizabeth

Only the customer_id with id 3 bought the product A and B but no C.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1398-Customers-Who-Bought-Products-A-and-B-but-Not-C](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1399. Count Largest Group

Given an integer n . Each number from 1 to n is grouped according to the sum of its digits.

Return how many groups have the largest size.

Example 1:

Input: $n = 13$
Output: 4

Explanation: There are 9 groups in total, they are grouped according to the sum of their digits: [1,10], [2,11], [3,12], [4,13], [5], [6], [7], [8], [9]. There are 4 groups with size 2.

Example 2:

Input: $n = 2$
Output: 2
Explanation: There are 2 groups [1], [2] of size 1.

Example 3:

Input: $n = 15$
Output: 6

Example 4:

Input: $n = 24$
Output: 5

Constraints:

- $1 \leq n \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1399-Count-Largest-Group](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1400. Construct K Palindrome Strings

Given a string s and an integer k . You should construct k non-empty **palindrome** strings using **all the characters** in s .

Return ***True*** if you can use all the characters in s to construct k palindrome strings or ***False*** otherwise.

Example 1:

Input: $s = \text{"annabelle"}$, $k = 2$

Output: true

Explanation: You can construct two palindromes using all characters.

Some possible constructions "anna" + "elble", "anbna" + "elle",

Example 2:

Input: $s = \text{"leetcode"}$, $k = 3$

Output: false

Explanation: It is impossible to construct 3 palindromes using all characters.

Example 3:

Input: $s = \text{"true"}$, $k = 4$

Output: true

Explanation: The only possible solution is to put each character in its own string.

Example 4:

Input: $s = \text{"yzyzyzyzyzyzyzy"}$, $k = 2$

Output: true

Explanation: Simply you can put all z's in one string and all y's in another.

Example 5:

Input: $s = \text{"cr"}$, $k = 7$

Output: false

Explanation: We don't have enough characters in s to construct 7 palindromes.

Constraints:

- $1 \leq s.length \leq 10^5$
- All characters in s are lower-case English letters.
- $1 \leq k \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1400-Construct-K-Palindrome-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1401. Circle and Rectangle Overlapping

Given a circle represented as (`radius` , `x_center` , `y_center`) and an axis-aligned rectangle represented as (`x1` , `y1` , `x2` , `y2`), where (`x1` , `y1`) are the coordinates of the bottom-left corner, and (`x2` , `y2`) are the coordinates of the top-right corner of the rectangle.

Return True if the circle and rectangle are overlapped otherwise return False.

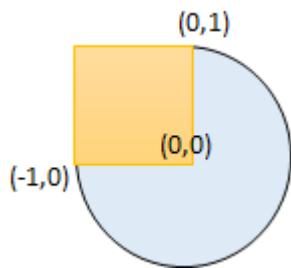
In other words, check if there are **any** point (x_i , y_i) such that belongs to the circle and the rectangle at the same time.

Example 1:



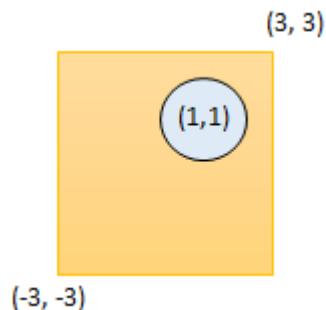
Input: radius = 1, x_center = 0, y_center = 0, x1 = 1, y1 = -1, x2 = 1, y2 = 1
Output: true
Explanation: Circle and rectangle share the point (1,0)

Example 2:



Input: radius = 1, x_center = 0, y_center = 0, x1 = -1, y1 = 0, x2 = 1, y2 = 1
Output: true

Example 3:



Input: radius = 1, x_center = 1, y_center = 1, x1 = -3, y1 = -3, x2 = 3, y2 = 3
Output: true

Example 4:

Input: radius = 1, x_center = 1, y_center = 1, x1 = 1, y1 = -3, x2 = 3, y2 = 3
Output: false

Constraints:

- $1 \leq \text{radius} \leq 2000$

- $-10^4 \leq x_center, y_center, x1, y1, x2, y2 \leq 10^4$
- $x1 < x2$
- $y1 < y2$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1401-Circle-and-Rectangle-Overlapping](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1402. Reducing Dishes

A chef has collected data on the satisfaction level of his n dishes. Chef can cook any dish in 1 unit of time.

Like-time coefficient of a dish is defined as the time taken to cook that dish including previous dishes multiplied by its satisfaction level i.e. `time[i] * satisfaction[i]`

Return the maximum sum of *Like-time coefficient* that the chef can obtain after dishes preparation.

Dishes can be prepared in **any** order and the chef can discard some dishes to get this maximum value.

Example 1:

Input: `satisfaction = [-1, -8, 0, 5, -9]`

Output: 14

Explanation: After Removing the second and last dish, the maximum

Example 2:

Input: `satisfaction = [4, 3, 2]`

Output: 20

Explanation: Dishes can be prepared in any order, $(2*1 + 3*2 + 4*$

Example 3:

Input: `satisfaction = [-1, -4, -5]`

Output: 0

Explanation: People don't like the dishes. No dish is prepared.

Example 4:

Input: `satisfaction = [-2, 5, -1, 0, 3, -3]`

Output: 35

Constraints:

- `n == satisfaction.length`
- `1 <= n <= 500`
- `-10^3 <= satisfaction[i] <= 10^3`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1402-Reducing-Dishes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1403. Minimum Subsequence in Non-Increasing Order

Given the array `nums` , obtain a subsequence of the array whose sum of elements is **strictly greater** than the sum of the non included elements in such subsequence.

If there are multiple solutions, return the subsequence with **minimum size** and if there still exist multiple solutions, return the subsequence with the **maximum total sum** of all its elements. A subsequence of an array can be obtained by erasing some (possibly zero) elements from the array.

Note that the solution with the given constraints is guaranteed to be **unique** . Also return the answer sorted in **non-increasing** order.

Example 1:

Input: nums = [4,3,10,9,8]

Output: [10,9]

Explanation: The subsequences [10,9] and [10,8] are minimal such

Example 2:

Input: nums = [4,4,7,6,7]

Output: [7,7,6]

Explanation: The subsequence [7,7] has the sum of its elements e

Example 3:

Input: nums = [6]

Output: [6]

Constraints:

- $1 \leq \text{nums.length} \leq 500$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1403-Minimum-Subsequence-in-Non-Increasing-Order](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1404. Number of Steps to Reduce a Number in Binary Representation to One

Given a number s in their binary representation. Return the number of steps to reduce it to 1 under the following rules:

- If the current number is even, you have to divide it by 2.
- If the current number is odd, you have to add 1 to it.

It's guaranteed that you can always reach to one for all testcases.

Example 1:

Input: $s = "1101"$
Output: 6

Explanation: "1101" corresponds to number 13 in their decimal representation.
Step 1) 13 is odd, add 1 and obtain 14.
Step 2) 14 is even, divide by 2 and obtain 7.
Step 3) 7 is odd, add 1 and obtain 8.
Step 4) 8 is even, divide by 2 and obtain 4.
Step 5) 4 is even, divide by 2 and obtain 2.
Step 6) 2 is even, divide by 2 and obtain 1.

Example 2:

Input: $s = "10"$
Output: 1

Explanation: "10" corresponds to number 2 in their decimal representation.
Step 1) 2 is even, divide by 2 and obtain 1.

Example 3:

Input: s = "1"
Output: 0

Constraints:

- $1 \leq s.length \leq 500$
- s consists of characters '0' or '1'
- $s[0] == '1'$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1404-Number-of-Steps-to-Reduce-a-Number-in-Binary-Representation-to-One](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1405. Longest Happy String

A string is called *happy* if it does not have any of the strings 'aaa' , 'bbb' or 'ccc' as a substring.

Given three integers a , b and c , return **any** string s , which satisfies following conditions:

- s is *happy* and longest possible.
- s contains **at most** a occurrences of the letter 'a' ,
at most b occurrences of the letter 'b' and **at most** c occurrences of the letter 'c' .
- s will only contain 'a' , 'b' and 'c' letters.

If there is no such string s return the empty string " " .

Example 1:

Input: $a = 1$, $b = 1$, $c = 7$

Output: "ccaccbcc"

Explanation: "ccbccacc" would also be a correct answer.

Example 2:

Input: $a = 2$, $b = 2$, $c = 1$

Output: "aabbc"

Example 3:

Input: $a = 7$, $b = 1$, $c = 0$

Output: "aabaa"

Explanation: It's the only correct answer in this case.

Constraints:

- $0 \leq a, b, c \leq 100$
- $a + b + c > 0$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1405-Longest-Happy-String](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1406. Stone Game III

Alice and Bob continue their games with piles of stones. There are several stones **arranged in a row**, and each stone has an associated value which is an integer given in the array `stoneValue`.

Alice and Bob take turns, with **Alice** starting first. On each player's turn, that player can take **1, 2 or 3 stones** from the **first** remaining stones in the row.

The score of each player is the sum of values of the stones taken. The score of each player is **0** initially.

The objective of the game is to end with the highest score, and the winner is the player with the highest score and there could be a tie. The game continues until all the stones have been taken.

Assume Alice and Bob **play optimally**.

Return "*Alice*" if Alice will win, "*Bob*" if Bob will win or "*Tie*" if they end the game with the same score.

Example 1:

Input: values = [1,2,3,7]

Output: "Bob"

Explanation: Alice will always lose. Her best move will be to take

Example 2:

Input: values = [1,2,3,-9]

Output: "Alice"

Explanation: Alice must choose all the three piles at the first move.

If Alice chooses one pile her score will be 1 and the next move will be Bob's.

If Alice chooses two piles her score will be 3 and the next move will be Bob's.

Remember that both play optimally so here Alice will choose the best move.

Example 3:

Input: values = [1,2,3,6]

Output: "Tie"

Explanation: Alice cannot win this game. She can end the game in a tie.

Example 4:

Input: values = [1,2,3,-1,-2,-3,7]

Output: "Alice"

Example 5:

Input: values = [-1,-2,-3]

Output: "Tie"

Constraints:

- $1 \leq \text{values.length} \leq 50000$
- $-1000 \leq \text{values}[i] \leq 1000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1406-Stone-Game-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1407. Top Travellers

SQL Schema >

Table: Users

Column Name	Type
id	int
name	varchar

id is the primary key for this table.
name is the name of the user.

Table: Rides

Column Name	Type
id	int
user_id	int
distance	int

id is the primary key for this table.

city_id is the id of the city who bought the product "product_name".

Write an SQL query to report the distance travelled by each user.

Return the result table ordered by travelled_distance in **descending order**, if two or more users travelled the same distance, order them by their name in **ascending order**.

The query result format is in the following example.

Users table:

id	name
1	Alice
2	Bob
3	Alex
4	Donald
7	Lee
13	Jonathan
19	Elvis

Rides table:

id	user_id	distance
1	1	120
2	2	317
3	3	222
4	7	100
5	13	312
6	19	50
7	7	120
8	19	400
9	7	230

Result table:

user_id	name	travelled_distance
1	Alice	120
2	Bob	317
3	Alex	222
7	Lee	100
13	Jonathan	312
19	Elvis	50
7	Lee	120
19	Elvis	400
7	Lee	230

name	travelled_distance
Elvis	450
Lee	450
Bob	317
Jonathan	312
Alex	222
Alice	120
Donald	0

Elvis and Lee travelled 450 miles, Elvis is the top traveller as Bob, Jonathan, Alex and Alice have only one ride and we just ordered Donald didn't have any rides, the distance travelled by him is 0

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1407-Top-Travellers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1408. String Matching in an Array

Given an array of string words . Return all strings in words which is substring of another word in **any** order.

String words[i] is substring of words[j] , if can be obtained removing some characters to left and/or right side of words[j] .

Example 1:

Input: words = ["mass", "as", "hero", "superhero"]
Output: ["as", "hero"]

Explanation: "as" is substring of "mass" and "hero" is substring of "superhero". ["hero", "as"] is also a valid answer.

Example 2:

Input: words = ["leetcode", "et", "code"]
Output: ["et", "code"]
Explanation: "et", "code" are substring of "leetcode".

Example 3:

Input: words = ["blue", "green", "bu"]
Output: []

Constraints:

- $1 \leq \text{words.length} \leq 100$
- $1 \leq \text{words[i].length} \leq 30$
- words[i] contains only lowercase English letters.
- It's **guaranteed** that words[i] will be unique.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[**1408-String-Matching-in-an-Array**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1409. Queries on a Permutation With Key

Given the array `queries` of positive integers between 1 and `m` , you have to process all `queries[i]` (from `i=0` to `i=queries.length-1`) according to the following rules:

- In the beginning, you have the permutation `P=[1,2,3,...,m]` .
- For the current `i` , find the position of `queries[i]` in the permutation `P` (**indexing from 0**) and then move this at the beginning of the permutation `P` . Notice that the position of `queries[i]` in `P` is the result for `queries[i]` .

Return an array containing the result for the given queries .

Example 1:

Input: queries = [3,1,2,1], m = 5

Output: [2,1,2,1]

Explanation: The queries are processed as follow:

For i=0: queries[i]=3, P=[1,2,3,4,5], position of 3 in P is 2, t

For i=1: queries[i]=1, P=[3,1,2,4,5], position of 1 in P is 1, t

For i=2: queries[i]=2, P=[1,3,2,4,5], position of 2 in P is 2, t

For i=3: queries[i]=1, P=[2,1,3,4,5], position of 1 in P is 1, t

Therefore, the array containing the result is [2,1,2,1].

Example 2:

Input: queries = [4,1,2,2], m = 4

Output: [3,1,2,0]

Example 3:

Input: queries = [7,5,5,8,3], m = 8

Output: [6,5,0,7,5]

Constraints:

- $1 \leq m \leq 10^3$
- $1 \leq \text{queries.length} \leq m$
- $1 \leq \text{queries}[i] \leq m$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1409-Queries-on-a-Permutation-With-Key](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1410. HTML Entity Parser

HTML entity parser is the parser that takes HTML code as input and replace all the entities of the special characters by the characters itself.

The special characters and their entities for HTML are:

- **Quotation Mark:** the entity is " and symbol character is " .
- **Single Quote Mark:** the entity is ' and symbol character is ' .
- **Ampersand:** the entity is & and symbol character is & .
- **Greater Than Sign:** the entity is > and symbol character is > .
- **Less Than Sign:** the entity is < and symbol character is < .
- **Slash:** the entity is ⁄ and symbol character is / .

Given the input text string to the HTML parser, you have to implement the entity parser.

Return *the text* after replacing the entities by the special characters.

Example 1:

Input: text = "& is an HTML entity but &ambassador; is not."
Output: "& is an HTML entity but &ambassador; is not."
Explanation: The parser will replace the & entity by &

Example 2:

Input: text = "and I quote: "...""
Output: "and I quote: \"...\""

Example 3:

Input: text = "Stay home! Practice on Leetcode :)"
Output: "Stay home! Practice on Leetcode :)"

Example 4:

Input: text = "x > y && x < y is always false"
Output: "x > y && x < y is always false"

Example 5:

Input: text = "leetcode.com⁄problemset⁄all"
Output: "leetcode.com/problemset/all"

Constraints:

- $1 \leq \text{text.length} \leq 10^5$
- The string may contain any possible characters out of all the 256 ASCII characters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1410-HTML-Entity-Parser](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1411. Number of Ways to Paint N × 3 Grid

You have a grid of size $n \times 3$ and you want to paint each cell of the grid with exactly one of the three colours:

Red , **Yellow** or **Green** while making sure that no two adjacent cells have the same colour (i.e no two cells that share vertical or horizontal sides have the same colour).

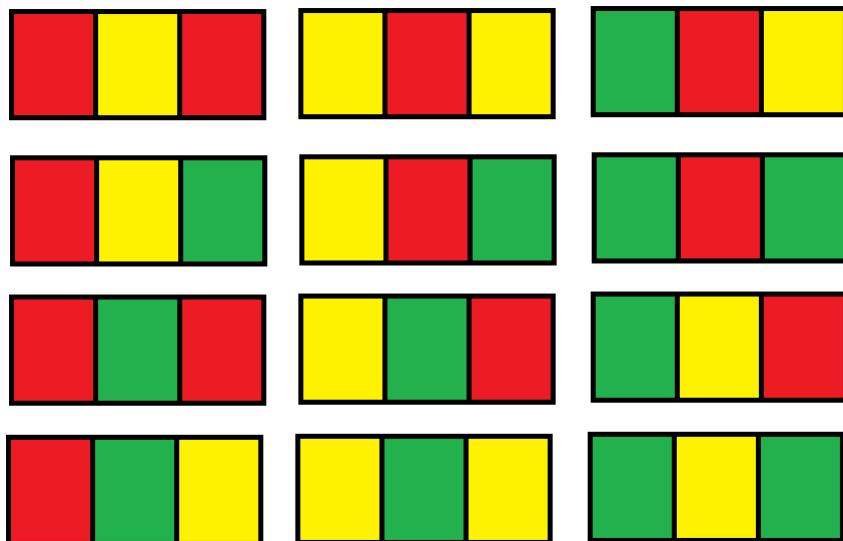
You are given n the number of rows of the grid.

Return *the number of ways* you can paint this grid . As the answer may grow large, the answer **must be** computed modulo $10^9 + 7$.

Example 1:

Input: $n = 1$
Output: 12

Explanation: There are 12 possible way to paint the grid as shown



Example 2:

Input: n = 2
Output: 54

Example 3:

Input: n = 3
Output: 246

Example 4:

Input: n = 7
Output: 106494

Example 5:

Input: n = 5000
Output: 30228214

Constraints:

- $n == \text{grid.length}$
- $\text{grid}[i].length == 3$
- $1 \leq n \leq 5000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1411-Number-of-Ways-to-Paint-N-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1412. Find the Quiet Students in All Exams

SQL Schema >

Table: Student

Column Name	Type
student_id	int
student_name	varchar

student_id is the primary key for this table.
student_name is the name of the student.

Table: Exam

```
+-----+-----+
| Column Name | Type   |
+-----+-----+
| exam_id     | int    |
| student_id  | int    |
| score       | int    |
+-----+-----+
```

(exam_id, student_id) is the primary key for this table.
 Student with student_id got score points in exam with id exam_id

A "quite" student is the one who took at least one exam
 and didn't score neither the high score nor the low score.

Write an SQL query to report the students (student_id,
 student_name) being "quiet" in **ALL** exams.

Don't return the student who has never taken any exam.
 Return the result table **ordered** by student_id.

The query result format is in the following example.

Student table:

```
+-----+-----+
| student_id | student_name |
+-----+-----+
| 1          | Daniel      |
| 2          | Jade        |
| 3          | Stella      |
| 4          | Jonathan    |
| 5          | Will        |
+-----+-----+
```

Exam table:

```
+-----+-----+-----+
| exam_id   | student_id | score   |
+-----+-----+-----+
| 10         | 1          | 70      |
| 10         | 2          | 80      |
| 10         | 3          | 90      |
| 20         | 1          | 80      |
| 30         | 1          | 70      |
| 30         | 3          | 80      |
| 30         | 4          | 90      |
| 40         | 1          | 60      |
| 40         | 2          | 70      |
| 40         | 4          | 80      |
+-----+-----+-----+
```

Result table:

```
+-----+-----+
| student_id | student_name |
+-----+-----+
| 2          | Jade        |
+-----+-----+
```

+-----+-----+

For exam 1: Student 1 and 3 hold the lowest and high score respectively.
For exam 2: Student 1 holds both highest and lowest score.
For exam 3 and 4: Student 1 and 4 hold the lowest and high scores respectively.
Student 2 and 5 have never got the highest or lowest in any of the exams.
Since student 5 is not taking any exam, he is excluded from the comparison.
So, we only return the information of Student 2.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1412-Find-the-Quiet-Students-in-All-Exams](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1413. Minimum Value to Get Positive Step by Step Sum

Given an array of integers `nums` , you start with an initial **positive** value `startValue` .

In each iteration, you calculate the step by step sum of `startValue` plus elements in `nums` (from left to right).

Return the minimum **positive** value of `startValue` such that the step by step sum is never less than 1.

Example 1:

Input: `nums` = [-3, 2, -3, 4, 2]

Output: 5

Explanation: If you choose `startValue` = 4, in the third iteration
step by step sum

<code>startValue</code> = 4		<code>startValue</code> = 5		<code>nums</code>
(4 -3)	= 1		(5 -3)	= 2
(1 +2)	= 3		(2 +2)	= 4
(3 -3)	= 0		(4 -3)	= 1
(0 +4)	= 4		(1 +4)	= 5
(4 +2)	= 6		(5 +2)	= 7

Example 2:

Input: `nums` = [1, 2]

Output: 1

Explanation: Minimum start value should be positive.

Example 3:

Input: `nums` = [1, -2, -3]

Output: 5

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $-100 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1413-Minimum-Value-to-Get-Positive-Step-by-Step-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1414. Find the Minimum Number of Fibonacci Numbers Whose Sum Is K

Given the number k , return the minimum number of Fibonacci numbers whose sum is equal to k , whether a Fibonacci number could be used multiple times.

The Fibonacci numbers are defined as:

- $F_1 = 1$
- $F_2 = 1$
- $F_n = F_{n-1} + F_{n-2}$, for $n > 2$.

It is guaranteed that for the given constraints we can always find such fibonacci numbers that sum k .

Example 1:

Input: k = 7

Output: 2

Explanation: The Fibonacci numbers are: 1, 1, 2, 3, 5, 8, 13, ...

For k = 7 we can use 2 + 5 = 7.

Example 2:

Input: k = 10

Output: 2

Explanation: For k = 10 we can use 2 + 8 = 10.

Example 3:

Input: k = 19

Output: 3

Explanation: For k = 19 we can use 1 + 5 + 13 = 19.

Constraints:

- $1 \leq k \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1414-Find-the-Minimum-Number-of-Fibonacci-Numbers-Whose-Sum-Is-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1415. The k-th Lexicographical String of All Happy Strings of Length n

A **happy string** is a string that:

- consists only of letters of the set ['a' , 'b' , 'c']
-
- $s[i] \neq s[i + 1]$ for all values of i from 1 to $s.length - 1$ (string is 1-indexed).

For example, strings "abc", "ac", "b" and "abcbabcbcb" are all happy strings and strings "aa", "baa" and "ababbc" are not happy strings.

Given two integers n and k , consider a list of all happy strings of length n sorted in lexicographical order.

Return *the kth string* of this list or return an **empty string** if there are less than k happy strings of length n .

Example 1:

Input: n = 1, k = 3

Output: "c"

Explanation: The list ["a", "b", "c"] contains all happy strings

Example 2:

Input: n = 1, k = 4

Output: ""

Explanation: There are only 3 happy strings of length 1.

Example 3:

Input: n = 3, k = 9

Output: "cab"

Explanation: There are 12 different happy string of length 3 ["a

Example 4:

Input: n = 2, k = 7

Output: ""

Example 5:

Input: n = 10, k = 100

Output: "abacbabacb"

Constraints:

- $1 \leq n \leq 10$
- $1 \leq k \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1415-The-k-th-Lexicographical-String-of-All-Happy-Strings-of-Length-n](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1416. Restore The Array

A program was supposed to print an array of integers. The program forgot to print whitespaces and the array is printed as a string of digits and all we know is that all integers in the array were in the range [1, k] and there are no leading zeros in the array.

Given the string s and the integer k . There can be multiple ways to restore the array.

Return *the number of possible array* that can be printed as a string s using the mentioned program.

The number of ways could be very large so return it **modulo $10^9 + 7$**

Example 1:

Input: s = "1000", k = 10000

Output: 1

Explanation: The only possible array is [1000]

Example 2:

```
Input: s = "1000", k = 10
Output: 0
Explanation: There cannot be an array that was printed this way
```

Example 3:

```
Input: s = "1317", k = 2000
```

```
Output: 8
```

```
Explanation: Possible arrays are [1317], [131,7], [13,17], [1,317],
```

Example 4:

```
Input: s = "2020", k = 30
```

```
Output: 1
```

```
Explanation: The only possible array is [20,20]. [2020] is invalid
```

Example 5:

```
Input: s = "1234567890", k = 90
```

```
Output: 34
```

Constraints:

- $1 \leq s.length \leq 10^5$.
- s consists of only digits and doesn't contain leading zeros.
- $1 \leq k \leq 10^9$.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1416-Restore-The-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1417. Reformat The String

Given alphanumeric string s . (**Alphanumeric string** is a string consisting of lowercase English letters and digits).

You have to find a permutation of the string where no letter is followed by another letter and no digit is followed by another digit. That is, no two adjacent characters have the same type.

Return *the reformatted string* or return **an empty string** if it is impossible to reformat the string.

Example 1:

Input: $s = "a0b1c2"$

Output: "0a1b2c"

Explanation: No two adjacent characters have the same type in "0a1b2c".

Example 2:

Input: $s = "leetcode"$

Output: ""

Explanation: "leetcode" has only characters so we cannot separate them.

Example 3:

Input: $s = "1229857369"$

Output: ""

Explanation: "1229857369" has only digits so we cannot separate them.

Example 4:

Input: s = "covid2019"
Output: "c2o0v1i9d"

Example 5:

Input: s = "ab123"
Output: "1a2b3"

Constraints:

- $1 \leq s.length \leq 500$
- s consists of only lowercase English letters and/or digits.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1417-Reformat-The-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1418. Display Table of Food Orders in a Restaurant

Given the array `orders`, which represents the orders that customers have done in a restaurant. More specifically `orders[i]=[customerNamei,tableNumberi,foodItemi]` where `customerNamei` is the name of the customer, `tableNumberi` is the table customer sit at, and `foodItemi` is the item customer orders.

Return the restaurant's display table. The **display table** is a table whose row entries denote how many of each food item each table ordered. The first column is the table number and the remaining columns correspond to each food item in alphabetical order. The first row should be a header whose first column is "Table", followed by the names of the food items. Note that the customer names are not part of the table. Additionally, the rows should be sorted in numerically increasing order.

Example 1:

Input: `orders = [[{"David": "3", "Ceviche"}, {"Corina": "10", "Beef Burrito"}]]`
Output: `[["Table", "Beef Burrito", "Ceviche", "Fried Chicken", "Water"]]`
Explanation:

The displaying table looks like:

Table	Beef Burrito	Ceviche	Fried Chicken	Water
3	0	2	1	0
5	0	1	0	1
10	1	0	0	0

For the table 3: David orders "Ceviche" and "Fried Chicken", and

For the table 5: Carla orders "Water" and "Ceviche".

For the table 10: Corina orders "Beef Burrito".

Example 2:

Input: `orders = [[{"James": "12", "Fried Chicken"}, {"Ratesh": "12", "Canadian Waffles"}]]`
Output: `[["Table", "Canadian Waffles", "Fried Chicken"], ["1", "2", "3"]]`
Explanation:

For the table 1: Adam and Brianna order "Canadian Waffles".
For the table 12: James, Ratesh and Amadeus order "Fried Chicken".

Example 3:

Input: orders = [["Laura", "2", "Bean Burrito"], ["Jhon", "2", "Beef Burrito"]]
Output: [["Table", "Bean Burrito", "Beef Burrito", "Soda"], ["2", "1", "2", "3"]]

Constraints:

- $1 \leq \text{orders.length} \leq 5 * 10^4$
- $\text{orders[i].length} == 3$
- $1 \leq \text{customerName}_i . \text{length}, \text{foodItem}_i . \text{length} \leq 20$
- customerName_i and foodItem_i consist of lowercase and uppercase English letters and the space character.
- tableNumber_i is a valid integer between 1 and 500 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1418-Display-Table-of-Food-Orders-in-a-Restaurant](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1419. Minimum Number of Frogs Croaking

Given the string `croakOfFrogs` , which represents a combination of the string "croak" from different frogs, that is, multiple frogs can croak at the same time, so multiple "croak" are mixed. *Return the minimum number of different frogs to finish all the croak in the given string.*

A valid "croak" means a frog is printing 5 letters "c", "r", "o", "a", "k" sequentially . The frogs have to print all five letters to finish a croak. If the given string is not a combination of valid "croak" return -1.

Example 1:

Input: `croakOfFrogs` = "croakcroak"
Output: 1
Explanation: One frog yelling "croak" twice.

Example 2:

Input: `croakOfFrogs` = "crcoakroak"
Output: 2
Explanation: The minimum number of frogs is two.
The first frog could yell "crcoakroak".
The second frog could yell later "crcoakroak".

Example 3:

```
Input: croakOfFrogs = "croakcrook"
Output: -1
Explanation: The given string is an invalid combination of "croa
```

Example 4:

```
Input: croakOfFrogs = "croakcroa"
Output: -1
```

Constraints:

- $1 \leq \text{croakOfFrogs.length} \leq 10^5$
- All characters in the string are: 'c' , 'r' , 'o' , 'a' or 'k' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1419-Minimum-Number-of-Frogs-Croaking](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1420. Build Array Where You Can Find The Maximum Exactly K Comparisons

Given three integers n , m and k . Consider the following algorithm to find the maximum element of an array of positive integers:

```
maximum_value = -1
maximum_index = -1
search_cost = 0
n = arr.length
for (i = 0; i < n; i++) {
    if (maximum_value < arr[i]) {
        maximum_value = arr[i]
        maximum_index = i
        search_cost = search_cost + 1
    }
}
return maximum_index
```

You should build the array arr which has the following properties:

- arr has exactly n integers.
- $1 \leq \text{arr}[i] \leq m$ where $(0 \leq i < n)$.
- After applying the mentioned algorithm to arr , the value search_cost is equal to k .

Return *the number of ways* to build the array arr under the mentioned conditions. As the answer may grow large, the answer **must be** computed modulo $10^9 + 7$.

Example 1:

Input: n = 2, m = 3, k = 1

Output: 6

Explanation: The possible arrays are [1, 1], [2, 1], [2, 2], [3,

Example 2:

Input: n = 5, m = 2, k = 3

Output: 0

Explanation: There are no possible arrays that satisfy the ment

Example 3:

Input: n = 9, m = 1, k = 1

Output: 1

Explanation: The only possible array is [1, 1, 1, 1, 1, 1, 1, 1, 1,

Example 4:

Input: n = 50, m = 100, k = 25

Output: 34549172

Explanation: Don't forget to compute the answer modulo 1000000000

Example 5:

Input: n = 37, m = 17, k = 7

Output: 418930126

Constraints:

- 1 <= n <= 50
- 1 <= m <= 100
- 0 <= k <= n

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1420-Build-Array-Where-You-Can-Find-The-Maximum-Exactly-K-Comparisons](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1421. NPV Queries

SQL Schema >

Table: NPV

Column Name	Type
id	int
year	int
npv	int

(id, year) is the primary key of this table.

The table has information about the id and the year of each inve

Table: Queries

Column Name	Type
id	int

```

| year          | int      |
+-----+-----+
(id, year) is the primary key of this table.
The table has information about the id and the year of each inve

```

Write an SQL query to find the npv of all each query of queries table.

Return the result table in any order.

The query result format is in the following example:

NPV table:

id	year	npv
1	2018	100
7	2020	30
13	2019	40
1	2019	113
2	2008	121
3	2009	12
11	2020	99
7	2019	0

Queries table:

id	year
1	2019
2	2008
3	2009
7	2018
7	2019
7	2020
13	2019

Result table:

id	year	npv
1	2019	113
2	2008	121
3	2009	12
7	2018	0
7	2019	0
7	2020	30
13	2019	40

The npv value of (7, 2018) is not present in the NPV table, we can't calculate it.
The npv values of all other queries can be found in the NPV table.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1421-NPV-Queries](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1422. Maximum Score After Splitting a String

Given a string s of zeros and ones, *return the maximum score after splitting the string into two non-empty substrings* (i.e. **left** substring and **right** substring).

The score after splitting a string is the number of **zeros** in the **left** substring plus the number of **ones** in the **right** substring.

Example 1:

Input: $s = "011101"$

Output: 5

Explanation:

All possible ways of splitting s into two non-empty substrings are:

- $\text{left} = "0"$ and $\text{right} = "11101"$, score = $1 + 4 = 5$
- $\text{left} = "01"$ and $\text{right} = "1101"$, score = $1 + 3 = 4$
- $\text{left} = "011"$ and $\text{right} = "101"$, score = $1 + 2 = 3$
- $\text{left} = "0111"$ and $\text{right} = "01"$, score = $1 + 1 = 2$
- $\text{left} = "01110"$ and $\text{right} = "1"$, score = $2 + 1 = 3$

Example 2:

Input: $s = "00111"$

Output: 5

Explanation: When $\text{left} = "00"$ and $\text{right} = "111"$, we get the maximum score of 5.

Example 3:

Input: $s = "1111"$

Output: 3

Constraints:

- $2 \leq s.length \leq 500$
- The string s consists of characters '0' and '1' only.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1422-Maximum-Score-After-Splitting-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1423. Maximum Points You Can Obtain from Cards

There are several cards **arranged in a row** , and each card has an associated number of points The points are given in the integer array `cardPoints` .

In one step, you can take one card from the beginning or from the end of the row. You have to take exactly `k` cards.

Your score is the sum of the points of the cards you have taken.

Given the integer array `cardPoints` and the integer `k` , return the *maximum score* you can obtain.

Example 1:

Input: cardPoints = [1,2,3,4,5,6,1], k = 3

Output: 12

Explanation: After the first step, your score will always be 1.

Example 2:

Input: cardPoints = [2,2,2], k = 2

Output: 4

Explanation: Regardless of which two cards you take, your score is 4.

Example 3:

Input: cardPoints = [9,7,7,9,7,7,9], k = 7

Output: 55

Explanation: You have to take all the cards. Your score is the sum of all the card points.

Example 4:

Input: cardPoints = [1,1000,1], k = 1

Output: 1

Explanation: You cannot take the card in the middle. Your best score is 1.

Example 5:

Input: cardPoints = [1,79,80,1,1,1,200,1], k = 3

Output: 202

Constraints:

- $1 \leq \text{cardPoints.length} \leq 10^5$
- $1 \leq \text{cardPoints}[i] \leq 10^4$
- $1 \leq k \leq \text{cardPoints.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1423-Maximum-Points-You-Can-Obtain-from-Cards](#)

All Problems:

[Link to All Problems](#)

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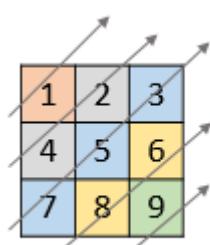
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Welcome to Subscribe On Youtube:

1424. Diagonal Traverse II

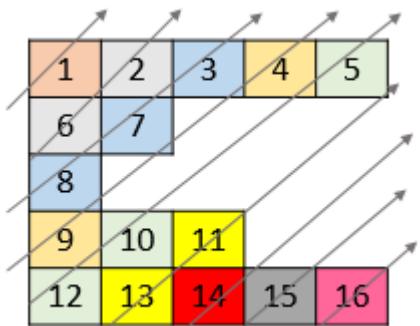
Given a list of lists of integers, `nums` , return all elements of `nums` in diagonal order as shown in the below images.

Example 1:



Input: `nums = [[1,2,3],[4,5,6],[7,8,9]]`
Output: `[1,4,2,7,5,3,8,6,9]`

Example 2:



Input: nums = [[1, 2, 3, 4, 5], [6, 7], [8], [9, 10, 11], [12, 13, 14, 15, 16]]
 Output: [1, 6, 2, 8, 7, 3, 9, 4, 12, 10, 5, 13, 11, 14, 15, 16]

Example 3:

Input: nums = [[1, 2, 3], [4], [5, 6, 7], [8], [9, 10, 11]]
 Output: [1, 4, 2, 5, 3, 8, 6, 9, 7, 10, 11]

Example 4:

Input: nums = [[1, 2, 3, 4, 5, 6]]
 Output: [1, 2, 3, 4, 5, 6]

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums[i].length} \leq 10^5$
- $1 \leq \text{nums[i][j]} \leq 10^9$
- There at most 10^5 elements in nums .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1424-Diagonal-Traverse-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1425. Constrained Subset Sum

Given an integer array `nums` and an integer `k` , return the maximum sum of a **non-empty** subset of that array such that for every two **consecutive** integers in the subset, `nums[i]` and `nums[j]` , where `i < j` , the condition `j - i <= k` is satisfied.

A *subset* of an array is obtained by deleting some number of elements (can be zero) from the array, leaving the remaining elements in their original order.

Example 1:

Input: `nums = [10, 2, -10, 5, 20]` , `k = 2`

Output: 37

Explanation: The subset is `[10, 2, 5, 20]`.

Example 2:

Input: `nums = [-1, -2, -3]` , `k = 1`

Output: -1

Explanation: The subset must be non-empty, so we choose the larg

Example 3:

```
Input: nums = [10,-2,-10,-5,20], k = 2
Output: 23
Explanation: The subset is [10, -2, -5, 20].
```

Constraints:

- $1 \leq k \leq \text{nums.length} \leq 10^5$
- $-10^4 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1425-Constrained-Subsequence-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1426. Counting Elements

Given an integer array `arr` , count how many elements x there are, such that $x + 1$ is also in `arr` .

If there're duplicates in `arr` , count them seperately.

Example 1:

Input: `arr` = [1, 2, 3]

Output: 2

Explanation: 1 and 2 are counted cause 2 and 3 are in `arr`.

Example 2:

Input: `arr` = [1, 1, 3, 3, 5, 5, 7, 7]

Output: 0

Explanation: No numbers are counted, cause there's no 2, 4, 6, or 8.

Example 3:

Input: `arr` = [1, 3, 2, 3, 5, 0]

Output: 3

Explanation: 0, 1 and 2 are counted cause 1, 2 and 3 are in `arr`.

Example 4:

Input: `arr` = [1, 1, 2, 2]

Output: 2

Explanation: Two 1s are counted cause 2 is in `arr`.

Example 5:

Input: `arr` = [1, 1, 2]

Output: 2

Explanation: Both 1s are counted because 2 is in the array.

Constraints:

- $1 \leq \text{arr.length} \leq 1000$
- $0 \leq \text{arr}[i] \leq 1000$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1426-Counting-Elements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1427. Perform String Shifts

You are given a string `s` containing lowercase English letters, and a matrix `shift` , where `shift[i] = [direction, amount]` :

- `direction` can be 0 (for left shift) or 1 (for right shift).
- `amount` is the amount by which string `s` is to be shifted.
- A left shift by 1 means remove the first character of `s` and append it to the end.
- Similarly, a right shift by 1 means remove the last character of `s` and add it to the beginning.

Return the final string after all operations.

Example 1:

Input: s = "abc", shift = [[0,1],[1,2]]

Output: "cab"

Explanation:

[0,1] means shift to left by 1. "abc" -> "bca"

[1,2] means shift to right by 2. "bca" -> "cab"

Example 2:

Input: s = "abcdefg", shift = [[1,1],[1,1],[0,2],[1,3]]

Output: "efgabcd"

Explanation:

[1,1] means shift to right by 1. "abcdefg" -> "gabcdef"

[1,1] means shift to right by 1. "gabcdef" -> "fgabcde"

[0,2] means shift to left by 2. "fgabcde" -> "abcdefg"

[1,3] means shift to right by 3. "abcdefg" -> "efgabcd"

Constraints:

- $1 \leq s.length \leq 100$
- s only contains lower case English letters.
- $1 \leq shift.length \leq 100$
- $shift[i].length == 2$
- $0 \leq shift[i][0] \leq 1$
- $0 \leq shift[i][1] \leq 100$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1427-Perform-String-Shifts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1428. Leftmost Column with at Least a One

(*This problem is an **interactive problem** .*)

A binary matrix means that all elements are 0 or 1 . For each **individual** row of the matrix, this row is sorted in non-decreasing order.

Given a row-sorted binary matrix `binaryMatrix`, return leftmost column index(0-indexed) with at least a 1 in it. If such index doesn't exist, return -1 .

You can't access the Binary Matrix directly. You may only access the matrix using a `BinaryMatrix` interface:

- `BinaryMatrix.get(row, col)` returns the element of the matrix at index `(row, col)` (0-indexed).
- `BinaryMatrix.dimensions()` returns a list of 2 elements `[rows, cols]` , which means the matrix is `rows * cols` .

Submissions making more than 1000 calls to `BinaryMatrix.get` will be judged *Wrong Answer* . Also, any solutions that attempt to circumvent the judge will result in disqualification.

For custom testing purposes you're given the binary matrix `mat` as input in the following four examples. You will not have access the binary matrix directly.

Example 1:

0	0
1	1

Input: `mat = [[0,0],[1,1]]`
Output: 0

Example 2:

0	0
0	1

Input: `mat = [[0,0],[0,1]]`
Output: 1

Example 3:

0	0
0	0

Input: `mat = [[0,0],[0,0]]`
Output: -1

Example 4:

0	0	0	1
0	0	1	1
0	1	1	1

Input: `mat = [[0,0,0,1],[0,0,1,1],[0,1,1,1]]`
Output: 1

Constraints:

- `rows == mat.length`
- `cols == mat[i].length`

- $1 \leq \text{rows}, \text{cols} \leq 100$
- $\text{mat}[i][j]$ is either 0 or 1 .
- $\text{mat}[i]$ is sorted in a non-decreasing way.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1428-Leftmost-Column-with-at-Least-a-One](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1429. First Unique Number

You have a queue of integers, you need to retrieve the first unique integer in the queue.

Implement the `FirstUnique` class:

- `FirstUnique(int[] nums)` Initializes the object with the numbers in the queue.
- `int showFirstUnique()` returns the value of **the first unique** integer of the queue, and returns **-1** if there is no such integer.
- `void add(int value)` insert value to the queue.

Example 1:

Input:

```
["FirstUnique","showFirstUnique","add","showFirstUnique","add",""
[[[2,3,5]],[[],[5],[[],[2],[],[3],[]]]]
```

Output:

```
[null,2,null,2,null,3,null,-1]
```

Explanation:

```
FirstUnique firstUnique = new FirstUnique([2,3,5]);
firstUnique.showFirstUnique(); // return 2
firstUnique.add(5); // the queue is now [2,3,5,5]
firstUnique.showFirstUnique(); // return 2
firstUnique.add(2); // the queue is now [2,3,5,5,2]
firstUnique.showFirstUnique(); // return 3
firstUnique.add(3); // the queue is now [2,3,5,5,2,3]
firstUnique.showFirstUnique(); // return -1
```

Example 2:

Input:

```
["FirstUnique","showFirstUnique","add","add","add","add","add","add",""
[[[7,7,7,7,7,7]],[[],[7],[3],[3],[7],[17],[]]]]
```

Output:

```
[null,-1,null,null,null,null,null,17]
```

Explanation:

```
FirstUnique firstUnique = new FirstUnique([7,7,7,7,7,7]);
firstUnique.showFirstUnique(); // return -1
firstUnique.add(7); // the queue is now [7,7,7,7,7,7]
firstUnique.add(3); // the queue is now [7,7,7,7,7,7]
firstUnique.add(3); // the queue is now [7,7,7,7,7,7]
firstUnique.add(7); // the queue is now [7,7,7,7,7,7]
firstUnique.add(17); // the queue is now [7,7,7,7,7,7,17]
firstUnique.showFirstUnique(); // return 17
```

Example 3:

Input:

```
["FirstUnique","showFirstUnique","add","showFirstUnique"]
[[[809]],[[],[809],[]]]
```

Output:

```
[null,809,null,-1]
```

Explanation:

```
FirstUnique firstUnique = new FirstUnique([809]);
```

```
firstUnique.showFirstUnique(); // return 809
firstUnique.add(809);           // the queue is now [809,809]
firstUnique.showFirstUnique(); // return -1
```

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums[i]} \leq 10^8$
- $1 \leq \text{value} \leq 10^8$
- At most 50000 calls will be made to showFirstUnique and add .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1429-First-Unique-Number](#)

All Problems:

[Link to All Problems](#)

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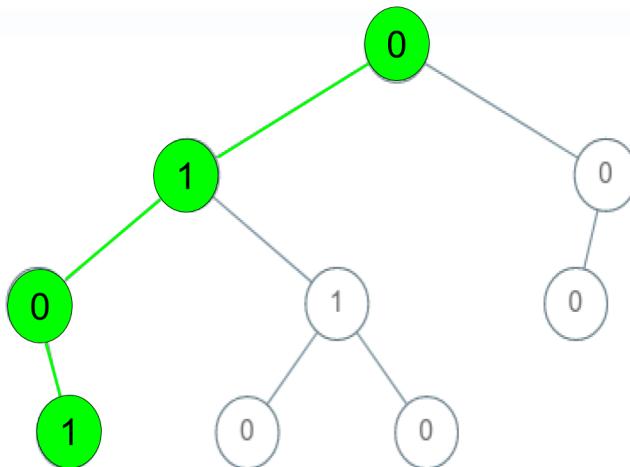
Welcome to Subscribe On Youtube:

1430. Check If a String Is a Valid Sequence from Root to Leaves Path in a Binary Tree

Given a binary tree where each path going from the root to any leaf form a **valid sequence**, check if a given string is a **valid sequence** in such binary tree.

We get the given string from the concatenation of an array of integers `arr` and the concatenation of all values of the nodes along a path results in a **sequence** in the given binary tree.

Example 1:



Input: `root = [0,1,0,0,1,0,null,null,1,0,0]`, `arr = [0,1,0,1]`

Output: true

Explanation:

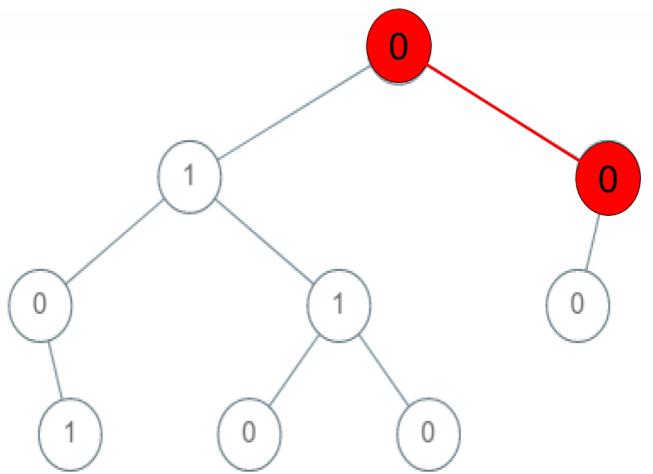
The path `0 -> 1 -> 0 -> 1` is a valid sequence (green color in the diagram).

Other valid sequences are:

`0 -> 1 -> 1 -> 0`

`0 -> 0 -> 0`

Example 2:

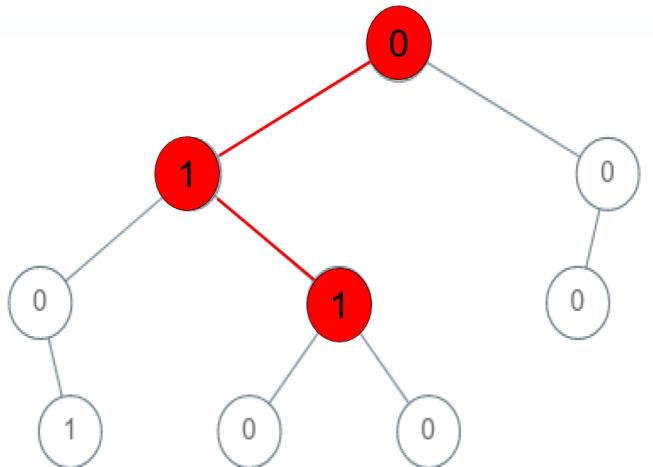


Input: root = [0,1,0,0,1,0,null,null,1,0,0], arr = [0,0,1]

Output: false

Explanation: The path 0 -> 0 -> 1 does not exist, therefore it is false.

Example 3:



Input: root = [0,1,0,0,1,0,null,null,1,0,0], arr = [0,1,1]

Output: false

Explanation: The path 0 -> 1 -> 1 is a sequence, but it is not a valid path in the tree.

Constraints:

- $1 \leq \text{arr.length} \leq 5000$
- $0 \leq \text{arr}[i] \leq 9$
- Each node's value is between [0 - 9].

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1430-Check-If-a-String-Is-a-Valid-Sequence-from-Root-to-Leaves-Path-in-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1431. Kids With the Greatest Number of Candies

Given the array `candies` and the integer `extraCandies`, where `candies[i]` represents the number of candies that the *ith* kid has.

For each kid check if there is a way to distribute extraCandies among the kids such that he or she can have the **greatest** number of candies among them. Notice that multiple kids can have the **greatest** number of candies.

Example 1:

Input: candies = [2,3,5,1,3], extraCandies = 3

Output: [true,true,true,false,true]

Explanation:

Kid 1 has 2 candies and if he or she receives all extra candies

Kid 2 has 3 candies and if he or she receives at least 2 extra candies

Kid 3 has 5 candies and this is already the greatest number of candies

Kid 4 has 1 candy and even if he or she receives all extra candies

Kid 5 has 3 candies and if he or she receives at least 2 extra candies

Example 2:

Input: candies = [4,2,1,1,2], extraCandies = 1

Output: [true,false,false,false,false]

Explanation: There is only 1 extra candy, therefore only kid 1 will receive an extra candy.

Example 3:

Input: candies = [12,1,12], extraCandies = 10

Output: [true,false,true]

Constraints:

- $2 \leq \text{candies.length} \leq 100$
- $1 \leq \text{candies}[i] \leq 100$
- $1 \leq \text{extraCandies} \leq 50$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1431-Kids-With-the-Greatest-Number-of-Candies](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1432. Max Difference You Can Get From Changing an Integer

You are given an integer `num` . You will apply the following steps exactly **two** times:

- Pick a digit `x` ($0 \leq x \leq 9$) .
- Pick another digit `y` ($0 \leq y \leq 9$) . The digit `y` can be equal to `x` .
- Replace all the occurrences of `x` in the decimal representation of `num` by `y` .
- The new integer **cannot** have any leading zeros, also the new integer **cannot** be 0.

Let `a` and `b` be the results of applying the operations to `num` the first and second times, respectively.

Return *the max difference* between a and b .

Example 1:

Input: num = 555

Output: 888

Explanation: The first time pick x = 5 and y = 9 and store the no

The second time pick x = 5 and y = 1 and store the new integer i

We have now a = 999 and b = 111 and max difference = 888

Example 2:

Input: num = 9

Output: 8

Explanation: The first time pick x = 9 and y = 9 and store the no

The second time pick x = 9 and y = 1 and store the new integer i

We have now a = 9 and b = 1 and max difference = 8

Example 3:

Input: num = 123456

Output: 820000

Example 4:

Input: num = 10000

Output: 80000

Example 5:

Input: num = 9288

Output: 8700

Constraints:

- $1 \leq \text{num} \leq 10^8$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1432-Max-Difference-You-Can-Get-From-Changing-an-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1433. Check If a String Can Break Another String

Given two strings: s_1 and s_2 with the same size, check if some permutation of string s_1 can break some permutation of string s_2 or vice-versa (in other words s_2 can break s_1).

A string x can break string y (both of size n) if $x[i] \geq y[i]$ (in alphabetical order) for all i between 0 and $n-1$.

Example 1:

Input: $s_1 = "abc"$, $s_2 = "xya"$

Output: true

Explanation: "ayx" is a permutation of $s_2 = "xya"$ which can break

Example 2:

Input: s1 = "abe", s2 = "acd"
Output: false
Explanation: All permutations for s1="abe" are: "abe", "aeb", "bae", "bea", "eab", "eba". None of them can be rearranged to form "acd".

Example 3:

Input: s1 = "leetcodee", s2 = "interview"
Output: true

Constraints:

- $s1.length == n$
- $s2.length == n$
- $1 \leq n \leq 10^5$
- All strings consist of lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1433-Check-If-a-String-Can-Break-Another-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1434. Number of Ways to Wear Different Hats to Each Other

There are n people and 40 types of hats labeled from 1 to 40.

Given a list of list of integers `hats`, where `hats[i]` is a list of all hats preferred by the i -th person.

Return the number of ways that the n people wear different hats to each other.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: `hats = [[3,4],[4,5],[5]]`

Output: 1

Explanation: There is only one way to choose hats given the condition. First person choose hat 3, Second person choose hat 4 and last one choose hat 5.

Example 2:

Input: `hats = [[3,5,1],[3,5]]`

Output: 4

Explanation: There are 4 ways to choose hats (3,5), (5,3), (1,3) and (1,5).

Example 3:

Input: `hats = [[1,2,3,4],[1,2,3,4],[1,2,3,4],[1,2,3,4]]`

Output: 24

Explanation: Each person can choose hats labeled from 1 to 4. Number of Permutations of $(1,2,3,4)$ = 24.

Example 4:

```
Input: hats = [[1,2,3],[2,3,5,6],[1,3,7,9],[1,8,9],[2,5,7]]  
Output: 111
```

Constraints:

- $n == \text{hats.length}$
- $1 \leq n \leq 10$
- $1 \leq \text{hats}[i].length \leq 40$
- $1 \leq \text{hats}[i][j] \leq 40$
- $\text{hats}[i]$ contains a list of **unique** integers.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1434-Number-of-Ways-to-Wear-Different-Hats-to-Each-Other](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1435. Create a Session Bar Chart

SQL Schema >

Table: Sessions

Column Name	Type
session_id	int
duration	int

session_id is the primary key for this table.

duration is the time in seconds that a user has visited the application.

You want to know how long a user visits your application. You decided to create bins of "[0-5>]", "[5-10>]", "[10-15>" and "15 minutes or more" and count the number of sessions on it.

Write an SQL query to report the (bin, total) in **any** order.

The query result format is in the following example.

Sessions table:

session_id	duration
1	30
2	299
3	340
4	580
5	1000

Result table:

bin	total
[0-5>	3
[5-10>	1
[10-15>	0
15 or more	1

For session_id 1, 2 and 3 have a duration greater or equal than 5 minutes.
For session_id 4 has a duration greater or equal than 5 minutes.
There are no session with a duration greater or equal than 10 minutes.
For session_id 5 has a duration greater or equal than 15 minutes.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1435-Create-a-Session-Bar-Chart](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1436. Destination City

You are given the array paths , where paths[i] = [cityA_i , cityB_i] means there exists a direct

path going from cityA_i to cityB_i. Return the destination city, that is, the city without any path outgoing to another city.

It is guaranteed that the graph of paths forms a line without any loop, therefore, there will be exactly one destination city.

Example 1:

Input: paths = [["London", "New York"], ["New York", "Lima"], ["Lima", "Sao Paulo"]]

Output: "Sao Paulo"

Explanation: Starting at "London" city you will reach "Sao Paulo".

Example 2:

Input: paths = [["B", "C"], ["D", "B"], ["C", "A"]]

Output: "A"

Explanation: All possible trips are:

"D" → "B" → "C" → "A".

"B" → "C" → "A".

"C" → "A".

"A".

Clearly the destination city is "A".

Example 3:

Input: paths = [["A", "Z"]]

Output: "Z"

Constraints:

- 1 ≤ paths.length ≤ 100
- paths[i].length == 2
- 1 ≤ cityA_i.length, cityB_i.length ≤ 10
- cityA_i ≠ cityB_i
- All strings consist of lowercase and uppercase English letters and the space character.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1436-Destination-City](#)

All Problems:

[Link to All Problems](#)

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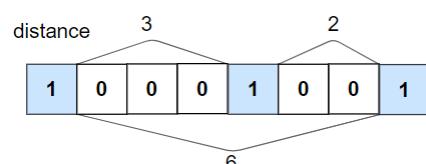
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Welcome to Subscribe On Youtube:

1437. Check If All 1's Are at Least Length K Places Away

Given an array `nums` of 0s and 1s and an integer `k` , return `True` if all 1's are at least `k` places away from each other, otherwise return `False` .

Example 1:

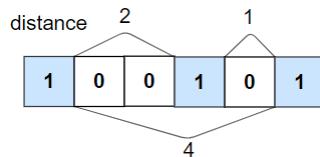


Input: nums = [1,0,0,0,1,0,0,1], k = 2

Output: true

Explanation: Each of the 1s are at least 2 places away from each other.

Example 2:



Input: nums = [1,0,0,1,0,1], k = 2

Output: false

Explanation: The second 1 and third 1 are only one apart from each other.

Example 3:

Input: nums = [1,1,1,1,1], k = 0

Output: true

Example 4:

Input: nums = [0,1,0,1], k = 1

Output: true

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $0 \leq k \leq \text{nums.length}$
- $\text{nums}[i]$ is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1437-Check-If-All-1's-Are-at-Least-Length-K-Places-Away](#)

All Problems:

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Welcome to Subscribe On Youtube:

1438. Longest Continuous Subarray With Absolute Diff Less Than or Equal to Limit

Given an array of integers `nums` and an integer `limit` , return the size of the longest continuous subarray such that the absolute difference between any two elements is less than or equal to `limit` .

In case there is no subarray satisfying the given condition return 0.

Example 1:

Input: `nums = [8,2,4,7]`, `limit = 4`

Output: 2

Explanation: All subarrays are:

`[8]` with maximum absolute diff $|8-8| = 0 \leq 4$.

`[8,2]` with maximum absolute diff $|8-2| = 6 > 4$.

`[8,2,4]` with maximum absolute diff $|8-2| = 6 > 4$.

`[8,2,4,7]` with maximum absolute diff $|8-2| = 6 > 4$.

`[2]` with maximum absolute diff $|2-2| = 0 \leq 4$.

`[2,4]` with maximum absolute diff $|2-4| = 2 \leq 4$.

[2,4,7] with maximum absolute diff $|2-7| = 5 > 4$.
[4] with maximum absolute diff $|4-4| = 0 \leq 4$.
[4,7] with maximum absolute diff $|4-7| = 3 \leq 4$.
[7] with maximum absolute diff $|7-7| = 0 \leq 4$.
Therefore, the size of the longest subarray is 2.

Example 2:

Input: nums = [10,1,2,4,7,2], limit = 5

Output: 4

Explanation: The subarray [2,4,7,2] is the longest since the max

Example 3:

Input: nums = [4,2,2,2,4,4,2,2], limit = 0

Output: 3

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$
- $0 \leq \text{limit} \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1438-Longest-Continuous-Subarray-With-Absolute-Diff-Less-Than-or-Equal-to-Limit](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1439. Find the Kth Smallest Sum of a Matrix With Sorted Rows

You are given an $m * n$ matrix, `mat`, and an integer k , which has its rows sorted in non-decreasing order.

You are allowed to choose exactly 1 element from each row to form an array. Return the K th **smallest** array sum among all possible arrays.

Example 1:

Input: `mat = [[1,3,11],[2,4,6]]`, $k = 5$
Output: 7

Explanation: Choosing one element from each row, the first k smallest sums are [1,2], [1,4], [3,2], [3,4], [1,6]. Where the 5th sum is 7.

Example 2:

Input: `mat = [[1,3,11],[2,4,6]]`, $k = 9$
Output: 17

Example 3:

Input: `mat = [[1,10,10],[1,4,5],[2,3,6]]`, $k = 7$
Output: 9

Explanation: Choosing one element from each row, the first k smallest sums are [1,1,2], [1,1,3], [1,4,2], [1,4,3], [1,1,6], [1,5,2], [1,5,3]. Where the 7th sum is 9.

Example 4:

```
Input: mat = [[1,1,10],[2,2,9]], k = 7
Output: 12
```

Constraints:

- $m == \text{mat.length}$
- $n == \text{mat.length}[i]$
- $1 \leq m, n \leq 40$
- $1 \leq k \leq \min(200, n^m)$
- $1 \leq \text{mat}[i][j] \leq 5000$
- $\text{mat}[i]$ is a non decreasing array.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1439-Find-the-Kth-Smallest-Sum-of-a-Matrix-With-Sorted-Rows](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1440. Evaluate Boolean Expression

SQL Schema >

Table Variables :

Column Name	Type
name	varchar
value	int

name is the primary key for this table.

This table contains the stored variables and their values.

Table Expressions :

Column Name	Type
left_operand	varchar
operator	enum
right_operand	varchar

(left_operand, operator, right_operand) is the primary key for this table.
This table contains a boolean expression that should be evaluated.
operator is an enum that takes one of the values ('<', '>', '=')
The values of left_operand and right_operand are guaranteed to be integers.

Write an SQL query to evaluate the boolean expressions in Expressions table.

Return the result table in any order.

The query result format is in the following example.

Variables table:

name	value
x	66
y	77

Expressions table:

left_operand	operator	right_operand
x	>	y
x	<	y
x	=	y
y	>	x
y	<	x
x	=	x

Result table:

left_operand	operator	right_operand	value
x	>	y	false
x	<	y	true
x	=	y	false
y	>	x	true
y	<	x	false
x	=	x	true

As shown, you need find the value of each boolean expression in the table.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1440-Evaluate-Boolean-Expression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1441. Build an Array With Stack Operations

Given an array `target` and an integer `n` . In each iteration, you will read a number from `list = {1,2,3..., n}` .

Build the `target` array using the following operations:

- **Push** : Read a new element from the beginning `list` , and push it in the array.
- **Pop** : delete the last element of the array.
- If the target array is already built, stop reading more elements.

You are guaranteed that the target array is strictly increasing, only containing numbers between 1 to `n` inclusive.

Return the operations to build the target array.

You are guaranteed that the answer is unique.

Example 1:

Input: `target = [1,3]` , `n = 3`

Output: `["Push", "Push", "Pop", "Push"]`

Explanation:

Read number 1 and automatically push in the array -> `[1]`
Read number 2 and automatically push in the array then Pop it ->
Read number 3 and automatically push in the array -> `[1,3]`

Example 2:

Input: `target = [1,2,3]` , `n = 3`

Output: `["Push", "Push", "Push"]`

Example 3:

Input: target = [1,2] , n = 4

Output: ["Push", "Push"]

Explanation: You only need to read the first 2 numbers and stop.

Example 4:

Input: target = [2,3,4] , n = 4

Output: ["Push", "Pop", "Push", "Push", "Push"]

Constraints:

- $1 \leq \text{target.length} \leq 100$
- $1 \leq \text{target}[i] \leq 100$
- $1 \leq n \leq 100$
- target is strictly increasing.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1441-Build-an-Array-With-Stack-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1442. Count Triplets That Can Form Two Arrays of Equal XOR

Given an array of integers arr .

We want to select three indices i , j and k where ($0 \leq i < j \leq k < \text{arr.length}$) .

Let's define a and b as follows:

- a = arr[i] ^ arr[i + 1] ^ ... ^ arr[j - 1]
- b = arr[j] ^ arr[j + 1] ^ ... ^ arr[k]

Note that ^ denotes the **bitwise-xor** operation.

Return *the number of triplets* (i , j and k) Where a == b .

Example 1:

Input: arr = [2,3,1,6,7]

Output: 4

Explanation: The triplets are (0,1,2), (0,2,2), (2,3,4) and (2,4,5).

Example 2:

Input: arr = [1,1,1,1,1]

Output: 10

Example 3:

Input: arr = [2,3]

Output: 0

Example 4:

Input: arr = [1,3,5,7,9]

Output: 3

Example 5:

Input: arr = [7,11,12,9,5,2,7,17,22]
Output: 8

Constraints:

- $1 \leq \text{arr.length} \leq 300$
- $1 \leq \text{arr}[i] \leq 10^8$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1442-Count-Triplets-That-Can-Form-Two-Arrays-of-Equal-XOR](#)

All Problems:

[Link to All Problems](#)

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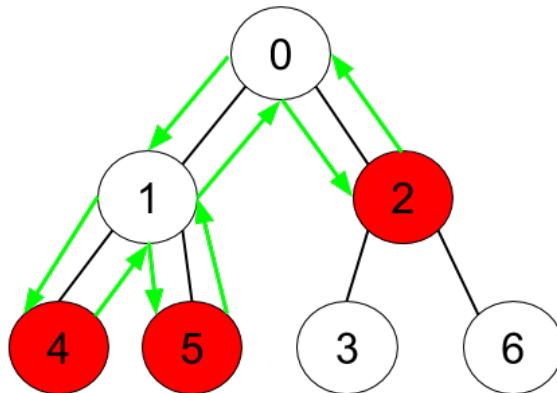
Welcome to Subscribe On Youtube:

1443. Minimum Time to Collect All Apples in a Tree

Given an undirected tree consisting of n vertices numbered from 0 to $n-1$, which has some apples in their vertices. You spend 1 second to walk over one edge of the tree. *Return the minimum time in seconds you have to spend in order to collect all apples in the tree starting at vertex 0 and coming back to this vertex.*

The edges of the undirected tree are given in the array `edges`, where `edges[i] = [fromi, toi]` means that exists an edge connecting the vertices `fromi` and `toi`. Additionally, there is a boolean array `hasApple`, where `hasApple[i] = true` means that vertex i has an apple, otherwise, it does not have any apple.

Example 1:

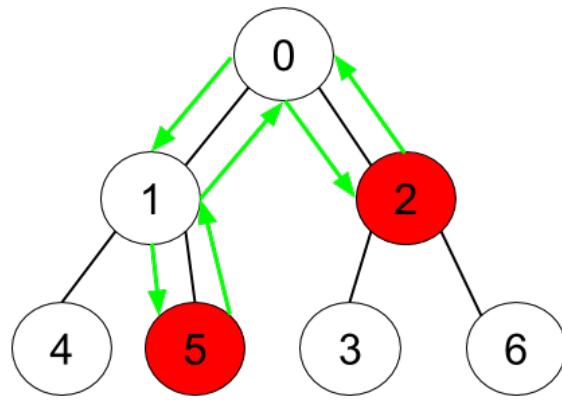


Input: $n = 7$, `edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]]`, `hasApple = [false, true, false, true, true, false, false]`

Output: 8

Explanation: The figure above represents the given tree where red nodes represent vertices having an apple.

Example 2:



Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], hasApple = [false, false, true, true, false, false, false]

Output: 6

Explanation: The figure above represents the given tree where red-colored nodes have apples.

Example 3:

Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], hasApple = [false, false, false, false, true, false, false]

Constraints:

- $1 \leq n \leq 10^5$
- $\text{edges.length} == n-1$
- $\text{edges}[i].length == 2$
- $0 \leq \text{from}_i, \text{to}_i \leq n-1$
- $\text{from}_i < \text{to}_i$
- $\text{hasApple.length} == n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1443-Minimum-Time-to-Collect-All-Apples-in-a-Tree](#)

All Problems:

[Link to All Problems](#)

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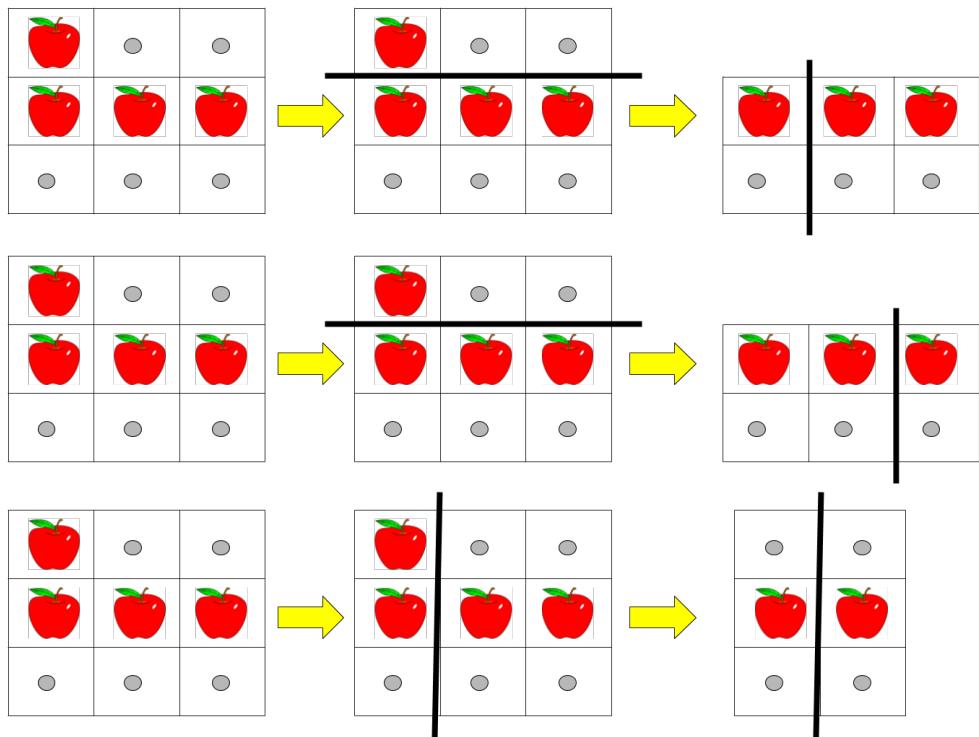
1444. Number of Ways of Cutting a Pizza

Given a rectangular pizza represented as a `rows x cols` matrix containing the following characters: 'A' (an apple) and ' .' (empty cell) and given the integer `k` . You have to cut the pizza into `k` pieces using `k-1` cuts.

For each cut you choose the direction: vertical or horizontal, then you choose a cut position at the cell boundary and cut the pizza into two pieces. If you cut the pizza vertically, give the left part of the pizza to a person. If you cut the pizza horizontally, give the upper part of the pizza to a person. Give the last piece of pizza to the last person.

Return the number of ways of cutting the pizza such that each piece contains at least one apple. Since the answer can be a huge number, return this modulo $10^9 + 7$.

Example 1:



Input: pizza = ["A..", "AAA", "..."], k = 3
 Output: 3

Explanation: The figure above shows the three ways to cut the pizza.

Example 2:

Input: pizza = ["A..", "AA.", "..."], k = 3
 Output: 1

Example 3:

Input: pizza = ["A..", "A..", "..."], k = 1
 Output: 1

Constraints:

- $1 \leq \text{rows}, \text{cols} \leq 50$
- $\text{rows} == \text{pizza.length}$
- $\text{cols} == \text{pizza[i].length}$
- $1 \leq k \leq 10$
- pizza consists of characters 'A' and '.' only.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1444-Number-of-Ways-of-Cutting-a-Pizza](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1445. Apples & Oranges

SQL Schema >

Table: Sales

Column Name	Type
sale_date	date
fruit	enum
sold_num	int

(sale_date,fruit) is the primary key for this table.
This table contains the sales of "apples" and "oranges" sold each day.

Write an SQL query to report the difference between number of **apples** and **oranges** sold each day.

Return the result table **ordered** by sale_date in format ('YYYY-MM-DD').

The query result format is in the following example:

Sales table:

sale_date	fruit	sold_num
2020-05-01	apples	10
2020-05-01	oranges	8
2020-05-02	apples	15
2020-05-02	oranges	15
2020-05-03	apples	20
2020-05-03	oranges	0
2020-05-04	apples	15
2020-05-04	oranges	16

Result table:

sale_date	diff
2020-05-01	2
2020-05-02	0
2020-05-03	20
2020-05-04	-1

Day 2020-05-01, 10 apples and 8 oranges were sold (Difference 10)

Day 2020-05-02, 15 apples and 15 oranges were sold (Difference 15)

Day 2020-05-03, 20 apples and 0 oranges were sold (Difference 20)

Day 2020-05-04, 15 apples and 16 oranges were sold (Difference 11)

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1445-Apples-&-Oranges](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1446. Consecutive Characters

Given a string s , the power of the string is the maximum length of a non-empty substring that contains only one unique character.

Return *the power* of the string.

Example 1:

Input: $s = \text{"leetcode"}$

Output: 2

Explanation: The substring "ee" is of length 2 with the character 'e' repeated twice.

Example 2:

Input: $s = \text{"abbcccddddeeeeedcba"}$

Output: 5

Explanation: The substring "eeee" is of length 5 with the character 'e' repeated five times.

Example 3:

Input: $s = \text{"triplepilloooow"}$

Output: 5

Example 4:

Input: s = "hooraaaaaaaaay"
Output: 11

Example 5:

Input: s = "tourist"
Output: 1

Constraints:

- $1 \leq s.length \leq 500$
- s contains only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1446-Consecutive-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1447. Simplified Fractions

Given an integer n , return a list of all **simplified** fractions between 0 and 1 (exclusive) such that the denominator is less-than-or-equal-to n . The fractions can be in **any** order.

Example 1:

Input: $n = 2$

Output: `["1/2"]`

Explanation: "1/2" is the only unique fraction with a denominator

Example 2:

Input: $n = 3$

Output: `["1/2", "1/3", "2/3"]`

Example 3:

Input: $n = 4$

Output: `["1/2", "1/3", "1/4", "2/3", "3/4"]`

Explanation: "2/4" is not a simplified fraction because it can be reduced to "1/2".

Example 4:

Input: $n = 1$

Output: `[]`

Constraints:

- $1 \leq n \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1447-Simplified-Fractions](#)

All Problems:

[Link to All Problems](#)

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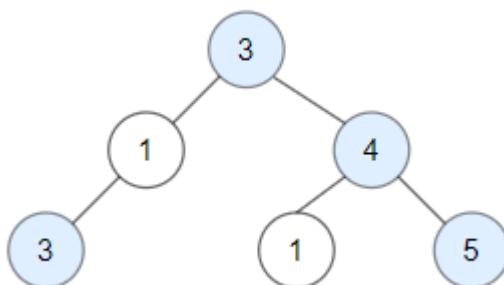
Welcome to Subscribe On Youtube:

1448. Count Good Nodes in Binary Tree

Given a binary tree `root` , a node `X` in the tree is named **good** if in the path from root to `X` there are no nodes with a value *greater than X*.

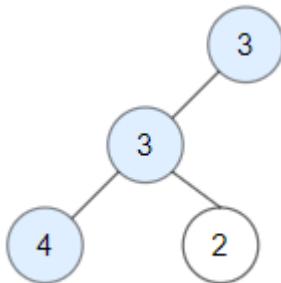
Return the number of **good** nodes in the binary tree.

Example 1:



Input: root = [3,1,4,3,null,1,5]
Output: 4
Explanation: Nodes in blue are good.
Root Node (3) is always a good node.
Node 4 -> (3,4) is the maximum value in the path starting from t
Node 5 -> (3,4,5) is the maximum value in the path
Node 3 -> (3,1,3) is the maximum value in the path.

Example 2:



Input: root = [3,3,null,4,2]
Output: 3
Explanation: Node 2 -> (3, 3, 2) is not good, because "3" is high

Example 3:

Input: root = [1]
Output: 1
Explanation: Root is considered as good.

Constraints:

- The number of nodes in the binary tree is in the range [1, 10^5] .
- Each node's value is between [-10^4, 10^4] .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1448-Count-Good-Nodes-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1449. Form Largest Integer With Digits That Add up to Target

Given an array of integers `cost` and an integer `target` .
Return the **maximum** integer you can paint under the following rules:

- The cost of painting a digit $(i+1)$ is given by `cost[i]` (0 indexed).
- The total cost used must be equal to `target` .
- Integer does not have digits 0.

Since the answer may be too large, return it as string.

If there is no way to paint any integer given the condition, return "0".

Example 1:

```
Input: cost = [4,3,2,5,6,7,2,5,5], target = 9
Output: "7772"
Explanation: The cost to paint the digit '7' is 2, and the digit
Digit      cost
 1  ->  4
 2  ->  3
 3  ->  2
 4  ->  5
 5  ->  6
 6  ->  7
 7  ->  2
 8  ->  5
 9  ->  5
```

Example 2:

```
Input: cost = [7,6,5,5,5,6,8,7,8], target = 12
Output: "85"
Explanation: The cost to paint the digit '8' is 7, and the digit
```

Example 3:

```
Input: cost = [2,4,6,2,4,6,4,4,4], target = 5
Output: "0"
Explanation: It's not possible to paint any integer with total co
```

Example 4:

```
Input: cost = [6,10,15,40,40,40,40,40,40], target = 47
Output: "32211"
```

Constraints:

- `cost.length == 9`
- `1 <= cost[i] <= 5000`
- `1 <= target <= 5000`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1449-Form-Largest-Integer-With-Digits-That-Add-up-to-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1450. Number of Students Doing Homework at a Given Time

Given two integer arrays `startTime` and `endTime` and given an integer `queryTime` .

The i^{th} student started doing their homework at the time `startTime[i]` and finished it at time `endTime[i]`.

Return *the number of students* doing their homework at time `queryTime` . More formally, return the number of students where `queryTime` lays in the interval `[startTime[i], endTime[i]]` inclusive.

Example 1:

Input: startTime = [1,2,3], endTime = [3,2,7], queryTime = 4
Output: 1
Explanation: We have 3 students where:
The first student started doing homework at time 1 and finished at time 3.
The second student started doing homework at time 2 and finished at time 2.
The third student started doing homework at time 3 and finished at time 7.

Example 2:

Input: startTime = [4], endTime = [4], queryTime = 4
Output: 1
Explanation: The only student was doing their homework at the query time.

Example 3:

Input: startTime = [4], endTime = [4], queryTime = 5
Output: 0

Example 4:

Input: startTime = [1,1,1,1], endTime = [1,3,2,4], queryTime = 7
Output: 0

Example 5:

Input: startTime = [9,8,7,6,5,4,3,2,1], endTime = [10,10,10,10,10,10,10,10,10], queryTime = 5
Output: 5

Constraints:

- `startTime.length == endTime.length`
- `1 <= startTime.length <= 100`
- `1 <= startTime[i] <= endTime[i] <= 1000`
- `1 <= queryTime <= 1000`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1450-Number-of-Students-Doing-Homework-at-a-Given-Time](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1451. Rearrange Words in a Sentence

Given a sentence `text` (A *sentence* is a string of space-separated words) in the following format:

- First letter is in upper case.
- Each word in `text` are separated by a single space.

Your task is to rearrange the words in `text` such that all words are rearranged in an increasing order of their lengths. If two words have the same length, arrange them in their original order.

Return the new text following the format shown above.

Example 1:

Input: `text = "Leetcode is cool"`
Output: "Is cool leetcode"

Explanation: There are 3 words, "Leetcode" of length 8, "is" of length 2, and "of" of length 2. The output is ordered by length and the new first word starts with a capital letter.

Example 2:

Input: text = "Keep calm and code on"

Output: "On and keep calm code"

Explanation: Output is ordered as follows:

"On" 2 letters.

"and" 3 letters.

"keep" 4 letters in case of tie order by position in original text

"calm" 4 letters.

"code" 4 letters.

Example 3:

Input: text = "To be or not to be"

Output: "To be or to be not"

Constraints:

- text begins with a capital letter and then contains lowercase letters and single space between words.
- $1 \leq \text{text.length} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1451-Rearrange-Words-in-a-Sentence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1452. People Whose List of Favorite Companies Is Not a Subset of Another List

Given the array `favoriteCompanies` where `favoriteCompanies[i]` is the list of favorite companies for the `i`th person (**indexed from 0**).

*Return the indices of people whose list of favorite companies is not a **subset** of any other list of favorite companies.* You must return the indices in increasing order.

Example 1:

Input: `favoriteCompanies = [["leetcode", "google", "facebook"], ["google", "facebook", "amazon"], ["facebook", "amazon"], ["google"]]`
Output: `[0,1,4]`
Explanation:
Person with index=2 has `favoriteCompanies[2]=["google", "facebook"]`
Person with index=3 has `favoriteCompanies[3]=["google"]` which is a subset of `favoriteCompanies[0]`
Other lists of favorite companies are not a subset of another list.

Example 2:

Input: `favoriteCompanies = [["leetcode", "google", "facebook"], ["facebook", "amazon"], ["facebook", "amazon"], ["google"]]`
Output: `[0,1]`
Explanation: In this case `favoriteCompanies[2]=["facebook", "amazon"]` is a subset of `favoriteCompanies[0]`.

Example 3:

Input: `favoriteCompanies = [["leetcode"], ["google"], ["facebook"], ["amazon"]]`
Output: `[0,1,2,3]`

Constraints:

- `1 <= favoriteCompanies.length <= 100`
- `1 <= favoriteCompanies[i].length <= 500`
- `1 <= favoriteCompanies[i][j].length <= 20`
- All strings in `favoriteCompanies[i]` are **distinct**.
- All lists of favorite companies are **distinct**, that is, If we sort alphabetically each list then
`favoriteCompanies[i] != favoriteCompanies[j]`.
- All strings consist of lowercase English letters only.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1452-People-Whose-List-of-Favorite-Companies-Is-Not-a-Subset-of-Another-List](#)

All Problems:

[Link to All Problems](#)

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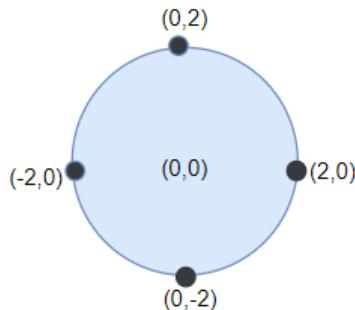
Welcome to Subscribe On Youtube:

1453. Maximum Number of Darts Inside of a Circular Dartboard

You have a very large square wall and a circular dartboard placed on the wall. You have been challenged to throw darts into the board blindfolded. Darts thrown at the wall are represented as an array of points on a 2D plane.

Return the maximum number of points that are within or lie on **any** circular dartboard of radius r .

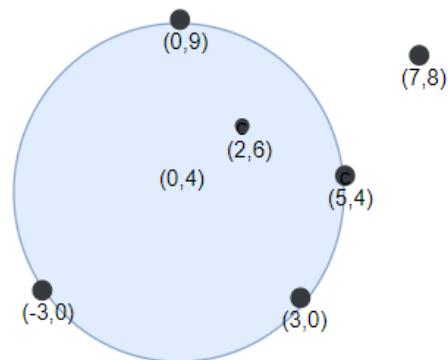
Example 1:



Input: `points = [[-2,0],[2,0],[0,2],[0,-2]]`, $r = 2$
Output: 4

Explanation: Circle dartboard with center in $(0,0)$ and radius = 2.

Example 2:



```
Input: points = [[-3,0],[3,0],[2,6],[5,4],[0,9],[7,8]], r = 5
Output: 5
Explanation: Circle dartboard with center in (0,4) and radius =
```

Example 3:

```
Input: points = [[-2,0],[2,0],[0,2],[0,-2]], r = 1
Output: 1
```

Example 4:

```
Input: points = [[1,2],[3,5],[1,-1],[2,3],[4,1],[1,3]], r = 2
Output: 4
```

Constraints:

- $1 \leq \text{points.length} \leq 100$
- $\text{points[i].length} == 2$
- $-10^4 \leq \text{points[i][0]}, \text{points[i][1]} \leq 10^4$
- $1 \leq r \leq 5000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1453-Maximum-Number-of-Darts-Inside-of-a-Circular-Dartboard](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1454. Active Users

[SQL Schema](#) >

Table Accounts :

Column Name	Type
id	int
name	varchar

the id is the primary key for this table.

This table contains the account id and the user name of each account.

Table Logins :

Column Name	Type
id	int
login_date	date

There is no primary key for this table, it may contain duplicates.

This table contains the account id of the user who logged in and the login date.

Write an SQL query to find the id and the name of active users.

Active users are those who logged in to their accounts for 5 or more consecutive days.

Return the result table **ordered** by the id.

The query result format is in the following example:

Accounts table:

id	name
1	Winston
7	Jonathan

Logins table:

id	login_date
7	2020-05-30
1	2020-05-30
7	2020-05-31
7	2020-06-01
7	2020-06-02
7	2020-06-02
7	2020-06-03
1	2020-06-07
7	2020-06-10

Result table:

id	name
7	Jonathan

User Winston with id = 1 logged in 2 times only in 2 different days
User Jonathan with id = 7 logged in 7 times in 6 different days,

Follow up question: Can you write a general solution if the active users are those who logged in to their accounts for n or more consecutive days?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1454-Active-Users](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1455. Check If a Word Occurs As a Prefix of Any Word in a Sentence

Given a sentence that consists of some words separated by a **single space**, and a searchWord .

You have to check if searchWord is a prefix of any word in sentence .

Return *the index of the word* in sentence where searchWord is a prefix of this word (**1-indexed**).

If searchWord is a prefix of more than one word, return the index of the first word (**minimum index**). If there is no such word return **-1** .

A **prefix** of a string S is any leading contiguous substring of S .

Example 1:

Input: sentence = "i love eating burger", searchWord = "burg"
Output: 4
Explanation: "burg" is prefix of "burger" which is the 4th word

Example 2:

Input: sentence = "this problem is an easy problem", searchWord :
Output: 2
Explanation: "pro" is prefix of "problem" which is the 2nd and t

Example 3:

Input: sentence = "i am tired", searchWord = "you"
Output: -1
Explanation: "you" is not a prefix of any word in the sentence.

Example 4:

Input: sentence = "i use triple pillow", searchWord = "pill"
Output: 4

Example 5:

Input: sentence = "hello from the other side", searchWord = "the"
Output: -1

Constraints:

- $1 \leq \text{sentence.length} \leq 100$
- $1 \leq \text{searchWord.length} \leq 10$
- sentence consists of lowercase English letters and spaces.
- searchWord consists of lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1455-Check-If-a-Word-Occurs-As-a-Prefix-of-Any-Word-in-a-Sentence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1456. Maximum Number of Vowels in a Substring of Given Length

Given a string s and an integer k .

Return *the maximum number of vowel letters* in any substring of s with length k .

Vowel letters in English are (a, e, i, o, u).

Example 1:

Input: $s = "abciiidef"$, $k = 3$
Output: 3

Explanation: The substring "iii" contains 3 vowel letters.

Example 2:

Input: s = "aeiou", k = 2
Output: 2
Explanation: Any substring of length 2 contains 2 vowels.

Example 3:

Input: s = "leetcode", k = 3
Output: 2
Explanation: "lee", "eet" and "ode" contain 2 vowels.

Example 4:

Input: s = "rhythms", k = 4
Output: 0
Explanation: We can see that s doesn't have any vowel letters.

Example 5:

Input: s = "tryhard", k = 4
Output: 1

Constraints:

- $1 \leq s.length \leq 10^5$
- s consists of lowercase English letters.
- $1 \leq k \leq s.length$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1456-Maximum-Number-of-Vowels-in-a-Substring-of-Given-Length](#)

All Problems:

[Link to All Problems](#)

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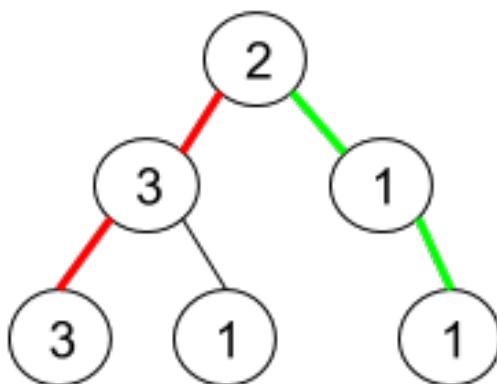
Welcome to Subscribe On Youtube:

1457. Pseudo-Palindromic Paths in a Binary Tree

Given a binary tree where node values are digits from 1 to 9. A path in the binary tree is said to be **pseudo-palindromic** if at least one permutation of the node values in the path is a palindrome.

Return the number of pseudo-palindromic paths going from the root node to leaf nodes.

Example 1:

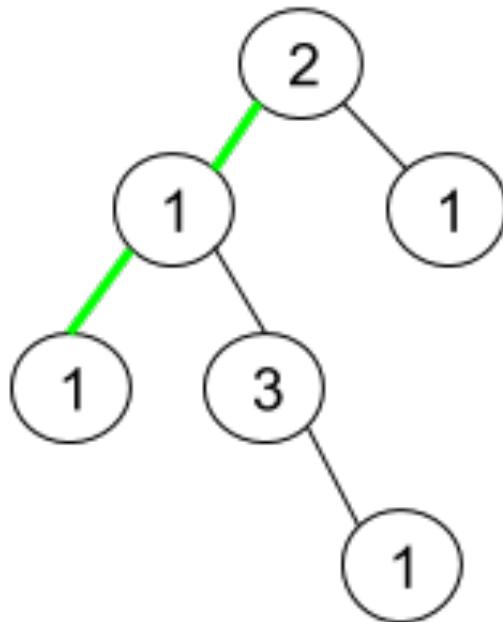


Input: root = [2,3,1,3,1,null,1]

Output: 2

Explanation: The figure above represents the given binary tree.

Example 2:



Input: root = [2,1,1,1,3,null,null,null,null,1]

Output: 1

Explanation: The figure above represents the given binary tree.

Example 3:

Input: root = [9]

Output: 1

Constraints:

- The given binary tree will have between 1 and 10^5 nodes.
- Node values are digits from 1 to 9 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1457-Pseudo-Palindromic-Paths-in-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1458. Max Dot Product of Two Subsequences

Given two arrays `nums1` and `nums2` .

Return the maximum dot product between **non-empty** subsequences of `nums1` and `nums2` with the same length.

A subsequence of a array is a new array which is formed from the original array by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (ie, `[2,3,5]` is a subsequence of `[1,2,3,4,5]` while `[1,5,3]` is not).

Example 1:

Input: `nums1 = [2,1,-2,5]`, `nums2 = [3,0,-6]`

Output: 18

Explanation: Take subsequence `[2,-2]` from `nums1` and subsequence Their dot product is $(2*3 + (-2)*(-6)) = 18$.

Example 2:

Input: `nums1 = [3,-2]`, `nums2 = [2,-6,7]`

Output: 21

Explanation: Take subsequence [3] from nums1 and subsequence [7] Their dot product is (3*7) = 21.

Example 3:

Input: nums1 = [-1,-1], nums2 = [1,1]

Output: -1

Explanation: Take subsequence [-1] from nums1 and subsequence [1] Their dot product is -1.

Constraints:

- $1 \leq \text{nums1.length}, \text{nums2.length} \leq 500$
- $-1000 \leq \text{nums1[i]}, \text{nums2[i]} \leq 1000$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1458-Max-Dot-Product-of-Two-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1459. Rectangles Area

SQL Schema >

Table: Points

Column Name	Type
id	int
x_value	int
y_value	int

id is the primary key for this table.

Each point is represented as a 2D Dimensional (x_value, y_value)

Write an SQL query to report of all possible rectangles which can be formed by any two points of the table.

Each row in the result contains three columns (p1, p2, area) where:

- **p1** and **p2** are the id of two opposite corners of a rectangle and $p1 < p2$.
- Area of this rectangle is represented by the column **area** .

Report the query in descending order by area in case of tie in ascending order by p1 and p2.

Points table:

id	x_value	y_value
1	2	8
2	4	7
3	2	10

Result table:

p1	p2	area
2	3	6
1	2	2

`p1` should be less than `p2` and area greater than 0.
`p1 = 1` and `p2 = 2`, has an area equal to $|2-4| * |8-7| = 2$.
`p1 = 2` and `p2 = 3`, has an area equal to $|4-2| * |7-10| = 2$.
`p1 = 1` and `p2 = 3` It's not possible because has an area equal to

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1459-Rectangles-Area](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1460. Make Two Arrays Equal by Reversing Sub-arrays

Given two integer arrays of equal length `target` and `arr`.

In one step, you can select any **non-empty sub-array** of `arr` and reverse it. You are allowed to make any number of steps.

Return *True* if you can make `arr` equal to `target`, or *False* otherwise.

Example 1:

Input: `target = [1,2,3,4]`, `arr = [2,4,1,3]`

Output: `true`

Explanation: You can follow the next steps to convert `arr` to `target`:

1- Reverse sub-array `[2,4,1]`, `arr` becomes `[1,4,2,3]`

2- Reverse sub-array `[4,2]`, `arr` becomes `[1,2,4,3]`

3- Reverse sub-array `[4,3]`, `arr` becomes `[1,2,3,4]`

There are multiple ways to convert `arr` to `target`, this is not the only way.

Example 2:

Input: `target = [7]`, `arr = [7]`

Output: `true`

Explanation: `arr` is equal to `target` without any reverses.

Example 3:

Input: `target = [1,12]`, `arr = [12,1]`

Output: `true`

Example 4:

Input: `target = [3,7,9]`, `arr = [3,7,11]`

Output: `false`

Explanation: `arr` doesn't have value `9` and it can never be converted to `target`.

Example 5:

Input: `target = [1,1,1,1,1]`, `arr = [1,1,1,1,1]`

Output: `true`

Constraints:

- `target.length == arr.length`
- `1 <= target.length <= 1000`
- `1 <= target[i] <= 1000`
- `1 <= arr[i] <= 1000`

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1460-Make-Two-Arrays-Equal-by-Reversing-Sub-arrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1461. Check If a String Contains All Binary Codes of Size K

Given a binary string s and an integer k .

Return *True* if all binary codes of length k is a substring of s . Otherwise, return *False*.

Example 1:

Input: $s = "00110110"$, $k = 2$

Output: true

Explanation: The binary codes of length 2 are "00", "01", "10" and "11".

Example 2:

Input: $s = "00110"$, $k = 2$

Output: true

Example 3:

Input: $s = "0110"$, $k = 1$

Output: true

Explanation: The binary codes of length 1 are "0" and "1", it is true.

Example 4:

Input: $s = "0110"$, $k = 2$

Output: false

Explanation: The binary code "00" is of length 2 and doesn't exist in the string.

Example 5:

Input: $s = "0000000001011100"$, $k = 4$

Output: false

Constraints:

- $1 \leq s.length \leq 5 * 10^5$
- s consists of 0's and 1's only.
- $1 \leq k \leq 20$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1461-Check-If-a-String-Contains-All-Binary-Codes-of-Size-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1462. Course Schedule IV

There are a total of n courses you have to take, labeled from 0 to $n-1$.

Some courses may have direct prerequisites, for example, to take course 0 you have first to take course 1 , which is expressed as a pair: $[1, 0]$

Given the total number of courses n , a list of direct prerequisite **pairs** and a list of queries **pairs**.

You should answer for each `queries[i]` whether the course `queries[i][0]` is a prerequisite of the course `queries[i][1]` or not.

Return a list of boolean , the answers to the given queries .

Please note that if course **a** is a prerequisite of course **b** and course **b** is a prerequisite of course **c** , then, course **a** is a prerequisite of course **c** .

Example 1:

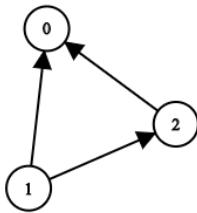


Input: `n = 2, prerequisites = [[1,0]]`, `queries = [[0,1],[1,0]]`
Output: [false,true]
Explanation: course 0 is not a prerequisite of course 1 but the

Example 2:

Input: `n = 2, prerequisites = []`, `queries = [[1,0],[0,1]]`
Output: [false,false]
Explanation: There are no prerequisites and each course is indep

Example 3:



Input: n = 3, prerequisites = [[1,2],[1,0],[2,0]], queries = [[1,0], [1,2]]
Output: [true,true]

Example 4:

Input: n = 3, prerequisites = [[1,0],[2,0]], queries = [[0,1],[2,0]]
Output: [false,true]

Example 5:

Input: n = 5, prerequisites = [[0,1],[1,2],[2,3],[3,4]], queries = [[0,1],[1,2],[2,3],[3,4]]
Output: [true,false,true,false]

Constraints:

- $2 \leq n \leq 100$
- $0 \leq \text{prerequisite.length} \leq (n * (n - 1) / 2)$
- $0 \leq \text{prerequisite}[i][0], \text{prerequisite}[i][1] < n$
- $\text{prerequisite}[i][0] \neq \text{prerequisite}[i][1]$
- The prerequisites graph has no cycles.
- The prerequisites graph has no repeated edges.
- $1 \leq \text{queries.length} \leq 10^4$
- $\text{queries}[i][0] \neq \text{queries}[i][1]$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1462-Course-Schedule-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1463. Cherry Pickup II

Given a `rows x cols` matrix `grid` representing a field of cherries. Each cell in `grid` represents the number of cherries that you can collect.

You have two robots that can collect cherries for you, Robot #1 is located at the top-left corner $(0,0)$, and Robot #2 is located at the top-right corner $(0, \text{cols}-1)$ of the grid.

Return the maximum number of cherries collection using both robots by following the rules below:

- From a cell (i,j), robots can move to cell (i+1, j-1) , (i+1, j) or (i+1, j+1).
- When any robot is passing through a cell, It picks it up all cherries, and the cell becomes an empty cell (0).
- When both robots stay on the same cell, only one of them takes the cherries.
- Both robots cannot move outside of the grid at any moment.
- Both robots should reach the bottom row in the grid .

Example 1:

Robot #1		Robot #2
3	1	1
2	5	1
1	5	5
2	1	1

Input: grid = [[3,1,1],[2,5,1],[1,5,5],[2,1,1]]

Output: 24

Explanation: Path of robot #1 and #2 are described in color green

Cherries taken by Robot #1, (3 + 2 + 5 + 2) = 12.

Cherries taken by Robot #2, (1 + 5 + 5 + 1) = 12.

Total of cherries: 12 + 12 = 24.

Example 2:

							Robot #2
							Robot #1
1	0	0	0	0	0	1	
2	0	0	0	0	3	0	
2	0	9	0	0	0	0	
0	3	0	5	4	0	0	
1	0	2	3	0	0	6	

Input: grid = [[1,0,0,0,0,0,1],[2,0,0,0,0,3,0],[2,0,9,0,0,0,0],[0,0,0,0,0,0,0]]
Output: 28

Explanation: Path of robot #1 and #2 are described in color green.

Cherries taken by Robot #1, (1 + 9 + 5 + 2) = 17.

Cherries taken by Robot #2, (1 + 3 + 4 + 3) = 11.

Total of cherries: 17 + 11 = 28.

Example 3:

Input: grid = [[1,0,0,3],[0,0,0,3],[0,0,3,3],[9,0,3,3]]
Output: 22

Example 4:

Input: grid = [[1,1],[1,1]]
Output: 4

Constraints:

- rows == grid.length
- cols == grid[i].length
- 2 <= rows, cols <= 70
- 0 <= grid[i][j] <= 100

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1463-Cherry-Pickup-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1464. Maximum Product of Two Elements in an Array

Given the array of integers `nums` , you will choose two different indices `i` and `j` of that array. *Return the maximum value of $(nums[i]-1) * (nums[j]-1)$.*

Example 1:

Input: `nums = [3,4,5,2]`

Output: 12

Explanation: If you choose the indices `i=1` and `j=2` (indexed from 0),

Example 2:

Input: `nums = [1,5,4,5]`

Output: 16

Explanation: Choosing the indices `i=1` and `j=3` (indexed from 0),

Example 3:

Input: nums = [3,7]
Output: 12

Constraints:

- $2 \leq \text{nums.length} \leq 500$
- $1 \leq \text{nums}[i] \leq 10^3$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1464-Maximum-Product-of-Two-Elements-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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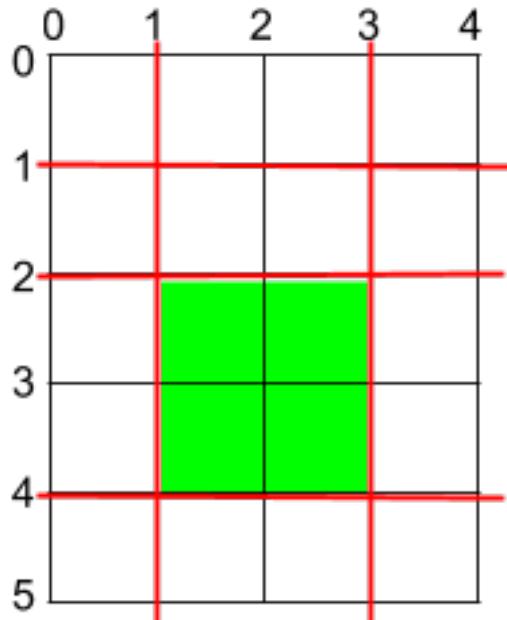
Welcome to Subscribe On Youtube:

1465. Maximum Area of a Piece of Cake After Horizontal and Vertical Cuts

Given a rectangular cake with height h and width w , and two arrays of integers `horizontalCuts` and `verticalCuts` where `horizontalCuts[i]` is the distance from the top of the rectangular cake to the i th horizontal cut and similarly, `verticalCuts[j]` is the distance from the left of the rectangular cake to the j th vertical cut.

Return the maximum area of a piece of cake after you cut at each horizontal and vertical position provided in the arrays `horizontalCuts` and `verticalCuts`. Since the answer can be a huge number, return this modulo $10^9 + 7$.

Example 1:

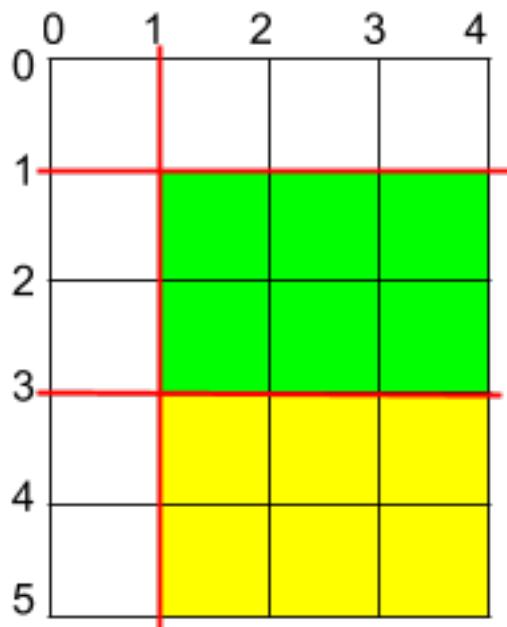


Input: $h = 5$, $w = 4$, `horizontalCuts` = [1, 2, 4], `verticalCuts` = [1, 3]

Output: 4

Explanation: The figure above represents the given rectangular cake.

Example 2:



Input: $h = 5$, $w = 4$, horizontalCuts = [3,1], verticalCuts = [1]
 Output: 6
 Explanation: The figure above represents the given rectangular c

Example 3:

Input: $h = 5$, $w = 4$, horizontalCuts = [3], verticalCuts = [3]
 Output: 9

Constraints:

- $2 \leq h, w \leq 10^9$
- $1 \leq \text{horizontalCuts.length} < \min(h, 10^5)$
- $1 \leq \text{verticalCuts.length} < \min(w, 10^5)$
- $1 \leq \text{horizontalCuts}[i] < h$
- $1 \leq \text{verticalCuts}[i] < w$
- It is guaranteed that all elements in `horizontalCuts` are distinct.
- It is guaranteed that all elements in `verticalCuts` are distinct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1465-Maximum-Area-of-a-Piece-of-Cake-After-Horizontal-and-Vertical-Cuts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1466. Reorder Routes to Make All Paths Lead to the City Zero

There are n cities numbered from 0 to $n-1$ and $n-1$ roads such that there is only one way to travel between two different cities (this network form a tree). Last year, The ministry of transport decided to orient the roads in one direction because they are too narrow.

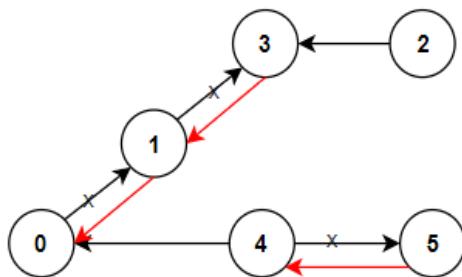
Roads are represented by connections where `connections[i] = [a, b]` represents a road from city a to b .

This year, there will be a big event in the capital (city 0), and many people want to travel to this city.

Your task consists of reorienting some roads such that each city can visit the city 0. Return the **minimum** number of edges changed.

It's **guaranteed** that each city can reach the city 0 after reorder.

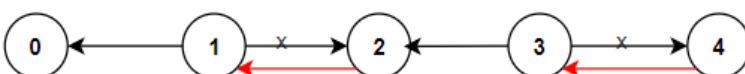
Example 1:



Input: $n = 6$, connections = $[[0,1],[1,3],[2,3],[4,0],[4,5]]$
Output: 3

Explanation: Change the direction of edges show in red such that

Example 2:



Input: $n = 5$, connections = $[[1,0],[1,2],[3,2],[3,4]]$
Output: 2

Explanation: Change the direction of edges show in red such that

Example 3:

Input: $n = 3$, connections = $[[1,0],[2,0]]$
Output: 0

Constraints:

- $2 \leq n \leq 5 * 10^4$
- $\text{connections.length} == n-1$
- $\text{connections}[i].length == 2$
- $0 \leq \text{connections}[i][0], \text{connections}[i][1] \leq n-1$
- $\text{connections}[i][0] \neq \text{connections}[i][1]$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1466-Reorder-Routes-to-Make-All-Paths-Lead-to-the-City-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1467. Probability of a Two Boxes Having The Same Number of Distinct Balls

Given $2n$ balls of k distinct colors. You will be given an integer array `balls` of size k where `balls[i]` is the number of balls of color i .

All the balls will be **shuffled uniformly at random**, then we will distribute the first n balls to the first box and the remaining n balls to the other box (Please read the explanation of the second example carefully).

Please note that the two boxes are considered different. For example, if we have two balls of colors a and b , and two boxes `[]` and `()`, then the distribution `[a] (b)` is considered different than the distribution `[b] (a)` (Please read the explanation of the first example carefully).

We want to *calculate the probability* that the two boxes have the same number of distinct balls.

Example 1:

Input: `balls = [1,1]`
Output: `1.00000`

Explanation: Only 2 ways to divide the balls equally:
- A ball of color 1 to box 1 and a ball of color 2 to box 2
- A ball of color 2 to box 1 and a ball of color 1 to box 2
In both ways, the number of distinct colors in each box is equal

Example 2:

Input: `balls = [2,1,1]`
Output: `0.66667`

Explanation: We have the set of balls `[1, 1, 2, 3]`
This set of balls will be shuffled randomly and we may have one of `[1,1 / 2,3]`, `[1,1 / 3,2]`, `[1,2 / 1,3]`, `[1,2 / 3,1]`, `[1,3 / 1,2]`,
After that we add the first two balls to the first box and the second two to the second box.
We can see that 8 of these 12 possible random distributions have the same number of distinct colors in each box.
Probability is $8/12 = 0.66667$

Example 3:

Input: balls = [1,2,1,2]
Output: 0.60000
Explanation: The set of balls is [1, 2, 2, 3, 4, 4]. It is hard
Probability = 108 / 180 = 0.6

Example 4:

Input: balls = [3,2,1]
Output: 0.30000
Explanation: The set of balls is [1, 1, 1, 2, 2, 3]. It is hard
Probability = 18 / 60 = 0.3

Example 5:

Input: balls = [6,6,6,6,6,6]
Output: 0.90327

Constraints:

- $1 \leq \text{balls.length} \leq 8$
- $1 \leq \text{balls}[i] \leq 6$
- sum(balls) is even.
- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1467-Probability-of-a-Two-Boxes-Having-The-Same-Number-of-Distinct-Balls](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1468. Calculate Salaries

[SQL Schema](#) >

Table Salaries :

Column Name	Type
company_id	int
employee_id	int
employee_name	varchar
salary	int

(company_id, employee_id) is the primary key for this table.
This table contains the company id, the id, the name and the sal

Write an SQL query to find the salaries of the employees after applying taxes.

The tax rate is calculated for each company based on the following criteria:

- 0% If the max salary of any employee in the company is less than 1000\$.
- 24% If the max salary of any employee in the company is in the range [1000, 10000] inclusive.
- 49% If the max salary of any employee in the company is greater than 10000\$.

Return the result table **in any order**. Round the salary to the nearest integer.

The query result format is in the following example:

Salaries table:

company_id	employee_id	employee_name	salary
1	1	Tony	2000
1	2	Pronub	21300
1	3	Tyrrox	10800
2	1	Pam	300
2	7	Bassem	450
2	9	Hermione	700
3	7	Bocaben	100
3	2	Ognjen	2200
3	13	Nyancat	3300
3	15	Morninngcat	1866

Result table:

company_id	employee_id	employee_name	salary
1	1	Tony	1020
1	2	Pronub	10863
1	3	Tyrrox	5508
2	1	Pam	300
2	7	Bassem	450
2	9	Hermione	700
3	7	Bocaben	76
3	2	Ognjen	1672
3	13	Nyancat	2508
3	15	Morninngcat	5911

For company 1, Max salary is 21300. Employees in company 1 have tax rate 10%

For company 2, Max salary is 700. Employees in company 2 have tax rate 10%

For company 3, Max salary is 7777. Employees in company 3 have tax rate 10%

The salary after taxes = salary - (taxes percentage / 100) * salary

For example, Salary for Morninngcat (3, 15) after taxes = 7777 - (7777 * 10 / 100) = 5911

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1468-Calculate-Salaries](#)

All Problems:

[Link to All Problems](#)

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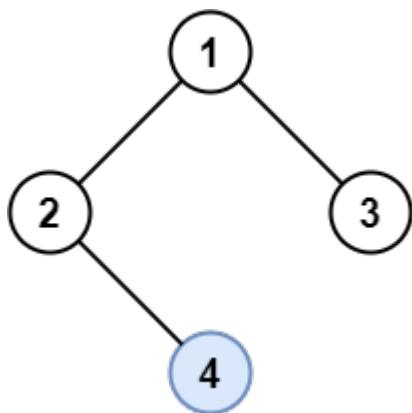
Welcome to Subscribe On Youtube:

1469. Find All the Lonely Nodes

In a binary tree, a **lonely** node is a node that is the only child of its parent node. The root of the tree is not lonely because it does not have a parent node.

Given the `root` of a binary tree, return *an array containing the values of all lonely nodes* in the tree.
Return the list **in any order**.

Example 1:



Input: root = [1,2,3,null,4]

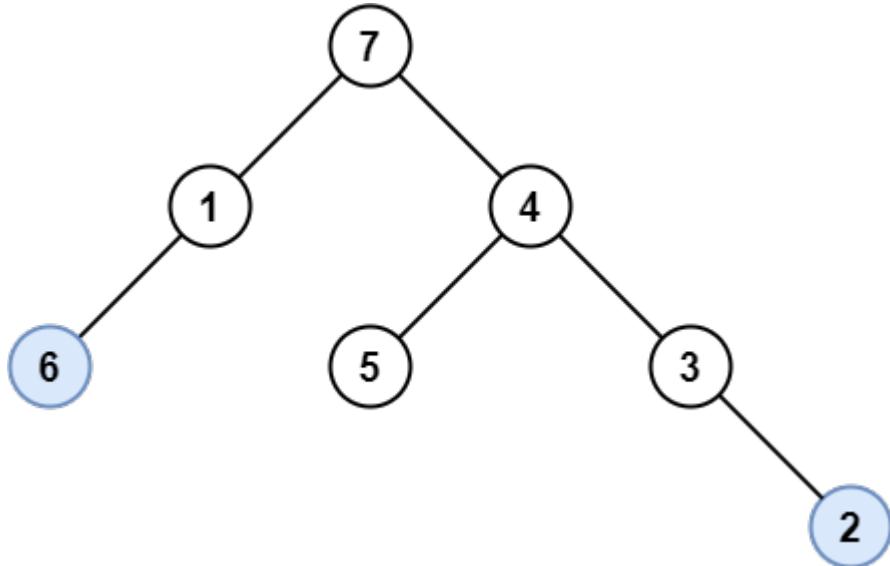
Output: [4]

Explanation: Light blue node is the only lonely node.

Node 1 is the root and is not lonely.

Nodes 2 and 3 have the same parent and are not lonely.

Example 2:



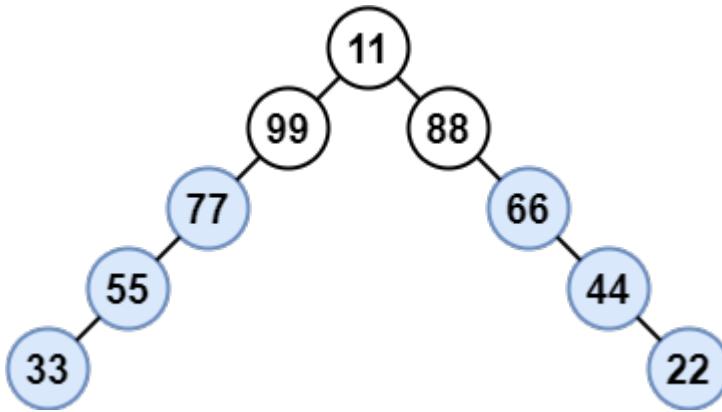
Input: root = [7,1,4,6,null,5,3,null,null,null,null,null,2]

Output: [6,2]

Explanation: Light blue nodes are lonely nodes.

Please remember that order doesn't matter, [2,6] is also an accept

Example 3:



Input: root = [11,99,88,77,null,null,66,55,null,null,44,33,null,22]
 Output: [77,55,33,66,44,22]

Explanation: Nodes 99 and 88 share the same parent. Node 11 is the root. All other nodes are lonely.

Example 4:

Input: root = [197]
 Output: []

Example 5:

Input: root = [31,null,78,null,28]
 Output: [78,28]

Constraints:

- The number of nodes in the tree is in the range [1, 1000].
- Each node's value is between [1, 10^6].

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1469-Find-All-The-Lonely-Nodes](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1470. Shuffle the Array

Given the array `nums` consisting of $2n$ elements in the form $[x_1, x_2, \dots, x_n, y_1, y_2, \dots, y_n]$.

Return the array in the form $[x_1, y_1, x_2, y_2, \dots, x_n, y_n]$.

Example 1:

Input: `nums = [2,5,1,3,4,7]`, $n = 3$

Output: `[2,3,5,4,1,7]`

Explanation: Since $x_1=2$, $x_2=5$, $x_3=1$, $y_1=3$, $y_2=4$, $y_3=7$ then the an-

Example 2:

Input: `nums = [1,2,3,4,4,3,2,1]`, $n = 4$

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

Example 3:

Input: `nums = [1,1,2,2]`, $n = 2$

Output: `[1,2,1,2]`

Constraints:

- $1 \leq n \leq 500$

- `nums.length == 2n`
- `1 <= nums[i] <= 10^3`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1470-Shuffle-the-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1471. The k Strongest Values in an Array

Given an array of integers `arr` and an integer `k` .

A value $\text{arr}[i]$ is said to be stronger than a value $\text{arr}[j]$ if $|\text{arr}[i] - m| > |\text{arr}[j] - m|$ where m is the **median** of the array.

If $|\text{arr}[i] - m| == |\text{arr}[j] - m|$, then $\text{arr}[i]$ is said to be stronger than $\text{arr}[j]$ if $\text{arr}[i] > \text{arr}[j]$.

Return a list of the strongest k values in the array. return the answer **in any arbitrary order**.

Median is the middle value in an ordered integer list.

More formally, if the length of the list is n , the median is the element in position $((n - 1) / 2)$ in the sorted list (**0-indexed**).

- For $\text{arr} = [6, -3, 7, 2, 11]$, $n = 5$ and the median is obtained by sorting the array $\text{arr} = [-3, 2, 6, 7, 11]$ and the median is $\text{arr}[m]$ where $m = ((5 - 1) / 2) = 2$. The median is 6.
- For $\text{arr} = [-7, 22, 17, 3]$, $n = 4$ and the median is obtained by sorting the array $\text{arr} = [-7, 3, 17, 22]$ and the median is $\text{arr}[m]$ where $m = ((4 - 1) / 2) = 1$. The median is 3.

Example 1:

Input: $\text{arr} = [1, 2, 3, 4, 5]$, $k = 2$

Output: $[5, 1]$

Explanation: Median is 3, the elements of the array sorted by the Please note that although $|5 - 3| == |1 - 3|$ but 5 is stronger than 1.

Example 2:

Input: $\text{arr} = [1, 1, 3, 5, 5]$, $k = 2$

Output: $[5, 5]$

Explanation: Median is 3, the elements of the array sorted by the

Example 3:

Input: $\text{arr} = [6, 7, 11, 7, 6, 8]$, $k = 5$

Output: $[11, 8, 6, 6, 7]$

Explanation: Median is 7, the elements of the array sorted by the

Any permutation of $[11, 8, 6, 6, 7]$ is accepted.

Example 4:

Input: $\text{arr} = [6, -3, 7, 2, 11]$, $k = 3$

Output: $[-3, 11, 2]$

Example 5:

Input: arr = [-7,22,17,3], k = 2
Output: [22,17]

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $-10^5 \leq \text{arr}[i] \leq 10^5$
- $1 \leq k \leq \text{arr.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1471-The-k-Strongest-Values-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1472. Design Browser History

You have a **browser** of one tab where you start on the homepage and you can visit another `url` , get back in the history number of steps or move forward in the history number of steps .

Implement the `BrowserHistory` class:

- `BrowserHistory(string homepage)` Initializes the object with the homepage of the browser.
- `void visit(string url)` visits `url` from the current page. It clears up all the forward history.
- `string back(int steps)` Move `steps` back in history. If you can only return `x` steps in the history and `steps > x` , you will return only `x` steps. Return the current `url` after moving back in history **at most** `steps` .
- `string forward(int steps)` Move `steps` forward in history. If you can only forward `x` steps in the history and `steps > x` , you will forward only `x` steps. Return the current `url` after forwarding in history **at most** `steps` .

Example:

Input:

```
["BrowserHistory","visit","visit","visit","back","back","forward"]
[[["leetcode.com"], ["google.com"], ["facebook.com"], ["youtube.com"]]]
```

Output:

```
[null,null,null,null,"facebook.com","google.com","facebook.com",null]
```

Explanation:

```
BrowserHistory browserHistory = new BrowserHistory("leetcode.com")
browserHistory.visit("google.com");           // You are in "leetcode.com"
browserHistory.visit("facebook.com");         // You are in "google.com"
browserHistory.visit("youtube.com");          // You are in "facebook.com"
browserHistory.back(1);                      // You are in "youtube.com"
browserHistory.back(1);                      // You are in "facebook.com"
browserHistory.forward(1);                    // You are in "google.com"
browserHistory.visit("linkedin.com");         // You are in "facebook.com"
browserHistory.forward(2);                   // You are in "linkedin.com"
browserHistory.back(2);                      // You are in "facebook.com"
browserHistory.back(7);                      // You are in "google.com"
```

Constraints:

- $1 \leq \text{homepage.length} \leq 20$
- $1 \leq \text{url.length} \leq 20$
- $1 \leq \text{steps} \leq 100$
- `homepage` and `url` consist of '.' or lower case English letters.
- At most 5000 calls will be made to `visit`, `back`, and `forward`.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1472-Design-Browser-History](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1473. Paint House III

There is a row of m houses in a small city, each house must be painted with one of the n colors (labeled from 1 to n), some houses that has been painted last summer should not be painted again.

A neighborhood is a maximal group of continuous houses that are painted with the same color. (For example: houses = [1,2,2,3,3,2,1,1] contains 5 neighborhoods [{1}, {2,2}, {3,3}, {2}, {1,1}]).

Given an array houses , an $m * n$ matrix cost and an integer target where:

- houses[i] : is the color of the house i , 0 if the house is not painted yet.
- cost[i][j] : is the cost of paint the house i with the color $j+1$.

Return the minimum cost of painting all the remaining houses in such a way that there are exactly target neighborhoods, if not possible return -1 .

Example 1:

Input: houses = [0,0,0,0,0], cost = [[1,10],[10,1],[10,1],[1,10]]
Output: 9
Explanation: Paint houses of this way [1,2,2,1,1]
This array contains target = 3 neighborhoods, [{1}, {2,2}, {1,1}]
Cost of paint all houses (1 + 1 + 1 + 1 + 5) = 9.

Example 2:

Input: houses = [0,2,1,2,0], cost = [[1,10],[10,1],[10,1],[1,10]]
Output: 11
Explanation: Some houses are already painted, Paint the houses o
This array contains target = 3 neighborhoods, [{2,2}, {1}, {2,2}]
Cost of paint the first and last house (10 + 1) = 11.

Example 3:

Input: houses = [0,0,0,0,0], cost = [[1,10],[10,1],[1,10],[10,1]]
Output: 5

Example 4:

Input: houses = [3,1,2,3], cost = [[1,1,1],[1,1,1],[1,1,1],[1,1,1]]
Output: -1
Explanation: Houses are already painted with a total of 4 neighbors.

Constraints:

- $m == \text{houses.length} == \text{cost.length}$
- $n == \text{cost[i].length}$
- $1 \leq m \leq 100$
- $1 \leq n \leq 20$
- $1 \leq \text{target} \leq m$
- $0 \leq \text{houses}[i] \leq n$
- $1 \leq \text{cost}[i][j] \leq 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1473-Paint-House-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1474. Delete N Nodes After M Nodes of a Linked List

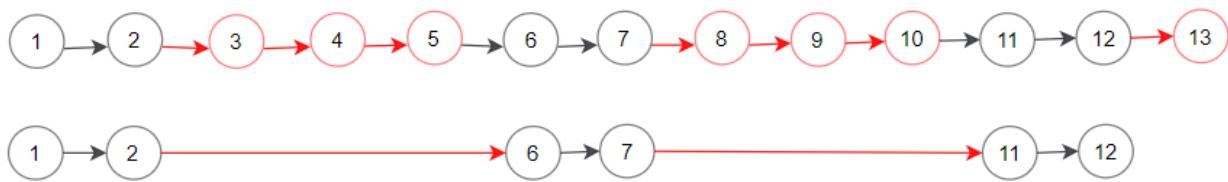
Given the head of a linked list and two integers m and n . Traverse the linked list and remove some nodes in the following way:

- Start with the head as the current node.
- Keep the first m nodes starting with the current node.
- Remove the next n nodes
- Keep repeating steps 2 and 3 until you reach the end of the list.

Return the head of the modified list after removing the mentioned nodes.

Follow up question: How can you solve this problem by modifying the list in-place?

Example 1:

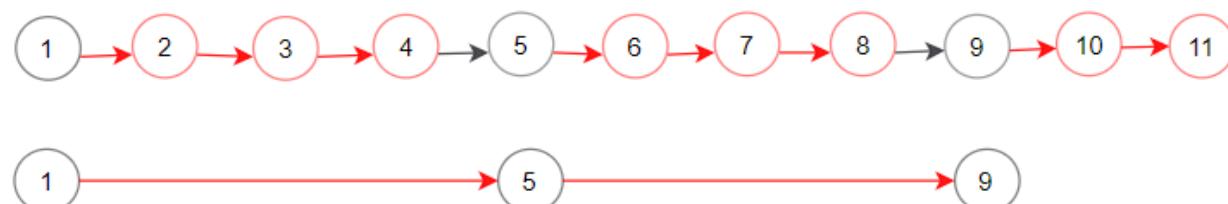


Input: `head = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]`, $m = 2$, $n = 3$

Output: `[1, 2, 6, 7, 11, 12]`

Explanation: Keep the first ($m = 2$) nodes starting from the head. Delete the next ($n = 3$) nodes ($3 \rightarrow 4 \rightarrow 5$) shown in red nodes. Continue with the same procedure until reaching the tail of the list. Head of linked list after removing nodes is returned.

Example 2:



Input: head = [1,2,3,4,5,6,7,8,9,10,11], m = 1, n = 3

Output: [1,5,9]

Explanation: Head of linked list after removing nodes is returned

Example 3:

Input: head = [1,2,3,4,5,6,7,8,9,10,11], m = 3, n = 1

Output: [1,2,3,5,6,7,9,10,11]

Example 4:

Input: head = [9,3,7,7,9,10,8,2], m = 1, n = 2

Output: [9,7,8]

Constraints:

- The given linked list will contain between 1 and 10^4 nodes.
- The value of each node in the linked list will be in the range $[1, 10^6]$.
- $1 \leq m, n \leq 1000$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1474-Delete-N-Nodes-After-M-Nodes-of-a-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1475. Final Prices With a Special Discount in a Shop

Given the array `prices` where `prices[i]` is the price of the `i`th item in a shop. There is a special discount for items in the shop, if you buy the `i`th item, then you will receive a discount equivalent to `prices[j]` where `j` is the **minimum** index such that `j > i` and `prices[j] <= prices[i]`, otherwise, you will not receive any discount at all.

Return an array where the `i`th element is the final price you will pay for the `i`th item of the shop considering the special discount.

Example 1:

Input: `prices = [8,4,6,2,3]`

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

Explanation:

For item 0 with `price[0]=8` you will receive a discount equivalent

For item 1 with `price[1]=4` you will receive a discount equivalent

For item 2 with `price[2]=6` you will receive a discount equivalent

For items 3 and 4 you will not receive any discount at all.

Example 2:

Input: `prices = [1,2,3,4,5]`

Output: `[1,2,3,4,5]`

Explanation: In this case, for all items, you will not receive any discount at all.

Example 3:

Input: prices = [10,1,1,6]
Output: [9,0,1,6]

Constraints:

- $1 \leq \text{prices.length} \leq 500$
- $1 \leq \text{prices}[i] \leq 10^3$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1475-Final-Prices-With-a-Special-Discount-in-a-Shop](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1476. Subrectangle Queries

Implement the class `SubrectangleQueries` which receives a `rows x cols` rectangle as a matrix of integers in the constructor and supports two methods:

1. `updateSubrectangle(int row1, int col1, int row2, int col2, int newValue)`

- Updates all values with `newValue` in the subrectangle whose upper left coordinate is `(row1, col1)` and bottom right coordinate is `(row2, col2)`.

2. `getValue(int row, int col)`

- Returns the current value of the coordinate `(row, col)` from the rectangle.

Example 1:

```
Input
["SubrectangleQueries","getValue","updateSubrectangle","getValue"
[[[[1,2,1],[4,3,4],[3,2,1],[1,1,1]]],[0,2],[0,0,3,2,5],[0,2],[3,
Output
[null,1,null,5,5,null,10,5]
Explanation
SubrectangleQueries subrectangleQueries = new SubrectangleQueries();
// The initial rectangle (4x3) looks like:
// 1 2 1
// 4 3 4
// 3 2 1
// 1 1 1
subrectangleQueries.getValue(0, 2); // return 1
subrectangleQueries.updateSubrectangle(0, 0, 3, 2, 5);
// After this update the rectangle looks like:
// 5 5 5
// 5 5 5
// 5 5 5
// 5 5 5
subrectangleQueries.getValue(0, 2); // return 5
subrectangleQueries.getValue(3, 1); // return 5
subrectangleQueries.updateSubrectangle(3, 0, 3, 2, 10);
// After this update the rectangle looks like:
// 5 5 5
// 5 5 5
// 5 5 5
// 10 10 10
subrectangleQueries.getValue(3, 1); // return 10
subrectangleQueries.getValue(0, 2); // return 5
```

Example 2:

```
Input
["SubrectangleQueries","getValue","updateSubrectangle","getValue"
[[[[1,1,1],[2,2,2],[3,3,3]],[[0,0],[0,0,2,2,100],[0,0],[2,2],[1,
Output
[null,1,null,100,100,null,20]
Explanation
SubrectangleQueries subrectangleQueries = new SubrectangleQueries();
subrectangleQueries.getValue(0, 0); // return 1
subrectangleQueries.updateSubrectangle(0, 0, 2, 2, 100);
subrectangleQueries.getValue(0, 0); // return 100
subrectangleQueries.getValue(2, 2); // return 100
subrectangleQueries.updateSubrectangle(1, 1, 2, 2, 20);
subrectangleQueries.getValue(2, 2); // return 20
```

Constraints:

- There will be at most 500 operations considering both methods: `updateSubrectangle` and `getValue`.
- $1 \leq \text{rows}, \text{cols} \leq 100$
- $\text{rows} == \text{rectangle.length}$
- $\text{cols} == \text{rectangle[i].length}$
- $0 \leq \text{row1} \leq \text{row2} < \text{rows}$
- $0 \leq \text{col1} \leq \text{col2} < \text{cols}$
- $1 \leq \text{newValue}, \text{rectangle[i][j]} \leq 10^9$
- $0 \leq \text{row} < \text{rows}$
- $0 \leq \text{col} < \text{cols}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1476-Subrectangle-Queries](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1477. Find Two Non-overlapping Sub-arrays Each With Target Sum

Given an array of integers arr and an integer target .

You have to find **two non-overlapping sub-arrays** of arr each with sum equal target . There can be multiple answers so you have to find an answer where the sum of the lengths of the two sub-arrays is **minimum** .

Return *the minimum sum of the lengths* of the two required sub-arrays, or return -1 if you cannot find such two sub-arrays.

Example 1:

Input: arr = [3,2,2,4,3], target = 3

Output: 2

Explanation: Only two sub-arrays have sum = 3 ([3] and [3]). The

Example 2:

Input: arr = [7,3,4,7], target = 7
Output: 2
Explanation: Although we have three non-overlapping sub-arrays of sum = 7, we can only choose two.

Example 3:

Input: arr = [4,3,2,6,2,3,4], target = 6
Output: -1
Explanation: We have only one sub-array of sum = 6.

Example 4:

Input: arr = [5,5,4,4,5], target = 3
Output: -1
Explanation: We cannot find a sub-array of sum = 3.

Example 5:

Input: arr = [3,1,1,1,5,1,2,1], target = 3
Output: 3
Explanation: Note that sub-arrays [1,2] and [2,1] cannot be an answer as they overlap.

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 1000$
- $1 \leq \text{target} \leq 10^8$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1477-Find-Two-Non-overlapping-Sub-arrays-Each-With-Target-Sum](#)

All Problems:

[Link to All Problems](#)

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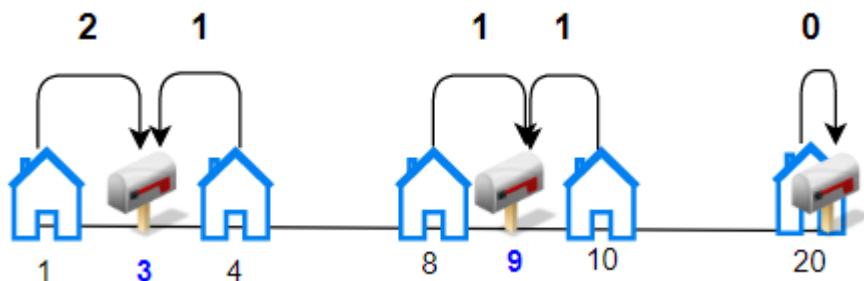
1478. Allocate Mailboxes

Given the array `houses` and an integer `k`. where `houses[i]` is the location of the `i`th house along a street, your task is to allocate `k` mailboxes in the street.

Return the **minimum** total distance between each house and its nearest mailbox.

The answer is guaranteed to fit in a 32-bit signed integer.

Example 1:

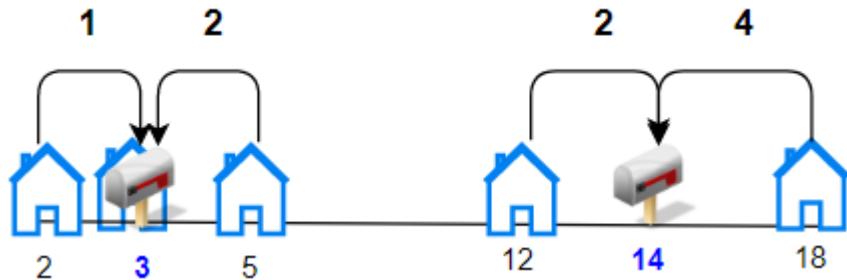


Input: `houses = [1, 4, 8, 10, 20]`, `k = 3`

Output: 5

Explanation: Allocate mailboxes in position 3, 9 and 20. Minimum total distance from each houses to nearest mailboxes is

Example 2:



Input: houses = [2,3,5,12,18], k = 2
 Output: 9

Explanation: Allocate mailboxes in position 3 and 14.
 Minimum total distance from each houses to nearest mailboxes is

Example 3:

Input: houses = [7,4,6,1], k = 1
 Output: 8

Example 4:

Input: houses = [3,6,14,10], k = 4
 Output: 0

Constraints:

- n == houses.length
- 1 <= n <= 100
- 1 <= houses[i] <= 10^4
- 1 <= k <= n
- Array houses contain unique integers.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1478-Allocate-Mailboxes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1479. Sales by Day of the Week

SQL Schema >

Table: Orders

Column Name	Type
order_id	int
customer_id	int
order_date	date
item_id	varchar
quantity	int

(ordered_id, item_id) is the primary key for this table.
This table contains information of the orders placed.
order_date is the date when item_id was ordered by the customer

Table: Items

Column Name	Type
item_id	varchar
item_name	varchar

```

| item_category      | varchar |
+-----+-----+
item_id is the primary key for this table.
item_name is the name of the item.
item_category is the category of the item.

```

You are the business owner and would like to obtain a sales report for category items and day of the week.

Write an SQL query to report how many units in each category have been ordered on each **day of the week**.

Return the result table **ordered** by category.

The query result format is in the following example:

Orders table:

order_id	customer_id	order_date	item_id	quant
1	1	2020-06-01	1	10
2	1	2020-06-08	2	10
3	2	2020-06-02	1	5
4	3	2020-06-03	3	5
5	4	2020-06-04	4	1
6	4	2020-06-05	5	5
7	5	2020-06-05	1	10
8	5	2020-06-14	4	5
9	5	2020-06-21	3	5

Items table:

item_id	item_name	item_category
1	LC Alg. Book	Book
2	LC DB. Book	Book
3	LC SmarthPhone	Phone
4	LC Phone 2020	Phone
5	LC SmartGlass	Glasses
6	LC T-Shirt XL	T-Shirt

Result table:

Category	Monday	Tuesday	Wednesday	Thursday	F
Book	20	5	0	0	10
Glasses	0	0	0	0	5
Phone	0	0	5	1	0
T-Shirt	0	0	0	0	0

On Monday (2020-06-01, 2020-06-08) were sold a total of 20 units

On Tuesday (2020-06-02) were sold a total of 5 units in the category Book (Book).
On Wednesday (2020-06-03) were sold a total of 5 units in the category Book (Book).
On Thursday (2020-06-04) were sold a total of 1 unit in the category Book (Book).
On Friday (2020-06-05) were sold 10 units in the category Book (Book).
On Saturday there are no items sold.
On Sunday (2020-06-14, 2020-06-21) were sold a total of 10 units in the category Book (Book).
There are no sales of T-Shirt.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1479-Sales-by-Day-of-the-Week](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1480. Running Sum of 1d Array

Given an array `nums` . We define a running sum of an array as `runningSum[i] = sum(nums[0] + ... + nums[i])`

.

Return the running sum of `nums` .

Example 1:

Input: `nums = [1,2,3,4]`

Output: `[1,3,6,10]`

Explanation: Running sum is obtained as follows: `[1, 1+2, 1+2+3,`

Example 2:

Input: `nums = [1,1,1,1,1]`

Output: `[1,2,3,4,5]`

Explanation: Running sum is obtained as follows: `[1, 1+1, 1+1+1,`

Example 3:

Input: `nums = [3,1,2,10,1]`

Output: `[3,4,6,16,17]`

Constraints:

- `1 <= nums.length <= 1000`
- `-10^6 <= nums[i] <= 10^6`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1480-Running-Sum-of-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1481. Least Number of Unique Integers after K Removals

Given an array of integers arr and an integer k . Find the *least number of unique integers* after removing **exactly k** elements .

Example 1:

Input: arr = [5,5,4] , k = 1

Output: 1

Explanation: Remove the single 4, only 5 is left.

Example 2:

Input: arr = [4,3,1,1,3,3,2] , k = 3

Output: 2

Explanation: Remove 4, 2 and either one of the two 1s or three 3s.

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 10^9$
- $0 \leq k \leq \text{arr.length}$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1481-Least-Number-of-Unique-Integers-after-K-Removals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1482. Minimum Number of Days to Make m Bouquets

Given an integer array `bloomDay` , an integer `m` and an integer `k` .

We need to make m bouquets. To make a bouquet, you need to use k **adjacent flowers** from the garden.

The garden consists of n flowers, the i th flower will bloom in the `bloomDay[i]` and then can be used in **exactly one** bouquet.

Return *the minimum number of days* you need to wait to be able to make m bouquets from the garden. If it is impossible to make m bouquets return **-1**.

Example 1:

Input: `bloomDay = [1,10,3,10,2]`, $m = 3$, $k = 1$
Output: 3

Explanation: Let's see what happened in the first three days. x
We need 3 bouquets each should contain 1 flower.
After day 1: `[x, _, _, _, _]` // we can only make one bouquet.
After day 2: `[x, _, _, _, x]` // we can only make two bouquets.
After day 3: `[x, _, x, _, x]` // we can make 3 bouquets. The answer is 3.

Example 2:

Input: `bloomDay = [1,10,3,10,2]`, $m = 3$, $k = 2$
Output: -1

Explanation: We need 3 bouquets each has 2 flowers, that means we need at least 6 flowers.

Example 3:

Input: `bloomDay = [7,7,7,7,12,7,7]`, $m = 2$, $k = 3$
Output: 12

Explanation: We need 2 bouquets each should have 3 flowers.

Here's the garden after the 7 and 12 days:

After day 7: `[x, x, x, x, _, x, x]`
We can make one bouquet of the first three flowers that bloomed.
After day 12: `[x, x, x, x, x, x, x]`
It is obvious that we can make two bouquets in different ways.

Example 4:

Input: `bloomDay = [1000000000,1000000000]`, $m = 1$, $k = 1$
Output: 1000000000
Explanation: You need to wait 1000000000 days to have a flower ready.

Example 5:

Input: `bloomDay = [1,10,2,9,3,8,4,7,5,6]`, $m = 4$, $k = 2$
Output: 9

Constraints:

- `bloomDay.length == n`

- $1 \leq n \leq 10^5$
- $1 \leq bloomDay[i] \leq 10^9$
- $1 \leq m \leq 10^6$
- $1 \leq k \leq n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1482-Minimum-Number-of-Days-to-Make-m-Bouquets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

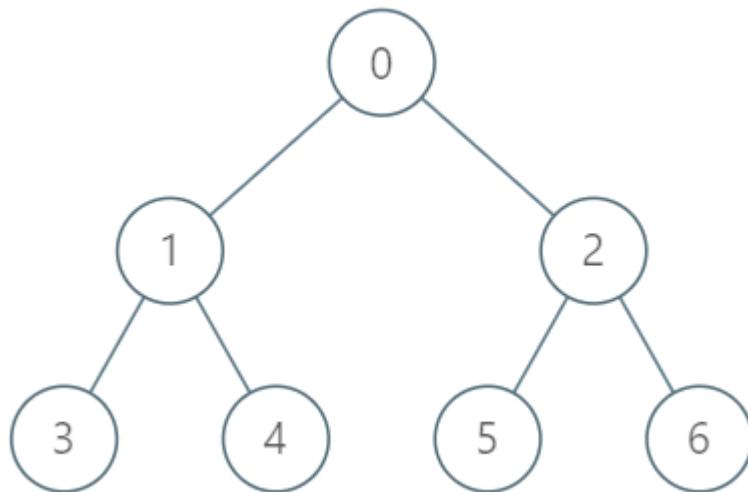
1483. Kth Ancestor of a Tree Node

You are given a tree with n nodes numbered from 0 to $n-1$ in the form of a parent array where $\text{parent}[i]$ is the parent of node i . The root of the tree is node 0 .

Implement the function `getKthAncestor (int node, int k)` to return the k -th ancestor of the given node. If there is no such ancestor, return -1 .

The k -th ancestor of a tree node is the k -th node in the path from that node to the root.

Example:



Input:

```
["TreeAncestor", "getKthAncestor", "getKthAncestor", "getKthAncesto  
[[7, [-1, 0, 0, 1, 1, 2, 2]], [3, 1], [5, 2], [6, 3]]
```

Output:

```
[null, 1, 0, -1]
```

Explanation:

```
TreeAncestor treeAncestor = new TreeAncestor(7, [-1, 0, 0, 1, 1,
```

```
treeAncestor.getKthAncestor(3, 1); // returns 1 which is the pa  
treeAncestor.getKthAncestor(5, 2); // returns 0 which is the gr  
treeAncestor.getKthAncestor(6, 3); // returns -1 because there
```

Constraints:

- $1 \leq k \leq n \leq 5 \times 10^4$

- `parent[0] == -1` indicating that 0 is the root node.
- $0 \leq \text{parent}[i] < n$ for all $0 < i < n$
- $0 \leq \text{node} < n$
- There will be at most $5 * 10^4$ queries.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1483-Kth-Ancestor-of-a-Tree-Node](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1484. Group Sold Products By The Date

[SQL Schema](#) >

Table Activities :

Column Name	Type
sell_date	date
product	varchar

There is no primary key for this table, it may contains duplicates.
Each row of this table contains the product name and the date it was sold.

Write an SQL query to find for each date, the number of distinct products sold and their names.

The sold-products names for each date should be sorted lexicographically.

Return the result table ordered by sell_date .

The query result format is in the following example.

Activities table:

sell_date	product
2020-05-30	Headphone
2020-06-01	Pencil
2020-06-02	Mask
2020-05-30	Basketball
2020-06-01	Bible
2020-06-02	Mask
2020-05-30	T-Shirt

Result table:

sell_date	num_sold	products
2020-05-30	3	Basketball,Headphone,T-shirt
2020-06-01	2	Bible,Pencil
2020-06-02	1	Mask

For 2020-05-30, Sold items were (Headphone, Basketball, T-shirt)
For 2020-06-01, Sold items were (Pencil, Bible), we sort them lexicographically.

For 2020-06-02, Sold item is (Masks), we just return it.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1484-Group-Sold-Products-By-The-Date](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1485. Clone Binary Tree With Random Pointer

A binary tree is given such that each node contains an additional random pointer which could point to any node in the tree or null.

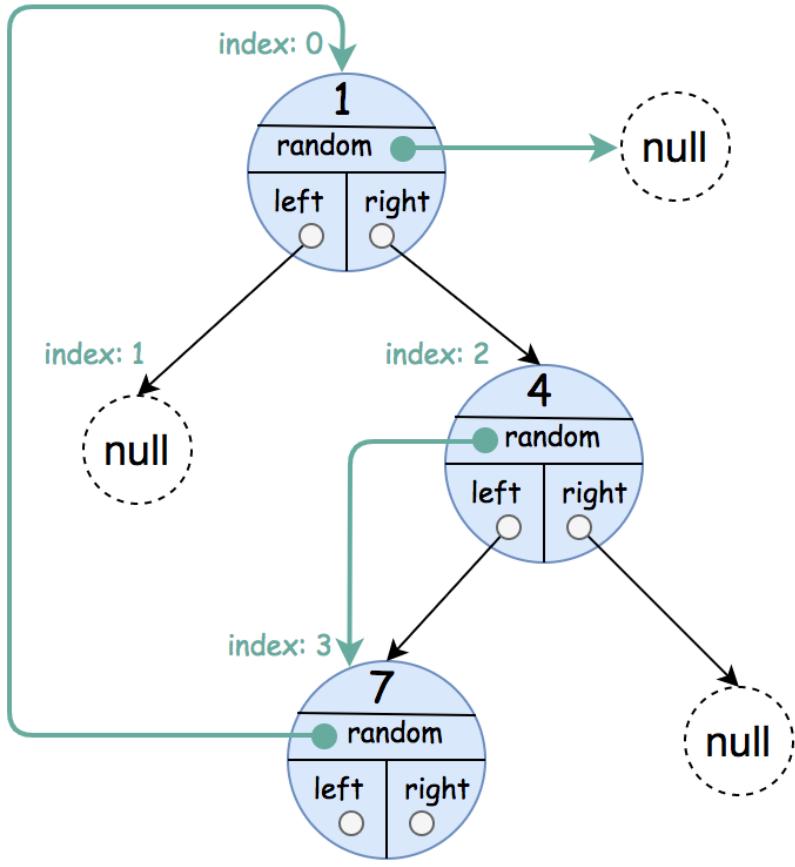
Return a deep copy of the tree.

The tree is represented in the same input/output way as normal binary trees where each node is represented as a pair of `[val, random_index]` where:

- `val` : an integer representing `Node.val`
- `random_index` : the index of the node (in the input) where the random pointer points to, or `null` if it does not point to any node.

You will be given the tree in class `Node` and you should return the cloned tree in class `NodeCopy` . `NodeCopy` class is just a clone of `Node` class with the same attributes and constructors.

Example 1:



Input: root = [[1,null],null,[4,3],[7,0]]

Output: [[1,null],null,[4,3],[7,0]]

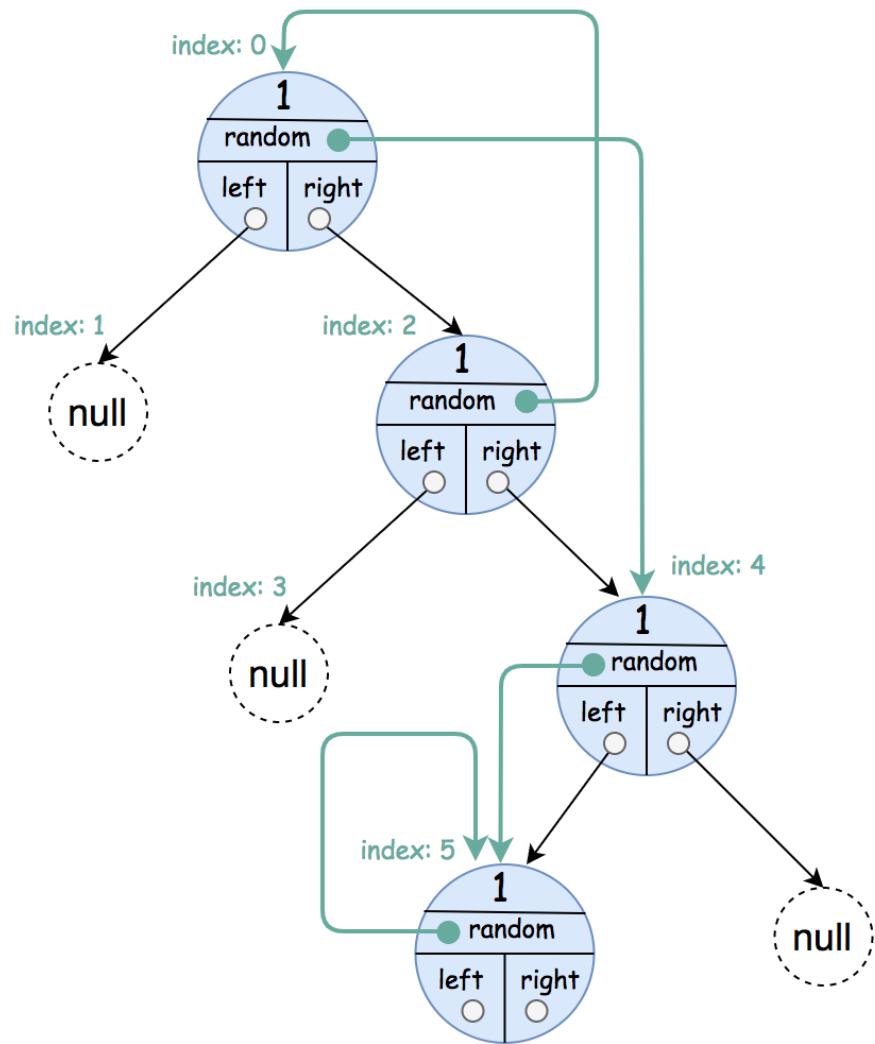
Explanation: The original binary tree is [1,null,4,7].

The random pointer of node one is null, so it is represented as

The random pointer of node 4 is node 7, so it is represented as

The random pointer of node 7 is node 1, so it is represented as

Example 2:

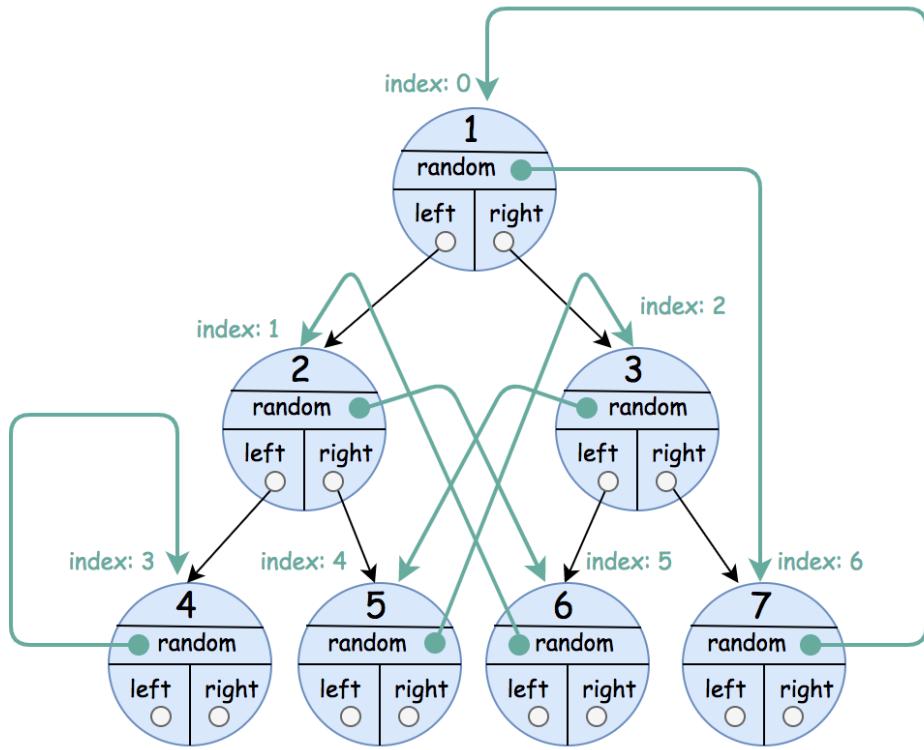


Input: root = [[1,4],null,[1,0],null,[1,5],[1,5]]

Output: [[1,4],null,[1,0],null,[1,5],[1,5]]

Explanation: The random pointer of a node can be the node itself

Example 3:



Input: `root = [[1,6],[2,5],[3,4],[4,3],[5,2],[6,1],[7,0]]`
 Output: `[[1,6],[2,5],[3,4],[4,3],[5,2],[6,1],[7,0]]`

Example 4:

Input: `root = []`
 Output: `[]`

Example 5:

Input: `root = [[1,null],null,[2,null],null,[1,null]]`
 Output: `[[1,null],null,[2,null],null,[1,null]]`

Constraints:

- The number of nodes in the tree is in the range $[0, 1000]$.
- Each node's value is between $[1, 10^6]$.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1485-Clone-Binary-Tree-With-Random-Pointer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1486. XOR Operation in an Array

Given an integer `n` and an integer `start` .

Define an array `nums` where `nums[i] = start + 2*i` (0-indexed) and `n == nums.length` .

Return the bitwise XOR of all elements of `nums` .

Example 1:

`Input: n = 5, start = 0`

`Output: 8`

`Explanation: Array nums is equal to [0, 2, 4, 6, 8] where (0 ^ 2 ^ 4 ^ 6 ^ 8) = 8`
Where "`^`" corresponds to bitwise XOR operator.

Example 2:

Input: n = 4, start = 3

Output: 8

Explanation: Array nums is equal to [3, 5, 7, 9] where $(3 \wedge 5 \wedge 7 \wedge 9) = 8$

Example 3:

Input: n = 1, start = 7

Output: 7

Example 4:

Input: n = 10, start = 5

Output: 2

Constraints:

- $1 \leq n \leq 1000$
- $0 \leq \text{start} \leq 1000$
- $n == \text{nums.length}$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1486-XOR-Operation-in-an-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1487. Making File Names Unique

Given an array of strings `names` of size `n`. You will create `n` folders in your file system **such that**, at the `i`th minute, you will create a folder with the name `names[i]`.

Since two files **cannot** have the same name, if you enter a folder name which is previously used, the system will have a suffix addition to its name in the form of `(k)`, where, `k` is the **smallest positive integer** such that the obtained name remains unique.

Return *an array of strings of length n* where `ans[i]` is the actual name the system will assign to the `i`th folder when you create it.

Example 1:

Input: `names = ["pes", "fifa", "gta", "pes(2019)"]`

Output: `["pes", "fifa", "gta", "pes(2019)"]`

Explanation: Let's see how the file system creates folder names:
"pes" --> not assigned before, remains "pes"
"fifa" --> not assigned before, remains "fifa"
"gta" --> not assigned before, remains "gta"
"pes(2019)" --> not assigned before, remains "pes(2019)"

Example 2:

Input: `names = ["gta", "gta(1)", "gta", "avalon"]`

Output: `["gta", "gta(1)", "gta(2)", "avalon"]`

Explanation: Let's see how the file system creates folder names:
"gta" --> not assigned before, remains "gta"
"gta(1)" --> not assigned before, remains "gta(1)"
"gta" --> the name is reserved, system adds (k), since "gta(1)"
"avalon" --> not assigned before, remains "avalon"

Example 3:

Input: names = ["oneweek", "oneweek(1)", "oneweek(2)", "oneweek(3)"]
Output: ["oneweek", "oneweek(1)", "oneweek(2)", "oneweek(3)", "oneweek(4)"]
Explanation: When the last folder is created, the smallest positive integer value k is increased by 1.

Example 4:

Input: names = ["wano", "wano", "wano", "wano"]
Output: ["wano", "wano(1)", "wano(2)", "wano(3)"]
Explanation: Just increase the value of k each time you create folder.

Example 5:

Input: names = ["kaido", "kaido(1)", "kaido", "kaido(1)"]
Output: ["kaido", "kaido(1)", "kaido(2)", "kaido(1)(1)"]
Explanation: Please note that system adds the suffix (k) to current folder.

Constraints:

- $1 \leq \text{names.length} \leq 5 * 10^4$
- $1 \leq \text{names[i].length} \leq 20$
- names[i] consists of lower case English letters, digits and/or round brackets.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1487-Making-File-Names-Unique](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1488. Avoid Flood in The City

Your country has an infinite number of lakes. Initially, all the lakes are empty, but when it rains over the n^{th} lake, the n^{th} lake becomes full of water. If it rains over a lake which is **full of water**, there will be a **flood**. Your goal is to avoid the flood in any lake.

Given an integer array `rains` where:

- `rains[i] > 0` means there will be rains over the `rains[i]` lake.
- `rains[i] == 0` means there are no rains this day and you can choose **one lake** this day and **dry it**.

Return an array `ans` where:

- `ans.length == rains.length`
- `ans[i] == -1` if `rains[i] > 0`.
- `ans[i]` is the lake you choose to dry in the i^{th} day if `rains[i] == 0`.

If there are multiple valid answers return **any** of them. If it is impossible to avoid flood return **an empty array**.

Notice that if you chose to dry a full lake, it becomes empty, but if you chose to dry an empty lake, nothing changes. (see example 4)

Example 1:

```
Input: rains = [1,2,3,4]
Output: [-1,-1,-1,-1]
Explanation: After the first day full lakes are [1]
After the second day full lakes are [1,2]
After the third day full lakes are [1,2,3]
After the fourth day full lakes are [1,2,3,4]
There's no day to dry any lake and there is no flood in any lake
```

Example 2:

```
Input: rains = [1,2,0,0,2,1]
Output: [-1,-1,2,1,-1,-1]
Explanation: After the first day full lakes are [1]
After the second day full lakes are [1,2]
After the third day, we dry lake 2. Full lakes are [1]
After the fourth day, we dry lake 1. There is no full lakes.
After the fifth day, full lakes are [2].
After the sixth day, full lakes are [1,2].
It is easy that this scenario is flood-free. [-1,-1,1,2,-1,-1] is
```

Example 3:

```
Input: rains = [1,2,0,1,2]
Output: []
Explanation: After the second day, full lakes are [1,2]. We have
After that, it will rain over lakes [1,2]. It's easy to prove that
```

Example 4:

```
Input: rains = [69,0,0,0,69]
Output: [-1,69,1,1,-1]
Explanation: Any solution on one of the forms [-1,69,x,y,-1], [-1,
```

Example 5:

```
Input: rains = [10,20,20]
Output: []
Explanation: It will rain over lake 20 two consecutive days. The
```

Constraints:

- $1 \leq \text{rains.length} \leq 10^5$
- $0 \leq \text{rains}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1488-Avoid-Flood-in-The-City](#)

All Problems:

[Link to All Problems](#)

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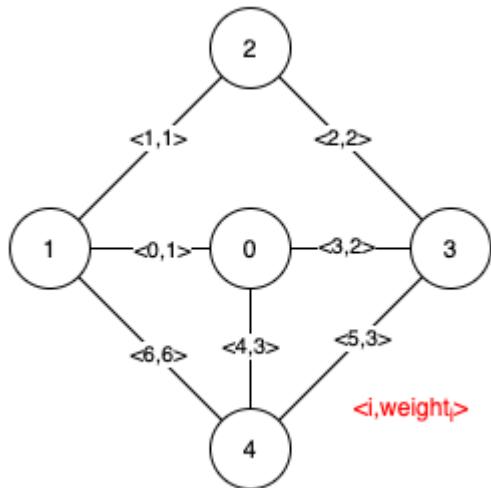
1489. Find Critical and Pseudo-Critical Edges in Minimum Spanning Tree

Given a weighted undirected connected graph with n vertices numbered from 0 to $n-1$, and an array edges where $\text{edges}[i] = [\text{from}_i, \text{to}_i, \text{weight}_i]$ represents a bidirectional and weighted edge between nodes from_i and to_i . A minimum spanning tree (MST) is a subset of the edges of the graph that connects all vertices without cycles and with the minimum possible total edge weight.

Find all the critical and pseudo-critical edges in the minimum spanning tree (MST) of the given graph . An MST edge whose deletion from the graph would cause the MST weight to increase is called a *critical edge* . A *pseudo-critical edge* , on the other hand, is that which can appear in some MSTs but not all.

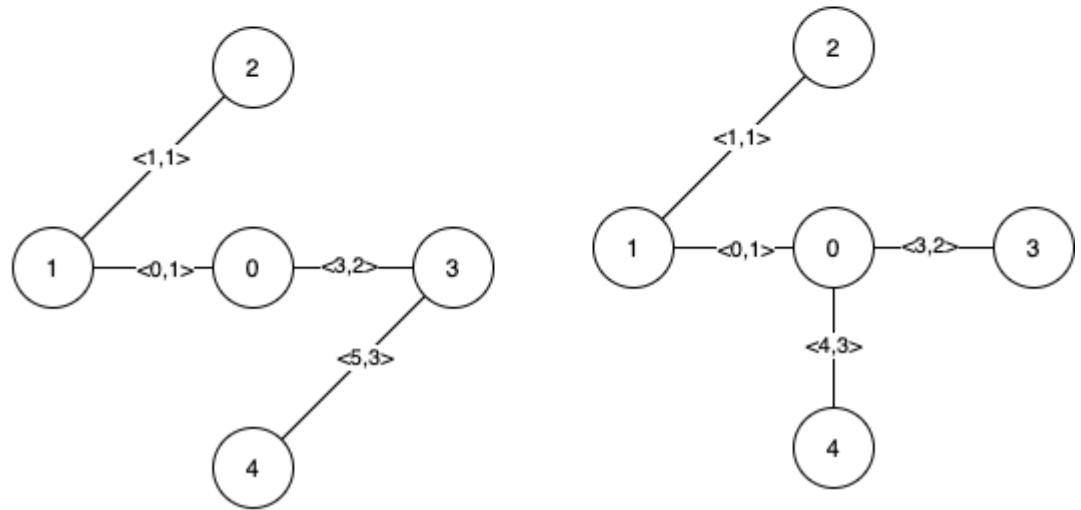
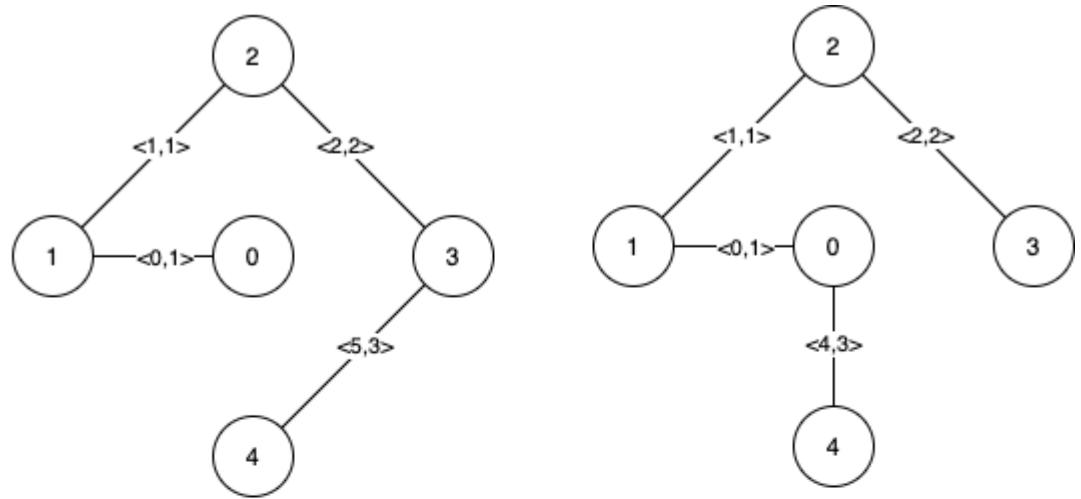
Note that you can return the indices of the edges in any order.

Example 1:



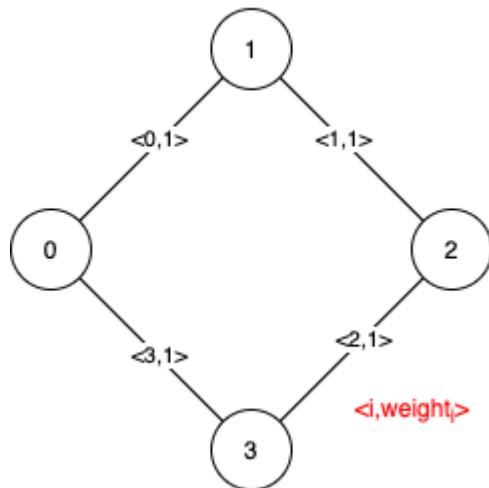
Input: $n = 5$, edges = $[[0, 1, 1], [1, 2, 1], [2, 3, 2], [0, 3, 2], [0, 4, 3], [1, 4, 6]]$
Output: $[[0, 1], [2, 3, 4, 5]]$

Explanation: The figure above describes the graph.
The following figure shows all the possible MSTs:



Notice that the two edges 0 and 1 appear in all MSTs, therefore they are part of every MST.
 The edges 2, 3, 4, and 5 are only part of some MSTs, therefore they are part of some MSTs.

Example 2:



Input: n = 4, edges = [[0,1,1],[1,2,1],[2,3,1],[0,3,1]]
Output: [[], [0,1,2,3]]
Explanation: We can observe that since all 4 edges have equal weight.

Constraints:

- $2 \leq n \leq 100$
- $1 \leq \text{edges.length} \leq \min(200, n * (n - 1) / 2)$
- $\text{edges}[i].length == 3$
- $0 \leq \text{from}_i < \text{to}_i < n$
- $1 \leq \text{weight}_i \leq 1000$
- All pairs (from_i , to_i) are distinct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1489-Find-Critical-and-Pseudo-Critical-Edges-in-Minimum-Spanning-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1490. Clone N-ary Tree

Given a root of an N-ary tree, return a [deep copy](#) (clone) of the tree.

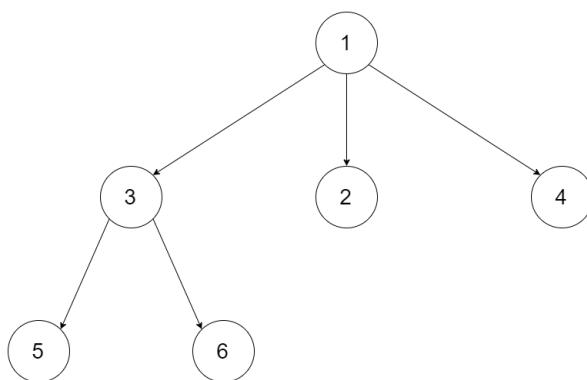
Each node in the n-ary tree contains a val (int) and a list (List[Node]) of its children.

```
class Node {  
    public int val;  
    public List<Node> children;  
}
```

Nary-Tree input serialization is represented in their level order traversal, each group of children is separated by the null value (See examples).

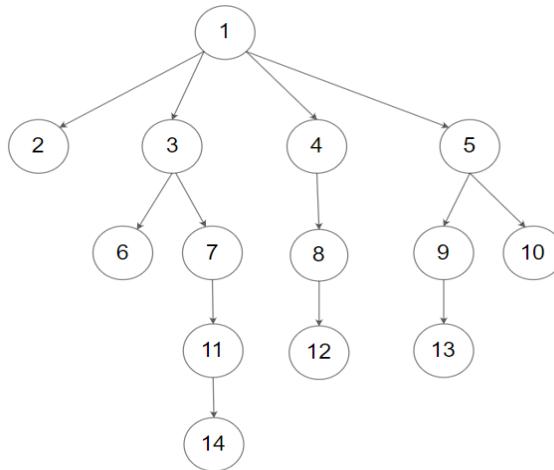
Follow up: Can your solution work for the [graph problem](#) ?

Example 1:



Input: root = [1,null,3,2,4,null,5,6]
Output: [1,null,3,2,4,null,5,6]

Example 2:



Input: root = [1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null]
Output: [1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null,null]

Constraints:

- The depth of the n-ary tree is less than or equal to 1000 .
- The total number of nodes is between [0 , 10^4] .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1490-Clone-N-ary-Tree](#)

All Problems:

[Link to All Problems](#)

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1491. Average Salary Excluding the Minimum and Maximum Salary

Given an array of **unique** integers salary where salary[i] is the salary of the employee i .

Return the average salary of employees excluding the minimum and maximum salary.

Example 1:

Input: salary = [4000,3000,1000,2000]
Output: 2500.00000

Explanation: Minimum salary and maximum salary are 1000 and 4000
Average salary excluding minimum and maximum salary is (2000+3000)/2=

Example 2:

Input: salary = [1000,2000,3000]
Output: 2000.00000

Explanation: Minimum salary and maximum salary are 1000 and 3000
Average salary excluding minimum and maximum salary is (2000)/2=

Example 3:

Input: salary = [6000,5000,4000,3000,2000,1000]
Output: 3500.00000

Example 4:

Input: salary = [8000,9000,2000,3000,6000,1000]
Output: 4750.00000

Constraints:

- $3 \leq \text{salary.length} \leq 100$
- $10^3 \leq \text{salary}[i] \leq 10^6$
- $\text{salary}[i]$ is unique.
- Answers within 10^{-5} of the actual value will be accepted as correct.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1491-Average-Salary-Excluding-the-Minimum-and-Maximum-Salary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1492. The kth Factor of n

Given two positive integers n and k .

A factor of an integer n is defined as an integer i where $n \% i == 0$.

Consider a list of all factors of n sorted in **ascending order**, return *the kth factor* in this list or return **-1** if n has less than k factors.

Example 1:

Input: $n = 12$, $k = 3$

Output: 3

Explanation: Factors list is [1, 2, 3, 4, 6, 12], the 3rd factor

Example 2:

Input: $n = 7$, $k = 2$

Output: 7

Explanation: Factors list is [1, 7], the 2nd factor is 7.

Example 3:

Input: $n = 4$, $k = 4$

Output: -1

Explanation: Factors list is [1, 2, 4], there is only 3 factors.

Example 4:

Input: $n = 1$, $k = 1$

Output: 1

Explanation: Factors list is [1], the 1st factor is 1.

Example 5:

Input: $n = 1000$, $k = 3$

Output: 4

Explanation: Factors list is [1, 2, 4, 5, 8, 10, 20, 25, 40, 50,

Constraints:

- $1 \leq k \leq n \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1492-The-kth-Factor-of-n](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1493. Longest Subarray of 1's After Deleting One Element

Given a binary array `nums` , you should delete one element from it.

Return the size of the longest non-empty subarray containing only 1's in the resulting array.

Return 0 if there is no such subarray.

Example 1:

Input: nums = [1,1,0,1]

Output: 3

Explanation: After deleting the number in position 2, [1,1,1] contains 3 ones.

Example 2:

Input: nums = [0,1,1,1,0,1,1,0,1]

Output: 5

Explanation: After deleting the number in position 4, [0,1,1,1,1] contains 5 ones.

Example 3:

Input: nums = [1,1,1]

Output: 2

Explanation: You must delete one element.

Example 4:

Input: nums = [1,1,0,0,1,1,1,0,1]

Output: 4

Example 5:

Input: nums = [0,0,0]

Output: 0

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $\text{nums}[i]$ is either 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1493-Longest-Subarray-of-1's-After-Deleting-One-Element](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

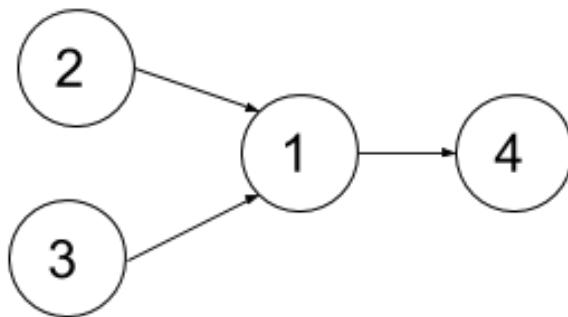
1494. Parallel Courses II

Given the integer n representing the number of courses at some university labeled from 1 to n , and the array `dependencies` where $\text{dependencies}[i] = [x_i, y_i]$ represents a prerequisite relationship, that is, the course x_i must be taken before the course y_i . Also, you are given the integer k .

In one semester you can take **at most** k courses as long as you have taken all the prerequisites for the courses you are taking.

Return the minimum number of semesters to take all courses. It is guaranteed that you can take all courses in some way.

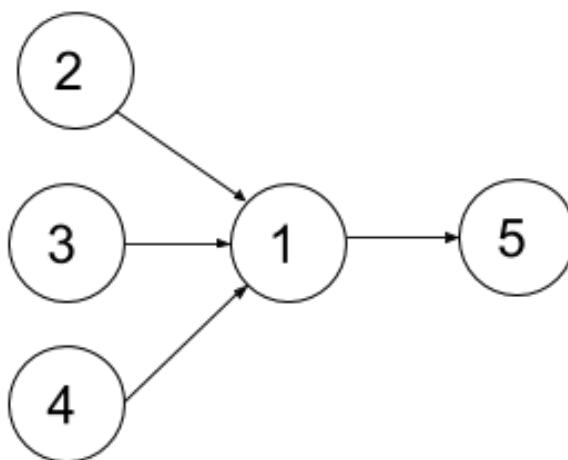
Example 1:



Input: $n = 4$, dependencies = [[2,1],[3,1],[1,4]], $k = 2$
Output: 3

Explanation: The figure above represents the given graph. In thi

Example 2:



Input: $n = 5$, dependencies = [[2,1],[3,1],[4,1],[1,5]], $k = 2$
Output: 4

Explanation: The figure above represents the given graph. In thi

Example 3:

Input: $n = 11$, dependencies = [], $k = 2$
Output: 6

Constraints:

- $1 \leq n \leq 15$
- $1 \leq k \leq n$
- $0 \leq \text{dependencies.length} \leq n * (n-1) / 2$
- $\text{dependencies}[i].length == 2$
- $1 \leq x_i, y_i \leq n$
- $x_i \neq y_i$
- All prerequisite relationships are distinct, that is, $\text{dependencies}[i] \neq \text{dependencies}[j]$.
- The given graph is a directed acyclic graph.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1494-Parallel-Courses-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1495. Friendly Movies Streamed Last Month

SQL Schema ›

Table: TVProgram

```

+-----+-----+
| Column Name | Type   |
+-----+-----+
| program_date | date   |
| content_id    | int    |
| channel       | varchar|
+-----+-----+
(program_date, content_id) is the primary key for this table.
This table contains information of the programs on the TV.
content_id is the id of the program in some channel on the TV.

```

Table: Content

```

+-----+-----+
| Column Name      | Type   |
+-----+-----+
| content_id       | varchar|
| title            | varchar|
| Kids_content     | enum   |
| content_type     | varchar|
+-----+-----+
content_id is the primary key for this table.
Kids_content is an enum that takes one of the values ('Y', 'N')
'Y' means is content for kids otherwise 'N' is not content for k
content_type is the category of the content as movies, series, e

```

Write an SQL query to report the distinct titles of the kid-friendly movies streamed in June 2020.

Return the result table in any order.

The query result format is in the following example.

TVProgram table:

```

+-----+-----+-----+
| program_date      | content_id    | channel      |
+-----+-----+-----+
| 2020-06-10 08:00  | 1             | LC-Channel   |
| 2020-05-11 12:00  | 2             | LC-Channel   |
| 2020-05-12 12:00  | 3             | LC-Channel   |
| 2020-05-13 14:00  | 4             | Disney Ch    |
| 2020-06-18 14:00  | 4             | Disney Ch    |
| 2020-07-15 16:00  | 5             | Disney Ch    |
+-----+-----+-----+

```

Content table:

```

+-----+-----+-----+
| content_id | title           | Kids_content | content_type |
+-----+-----+-----+
| 1          | Leetcode Movie | N           | Movies        |
| 2          | Alg. for Kids  | Y           | Series        |
| 3          | Database Sols  | N           | Series        |
| 4          | Aladdin         | Y           | Movies        |
+-----+-----+-----+

```

5	Cinderella	Y	Movies	
---	------------	---	--------	--

Result table:

title

Aladdin

"Leetcode Movie" is not a content for kids.
"Alg. for Kids" is not a movie.
"Database Sols" is not a movie
"Alladin" is a movie, content for kids and was streamed in June
"Cinderella" was not streamed in June 2020.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1495-Friendly-Movies-Streamed-Last-Month](#)

All Problems:

[Link to All Problems](#)

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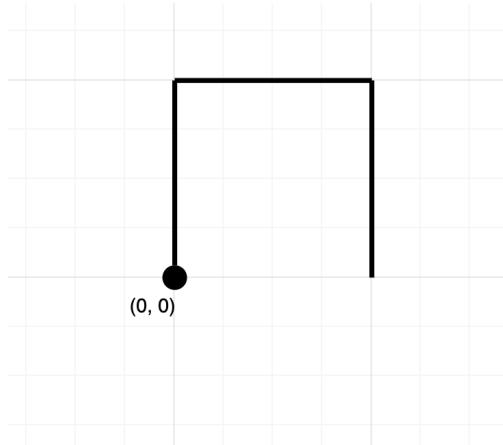
Welcome to Subscribe On Youtube:

1496. Path Crossing

Given a string path , where $\text{path}[i] = \text{'N'}$, 'S' , 'E' or 'W' , each representing moving one unit north, south, east, or west, respectively. You start at the origin $(0, 0)$ on a 2D plane and walk on the path specified by path .

Return `True` if the path crosses itself at any point, that is, if at any time you are on a location you've previously visited. Return `False` otherwise.

Example 1:

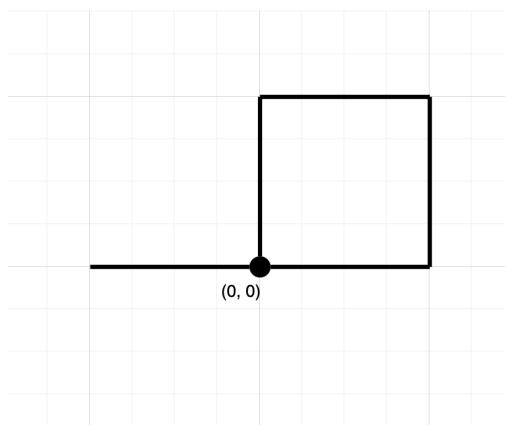


Input: `path = "NES"`

Output: `false`

Explanation: Notice that the path doesn't cross any point more than once.

Example 2:



Input: path = "NESWW"
Output: true
Explanation: Notice that the path visits the origin twice.

Constraints:

- $1 \leq \text{path.length} \leq 10^4$
- path will only consist of characters in { 'N' , 'S' , 'E' , 'W'}

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1496-Path-Crossing](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1497. Check If Array Pairs Are Divisible by k

Given an array of integers `arr` of even length `n` and an integer `k`.

We want to divide the array into exactly $n / 2$ pairs such that the sum of each pair is divisible by `k`.

Return `True` If you can find a way to do that or `False` otherwise.

Example 1:

Input: `arr = [1,2,3,4,5,10,6,7,8,9]`, `k = 5`

Output: `true`

Explanation: Pairs are $(1,9)$, $(2,8)$, $(3,7)$, $(4,6)$ and $(5,10)$.

Example 2:

Input: `arr = [1,2,3,4,5,6]`, `k = 7`

Output: `true`

Explanation: Pairs are $(1,6)$, $(2,5)$ and $(3,4)$.

Example 3:

Input: `arr = [1,2,3,4,5,6]`, `k = 10`

Output: `false`

Explanation: You can try all possible pairs to see that there is

Example 4:

Input: `arr = [-10,10]`, `k = 2`

Output: `true`

Example 5:

Input: `arr = [-1,1,-2,2,-3,3,-4,4]`, `k = 3`

Output: `true`

Constraints:

- `arr.length == n`
- $1 \leq n \leq 10^5$
- `n` is even.
- $-10^9 \leq arr[i] \leq 10^9$
- $1 \leq k \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1497-Check-If-Array-Pairs-Are-Divisible-by-k](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1498. Number of Subsequences That Satisfy the Given Sum Condition

Given an array of integers `nums` and an integer `target` .

Return the number of **non-empty** subsequences of `nums` such that the sum of the minimum and maximum element on it is less or equal than `target` .

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: `nums = [3,5,6,7]`, `target = 9`

Output: 4

Explanation: There are 4 subsequences that satisfy the condition

`[3] -> Min value + max value <= target (3 + 3 <= 9)`

`[3,5] -> (3 + 5 <= 9)`

`[3,5,6] -> (3 + 6 <= 9)`

`[3,6] -> (3 + 6 <= 9)`

Example 2:

Input: `nums = [3,3,6,8]`, `target = 10`

Output: 6

Explanation: There are 6 subsequences that satisfy the condition

`[3], [3], [3,3], [3,6], [3,6], [3,3,6]`

Example 3:

Input: `nums = [2,3,3,4,6,7]`, `target = 12`

Output: 61

Explanation: There are 63 non-empty subsequences, two of them do

Number of valid subsequences ($63 - 2 = 61$) .

Example 4:

Input: `nums = [5,2,4,1,7,6,8]`, `target = 16`

Output: 127

Explanation: All non-empty subset satisfy the condition ($2^7 - 1$)

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^6$
- $1 \leq \text{target} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1498-Number-of-Subsequences-That-Satisfy-the-Given-Sum-Condition](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1499. Max Value of Equation

Given an array `points` containing the coordinates of points on a 2D plane, sorted by the x-values, where `points[i] = [xi, yi]` such that $x_i < x_j$ for all $1 \leq i < j \leq \text{points.length}$. You are also given an integer `k`.

Find the *maximum value of the equation* $y_i + y_j + |x_{i-j}|$ where $|x_{i-j}| \leq k$ and $1 \leq i < j \leq \text{points.length}$. It is guaranteed that there exists

at least one pair of points that satisfy the constraint $|x_i - x_j| \leq k$.

Example 1:

Input: points = [[1,3],[2,0],[5,10],[6,-10]], k = 1

Output: 4

Explanation: The first two points satisfy the condition $|x_i - x_j| \leq 1$.

No other pairs satisfy the condition, so we return the max of 4.

Example 2:

Input: points = [[0,0],[3,0],[9,2]], k = 3

Output: 3

Explanation: Only the first two points have an absolute difference of 3 or less.

Constraints:

- $2 \leq \text{points.length} \leq 10^5$
- $\text{points[i].length} == 2$
- $-10^8 \leq \text{points[i][0]}, \text{points[i][1]} \leq 10^8$
- $0 \leq k \leq 2 * 10^8$
- $\text{points[i][0]} < \text{points[j][0]}$ for all $1 \leq i < j \leq \text{points.length}$
- x_i form a strictly increasing sequence.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1499-Max-Value-of-Equation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1500. Design a File Sharing System

We will use a file-sharing system to share a very large file which consists of m small **chunks** with IDs from 1 to m .

When users join the system, the system should assign **a unique** ID to them. The unique ID should be used **once** for each user, but when a user leaves the system, the ID can be **reused** again.

Users can request a certain chunk of the file, the system should return a list of IDs of all the users who have this chunk. After that, if at least one other has this chunk, the user who requested the chunk **will get it** .

Implement the `FileSharing` class:

- `FileSharing(int m)` Initializes the object with the number of the chunks of the file m .
- `int join(int[] ownedChunks)` : A new user joined the system owning some chunks of the file, the system should assign an id to the user which is the **smallest positive integer** not taken by any other user. Return the assigned id.

- `void leave(int userID)` : The user with `userID` will leave the system, you cannot take file chunks from them anymore.
- `int[] request(int userID, int chunkID)` : The user with `userID` requested the file chunk with `chunkID`. Return a list of the IDs of all users that own this chunk sorted in ascending order.

Follow-ups:

- What happens if the system identifies the user by their IP address instead of their unique ID and users disconnect and connect from the system with the same IP?
- If the users in the system join and leave the system frequently without requesting any chunks, will your solution still be efficient?
- If all each user join the system one time, request all files and then leave, will your solution still be efficient?
- If the system will be used to share n files where the i th file consists of $m[i]$, what are the changes you have to do?

Example:

Input:

```
["FileSharing","join","join","join","join","request","request","leave",
[[4], [[1,2]], [[2,3]], [[4]], [1,3], [2,2], [1], [2,1], [2], []]]
```

Output:

```
[null, 1, 2, 3, [2], [1, 2], null, [], null, 1]
```

Explanation:

```
FileSharing fileSharing = new FileSharing(4); // We use the system
fileSharing.join([1, 2]); // A user who has chunks [1,2] joined
fileSharing.join([2, 3]); // A user who has chunks [2,3] joined
fileSharing.join([4]); // A user who has chunk [4] joined
fileSharing.request(1, 3); // The user with id = 1 requested the file
fileSharing.request(2, 2); // The user with id = 2 requested the file
fileSharing.leave(1); // The user with id = 1 left the system
fileSharing.request(2, 1); // The user with id = 2 requested the file
fileSharing.leave(2); // The user with id = 2 left the system
fileSharing.join([]); // A user who doesn't have any chunks joined
```

Constraints:

- $1 \leq m \leq 10^5$
- $0 \leq \text{ownedChunks.length} \leq \min(100, m)$
- $1 \leq \text{ownedChunks}[i] \leq m$
- Values of `ownedChunks` are unique.

- $1 \leq \text{chunkID} \leq m$
- `userID` is guaranteed to be a user in the system if you **assign the IDs correctly**.
- At most 10^4 calls will be made to `join`, `leave` and `request`.
- Each call to `leave` will have a matching call for `join`.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1500-Design-a-File-Sharing-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1501. Countries You Can Safely Invest In

SQL Schema >

Table Person :

Column Name	Type
id	int
name	varchar
phone_number	varchar

id is the primary key for this table.

Each row of this table contains the name of a person and their p

Phone number will be in the form 'xxx-yyyyyyy' where xxx is the c

Table Country :

Column Name	Type
name	varchar
country_code	varchar

country_code is the primary key for this table.

Each row of this table contains the country name and its code. c

Table Calls :

Column Name	Type
caller_id	int
callee_id	int
duration	int

There is no primary key for this table, it may contain duplicates.
Each row of this table contains the caller id, callee id and the

A telecommunications company wants to invest in new countries. The country intends to invest in the countries where the average call duration of the calls in this country is strictly greater than the global average call duration.

Write an SQL query to find the countries where this company can invest.

Return the result table in any order.

The query result format is in the following example.

Person table:

id	name	phone_number
3	Jonathan	051-1234567
12	Elvis	051-7654321
1	Moncef	212-1234567
2	Maroua	212-6523651
7	Meir	972-1234567
9	Rachel	972-0011100

Country table:

name	country_code
Peru	051
Israel	972
Morocco	212
Germany	049
Ethiopia	251

Calls table:

caller_id	callee_id	duration
1	9	33
2	9	4
1	2	59
3	12	102
3	12	330
12	3	5
7	9	13
7	1	3
9	7	1
1	7	7

Result table:

country
Peru

The average call duration for Peru is $(102 + 102 + 330 + 330 + 5)$

The average call duration for Israel is $(33 + 4 + 13 + 13 + 3 +)$

The average call duration for Morocco is $(33 + 4 + 59 + 59 + 3 +)$

Global call duration average = (2 * (33 + 3 + 59 + 102 + 330 + 56) / 6) = 118.33
Since Peru is the only country where average call duration is greater than 100 minutes.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1501-Countries-You-Can-Safely-Invest-In](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1502. Can Make Arithmetic Progression From Sequence

Given an array of numbers `arr` . A sequence of numbers is called an arithmetic progression if the difference between any two consecutive elements is the same.

Return `true` if the array can be rearranged to form an arithmetic progression, otherwise, return `false` .

Example 1:

Input: `arr = [3, 5, 1]`

Output: `true`

Explanation: We can reorder the elements as `[1, 3, 5]` or `[5, 3, 1]` w

Example 2:

Input: `arr = [1, 2, 4]`

Output: `false`

Explanation: There is no way to reorder the elements to obtain a

Constraints:

- $2 \leq \text{arr.length} \leq 1000$
- $-10^6 \leq \text{arr}[i] \leq 10^6$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1502-Can-Make-Arithmetic-Progression-From-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1503. Last Moment Before All Ants Fall Out of a Plank

We have a wooden plank of the length n **units**. Some ants are walking on the plank, each ant moves with speed **1 unit per second**. Some of the ants move to the **left**, the other move to the **right**.

When two ants moving in two **different** directions meet at some point, they change their directions and continue moving again. Assume changing directions doesn't take any additional time.

When an ant reaches **one end** of the plank at a time t , it falls out of the plank imediately.

Given an integer n and two integer arrays `left` and `right` , the positions of the ants moving to the left and the right. Return *the moment* when the last ant(s) fall out of the plank.

Example 1:

Input: $n = 4$, `left = [4,3]` , `right = [0,1]`
Output: 4

Explanation: In the image above:

- The ant at index 0 is named A and going to the right.
 - The ant at index 1 is named B and going to the right.
 - The ant at index 3 is named C and going to the left.
 - The ant at index 4 is named D and going to the left.
- Note that the last moment when an ant was on the plank is $t = 4$.

Example 2:

Input: $n = 7$, $\text{left} = []$, $\text{right} = [0, 1, 2, 3, 4, 5, 6, 7]$

Output: 7

Explanation: All ants are going to the right, the ant at index 0

Example 3:

Input: $n = 7$, $\text{left} = [0, 1, 2, 3, 4, 5, 6, 7]$, $\text{right} = []$

Output: 7

Explanation: All ants are going to the left, the ant at index 7

Example 4:

Input: $n = 9$, $\text{left} = [5]$, $\text{right} = [4]$

Output: 5

Explanation: At $t = 1$ second, both ants will be at the same initial position.

Example 5:

Input: $n = 6$, $\text{left} = [6]$, $\text{right} = [0]$

Output: 6

Constraints:

- $1 \leq n \leq 10^4$
- $0 \leq \text{left.length} \leq n + 1$
- $0 \leq \text{left}[i] \leq n$
- $0 \leq \text{right.length} \leq n + 1$
- $0 \leq \text{right}[i] \leq n$
- $1 \leq \text{left.length} + \text{right.length} \leq n + 1$
- All values of left and right are unique, and each value can appear **only in one** of the two arrays.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1503-Last-Moment-Before-All-Ants-Fall-Out-of-a-Plank](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1504. Count Submatrices With All Ones

Given a `rows * columns` matrix `mat` of ones and zeros, return how many **submatrices** have all ones.

Example 1:

Input: `mat = [[1,0,1], [1,1,0], [1,1,0]]`

Output: 13

Explanation:

There are 6 rectangles of side 1x1.

There are 2 rectangles of side 1x2.

There are 3 rectangles of side 2x1.

```
There is 1 rectangle of side 2x2.  
There is 1 rectangle of side 3x1.  
Total number of rectangles = 6 + 2 + 3 + 1 + 1 = 13.
```

Example 2:

```
Input: mat = [[0,1,1,0],  
             [0,1,1,1],  
             [1,1,1,0]]
```

Output: 24

Explanation:

```
There are 8 rectangles of side 1x1.  
There are 5 rectangles of side 1x2.  
There are 2 rectangles of side 1x3.  
There are 4 rectangles of side 2x1.  
There are 2 rectangles of side 2x2.  
There are 2 rectangles of side 3x1.  
There is 1 rectangle of side 3x2.  
Total number of rectangles = 8 + 5 + 2 + 4 + 2 + 2 + 1 = 24.
```

Example 3:

```
Input: mat = [[1,1,1,1,1,1]]  
Output: 21
```

Example 4:

```
Input: mat = [[1,0,1],[0,1,0],[1,0,1]]  
Output: 5
```

Constraints:

- $1 \leq \text{rows} \leq 150$
- $1 \leq \text{columns} \leq 150$
- $0 \leq \text{mat}[i][j] \leq 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1504-Count-Submatrices-With-All-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1505. Minimum Possible Integer After at Most K Adjacent Swaps On Digits

Given a string num representing **the digits** of a very large integer and an integer k .

You are allowed to swap any two adjacent digits of the integer **at most** k times.

Return *the minimum integer* you can obtain also as a string.

Example 1:

Input: num = "4321", k = 4

Output: "1342"

Explanation: The steps to obtain the minimum integer from 4321 w

Example 2:

Input: num = "100", k = 1

Output: "010"

Explanation: It's ok for the output to have leading zeros, but t

Example 3:

Input: num = "36789", k = 1000

Output: "36789"

Explanation: We can keep the number without any swaps.

Example 4:

Input: num = "22", k = 22

Output: "22"

Example 5:

Input: num = "9438957234785635408", k = 23

Output: "0345989723478563548"

Constraints:

- $1 \leq \text{num.length} \leq 30000$
- num contains **digits** only and doesn't have **leading zeros**.
- $1 \leq k \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1505-Minimum-Possible-Integer-After-at-Most-K-Adjacent-Swaps-On-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1506. Find Root of N-Ary Tree

Given all the nodes of an [N-ary tree](#) as an array `Node [] tree` where each node has a **unique value**.

Find and return the **root** of the N-ary tree.

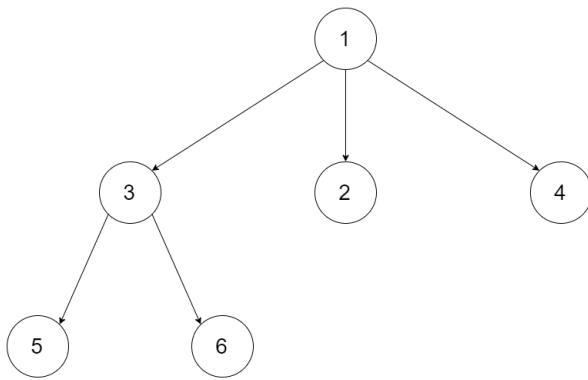
Nary-Tree input serialization is represented in their level order traversal, each group of children is separated by the null value (See examples).

Follow up: Can you find the root of the tree with O(1) additional memory space?

Notes:

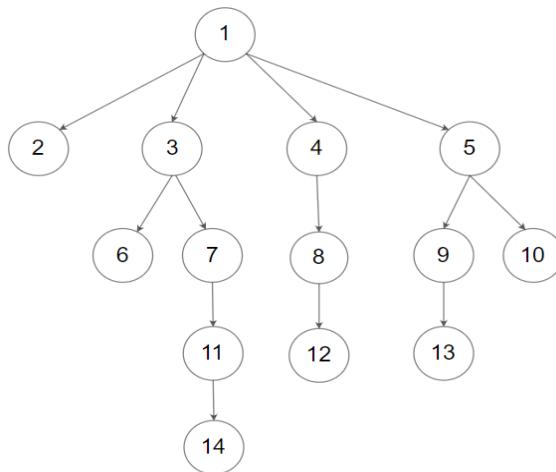
1. The following input is only given to testing purposes.
2. You will receive as input a list of all nodes of the n-ary tree in any order.

Example 1:



Input: [1,null,3,2,4,null,5,6]
 Output: [1,null,3,2,4,null,5,6]

Example 2:



Input: [1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null,null]
 Output: [1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null,null]

Constraints:

- The total number of nodes is between [1, 5×10^4] .
- Each node has a unique value.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1506-Find-Root-of-N-Ary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1507. Reformat Date

Given a date string in the form Day Month Year , where:

- Day is in the set {"1st", "2nd", "3rd", "4th", ..., "30th", "31st"} .
- Month is in the set {"Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"} .
- Year is in the range [1900, 2100] .

Convert the date string to the format YYYY-MM-DD , where:

- YYYY denotes the 4 digit year.
- MM denotes the 2 digit month.

- DD denotes the 2 digit day.

Example 1:

Input: date = "20th Oct 2052"
Output: "2052-10-20"

Example 2:

Input: date = "6th Jun 1933"
Output: "1933-06-06"

Example 3:

Input: date = "26th May 1960"
Output: "1960-05-26"

Constraints:

- The given dates are guaranteed to be valid, so no error handling is necessary.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1507-Reformat-Date](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1508. Range Sum of Sorted Subarray Sums

Given the array `nums` consisting of n positive integers. You computed the sum of all non-empty continuous subarrays from the array and then sort them in non-decreasing order, creating a new array of $n * (n + 1) / 2$ numbers.

*Return the sum of the numbers from index `left` to index `right` (**indexed from 1**), inclusive, in the new array.*
Since the answer can be a huge number return it modulo $10^9 + 7$.

Example 1:

Input: `nums = [1,2,3,4]`, $n = 4$, `left = 1`, `right = 5`

Output: 13

Explanation: All subarray sums are 1, 3, 6, 10, 2, 5, 9, 3, 7, 4

Example 2:

Input: `nums = [1,2,3,4]`, $n = 4$, `left = 3`, `right = 4`

Output: 6

Explanation: The given array is the same as example 1. We have to

Example 3:

Input: `nums = [1,2,3,4]`, $n = 4$, `left = 1`, `right = 10`

Output: 50

Constraints:

- $1 \leq \text{nums.length} \leq 10^3$
- $\text{nums.length} == n$
- $1 \leq \text{nums}[i] \leq 100$

```
• 1 <= left <= right <= n * (n + 1) / 2
```

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1508-Range-Sum-of-Sorted-Subarray-Sums](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1509. Minimum Difference Between Largest and Smallest Value in Three Moves

Given an array `nums` , you are allowed to choose one element of `nums` and change it by any value in one move.

Return the minimum difference between the largest and smallest value of `nums` after performing at most 3 moves.

Example 1:

Input: `nums` = [5,3,2,4]

Output: 0

Explanation: Change the array [5,3,2,4] to [2,2,2,2].

The difference between the maximum and minimum is $2-2 = 0$.

Example 2:

Input: `nums` = [1,5,0,10,14]

Output: 1

Explanation: Change the array [1,5,0,10,14] to [1,1,0,1,1].

The difference between the maximum and minimum is $1-0 = 1$.

Example 3:

Input: `nums` = [6,6,0,1,1,4,6]

Output: 2

Example 4:

Input: `nums` = [1,5,6,14,15]

Output: 1

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^9 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1509-Minimum-Difference-Between-Largest-and-Smallest-Value-in-Three-Moves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1510. Stone Game IV

Alice and Bob take turns playing a game, with Alice starting first.

Initially, there are n stones in a pile. On each player's turn, that player makes a *move* consisting of removing **any non-zero square number** of stones in the pile.

Also, if a player cannot make a move, he/she loses the game.

Given a positive integer n . Return `True` if and only if Alice wins the game otherwise return `False`, assuming both players play optimally.

Example 1:

Input: $n = 1$

Output: `true`

Explanation: Alice can remove 1 stone winning the game because Bob

Example 2:

Input: $n = 2$

Output: `false`

Explanation: Alice can only remove 1 stone, after that Bob removes

Example 3:

Input: $n = 4$

Output: `true`

Explanation: n is already a perfect square, Alice can win with o

Example 4:

Input: $n = 7$

Output: `false`

Explanation: Alice can't win the game if Bob plays optimally.

If Alice starts removing 4 stones, Bob will remove 1 stone then A

If Alice starts removing 1 stone, Bob will remove 4 stones then A

Example 5:

Input: $n = 17$

Output: `false`

Explanation: Alice can't win the game if Bob plays optimally.

Constraints:

- $1 \leq n \leq 10^5$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1510-Stone-Game-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1511. Customer Order Frequency

[SQL Schema](#) >

Table: Customers

Column Name	Type
customer_id	int
name	varchar
country	varchar

customer_id is the primary key for this table.

This table contains information of the customers in the company.

Table: Product

Column Name	Type

product_id	int
description	varchar
price	int

product_id is the primary key for this table.

This table contains information of the products in the company.
price is the product cost.

Table: Orders

Column Name	Type
order_id	int
customer_id	int
product_id	int
order_date	date
quantity	int

order_id is the primary key for this table.

This table contains information on customer orders.

customer_id is the id of the customer who bought "quantity" products.
Order_date is the date in format ('YYYY-MM-DD') when the order was placed.

Write an SQL query to report the customer_id and
customer_name of customers who have spent at least
\$100 in each month of June and July 2020.

Return the result table in any order.

The query result format is in the following example.

Customers

customer_id	name	country
-------------	------	---------

Product

product_id	description	price
------------	-------------	-------

Orders

order_id	customer_id	product_id	order_date	quantity
----------	-------------	------------	------------	----------

order_id	customer_id	product_id	order_date	quantity
1	1	10	2020-06-10	1
2	1	20	2020-07-01	1
3	1	30	2020-07-08	2
4	2	10	2020-06-15	2
5	2	40	2020-07-01	10
6	3	20	2020-06-24	2
7	3	30	2020-06-25	2
9	3	30	2020-05-08	3

Result table:

customer_id	name
1	Winston

Winston spent \$300 ($300 * 1$) in June and \$100 ($10 * 1 + 45 * 2$) in July
 Jonathan spent \$600 ($300 * 2$) in June and \$20 ($2 * 10$) in July
 Moustafa spent \$110 ($10 * 2 + 45 * 2$) in June and \$0 in July 2020

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1511-Customer-Order-Frequency](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1512. Number of Good Pairs

Given an array of integers `nums` .

A pair (i, j) is called *good* if $\text{nums}[i] == \text{nums}[j]$ and $i < j$.

Return the number of *good* pairs.

Example 1:

Input: `nums = [1,2,3,1,1,3]`

Output: 4

Explanation: There are 4 good pairs $(0,3)$, $(0,4)$, $(3,4)$, $(2,5)$ 0

Example 2:

Input: `nums = [1,1,1,1]`

Output: 6

Explanation: Each pair in the array are good.

Example 3:

Input: `nums = [1,2,3]`

Output: 0

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1512-Number-of-Good-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1513. Number of Substrings With Only 1s

Given a binary string s (a string consisting only of '0' and '1's).

Return the number of substrings with all characters 1's.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: s = "0110111"
Output: 9
Explanation: There are 9 substring in total with only 1's characters.
"1" -> 5 times.
"11" -> 3 times.
"111" -> 1 time.

Example 2:

Input: s = "101"
Output: 2
Explanation: Substring "1" is shown 2 times in s.

Example 3:

Input: s = "111111"
Output: 21
Explanation: Each substring contains only 1's characters.

Example 4:

Input: s = "000"
Output: 0

Constraints:

- $s[i] == '0'$ or $s[i] == '1'$
- $1 \leq s.length \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1513-Number-of-Substrings-With-Only-](#)

All Problems:

[Link to All Problems](#)

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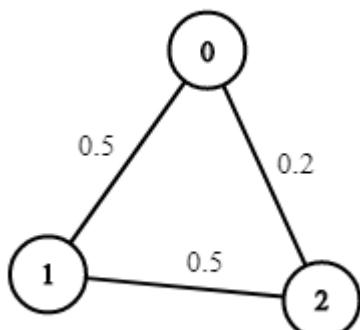
1514. Path with Maximum Probability

You are given an undirected weighted graph of n nodes (0-indexed), represented by an edge list where $\text{edges}[i] = [a, b]$ is an undirected edge connecting the nodes a and b with a probability of success of traversing that edge $\text{succProb}[i]$.

Given two nodes `start` and `end`, find the path with the maximum probability of success to go from `start` to `end` and return its success probability.

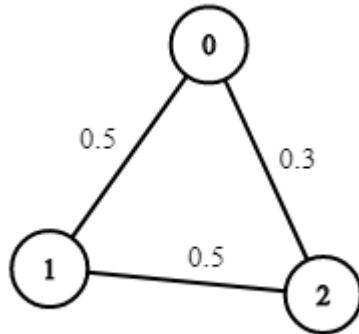
If there is no path from `start` to `end`, **return 0**. Your answer will be accepted if it differs from the correct answer by at most **1e-5**.

Example 1:



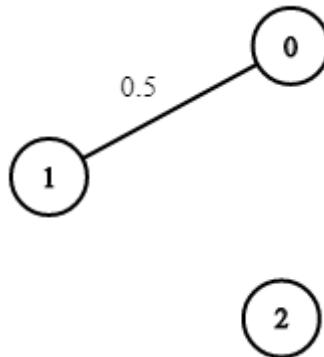
Input: $n = 3$, edges = $[[0,1], [1,2], [0,2]]$, succProb = $[0.5, 0.5, 0.3]$
Output: 0.25000
Explanation: There are two paths from start to end, one having a

Example 2:



Input: $n = 3$, edges = $[[0,1], [1,2], [0,2]]$, succProb = $[0.5, 0.5, 0.3]$
Output: 0.30000

Example 3:



Input: $n = 3$, edges = $[[0,1]]$, succProb = $[0.5]$, start = 0, end = 2
Output: 0.00000
Explanation: There is no path between 0 and 2.

Constraints:

- $2 \leq n \leq 10^4$
- $0 \leq \text{start}, \text{end} < n$
- $\text{start} \neq \text{end}$
- $0 \leq a, b < n$
- $a \neq b$
- $0 \leq \text{succProb.length} == \text{edges.length} \leq 2 * 10^4$
- $0 \leq \text{succProb}[i] \leq 1$
- There is at most one edge between every two nodes.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1514-Path-with-Maximum-Probability](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1515. Best Position for a Service Centre

A delivery company wants to build a new service centre in a new city. The company knows the positions of all the customers in this city on a 2D-Map and wants to build the

new centre in a position such that **the sum of the euclidean distances to all customers is minimum**.

Given an array `positions` where `positions[i] = [xi, yi]` is the position of the *i*th customer on the map, return *the minimum sum of the euclidean distances to all customers*.

In other words, you need to choose the position of the service centre `[xcentre, ycentre]` such that the following formula is minimized:

Answers within 10^{-5} of the actual value will be accepted.

Example 1:

Input: `positions = [[0,1],[1,0],[1,2],[2,1]]`

Output: `4.00000`

Explanation: As shown, you can see that choosing `[xcentre, ycentre]`

Example 2:

Input: `positions = [[1,1],[3,3]]`

Output: `2.82843`

Explanation: The minimum possible sum of distances = $\sqrt{2} + \sqrt{2} = 2\sqrt{2} \approx 2.82843$

Example 3:

Input: `positions = [[1,1]]`

Output: `0.00000`

Example 4:

Input: `positions = [[1,1],[0,0],[2,0]]`

Output: `2.73205`

Explanation: At the first glance, you may think that locating the centre at `[1.0, 0.0]` is the best choice.

Try to locate the centre at `[1.0, 0.5773502711]` you will see that the answer is better!

Be careful with the precision!

Example 5:

Input: `positions = [[0,1],[3,2],[4,5],[7,6],[8,9],[11,1],[2,12]]`

Output: `32.94036`

Explanation: You can use `[4.3460852395, 4.9813795505]` as the position of the service centre.

Constraints:

- $1 \leq \text{positions.length} \leq 50$
- $\text{positions}[i].length == 2$

- $0 \leq positions[i][0], positions[i][1] \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1515-Best-Position-for-a-Service-Centre](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1516. Move Sub-Tree of N-Ary Tree

Given the root of an [N-ary tree](#) of unique values, and two nodes of the tree p and q .

You should move the subtree of the node p to become a direct child of node q . If p is already a direct child of q , don't change anything. Node p **must be** the last child in the children list of node q .

Return *the root of the tree* after adjusting it.

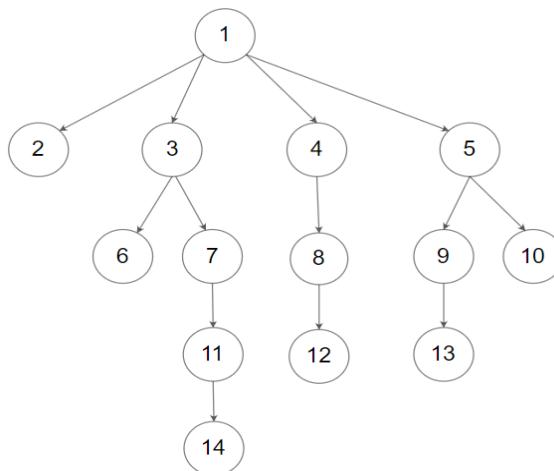
There are 3 cases for nodes p and q :

1. Node q is in the sub-tree of node p .
2. Node p is in the sub-tree of node q .
3. Neither node p is in the sub-tree of node q nor node q is in the sub-tree of node p .

In cases 2 and 3, you just need to move p (with its sub-tree) to be a child of q , but in case 1 the tree may be disconnected, thus you need to reconnect the tree again.

Please read the examples carefully before solving this problem.

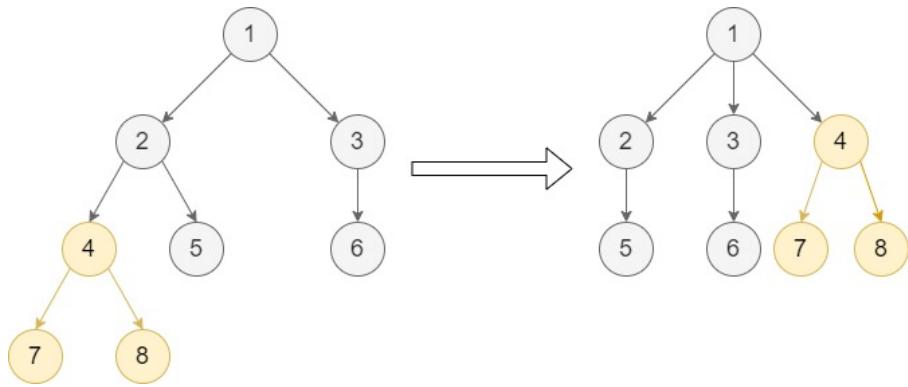
Nary-Tree input serialization is represented in their level order traversal, each group of children is separated by the null value (See examples).



For example, the above tree is serialized as

[1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null,null,11,null,12,null,13,null,null,14].

Example 1:



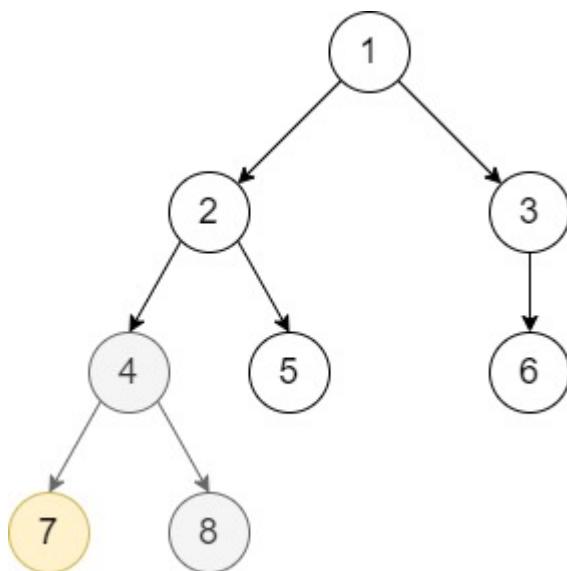
Input: root = [1,null,2,3,null,4,5,null,6,null,7,8], p = 4, q = 4

Output: [1,null,2,3,4,null,5,null,6,null,7,8]

Explanation: This example follows the second case as node p is its parent.

Notice that node 4 is the last child of node 1.

Example 2:

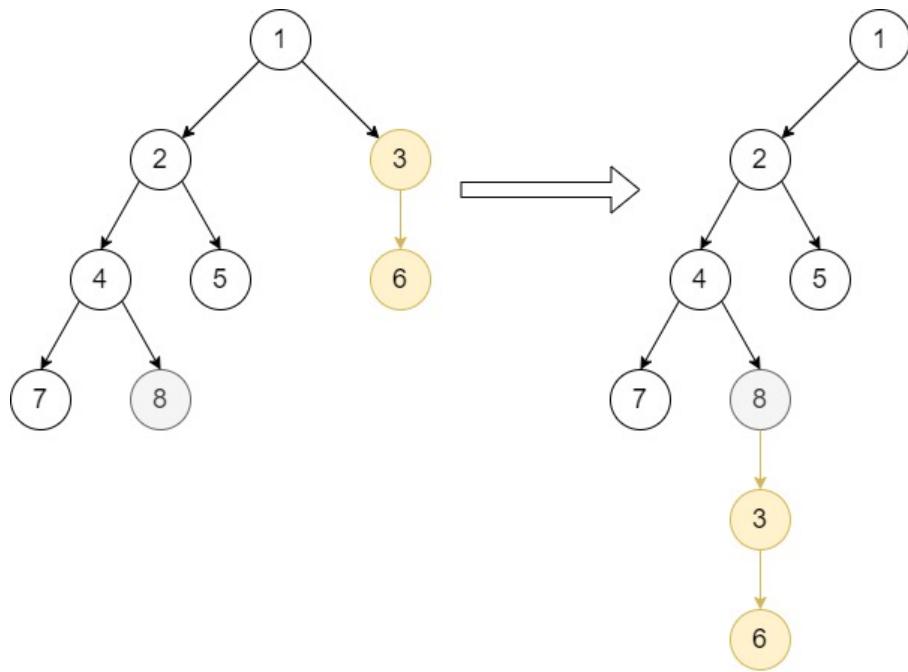


Input: root = [1,null,2,3,null,4,5,null,6,null,7,8], p = 7, q = 7

Output: [1,null,2,3,null,4,5,null,6,null,7,8]

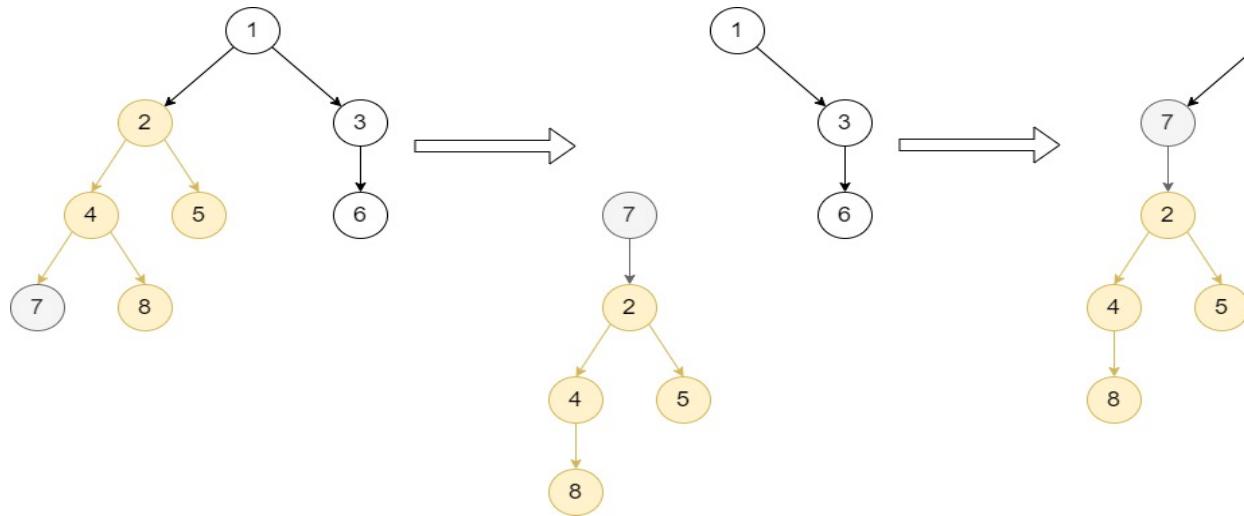
Explanation: Node 7 is already a direct child of node 4. We don't need to make any changes.

Example 3:



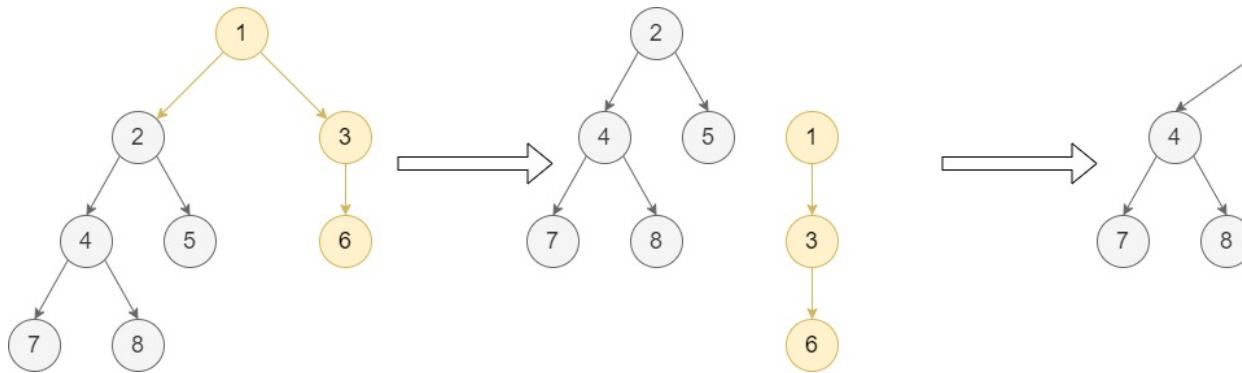
Input: `root = [1,null,2,3,null,4,5,null,6,null,7,8]`, `p = 3`, `q = 6`
 Output: `[1,null,2,null,4,5,null,7,8,null,null,null,3,null,6]`
 Explanation: This example follows case 3 because node p is not in the subtree of q.

Example 4:



Input: `root = [1,null,2,3,null,4,5,null,6,null,7,8]`, `p = 2`, `q = 8`
 Output: `[1,null,7,3,null,2,null,6,null,4,5,null,null,8]`
 Explanation: Node q is in the sub-tree of node p, so this is case 4.
 The first step, we move node p (with all of its sub-tree except q).
 Then we will see that the tree is disconnected, you need to reconnect.

Example 5:



Input: root = [1,null,2,3,null,4,5,null,6,null,7,8], p = 1, q = 3

Output: [2,null,4,5,1,null,7,8,null,null,3,null,null,null,6]

Explanation: Node q is in the sub-tree of node p, so this is case 1.

The first step, we move node p (with all of its sub-tree except q).

As node p was the root of the tree, node q replaces it and becomes the new root.

Constraints:

- The total number of nodes is between [2, 1000].
- Each node has a **unique** value.
- p != null
- q != null
- p and q are two different nodes (i.e. p != q).

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1516-Move-Sub-Tree-of-N-Ary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1517. Find Users With Valid E-Mails

[SQL Schema](#) >

Table: Users

Column Name	Type
user_id	int
name	varchar
mail	varchar

user_id is the primary key for this table.

This table contains information of the users signed up in a webs

Write an SQL query to find the users who have **valid emails**.

A valid e-mail has a prefix name and a domain where:

- **The prefix name** is a string that may contain letters (upper or lower case), digits, underscore '_', period '.' and/or dash '-'. The prefix name **must** start with a letter.
- **The domain** is '@leetcode.com' .

Return the result table in any order.

The query result format is in the following example.

Users

|--|--|--|--|--|

user_id	name	mail
1	Winston	winston@leetcode.com
2	Jonathan	jonathanisgreat
3	Annabelle	bella-@leetcode.com
4	Sally	sally.come@leetcode.com
5	Marwan	quarz#2020@leetcode.com
6	David	david69@gmail.com
7	Shapiro	.shapo@leetcode.com

Result table:

user_id	name	mail
1	Winston	winston@leetcode.com
3	Annabelle	bella-@leetcode.com
4	Sally	sally.come@leetcode.com

The mail of user 2 doesn't have a domain.

The mail of user 5 has # sign which is not allowed.

The mail of user 6 doesn't have leetcode domain.

The mail of user 7 starts with a period.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1517-Find-Users-With-Valid-E-Mails](#)

All Problems:

[Link to All Problems](#)

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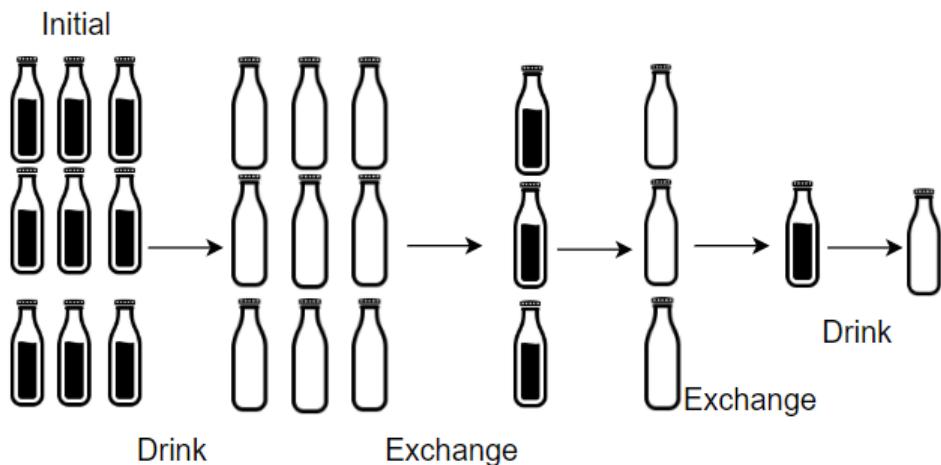
1518. Water Bottles

Given `numBottles` full water bottles, you can exchange `numExchange` empty water bottles for one full water bottle.

The operation of drinking a full water bottle turns it into an empty bottle.

Return the **maximum** number of water bottles you can drink.

Example 1:

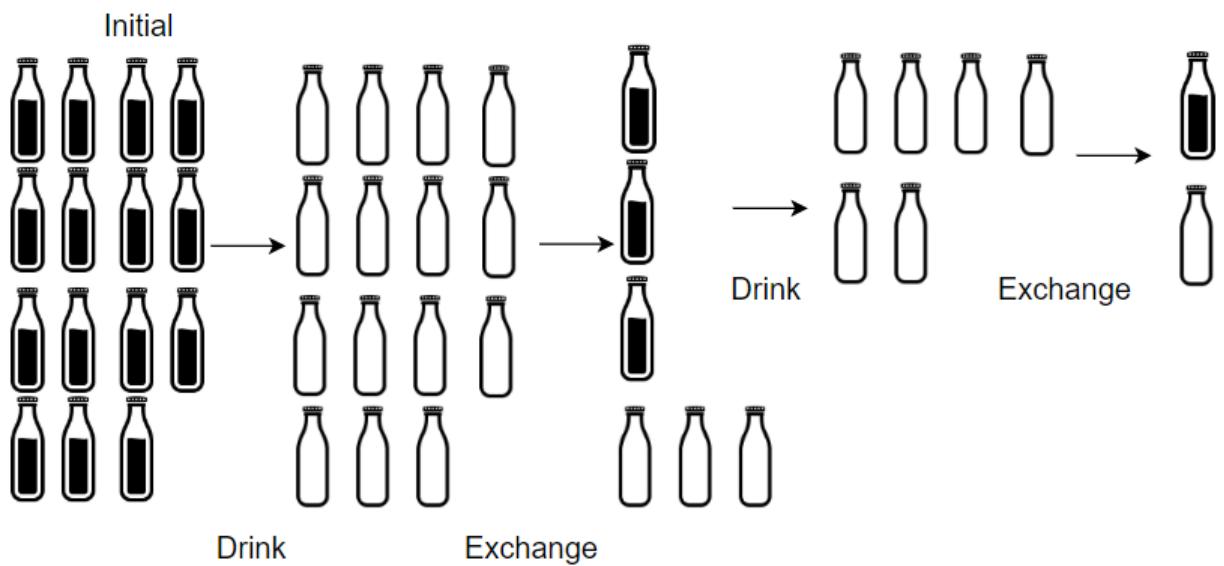


Input: `numBottles` = 9, `numExchange` = 3

Output: 13

Explanation: You can exchange 3 empty bottles to get 1 full water bottle. Number of water bottles you can drink: $9 + 3 + 1 = 13$.

Example 2:



Input: numBottles = 15, numExchange = 4

Output: 19

Explanation: You can exchange 4 empty bottles to get 1 full water bottle.
Number of water bottles you can drink: $15 + 3 + 1 = 19$.

Example 3:

Input: numBottles = 5, numExchange = 5

Output: 6

Example 4:

Input: numBottles = 2, numExchange = 3

Output: 2

Constraints:

- 1 <= numBottles <= 100
- 2 <= numExchange <= 100

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1518-Water-Bottles](#)

All Problems:

[Link to All Problems](#)

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1519. Number of Nodes in the Sub-Tree With the Same Label

Given a tree (i.e. a connected, undirected graph that has no cycles) consisting of n nodes numbered from 0 to $n - 1$ and exactly $n - 1$ edges . The **root** of the tree is the node 0 , and each node of the tree has a **label** which is a lower-case character given in the string `labels` (i.e. The node with the number i has the label `labels[i]`).

The `edges` array is given on the form `edges[i] = [ai, bi]` , which means there is an edge between nodes a_i and b_i in the tree.

Return *an array of size n where ans[i] is the number of nodes in the subtree of the ith node which have the same label as node i .*

A subtree of a tree T is the tree consisting of a node in T and all of its descendant nodes.

Example 1:

Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], labels = "babab"
Output: [2,1,1,1,1,1,1]

Explanation: Node 0 has label 'a' and its sub-tree has node 2 with label 'b'.
Node 1 has a label 'b'. The sub-tree of node 1 contains nodes 4, 5, with label 'a'.
The sub-tree of node 2 contains nodes 3, 6, with label 'b'.
The sub-tree of node 3 contains node 6, with label 'b'.
The sub-tree of node 4 contains node 5, with label 'a'.
The sub-tree of node 5 contains node 6, with label 'b'.
The sub-tree of node 6 contains node 6, with label 'b'.

Example 2:

Input: n = 4, edges = [[0,1],[1,2],[0,3]], labels = "bbbb"
Output: [4,2,1,1]
Explanation: The sub-tree of node 2 contains only node 2, so the answer is 1.
The sub-tree of node 3 contains only node 3, so the answer is 1.
The sub-tree of node 1 contains nodes 1 and 2, both have label 'b'.
The sub-tree of node 0 contains nodes 0, 1, 2 and 3, all with label 'b'.

Example 3:

Input: n = 5, edges = [[0,1],[0,2],[1,3],[0,4]], labels = "aabab"
Output: [3,2,1,1,1]

Example 4:

Input: n = 6, edges = [[0,1],[0,2],[1,3],[3,4],[4,5]], labels = "babab"
Output: [1,2,1,1,2,1]

Example 5:

Input: n = 7, edges = [[0,1],[1,2],[2,3],[3,4],[4,5],[5,6]], labels = "babab"
Output: [6,5,4,1,3,2,1]

Constraints:

- $1 \leq n \leq 10^5$
- $\text{edges.length} == n - 1$
- $\text{edges}[i].length == 2$
- $0 \leq a_i, b_i < n$
- $a_i \neq b_i$
- $\text{labels.length} == n$
- labels is consisting of only of lower-case English letters.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1519-Number-of-Nodes-in-the-Sub-Tree-With-the-Same-Label](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1520. Maximum Number of Non-Overlapping Substrings

Given a string s of lowercase letters, you need to find the maximum number of **non-empty** substrings of s that meet the following conditions:

1. The substrings do not overlap, that is for any two substrings $s[i..j]$ and $s[k..l]$, either $j < k$ or $i > l$ is true.
2. A substring that contains a certain character c must also contain all occurrences of c .

Find *the maximum number of substrings that meet the above conditions*. If there are multiple solutions with the same number of substrings, *return the one with minimum total length*. It can be shown that there exists a unique solution of minimum total length.

Notice that you can return the substrings in **any** order.

Example 1:

Input: $s = "adefaddaccc"$

Output: $["e", "f", "ccc"]$

Explanation: The following are all the possible substrings that

```
[  
    "adefaddaccc"  
    "adefadda",  
    "ef",  
    "e",  
    "f",  
    "ccc",  
]
```

If we choose the first string, we cannot choose anything else and

Example 2:

Input: $s = "abbacd"$

Output: $["d", "bb", "cc"]$

Explanation: Notice that while the set of substrings $["d", "abba"]$

Constraints:

- $1 \leq s.length \leq 10^5$

- `s` contains only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1520-Maximum-Number-of-Non-Overlapping-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1521. Find a Value of a Mysterious Function Closest to Target

```
func(arr, l, r) {  
    if (r < l) {  
        return -1000000000  
    }  
    ans = arr[l]  
    for (i = l + 1; i <= r; i++) {  
        ans = ans & arr[i]  
    }  
    return ans  
}
```

Winston was given the above mysterious function `func` . He has an integer array `arr` and an integer `target` and he wants to find the values `l` and `r` that make the value $| \text{func}(\text{arr}, \text{l}, \text{r}) - \text{target} |$ minimum possible.

Return *the minimum possible value* of $|\text{func}(\text{arr}, \text{l}, \text{r}) - \text{target}|$.

Notice that `func` should be called with the values `l` and `r` where $0 \leq \text{l}, \text{r} < \text{arr.length}$.

Example 1:

Input: `arr = [9,12,3,7,15]`, `target = 5`

Output: 2

Explanation: Calling `func` with all the pairs of `[l,r] = [[0,0], [0,1], [0,2], [0,3], [0,4], [1,2], [1,3], [1,4], [2,3], [2,4], [3,4]]`

Example 2:

Input: `arr = [1000000,1000000,1000000]`, `target = 1`

Output: 999999

Explanation: Winston called the `func` with all possible values of `[l,r] = [[0,0], [0,1], [0,2], [1,2]]`

Example 3:

Input: arr = [1,2,4,8,16], target = 0
Output: 0

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 10^6$
- $0 \leq \text{target} \leq 10^7$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1521-Find-a-Value-of-a-Mysterious-Function-Closest-to-Target](#)

All Problems:

[Link to All Problems](#)

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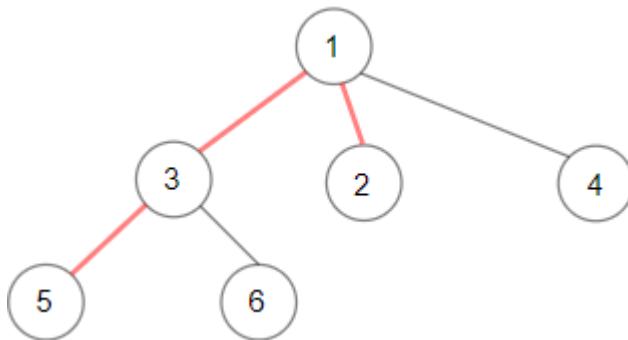
1522. Diameter of N-Ary Tree

Given a root of an [N-ary tree](#), you need to compute the length of the diameter of the tree.

The diameter of an N-ary tree is the length of the **longest** path between any two nodes in the tree. This path may or may not pass through the root.

(*N-ary-Tree input serialization is represented in their level order traversal, each group of children is separated by the null value.*)

Example 1:

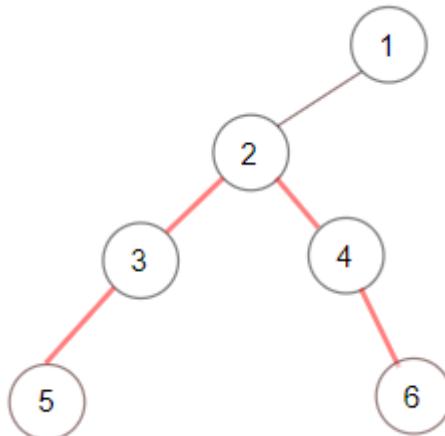


Input: root = [1,null,3,2,4,null,5,6]

Output: 3

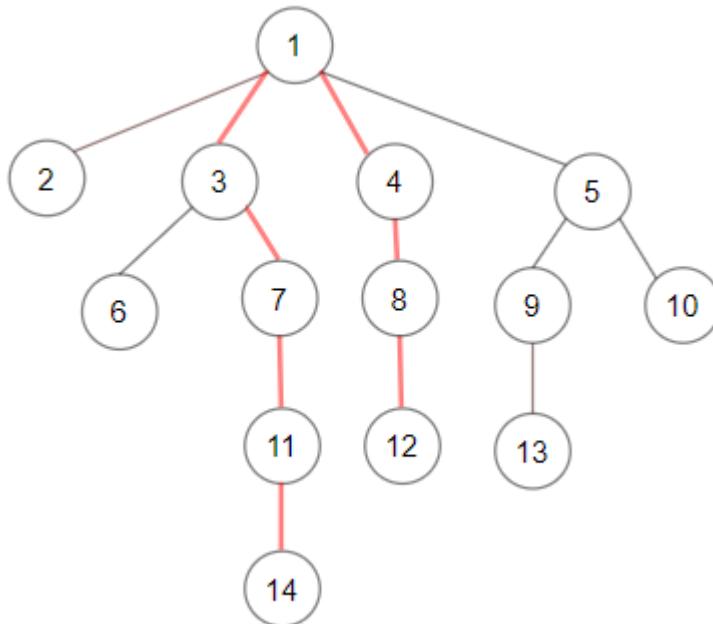
Explanation: Diameter is shown in red color.

Example 2:



Input: root = [1,null,2,null,3,4,null,5,null,6]
Output: 4

Example 3:



Input: root = [1,null,2,3,4,5,null,null,6,7,null,8,null,9,10,null]
Output: 7

Constraints:

- The depth of the n-ary tree is less than or equal to 1000 .
- The total number of nodes is between [0, 10^4] .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1522-Diameter-of-N-Ary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1523. Count Odd Numbers in an Interval Range

Given two non-negative integers `low` and `high`. Return the *count of odd numbers between low and high (inclusive)*.

Example 1:

Input: `low = 3, high = 7`

Output: 3

Explanation: The odd numbers between 3 and 7 are [3,5,7].

Example 2:

Input: `low = 8, high = 10`

Output: 1

Explanation: The odd numbers between 8 and 10 are [9].

Constraints:

- $0 \leq \text{low} \leq \text{high} \leq 10^9$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1523-Count-Odd-Numbers-in-an-Interval-Range](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1524. Number of Sub-arrays With Odd Sum

Given an array of integers `arr` . Return *the number of sub-arrays with odd sum*.

As the answer may grow large, the answer **must be** computed modulo $10^9 + 7$.

Example 1:

Input: arr = [1,3,5]
Output: 4
Explanation: All sub-arrays are [[1],[1,3],[1,3,5],[3],[3,5],[5]]
All sub-arrays sum are [1,4,9,3,8,5].
Odd sums are [1,9,3,5] so the answer is 4.

Example 2:

Input: arr = [2,4,6]
Output: 0
Explanation: All sub-arrays are [[2],[2,4],[2,4,6],[4],[4,6],[6]]
All sub-arrays sum are [2,6,12,4,10,6].
All sub-arrays have even sum and the answer is 0.

Example 3:

Input: arr = [1,2,3,4,5,6,7]
Output: 16

Example 4:

Input: arr = [100,100,99,99]
Output: 4

Example 5:

Input: arr = [7]
Output: 1

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1524-Number-of-Sub-arrays-With-Odd-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1525. Number of Good Ways to Split a String

You are given a string s , a split is called *good* if you can split s into 2 non-empty strings p and q where its concatenation is equal to s and the number of distinct letters in p and q are the same.

Return the number of *good* splits you can make in s .

Example 1:

Input: $s = "aacaba"$

Output: 2

Explanation: There are 5 ways to split "aacaba" and 2 of them are ("a", "acaba") Left string and right string contains 1 and 3 different letters respectively.
("aa", "caba") Left string and right string contains 1 and 3 different letters respectively.
("aac", "aba") Left string and right string contains 2 and 2 different letters respectively.
("aaca", "ba") Left string and right string contains 2 and 2 different letters respectively.
("aacab", "a") Left string and right string contains 3 and 1 different letters respectively.

Example 2:

Input: $s = "abcd"$

Output: 1

Explanation: Split the string as follows ("ab", "cd").

Example 3:

Input: s = "aaaaa"

Output: 4

Explanation: All possible splits are good.

Example 4:

Input: s = "acbabadbaada"

Output: 2

Constraints:

- s contains only lowercase English letters.
- $1 \leq s.length \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1525-Number-of-Good-Ways-to-Split-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1526. Minimum Number of Increments on Subarrays to Form a Target Array

Given an array of positive integers `target` and an array `initial` of same size with all zeros.

Return the minimum number of operations to form a target array from `initial` if you are allowed to do the following operation:

- Choose **any** subarray from `initial` and increment each value by one.

The answer is guaranteed to fit within the range of a 32-bit signed integer.

Example 1:

Input: `target` = [1,2,3,2,1]
Output: 3

Explanation: We need at least 3 operations to form the target array [0,0,0,0,0] increment 1 from index 0 to 4 (inclusive).
[1,1,1,1,1] increment 1 from index 1 to 3 (inclusive).
[1,2,2,2,1] increment 1 at index 2.
[1,2,3,2,1] target array is formed.

Example 2:

Input: `target` = [3,1,1,2]
Output: 4
Explanation: (`initial`) [0,0,0,0] -> [1,1,1,1] -> [1,1,1,2] -> [2,1,1,2]

Example 3:

Input: `target` = [3,1,5,4,2]
Output: 7
Explanation: (`initial`) [0,0,0,0,0] -> [1,1,1,1,1] -> [2,1,1,1,1]
-> [3,1,2,2,2] -> [3,1,3,3,2]

Example 4:

Input: `target` = [1,1,1,1]
Output: 1

Constraints:

- $1 \leq \text{target.length} \leq 10^5$
- $1 \leq \text{target}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1526-Minimum-Number-of-Increments-on-Subarrays-to-Form-a-Target-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1527. Patients With a Condition

SQL Schema >

Table: Patients

Column Name	Type
patient_id	int
patient_name	varchar
conditions	varchar

patient_id is the primary key for this table.

'conditions' contains 0 or more code separated by spaces.

This table contains information of the patients in the hospital.

Write an SQL query to report the patient_id, patient_name all conditions of patients who have Type I Diabetes. Type I Diabetes always starts with DIAB1 prefix

Return the result table in any order.

The query result format is in the following example.

Patients

patient_id	patient_name	conditions
1	Daniel	YFEV COUGH
2	Alice	
3	Bob	DIAB100 MYOP
4	George	ACNE DIAB100
5	Alain	DIAB201

Result table:

patient_id	patient_name	conditions
3	Bob	DIAB100 MYOP
4	George	ACNE DIAB100

Bob and George both have a condition that starts with DIAB1.

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[1527-Patients-With-a-Condition](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1528. Shuffle String

Given a string `s` and an integer array `indices` of the **same length**.

The string `s` will be shuffled such that the character at the i^{th} position moves to `indices[i]` in the shuffled string.

Return *the shuffled string*.

Example 1:

Input: s = "codeleet", indices = [4,5,6,7,0,2,1,3]
Output: "leetcode"

Explanation: As shown, "codeleet" becomes "leetcode" after shuff

Example 2:

Input: s = "abc", indices = [0,1,2]
Output: "abc"

Explanation: After shuffling, each character remains in its posi

Example 3:

Input: s = "aiohn", indices = [3,1,4,2,0]
Output: "nihao"

Example 4:

Input: s = "aaougtrt", indices = [4,0,2,6,7,3,1,5]
Output: "arigatou"

Example 5:

Input: s = "art", indices = [1,0,2]
Output: "rat"

Constraints:

- s.length == indices.length == n
- 1 <= n <= 100
- s contains only lower-case English letters.
- 0 <= indices[i] < n
- All values of indices are unique (i.e. indices is a permutation of the integers from 0 to n - 1).

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1528-Shuffle-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1529. Bulb Switcher IV

There is a room with n bulbs, numbered from 0 to $n-1$, arranged in a row from left to right. Initially all the bulbs are **turned off**.

Your task is to obtain the configuration represented by `target` where `target[i]` is '1' if the i -th bulb is turned on and is '0' if it is turned off.

You have a switch to flip the state of the bulb, a flip operation is defined as follows:

- Choose **any** bulb (index i) of your current configuration.
- Flip each bulb from index i to $n-1$.

When any bulb is flipped it means that if it is 0 it changes to 1 and if it is 1 it changes to 0.

Return the **minimum** number of flips required to form target .

Example 1:

```
Input: target = "10111"
Output: 3
Explanation: Initial configuration "00000".
flip from the third bulb: "00000" -> "00111"
flip from the first bulb: "00111" -> "11000"
flip from the second bulb: "11000" -> "10111"
We need at least 3 flip operations to form target.
```

Example 2:

```
Input: target = "101"
Output: 3
Explanation: "000" -> "111" -> "100" -> "101".
```

Example 3:

```
Input: target = "00000"
Output: 0
```

Example 4:

```
Input: target = "001011101"
Output: 5
```

Constraints:

- $1 \leq \text{target.length} \leq 10^5$
- $\text{target}[i] == '0'$ or $\text{target}[i] == '1'$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1529-Bulb-Switcher-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1530. Number of Good Leaf Nodes Pairs

Given the `root` of a binary tree and an integer `distance`. A pair of two different **leaf** nodes of a binary tree is said to be good if the length of **the shortest path** between them is less than or equal to `distance`.

Return *the number of good leaf node pairs* in the tree.

Example 1:

Input: `root = [1,2,3,null,4]`, `distance = 3`

Output: 1

Explanation: The leaf nodes of the tree are 3 and 4 and the leng

Example 2:

Input: `root = [1,2,3,4,5,6,7]`, `distance = 3`

Output: 2

Explanation: The good pairs are [4,5] and [6,7] with shortest pa

Example 3:

Input: `root = [7,1,4,6,null,5,3,null,null,null,null,2]`, dis

Output: 1

Explanation: The only good pair is [2,5].

Example 4:

Input: root = [100], distance = 1
Output: 0

Example 5:

Input: root = [1,1,1], distance = 2
Output: 1

Constraints:

- The number of nodes in the tree is in the range [1, 2¹⁰].
- Each node's value is between [1, 100] .
- 1 <= distance <= 10

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1530-Number-of-Good-Leaf-Nodes-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1531. String Compression

II

[Run-length encoding](#) is a string compression method that works by replacing consecutive identical characters (repeated 2 or more times) with the concatenation of the character and the number marking the count of the characters (length of the run). For example, to compress the string "aabccc" we replace "aa" by "a2" and replace "ccc" by "c3" . Thus the compressed string becomes "a2bc3" .

Notice that in this problem, we are not adding ' 1 ' after single characters.

Given a string s and an integer k . You need to delete **at most** k characters from s such that the run-length encoded version of s has minimum length.

Find the *minimum length of the run-length encoded version of s after deleting at most k characters* .

Example 1:

Input: s = "aaabcccd" , k = 2

Output: 4

Explanation: Compressing s without deleting anything will give us "a2bc3d".

Example 2:

Input: s = "aabbaa" , k = 2

Output: 2

Explanation: If we delete both 'b' characters, the resulting compressed string will be "aaab" .

Example 3:

Input: s = "aaaaaaaaaa" , k = 0

Output: 3

Explanation: Since k is zero, we cannot delete anything. The compressed string will be "a3" .

Constraints:

- $1 \leq s.length \leq 100$
- $0 \leq k \leq s.length$
- s contains only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1531-String-Compression-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1532. The Most Recent Three Orders

[SQL Schema](#) >

Table: Customers

Column Name	Type
customer_id	int
name	varchar

customer_id is the primary key for this table.
This table contains information about customers.

Table: Orders

Column Name	Type
order_id	int
order_date	date
customer_id	int
cost	int

order_id is the primary key for this table.
This table contains information about the orders made customer_id.
Each customer has one order per day.

Write an SQL query to find the most recent 3 orders of each user. If a user ordered less than 3 orders return all of their orders.

Return the result table sorted by customer_name in **ascending** order and in case of a tie by the customer_id in **ascending** order. If there still a tie, order them by the order_date in **descending** order.

The query result format is in the following example:

Customers

customer_id	name
1	Winston
2	Jonathan
3	Annabelle
4	Marwan

5	Khaled
---	--------

Orders

order_id	order_date	customer_id	cost
1	2020-07-31	1	30
2	2020-07-30	2	40
3	2020-07-31	3	70
4	2020-07-29	4	100
5	2020-06-10	1	1010
6	2020-08-01	2	102
7	2020-08-01	3	111
8	2020-08-03	1	99
9	2020-08-07	2	32
10	2020-07-15	1	2

Result table:

customer_name	customer_id	order_id	order_date
Annabelle	3	7	2020-08-01
Annabelle	3	3	2020-07-31
Jonathan	2	9	2020-08-07
Jonathan	2	6	2020-08-01
Jonathan	2	2	2020-07-30
Marwan	4	4	2020-07-29
Winston	1	8	2020-08-03
Winston	1	1	2020-07-31
Winston	1	10	2020-07-15

Winston has 4 orders, we discard the order of "2020-06-10" because it's the oldest.
 Annabelle has only 2 orders, we return them.

Jonathan has exactly 3 orders.

Marwan ordered only one time.

We sort the result table by customer_name in ascending order, by customer_id in descending order.

Follow-up:

Can you write a general solution for the most recent n orders?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[**1532-The-Most-Recent-Three-Orders**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1533. Find the Index of the Large Integer

We have an integer array `arr` , where all the integers in `arr` are equal except for one integer which is **larger** than the rest of the integers. You will not be given direct access to the array, instead, you will have an **API** `ArrayReader` which have the following functions:

- `int compareSub(int l, int r, int x, int y)` :where $0 \leq l, r, x, y < \text{ArrayReader.length()}$, $l \leq r$ and $x \leq y$
. The function compares the sum of sub-array

- arr[l..r] with the sum of the sub-array arr[x..y] and returns:
 - **1** if arr[l]+arr[l+1]+...+arr[r] > arr[x]+arr[x+1]+...+arr[y] .
 - **0** if arr[l]+arr[l+1]+...+arr[r] == arr[x]+arr[x+1]+...+arr[y] .
 - **-1** if arr[l]+arr[l+1]+...+arr[r] < arr[x]+arr[x+1]+...+arr[y] .
- int length() : Returns the size of the array.

You are allowed to call compareSub() **20 times** at most.
You can assume both functions work in O(1) time.

Return *the index of the array arr which has the largest integer* .

Follow-up:

- What if there are two numbers in arr that are bigger than all other numbers?
- What if there is one number that is bigger than other numbers and one number that is smaller than other numbers?

Example 1:

Input: arr = [7,7,7,7,10,7,7,7]
Output: 4

Explanation: The following calls to the API reader.compareSub(0, 0, 1, 1) // returns 0 this is a query comparison. Thus we know that arr[0] and arr[1] doesn't contain the largest element. reader.compareSub(2, 2, 3, 3) // returns 0, we can exclude arr[2]. reader.compareSub(4, 4, 5, 5) // returns 1, thus for sure arr[4] contains the largest element. Notice that we made only 3 calls, so the answer is valid.

Example 2:

Input: nums = [6,6,12]
Output: 2

Constraints:

- $2 \leq \text{arr.length} \leq 5 * 10^5$
- $1 \leq \text{arr}[i] \leq 100$
- All elements of arr are equal except for one element which is larger than all other elements.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1533-Find-the-Index-of-the-Large-Integer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1534. Count Good Triplets

Given an array of integers `arr` , and three integers `a` , `b` and `c` . You need to find the number of good triplets.

A triplet `(arr[i], arr[j], arr[k])` is **good** if the following conditions are true:

- `0 <= i < j < k < arr.length`

- $|arr[i] - arr[j]| \leq a$
- $|arr[j] - arr[k]| \leq b$
- $|arr[i] - arr[k]| \leq c$

Where $|x|$ denotes the absolute value of x .

Return *the number of good triplets*.

Example 1:

Input: $arr = [3, 0, 1, 1, 9, 7]$, $a = 7$, $b = 2$, $c = 3$

Output: 4

Explanation: There are 4 good triplets: $[(3, 0, 1), (3, 0, 1), (3, 1, 1), (1, 1, 9)]$

Example 2:

Input: $arr = [1, 1, 2, 2, 3]$, $a = 0$, $b = 0$, $c = 1$

Output: 0

Explanation: No triplet satisfies all conditions.

Constraints:

- $3 \leq arr.length \leq 100$
- $0 \leq arr[i] \leq 1000$
- $0 \leq a, b, c \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1534-Count-Good-Triplets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1535. Find the Winner of an Array Game

Given an integer array `arr` of **distinct** integers and an integer `k` .

A game will be played between the first two elements of the array (i.e. `arr[0]` and `arr[1]`). In each round of the game, we compare `arr[0]` with `arr[1]` , the larger integer wins and remains at position `0` and the smaller integer moves to the end of the array. The game ends when an integer wins `k` consecutive rounds.

Return the integer which will win the game .

It is **guaranteed** that there will be a winner of the game.

Example 1:

Input: `arr = [2,1,3,5,4,6,7]` , `k = 2`

Output: 5

Explanation: Let's see the rounds of the game:

Round	arr	winner	win_count
1	[2,1,3,5,4,6,7]	2	1
2	[2,3,5,4,6,7,1]	3	1
3	[3,5,4,6,7,1,2]	5	1
4	[5,4,6,7,1,2,3]	5	2

So we can see that 4 rounds will be played and 5 is the winner because it has won 2 consecutive rounds.

Example 2:

```
Input: arr = [3,2,1], k = 10
Output: 3
Explanation: 3 will win the first 10 rounds consecutively.
```

Example 3:

```
Input: arr = [1,9,8,2,3,7,6,4,5], k = 7
Output: 9
```

Example 4:

```
Input: arr = [1,11,22,33,44,55,66,77,88,99], k = 1000000000
Output: 99
```

Constraints:

- $2 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 10^6$
- **arr** contains **distinct** integers.
- $1 \leq k \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1535-Find-the-Winner-of-an-Array-Game](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1536. Minimum Swaps to Arrange a Binary Grid

Given an $n \times n$ binary grid , in one step you can choose two **adjacent rows** of the grid and swap them.

A grid is said to be **valid** if all the cells above the main diagonal are **zeros** .

Return *the minimum number of steps* needed to make the grid valid, or **-1** if the grid cannot be valid.

The main diagonal of a grid is the diagonal that starts at cell $(1, 1)$ and ends at cell (n, n) .

Example 1:

Input: grid = [[0,0,1],[1,1,0],[1,0,0]]
Output: 3

Example 2:

Input: grid = [[0,1,1,0],[0,1,1,0],[0,1,1,0],[0,1,1,0]]
Output: -1
Explanation: All rows are similar, swaps have no effect on the grid.

Example 3:

Input: grid = [[1,0,0],[1,1,0],[1,1,1]]
Output: 0

Constraints:

- $n == \text{grid.length}$
- $n == \text{grid[i].length}$
- $1 \leq n \leq 200$
- grid[i][j] is 0 or 1

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1536-Minimum-Swaps-to-Arrange-a-Binary-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1537. Get the Maximum Score

You are given two **sorted** arrays of distinct integers `nums1` and `nums2`.

A **valid path** is defined as follows:

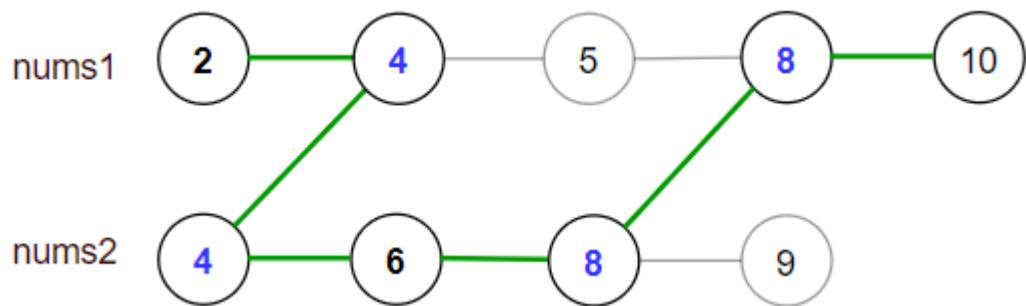
- Choose array `nums1` or `nums2` to traverse (from index-0).
- Traverse the current array from left to right.
- If you are reading any value that is present in `nums1` and `nums2` you are allowed to change your path to the other array. (Only one repeated value is considered in the valid path).

Score is defined as the sum of unique values in a valid path.

Return the maximum *score* you can obtain of all possible **valid paths**.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:



Input: `nums1 = [2,4,5,8,10]`, `nums2 = [4,6,8,9]`

Output: 30

Explanation: Valid paths:

`[2,4,5,8,10]`, `[2,4,5,8,9]`, `[2,4,6,8,9]`, `[2,4,6,8,10]`, (starting from `2`)

`[4,6,8,9]`, `[4,5,8,10]`, `[4,5,8,9]`, `[4,6,8,10]` (starting from `4`)

The maximum is obtained with the path in green `[2,4,6,8,10]`.

Example 2:

Input: `nums1 = [1,3,5,7,9]`, `nums2 = [3,5,100]`

Output: 109

Explanation: Maximum sum is obtained with the path `[1,3,5,100]`.

Example 3:

Input: `nums1 = [1,2,3,4,5]`, `nums2 = [6,7,8,9,10]`

Output: 40

Explanation: There are no common elements between `nums1` and `nums2`.

Maximum sum is obtained with the path `[6,7,8,9,10]`.

Example 4:

Input: `nums1 = [1,4,5,8,9,11,19]`, `nums2 = [2,3,4,11,12]`
Output: 61

Constraints:

- $1 \leq \text{nums1.length} \leq 10^5$
- $1 \leq \text{nums2.length} \leq 10^5$
- $1 \leq \text{nums1[i]}, \text{nums2[i]} \leq 10^7$
- `nums1` and `nums2` are strictly increasing.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1537-Get-the-Maximum-Score](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1538. Guess the Majority in a Hidden Array

We have an integer array `nums` , where all the integers in `nums` are **0** or **1** . You will not be given direct access to the array, instead, you will have an **API** `ArrayReader` which have the following functions:

- `int query(int a, int b, int c, int d) :`
where $0 \leq a < b < c < d < \text{ArrayReader.length()}$. The function returns the distribution of the value of the 4 elements and returns:
 - **4** : if the values of the 4 elements are the same (0 or 1).
 - **2** : if three elements have a value equal to 0 and one element has value equal to 1 or vice versa.
 - **0** : if two element have a value equal to 0 and two elements have a value equal to 1.
- `int length()` : Returns the size of the array.

You are allowed to call `query()` **2 * n times** at most where `n` is equal to `ArrayReader.length()` .

Return **any** index of the most frequent value in `nums` , in case of tie, return -1.

Follow up: What is the minimum number of calls needed to find the majority element?

Example 1:

Input: `nums = [0,0,1,0,1,1,1,1]`

Output: 5

Explanation: The following calls to the API
`reader.length() // returns 8 because there are 8 elements in the`
`reader.query(0,1,2,3) // returns 2 this is a query that compares`
`// Three elements have a value equal to 0 and one element has va`
`reader.query(4,5,6,7) // returns 4 because nums[4], nums[5], num`
we can infer that the most frequent value is found in the last 4
Index 2, 4, 6, 7 is also a correct answer.

Example 2:

Input: nums = [0,0,1,1,0]
Output: 0

Example 3:

Input: nums = [1,0,1,0,1,0,1,0]
Output: -1

Constraints:

- $5 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 1$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1538-Guess-the-Majority-in-a-Hidden-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1539. Kth Missing Positive Number

Given an array arr of positive integers sorted in a **strictly increasing order**, and an integer k .

Find the kth positive integer that is missing from this array.

Example 1:

Input: arr = [2,3,4,7,11], k = 5

Output: 9

Explanation: The missing positive integers are [1,5,6,8,9,10,12, ...]. The 5th missing positive integer is 9.

Example 2:

Input: arr = [1,2,3,4], k = 2

Output: 6

Explanation: The missing positive integers are [5,6,7,...]. The 2nd missing positive integer is 6.

Constraints:

- $1 \leq \text{arr.length} \leq 1000$
- $1 \leq \text{arr}[i] \leq 1000$
- $1 \leq k \leq 1000$
- $\text{arr}[i] < \text{arr}[j]$ for $1 \leq i < j \leq \text{arr.length}$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1539-Kth-Missing-Positive-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1540. Can Convert String in K Moves

Given two strings s and t , your goal is to convert s into t in k moves or less.

During the i^{th} ($1 \leq i \leq k$) move you can:

- Choose any index j (1-indexed) from s , such that $1 \leq j \leq s.length$ and j has not been chosen in any previous move, and shift the character at that index i times.
- Do nothing.

Shifting a character means replacing it by the next letter in the alphabet (wrapping around so that 'z' becomes 'a'). Shifting a character by i means applying the shift operations i times.

Remember that any index j can be picked at most once.

Return true if it's possible to convert s into t in no more than k moves, otherwise return false .

Example 1:

Input: s = "input", t = "output", k = 9

Output: true

Explanation: In the 6th move, we shift 'i' 6 times to get 'o'. A

Example 2:

Input: s = "abc", t = "bcd", k = 10

Output: false

Explanation: We need to shift each character in s one time to co

Example 3:

Input: s = "aab", t = "bbb", k = 27

Output: true

Explanation: In the 1st move, we shift the first 'a' 1 time to g

Constraints:

- $1 \leq s.length, t.length \leq 10^5$
- $0 \leq k \leq 10^9$
- s , t contain only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1540-Can-Convert-String-in-K-Moves](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1541. Minimum Insertions to Balance a Parentheses String

Given a parentheses string s containing only the characters ' $($ ' and ' $)$ '. A parentheses string is **balanced** if:

- Any left parenthesis ' $($ ' must have a corresponding two consecutive right parenthesis ' $))$ ' .
- Left parenthesis ' $($ ' must go before the corresponding two consecutive right parenthesis ' $))$ ' .

For example, " $((()$ ", " $((())(()))$ " and " $((())(())$ " are balanced, " $)()$ ", " $(())$ " and " $(())()$ " are not balanced.

You can insert the characters ' $($ ' and ' $)$ ' at any position of the string to balance it if needed.

Return *the minimum number of insertions* needed to make s balanced.

Example 1:

Input: $s = "((()))"$
Output: 1

Explanation: The second ' $($ ' has two matching ' $)$ ' , but the first

Example 2:

Input: s = "()"

Output: 0

Explanation: The string is already balanced.

Example 3:

Input: s = "))())("

Output: 3

Explanation: Add '(' to match the first ')', Add ')' to match

Example 4:

Input: s = "((((("

Output: 12

Explanation: Add 12 ')' to balance the string.

Example 5:

Input: s = "))))))")

Output: 5

Explanation: Add 4 '(' at the beginning of the string and one ')'

Constraints:

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

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1541-Minimum-Insertions-to-Balance-a-Parentheses-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1542. Find Longest Awesome Substring

Given a string s . An *awesome* substring is a non-empty substring of s such that we can make any number of swaps in order to make it palindrome.

Return the length of the maximum length **awesome substring** of s .

Example 1:

Input: $s = "3242415"$

Output: 5

Explanation: "24241" is the longest awesome substring, we can fo

Example 2:

Input: $s = "12345678"$

Output: 1

Example 3:

Input: $s = "213123"$

Output: 6

Explanation: "213123" is the longest awesome substring, we can fo

Example 4:

Input: s = "00"
Output: 2

Constraints:

- $1 \leq s.length \leq 10^5$
- s consists only of digits.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1542-Find-Longest-Awesome-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1543. Fix Product Name Format

SQL Schema >

Table: Sales

Column Name	Type
sale_id	int
product_name	varchar
sale_date	date

sale_id is the primary key for this table.

Each row of this table contains the product name and the date it

Since table Sales was filled manually in the year 2000, product_name may contain leading and/or trailing white spaces, also they are case-insensitive.

Write an SQL query to report

- product_name in lowercase without leading or trailing white spaces.
- sale_date in the format ('YYYY-MM')
- total the number of times the product was sold in this month.

Return the result table ordered by product_name in **ascending order**, in case of a tie order it by sale_date in **ascending order**.

The query result format is in the following example.

Sales

sale_id	product_name	sale_date
1	LCPHONE	2000-01-16
2	LCPhone	2000-01-17
3	LcPhOnE	2000-02-18
4	LCKeyCHAiN	2000-02-19
5	LCKeyChain	2000-02-28
6	Matryoshka	2000-03-31

Result table:

product_name	sale_date	total
lcphone	2000-01	2
lkeychain	2000-02	2
lcphone	2000-02	1
matryoshka	2000-03	1

In January, 2 LcPhones were sold, please note that the product name is lcphone.
In Februery, 2 LCKeychains and 1 LCPhone were sold.
In March, 1 matryoshka was sold.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1543-Fix-Product-Name-Format](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1544. Make The String Great

Given a string s of lower and upper case English letters.

A good string is a string which doesn't have **two adjacent characters** $s[i]$ and $s[i + 1]$ where:

- $0 \leq i \leq s.length - 2$
- $s[i]$ is a lower-case letter and $s[i + 1]$ is the same letter but in upper-case or **vice-versa**.

To make the string good, you can choose **two adjacent characters** that make the string bad and remove them. You can keep doing this until the string becomes good.

Return *the string* after making it good. The answer is guaranteed to be unique under the given constraints.

Notice that an empty string is also good.

Example 1:

Input: $s = "leEeetcode"$

Output: "leetcode"

Explanation: In the first step, either you choose $i = 1$ or $i = 2$

Example 2:

Input: $s = "abBAcc"$

Output: ""

Explanation: We have many possible scenarios, and all lead to the
"abBAcc" --> "aAcC" --> "cC" --> ""
"abBAcc" --> "abBA" --> "aA" --> ""

Example 3:

Input: $s = "s"$

Output: "s"

Constraints:

- $1 \leq s.length \leq 100$

- `s` contains only lower and upper case English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1544-Make-The-String-Great](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1545. Find Kth Bit in Nth Binary String

Given two positive integers n and k , the binary string S_n is formed as follows:

- $S_1 = "0"$
- $S_i = S_{i-1} + "1" + \text{reverse}(\text{invert}(S_{i-1}))$
for $i > 1$

Where $+$ denotes the concatenation operation, $\text{reverse}(x)$ returns the reversed string x , and $\text{invert}(x)$ inverts all the bits in x (0 changes to 1 and 1 changes to 0).

For example, the first 4 strings in the above sequence are:

- $S_1 = "0"$
- $S_2 = "0\ 1\ 1"$
- $S_3 = "011\ 1\ 001"$
- $S_4 = "0111001\ 1\ 0110001"$

Return *the kth bit in S_n* . It is guaranteed that k is valid for the given n .

Example 1:

Input: $n = 3$, $k = 1$

Output: "0"

Explanation: S_3 is "0111001". The first bit is "0".

Example 2:

Input: $n = 4$, $k = 11$

Output: "1"

Explanation: S_4 is "011100110110001". The 11th bit is "1".

Example 3:

Input: $n = 1$, $k = 1$

Output: "0"

Example 4:

Input: n = 2, k = 3
Output: "1"

Constraints:

- $1 \leq n \leq 20$
- $1 \leq k \leq 2^n - 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1545-Find-Kth-Bit-in-Nth-Binary-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1546. Maximum Number of Non-Overlapping Subarrays With Sum Equals Target

Given an array `nums` and an integer `target`.

Return the maximum number of **non-empty non-overlapping** subarrays such that the sum of values in each subarray is equal to `target`.

Example 1:

Input: `nums = [1,1,1,1,1]`, `target = 2`

Output: 2

Explanation: There are 2 non-overlapping subarrays `[1,1,1,1,1]` with sum equal to 2.

Example 2:

Input: `nums = [-1,3,5,1,4,2,-9]`, `target = 6`

Output: 2

Explanation: There are 3 subarrays with sum equal to 6. (`[5,1]`, `[4,2]`, `[3,5,1,4,2,-9]`) but only the first 2 are non-overlapping.

Example 3:

Input: `nums = [-2,6,6,3,5,4,1,2,8]`, `target = 10`

Output: 3

Example 4:

Input: `nums = [0,0,0]`, `target = 0`

Output: 3

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^4 \leq \text{nums}[i] \leq 10^4$
- $0 \leq \text{target} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1546-Maximum-Number-of-Non-Overlapping-Subarrays-With-Sum-Equals-Target](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1547. Minimum Cost to Cut a Stick

Given a wooden stick of length n units. The stick is labelled from 0 to n . For example, a stick of length 6 is labelled as follows:

Given an integer array cuts where $\text{cuts}[i]$ denotes a position you should perform a cut at.

You should perform the cuts in order, you can change the order of the cuts as you wish.

The cost of one cut is the length of the stick to be cut, the total cost is the sum of costs of all cuts. When you cut a stick, it will be split into two smaller sticks (i.e. the sum of their lengths is the length of the stick before the cut).

Please refer to the first example for a better explanation.

Return *the minimum total cost* of the cuts.

Example 1:

Input: n = 7, cuts = [1,3,4,5]

Output: 16

Explanation: Using cuts order = [1, 3, 4, 5] as in the input lead

The first cut is done to a rod of length 7 so the cost is 7. The Rearranging the cuts to be [3, 5, 1, 4] for example will lead to

Example 2:

Input: n = 9, cuts = [5,6,1,4,2]

Output: 22

Explanation: If you try the given cuts ordering the cost will be There are much ordering with total cost ≤ 25 , for example, the

Constraints:

- $2 \leq n \leq 10^6$
- $1 \leq \text{cuts.length} \leq \min(n - 1, 100)$
- $1 \leq \text{cuts}[i] \leq n - 1$
- All the integers in cuts array are **distinct**.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1547-Minimum-Cost-to-Cut-a-Stick](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1548. The Most Similar Path in a Graph

We have n cities and m bi-directional roads where $\text{roads}[i] = [a_i, b_i]$ connects city a_i with city b_i . Each city has a name consisting of exactly 3 upper-case English letters given in the string array names . Starting at any city x , you can reach any city y where $y \neq x$ (i.e. the cities and the roads are forming an undirected connected graph).

You will be given a string array targetPath . You should find a path in the graph of the **same length** and with the **minimum edit distance** to targetPath .

You need to return *the order of the nodes in the path with the minimum edit distance*, The path should be of the same length of targetPath and should be valid (i.e. there should be a direct road between $\text{ans}[i]$ and

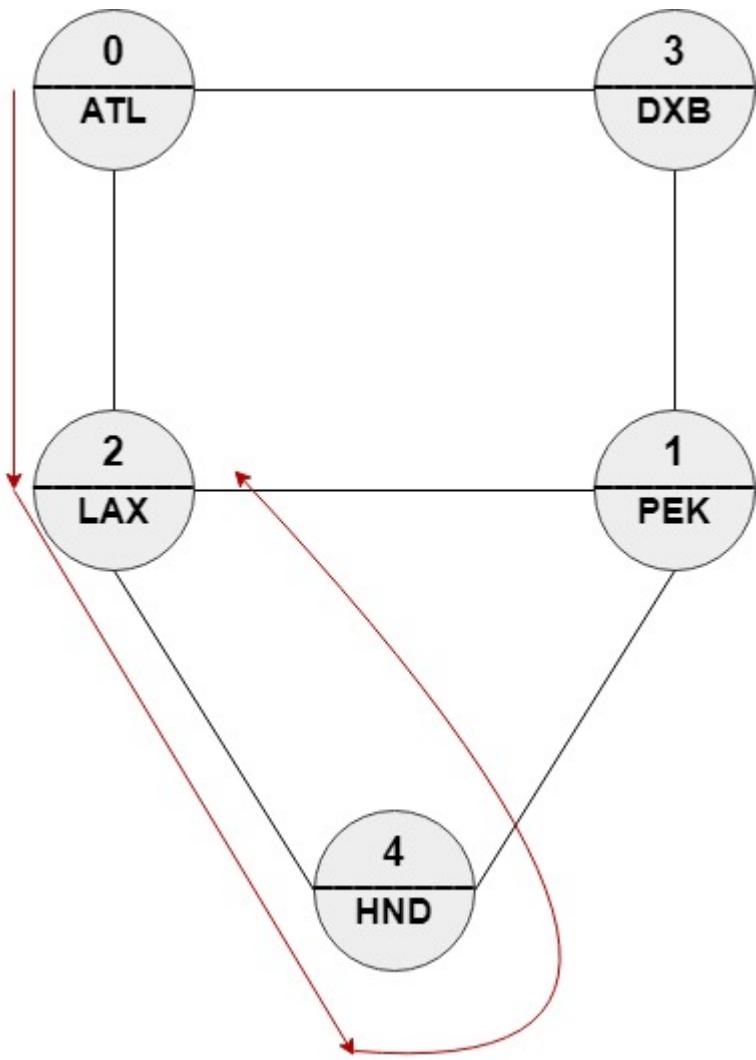
`ans[i + 1]`). If there are multiple answers return any one of them.

The **edit distance** is defined as follows:

```
define editDistance(targetPath, myPath) {  
    dis := 0  
    a := targetPath.length  
    b := myPath.length  
    if a != b {  
        return 1000000000  
    }  
    for (i := 0; i < a; i += 1) {  
        if targetPath[i] != myPath[i] {  
            dis += 1  
        }  
    }  
    return dis  
}
```

Follow-up: If each node can be visited only once in the path, What should you change in your solution?

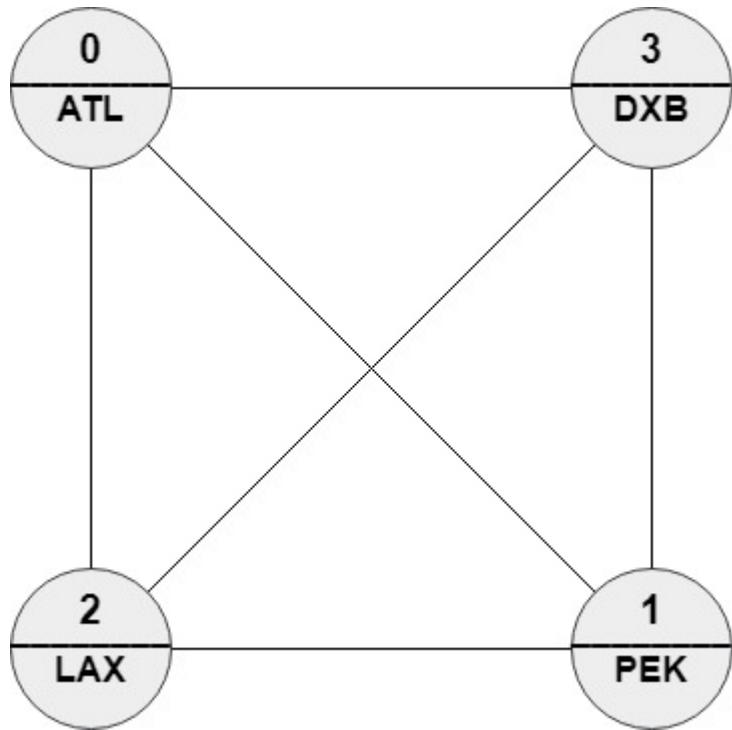
Example 1:



Input: $n = 5$, roads = $[[0,2],[0,3],[1,2],[1,3],[1,4],[2,4]]$, names = ["ATL", "DXB", "LAX", "PEK", "HND"]
 Output: [0,2,4,2]

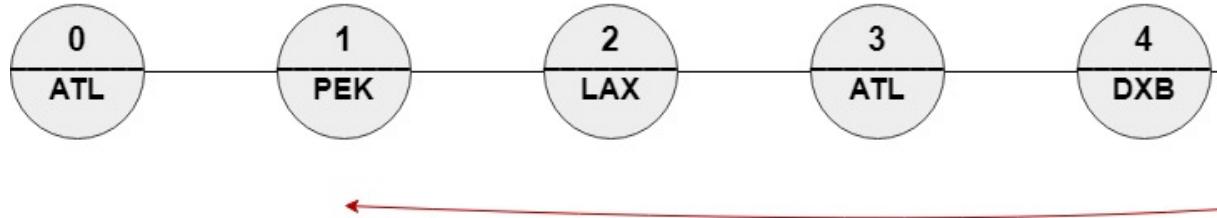
Explanation: [0,2,4,2], [0,3,0,2] and [0,3,1,2] are accepted answers.
 [0,2,4,2] is equivalent to ["ATL", "LAX", "HND", "LAX"] which has edge (0,2), (0,3), (2,4)
 [0,3,0,2] is equivalent to ["ATL", "DXB", "ATL", "LAX"] which has edge (0,3), (3,0), (0,2)
 [0,3,1,2] is equivalent to ["ATL", "DXB", "PEK", "LAX"] which has edge (0,3), (3,1), (1,2)

Example 2:



Input: $n = 4$, roads = $[[1,0],[2,0],[3,0],[2,1],[3,1],[3,2]]$, names = $["ATL", "PEK", "LAX", "DXB"]$
 Output: $[0,1,0,1,0,1,0,1]$
 Explanation: Any path in this graph has edit distance = 8 with target $["DXB", "ATL", "PEK", "LAX"]$

Example 3:



Input: $n = 6$, roads = $[[0,1],[1,2],[2,3],[3,4],[4,5]]$, names = $["ATL", "PEK", "LAX", "ATL", "DXB", "HND"]$
 Output: $[3,4,5,4,3,2,1]$
 Explanation: $[3,4,5,4,3,2,1]$ is the only path with edit distance 8 with target $["DXB", "HND", "DXB", "ATL", "LAX", "PEK"]$
 It's equivalent to $["ATL", "DXB", "HND", "DXB", "ATL", "LAX", "PEK"]$

Constraints:

- $2 \leq n \leq 100$
- $m == \text{roads.length}$
- $n - 1 \leq m \leq (n * (n - 1)) / 2$
- $0 \leq a_i, b_i \leq n - 1$
- $a_i \neq b_i$
- The graph is guaranteed to be **connected** and each pair of nodes may have **at most one** direct road.
- $\text{names.length} == n$

- `names[i].length == 3`
- `names[i]` consists of upper-case English letters.
- `1 <= targetPath.length <= 100`
- `targetPath[i].length == 3`
- `targetPath[i]` consists of upper-case English letters.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1548-The-Most-Similar-Path-in-a-Graph](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1549. The Most Recent Orders for Each Product

[SQL Schema](#) >

Table: Customers

Column Name	Type
customer_id	int
name	varchar

customer_id is the primary key for this table.
This table contains information about the customers.

Table: Orders

Column Name	Type
order_id	int
order_date	date
customer_id	int
product_id	int

order_id is the primary key for this table.
This table contains information about the orders made by customers.
There will be no product ordered by the same user more than once.

Table: Products

Column Name	Type
product_id	int
product_name	varchar
price	int

product_id is the primary key for this table.
This table contains information about the Products.

Write an SQL query to find the most recent order(s) of each product.

Return the result table sorted by product_name in **ascending** order and in case of a tie by the product_id in **ascending** order. If there still a tie, order them by the order_id in **ascending** order.

The query result format is in the following example:

Customers

customer_id	name
1	Winston
2	Jonathan
3	Annabelle
4	Marwan
5	Khaled

Orders

order_id	order_date	customer_id	product_id
1	2020-07-31	1	1
2	2020-07-30	2	2
3	2020-08-29	3	3
4	2020-07-29	4	1
5	2020-06-10	1	2
6	2020-08-01	2	1
7	2020-08-01	3	1
8	2020-08-03	1	2
9	2020-08-07	2	3
10	2020-07-15	1	2

Products

product_id	product_name	price
1	keyboard	120
2	mouse	80
3	screen	600
4	hard disk	450

Result table:

product_name	product_id	order_id	order_date
keyboard	1	6	2020-08-01
keyboard	1	7	2020-08-01
mouse	2	8	2020-08-03
screen	3	3	2020-08-29

keyboard's most recent order is in 2020-08-01, it was ordered twice.
mouse's most recent order is in 2020-08-03, it was ordered only once.
screen's most recent order is in 2020-08-29, it was ordered only once.
The hard disk was never ordered and we don't include it in the results.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1549-The-Most-Recent-Orders-for-Each-Product](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1550. Three Consecutive Odds

Given an integer array `arr` , return `true` if there are three consecutive odd numbers in the array. Otherwise, return `false` .

Example 1:

Input: arr = [2,6,4,1]

Output: false

Explanation: There are no three consecutive odds.

Example 2:

Input: arr = [1,2,34,3,4,5,7,23,12]

Output: true

Explanation: [5,7,23] are three consecutive odds.

Constraints:

- $1 \leq \text{arr.length} \leq 1000$
- $1 \leq \text{arr}[i] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1550-Three-Consecutive-Odds](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1551. Minimum Operations to Make Array Equal

You have an array arr of length n where $\text{arr}[i] = (2 * i) + 1$ for all valid values of i (i.e. $0 \leq i < n$).

In one operation, you can select two indices x and y where $0 \leq x, y < n$ and subtract 1 from $\text{arr}[x]$ and add 1 to $\text{arr}[y]$ (i.e. perform $\text{arr}[x] -= 1$ and $\text{arr}[y] += 1$). The goal is to make all the elements of the array **equal**. It is **guaranteed** that all the elements of the array can be made equal using some operations.

Given an integer n , the length of the array. Return *the minimum number of operations* needed to make all the elements of arr equal.

Example 1:

Input: $n = 3$

Output: 2

Explanation: $\text{arr} = [1, 3, 5]$

First operation choose $x = 2$ and $y = 0$, this leads arr to be $[2, 4, 5]$. In the second operation choose $x = 2$ and $y = 0$ again, thus $\text{arr} = [2, 3, 4]$.

Example 2:

Input: $n = 6$

Output: 9

Constraints:

- $1 \leq n \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1551-Minimum-Operations-to-Make-Array-Equal](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1552. Magnetic Force Between Two Balls

In universe Earth C-137, Rick discovered a special form of magnetic force between two balls if they are put in his new invented basket. Rick has n empty baskets, the i^{th} basket is at position $[i]$, Morty has m balls and needs to distribute the balls into the baskets such that the **minimum magnetic force** between any two balls is **maximum**.

Rick stated that magnetic force between two different balls at positions x and y is $|x - y|$.

Given the integer array `position` and the integer m .
Return *the required force*.

Example 1:

Input: `position = [1,2,3,4,7]`, $m = 3$

Output: 3

Explanation: Distributing the 3 balls into baskets 1, 4 and 7 wi

Example 2:

Input: `position = [5,4,3,2,1,1000000000]`, $m = 2$

Output: 999999999

Explanation: We can use baskets 1 and 1000000000.

Constraints:

- $n == \text{position.length}$
- $2 \leq n \leq 10^5$
- $1 \leq \text{position}[i] \leq 10^9$
- All integers in `position` are **distinct**.
- $2 \leq m \leq \text{position.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1552-Magnetic-Force-Between-Two-Balls](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1553. Minimum Number of Days to Eat N Oranges

There are n oranges in the kitchen and you decided to eat some of these oranges every day as follows:

- Eat one orange.
- If the number of remaining oranges (n) is divisible by 2 then you can eat $n/2$ oranges.
- If the number of remaining oranges (n) is divisible by 3 then you can eat $2*(n/3)$ oranges.

You can only choose one of the actions per day.

Return the minimum number of days to eat n oranges.

Example 1:

Input: $n = 10$

Output: 4

Explanation: You have 10 oranges.

Day 1: Eat 1 orange, $10 - 1 = 9$.

Day 2: Eat 6 oranges, $9 - 2*(9/3) = 9 - 6 = 3$. (Since 9 is divisible by 3)

Day 3: Eat 2 oranges, $3 - 2*(3/3) = 3 - 2 = 1$.

Day 4: Eat the last orange $1 - 1 = 0$.

You need at least 4 days to eat the 10 oranges.

Example 2:

Input: $n = 6$

Output: 3

Explanation: You have 6 oranges.

Day 1: Eat 3 oranges, $6 - 6/2 = 6 - 3 = 3$. (Since 6 is divisible by 2)

Day 2: Eat 2 oranges, $3 - 2*(3/3) = 3 - 2 = 1$. (Since 3 is divisible by 2)
Day 3: Eat the last orange $1 - 1 = 0$.
You need at least 3 days to eat the 6 oranges.

Example 3:

Input: n = 1
Output: 1

Example 4:

Input: n = 56
Output: 6

Constraints:

- $1 \leq n \leq 2*10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1553-Minimum-Number-of-Days-to-Eat-N-Oranges](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1554. Strings Differ by One Character

Given a list of strings `dict` where all the strings are of the same length.

Return `True` if there are 2 strings that only differ by 1 character in the same index, otherwise return `False`.

Follow up: Could you solve this problem in $O(n*m)$ where n is the length of `dict` and m is the length of each string.

Example 1:

Input: `dict = ["abcd", "acbd", "aacd"]`

Output: `true`

Output: Strings "abcd" and "aacd" differ only by one character in the same index.

Example 2:

Input: `dict = ["ab", "cd", "yz"]`

Output: `false`

Example 3:

Input: `dict = ["abcd", "cccc", "abyd", "abab"]`

Output: `true`

Constraints:

- Number of characters in `dict` $\leq 10^5$
- `dict[i].length == dict[j].length`
- `dict[i]` should be unique.
- `dict[i]` contains only lowercase English letters.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1554-Strings-Differ-by-One-Character](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1555. Bank Account Summary

SQL Schema >

Table: Users

Column Name	Type
user_id	int
user_name	varchar
credit	int

```
+-----+-----+
user_id is the primary key for this table.
Each row of this table contains the current credit information fo
```

Table: Transaction

Column Name	Type
trans_id	int
paid_by	int
paid_to	int
amount	int
transacted_on	date

trans_id is the primary key for this table.

Each row of this table contains the information about the transaction. User with id (paid_by) transfer money to user with id (paid_to).

Leetcode Bank (LCB) helps its coders in making virtual payments. Our bank records all transactions in the table *Transaction*, we want to find out the current balance of all users and check whether they have breached their credit limit (If their current credit is less than 0).

Write an SQL query to report.

- user_id
- user_name
- credit , current balance after performing transactions.
- credit_limit_breached , check credit_limit ("Yes" or "No")

Return the result table in **any** order.

The query result format is in the following example.

Users table:

user_id	user_name	credit
1	Moustafa	100
2	Jonathan	200
3	Winston	10000
4	Luis	800

Transaction table:

trans_id	paid_by	paid_to	amount	transacted_on
----------	---------	---------	--------	---------------

trans_id	paid_by	paid_to	amount	transacted_on
1	1	3	400	2020-08-01
2	3	2	500	2020-08-02
3	2	1	200	2020-08-03

Result table:

user_id	user_name	credit	credit_limit_breached
1	Moustafa	-100	Yes
2	Jonathan	500	No
3	Winston	9990	No
4	Luis	800	No

Moustafa paid \$400 on "2020-08-01" and received \$200 on "2020-08-03".
 Jonathan received \$500 on "2020-08-02" and paid \$200 on "2020-08-03".
 Winston received \$400 on "2020-08-01" and paid \$500 on "2020-08-02".
 Luis didn't receive any transfer, credit = \$800.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1555-Bank-Account-Summary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1556. Thousand Separator

Given an integer n , add a dot (".") as the thousands separator and return it in string format.

Example 1:

Input: $n = 987$
Output: "987"

Example 2:

Input: $n = 1234$
Output: "1.234"

Example 3:

Input: $n = 123456789$
Output: "123.456.789"

Example 4:

Input: $n = 0$
Output: "0"

Constraints:

- $0 \leq n < 2^{31}$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1556-Thousand-Separator](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

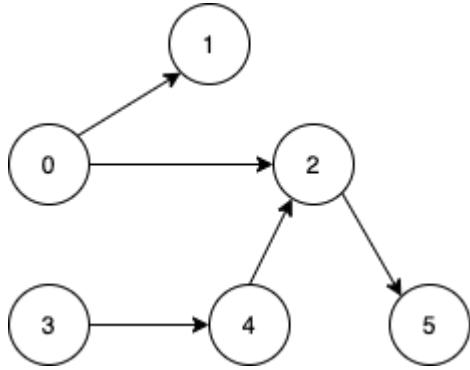
1557. Minimum Number of Vertices to Reach All Nodes

Given a **directed acyclic graph** , with n vertices numbered from 0 to $n-1$, and an array edges where $\text{edges}[i] = [\text{from}_i, \text{to}_i]$ represents a directed edge from node from_i to node to_i .

Find *the smallest set of vertices from which all nodes in the graph are reachable* . It's guaranteed that a unique solution exists.

Notice that you can return the vertices in any order.

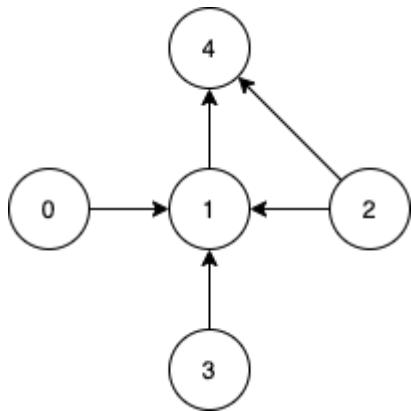
Example 1:



Input: $n = 6$, edges = $[[0,1], [0,2], [2,5], [3,4], [4,2]]$
Output: $[0,3]$

Explanation: It's not possible to reach all the nodes from a single source.

Example 2:



Input: $n = 5$, edges = $[[0,1], [2,1], [3,1], [1,4], [2,4]]$
Output: $[0,2,3]$

Explanation: Notice that vertices 0, 3 and 2 are not reachable from any other vertex.

Constraints:

- $2 \leq n \leq 10^5$
- $1 \leq \text{edges.length} \leq \min(10^5, n * (n - 1) / 2)$
- $\text{edges}[i].length == 2$
- $0 \leq \text{from}_i, \text{to}_i < n$
- All pairs $(\text{from}_i, \text{to}_i)$ are distinct.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1557-Minimum-Number-of-Vertices-to-Reach-All-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1558. Minimum Numbers of Function Calls to Make Target Array

```
func modify(arr, op, idx){  
    //add by 1 index idx  
    if (op == 0) {  
        arr[idx] = arr[idx] + 1  
    }  
    //multiply by 2 all elements  
    if (op == 1) {  
        for(i = 0; i < arr.length; i++) {  
            arr[i] = arr[i] * 2  
        }  
    }  
}
```

Your task is to form an integer array `nums` from an initial array of zeros `arr` that is the same size as `nums`.

Return the minimum number of function calls to make `nums` from `arr`.

The answer is guaranteed to fit in a 32-bit signed integer.

Example 1:

Input: `nums` = [1,5]

Output: 5

Explanation: Increment by 1 (second element): [0, 0] to get [0, 1]
Double all the elements: [0, 1] -> [0, 2] -> [0, 4] (2 operations)
Increment by 1 (both elements) [0, 4] -> [1, 4] -> [1, 5] (2 operations)
Total of operations: 1 + 2 + 2 = 5.

Example 2:

Input: `nums` = [2,2]

Output: 3

Explanation: Increment by 1 (both elements) [0, 0] -> [0, 1] ->
Double all the elements: [1, 1] -> [2, 2] (1 operation).
Total of operations: 2 + 1 = 3.

Example 3:

```
Input: nums = [4,2,5]
Output: 6
Explanation: (initial)[0,0,0] -> [1,0,0] -> [1,0,1] -> [2,0,2] ->
```

Example 4:

```
Input: nums = [3,2,2,4]
Output: 7
```

Example 5:

```
Input: nums = [2,4,8,16]
Output: 8
```

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1558-Minimum-Numbers-of-Function-Calls-to-Make-Target-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1559. Detect Cycles in 2D Grid

Given a 2D array of characters `grid` of size $m \times n$, you need to find if there exists any cycle consisting of the **same value** in `grid`.

A cycle is a path of **length 4 or more** in the grid that starts and ends at the same cell. From a given cell, you can move to one of the cells adjacent to it - in one of the four directions (up, down, left, or right), if it has the **same value** of the current cell.

Also, you cannot move to the cell that you visited in your last move. For example, the cycle $(1, 1) \rightarrow (1, 2) \rightarrow (1, 1)$ is invalid because from $(1, 2)$ we visited $(1, 1)$ which was the last visited cell.

Return `true` if any cycle of the same value exists in `grid`, otherwise, return `false`.

Example 1:

a	a	a	a
a	b	b	a
a	b	b	a
a	a	a	a

Input: `grid = [["a", "a", "a", "a"], ["a", "b", "b", "a"], ["a", "b", "b", "a"], ["a", "a", "a", "a"]]`
Output: `true`

Explanation: There are two valid cycles shown in different colors.

a	a	a	a
a	b	b	a
a	b	b	a
a	a	a	a

Example 2:

c	c	c	a
c	d	c	c
c	c	e	c
f	c	c	c

Input: grid = [["c", "c", "c", "a"], ["c", "d", "c", "c"], ["c", "c", "e", "c"], ["f", "c", "c", "c"]]
Output: true

Explanation: There is only one valid cycle highlighted in the image.

c	c	c	a
c	d	c	c
c	c	e	c
f	c	c	c

Example 3:

a	b	b
b	z	b
b	b	a

Input: grid = [["a", "b", "b"], ["b", "z", "b"], ["b", "b", "a"]]
Output: false

Constraints:

- $m == \text{grid.length}$
- $n == \text{grid[i].length}$

- $1 \leq m \leq 500$
- $1 \leq n \leq 500$
- `grid` consists only of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1559-Detect-Cycles-in-2D-Grid](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1560. Most Visited Sector in a Circular Track

Given an integer n and an integer array rounds . We have a circular track which consists of n sectors labeled from 1 to n . A marathon will be held on this track, the marathon consists of m rounds. The i^{th} round starts at sector $\text{rounds}[i - 1]$ and ends at sector $\text{rounds}[i]$. For example, round 1 starts at sector $\text{rounds}[0]$ and ends at sector $\text{rounds}[1]$.

Return *an array of the most visited sectors sorted in ascending order*.

Notice that you circulate the track in ascending order of sector numbers in the counter-clockwise direction (See the first example).

Example 1:

Input: $n = 4$, $\text{rounds} = [1, 3, 1, 2]$
Output: $[1, 2]$

Explanation: The marathon starts at sector 1. The order of the visit is 1 --> 2 --> 3 (end of round 1) --> 4 --> 1 (end of round 2) --> 2. We can see that both sectors 1 and 2 are visited twice and they are the most visited.

Example 2:

Input: $n = 2$, $\text{rounds} = [2, 1, 2, 1, 2, 1, 2, 1, 2]$
Output: $[2]$

Example 3:

Input: $n = 7$, $\text{rounds} = [1, 3, 5, 7]$
Output: $[1, 2, 3, 4, 5, 6, 7]$

Constraints:

- $2 \leq n \leq 100$
- $1 \leq m \leq 100$
- $\text{rounds.length} == m + 1$
- $1 \leq \text{rounds}[i] \leq n$
- $\text{rounds}[i] \neq \text{rounds}[i + 1]$ for $0 \leq i < m$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1560-Most-Visited-Sector-in-a-Circular-Track](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1561. Maximum Number of Coins You Can Get

There are $3n$ piles of coins of varying size, you and your friends will take piles of coins as follows:

- In each step, you will choose **any** 3 piles of coins (not necessarily consecutive).

- Of your choice, Alice will pick the pile with the maximum number of coins.
- You will pick the next pile with maximum number of coins.
- Your friend Bob will pick the last pile.
- Repeat until there are no more piles of coins.

Given an array of integers `piles` where `piles[i]` is the number of coins in the i^{th} pile.

Return the maximum number of coins which you can have.

Example 1:

Input: `piles = [2, 4, 1, 2, 7, 8]`
 Output: 9

Explanation: Choose the triplet (2, 7, 8), Alice Pick the pile with 8 coins.
 Choose the triplet (1, 2, 4), Alice Pick the pile with 4 coins,
 The maximum number of coins which you can have are: $7 + 2 = 9$.
 On the other hand if we choose this arrangement (1, 2, 8), (2, 4)

Example 2:

Input: `piles = [2, 4, 5]`
 Output: 4

Example 3:

Input: `piles = [9, 8, 7, 6, 5, 1, 2, 3, 4]`
 Output: 18

Constraints:

- $3 \leq \text{piles.length} \leq 10^5$
- $\text{piles.length \% 3} == 0$
- $1 \leq \text{piles}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1561-Maximum-Number-of-Coins-You-Can-Get](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1562. Find Latest Group of Size M

Given an array arr that represents a permutation of numbers from 1 to n . You have a binary string of size n that initially has all its bits set to zero.

At each step i (assuming both the binary string and arr are 1-indexed) from 1 to n , the bit at position $\text{arr}[i]$ is set to 1. You are given an integer m and you need to find the latest step at which there exists a group of ones of length m . A group of ones is a contiguous substring of 1s such that it cannot be extended in either direction.

Return *the latest step at which there exists a group of ones of length exactly m* . If no such group exists, return -1.

Example 1:

Input: arr = [3,5,1,2,4], m = 1
Output: 4
Explanation:
Step 1: "00100", groups: ["1"]
Step 2: "00101", groups: ["1", "1"]
Step 3: "10101", groups: ["1", "1", "1"]
Step 4: "11101", groups: ["111", "1"]
Step 5: "11111", groups: ["11111"]
The latest step at which there exists a group of size 1 is step 4.

Example 2:

Input: arr = [3,1,5,4,2], m = 2
Output: -1
Explanation:
Step 1: "00100", groups: ["1"]
Step 2: "10100", groups: ["1", "1"]
Step 3: "10101", groups: ["1", "1", "1"]
Step 4: "10111", groups: ["1", "111"]
Step 5: "11111", groups: ["11111"]
No group of size 2 exists during any step.

Example 3:

Input: arr = [1], m = 1
Output: 1

Example 4:

Input: arr = [2,1], m = 2
Output: 2

Constraints:

- $n == \text{arr.length}$
- $1 \leq n \leq 10^5$
- $1 \leq \text{arr}[i] \leq n$
- All integers in arr are **distinct**.
- $1 \leq m \leq \text{arr.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[**1562-Find-Latest-Group-of-Size-M**](#)

All Problems:

[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1563. Stone Game V

There are several stones **arranged in a row** , and each stone has an associated value which is an integer given in the array `stoneValue` .

In each round of the game, Alice divides the row into **two non-empty rows** (i.e. left row and right row), then Bob calculates the value of each row which is the sum of the values of all the stones in this row. Bob throws away the row which has the maximum value, and Alice's score increases by the value of the remaining row. If the value of the two rows are equal, Bob lets Alice decide which row will be thrown away. The next round starts with the remaining row.

The game ends when there is only **one stone remaining** .
Alice's is initially **zero** .

Return *the maximum score that Alice can obtain* .

Example 1:

Input: stoneValue = [6,2,3,4,5,5]

Output: 18

Explanation: In the first round, Alice divides the row to [6,2,3].
In the second round Alice divides the row to [6], [2,3]. This time
The last round Alice has only one choice to divide the row which

Example 2:

Input: stoneValue = [7,7,7,7,7,7,7]

Output: 28

Example 3:

Input: stoneValue = [4]

Output: 0

Constraints:

- $1 \leq \text{stoneValue.length} \leq 500$
- $1 \leq \text{stoneValue}[i] \leq 10^6$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1563-Stone-Game-V](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1564. Put Boxes Into the Warehouse I

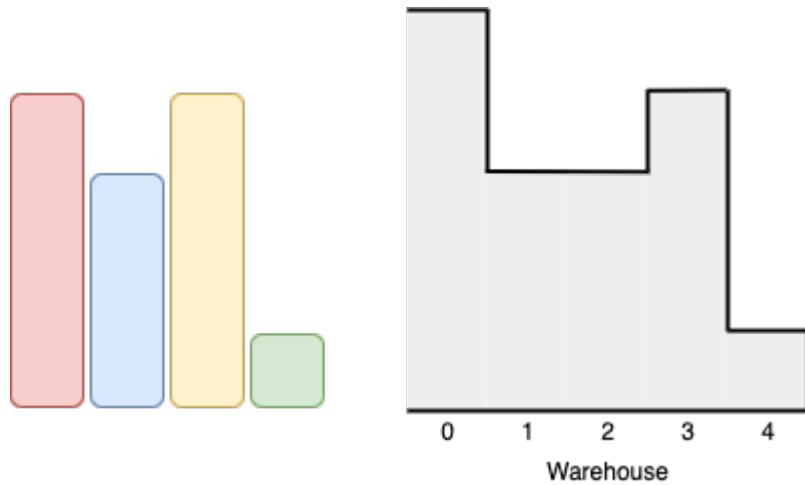
Given two arrays of positive integers `boxes` and `warehouse` representing the heights of some boxes of unit width, and the heights of n rooms in a warehouse, respectively. The warehouse's rooms are labeled from 0 to $n - 1$ from left to right where `warehouse[i]` (0 -indexed) is the height of the i^{th} room.

Boxes are put into the warehouse by the following rules:

- Boxes can't be piled up.
- You can rearrange the order of the boxes.
- Boxes can only be pushed into the warehouse from left to right only.
- If the height of some room in the warehouse is less than the height of a box, then the box will be stopped before that room, so are the boxes behind it.

Return *the maximum number of boxes you can put into the warehouse*.

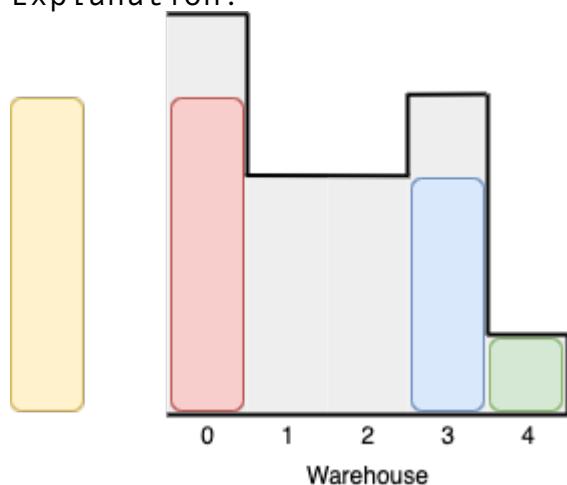
Example 1:



Input: boxes = [4, 3, 4, 1], warehouse = [5, 3, 3, 4, 1]

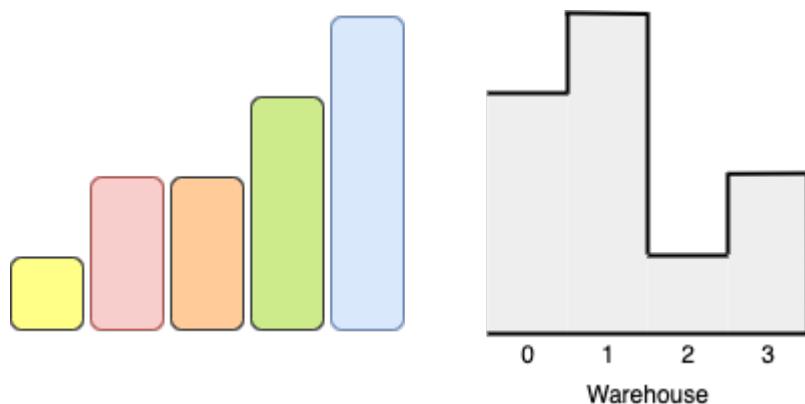
Output: 3

Explanation:



We can first put the box of height 1 in room 4. Then we can put
There is no way we can fit all 4 boxes in the warehouse.

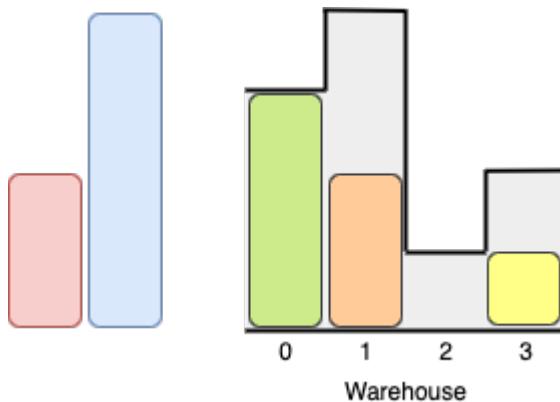
Example 2:



Input: boxes = [1, 2, 2, 3, 4], warehouse = [3, 4, 1, 2]

Output: 3

Explanation:



Notice that it's not possible to put the box of height 4 into the first room. Also, for the last two rooms, 2 and 3, only boxes of height 1 can fit. We can fit 3 boxes maximum as shown above. The yellow box can also be swapped with the orange box. Swapping the orange and green boxes is also valid, or swapping orange and red.

Example 3:

Input: boxes = [1,2,3], warehouse = [1,2,3,4]

Output: 1

Explanation: Since the first room in the warehouse is of height 1, we can fit 1 box of height 1.

Example 4:

Input: boxes = [4,5,6], warehouse = [3,3,3,3,3]

Output: 0

Constraints:

- $n == \text{warehouse.length}$
- $1 \leq \text{boxes.length}, \text{warehouse.length} \leq 10^5$
- $1 \leq \text{boxes}[i], \text{warehouse}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1564-Put-Boxes-Into-the-Warehouse-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1565. Unique Orders and Customers Per Month

[SQL Schema](#) >

Table: Orders

Column Name	Type
order_id	int
order_date	date
customer_id	int
invoice	int

order_id is the primary key for this table.

This table contains information about the orders made by customers.

Write an SQL query to find the number of **unique orders** and the number of **unique users** with invoices > \$20 for each **different month**.

Return the result table sorted in **any order**.

The query result format is in the following example:

Orders

order_id	order_date	customer_id	invoice
1	2020-09-15	1	30
2	2020-09-17	2	90
3	2020-10-06	3	20
4	2020-10-20	3	21
5	2020-11-10	1	10
6	2020-11-21	2	15
7	2020-12-01	4	55
8	2020-12-03	4	77
9	2021-01-07	3	31
10	2021-01-15	2	20

Result table:

month	order_count	customer_count
2020-09	2	2
2020-10	1	1
2020-12	2	1
2021-01	1	1

In September 2020 we have two orders from 2 different customers

In October 2020 we have two orders from 1 customer, and only one

In November 2020 we have two orders from 2 different customers b

In December 2020 we have two orders from 1 customer both with in

In January 2021 we have two orders from 2 different customers, b

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1565-Unique-Orders-and-Customers-Per-Month](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1566. Detect Pattern of Length M Repeated K or More Times

Given an array of positive integers `arr` , find a pattern of length `m` that is repeated `k` or more times.

A **pattern** is a subarray (consecutive sub-sequence) that consists of one or more values, repeated multiple times **consecutively** without overlapping. A pattern is defined by its length and the number of repetitions.

Return `true` if there exists a pattern of length `m` that is repeated `k` or more times, otherwise return `false` .

Example 1:

Input: `arr = [1,2,4,4,4,4]` , `m = 1` , `k = 3`

Output: `true`

Explanation: The pattern (4) of length 1 is repeated 4 consecuti

Example 2:

Input: arr = [1,2,1,2,1,1,1,3], m = 2, k = 2

Output: true

Explanation: The pattern (1,2) of length 2 is repeated 2 consecutive times.

Example 3:

Input: arr = [1,2,1,2,1,3], m = 2, k = 3

Output: false

Explanation: The pattern (1,2) is of length 2 but is repeated only once.

Example 4:

Input: arr = [1,2,3,1,2], m = 2, k = 2

Output: false

Explanation: Notice that the pattern (1,2) exists twice but not consecutively.

Example 5:

Input: arr = [2,2,2,2], m = 2, k = 3

Output: false

Explanation: The only pattern of length 2 is (2,2) however it's repeated only once.

Constraints:

- $2 \leq \text{arr.length} \leq 100$
- $1 \leq \text{arr[i]} \leq 100$
- $1 \leq m \leq 100$
- $2 \leq k \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1566-Detect-Pattern-of-Length-M-Repeated-K-or-More-Times](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1567. Maximum Length of Subarray With Positive Product

Given an array of integers `nums`, find the maximum length of a subarray where the product of all its elements is positive.

A subarray of an array is a consecutive sequence of zero or more values taken out of that array.

Return *the maximum length of a subarray with positive product*.

Example 1:

Input: `nums = [1, -2, -3, 4]`

Output: 4

Explanation: The array `nums` already has a positive product of 24

Example 2:

Input: `nums = [0, 1, -2, -3, -4]`

Output: 3

Explanation: The longest subarray with positive product is [1,-2,-3]. Notice that we cannot include 0 in the subarray since that'll make the product zero.

Example 3:

Input: nums = [-1,-2,-3,0,1]

Output: 2

Explanation: The longest subarray with positive product is [-1,-2,-3].

Example 4:

Input: nums = [-1,2]

Output: 1

Example 5:

Input: nums = [1,2,3,5,-6,4,0,10]

Output: 4

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^9 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1567-Maximum-Length-of-Subarray-With-Positive-Product](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1568. Minimum Number of Days to Disconnect Island

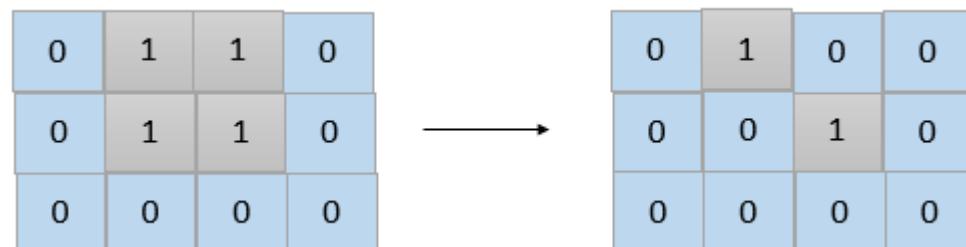
Given a 2D grid consisting of 1 s (land) and 0 s (water). An *island* is a maximal 4-directionally (horizontal or vertical) connected group of 1 s.

The grid is said to be **connected** if we have **exactly one island**, otherwise is said **disconnected**.

In one day, we are allowed to change **any** single land cell (1) into a water cell (0).

Return *the minimum number of days* to disconnect the grid.

Example 1:



Input: `grid = [[0,1,1,0],[0,1,1,0],[0,0,0,0]]`
Output: 2

Explanation: We need at least 2 days to get a disconnected grid. Change land `grid[1][1]` and `grid[0][2]` to water and get 2 disconnected islands.

Example 2:

```
Input: grid = [[1,1]]  
Output: 2  
Explanation: Grid of full water is also disconnected ([[1,1]] ->
```

Example 3:

```
Input: grid = [[1,0,1,0]]  
Output: 0
```

Example 4:

```
Input: grid = [[1,1,0,1,1],  
              [1,1,1,1,1],  
              [1,1,0,1,1],  
              [1,1,0,1,1]]  
Output: 1
```

Example 5:

```
Input: grid = [[1,1,0,1,1],  
              [1,1,1,1,1],  
              [1,1,0,1,1],  
              [1,1,1,1,1]]  
Output: 2
```

Constraints:

- $1 \leq \text{grid.length}, \text{grid[i].length} \leq 30$
- grid[i][j] is 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1568-Minimum-Number-of-Days-to-Disconnect-Island](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1569. Number of Ways to Reorder Array to Get Same BST

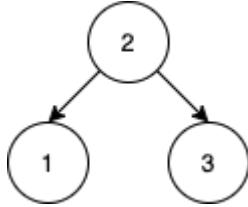
Given an array `nums` that represents a permutation of integers from 1 to n . We are going to construct a binary search tree (BST) by inserting the elements of `nums` in order into an initially empty BST. Find the number of different ways to reorder `nums` so that the constructed BST is identical to that formed from the original array `nums`.

For example, given `nums` = [2, 1, 3], we will have 2 as the root, 1 as a left child, and 3 as a right child. The array [2, 3, 1] also yields the same BST but [3, 2, 1] yields a different BST.

Return the number of ways to reorder `nums` such that the BST formed is identical to the original BST formed from `nums`.

Since the answer may be very large, **return it modulo $10^9 + 7$** .

Example 1:

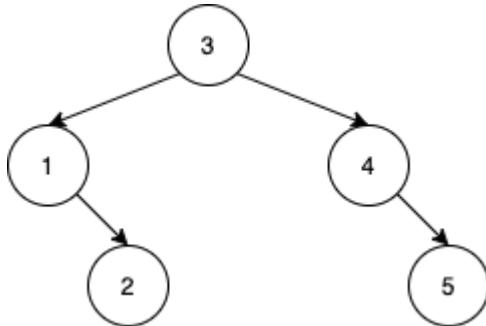


Input: `nums = [2, 1, 3]`

Output: 1

Explanation: We can reorder `nums` to be `[2, 3, 1]` which will yield the same BST.

Example 2:



Input: `nums = [3, 4, 5, 1, 2]`

Output: 5

Explanation: The following 5 arrays will yield the same BST:

`[3, 1, 2, 4, 5]`

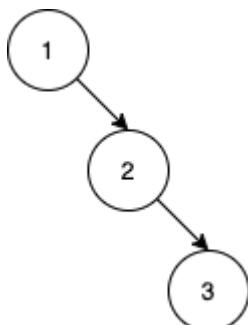
`[3, 1, 4, 2, 5]`

`[3, 1, 4, 5, 2]`

`[3, 4, 1, 2, 5]`

`[3, 4, 1, 5, 2]`

Example 3:

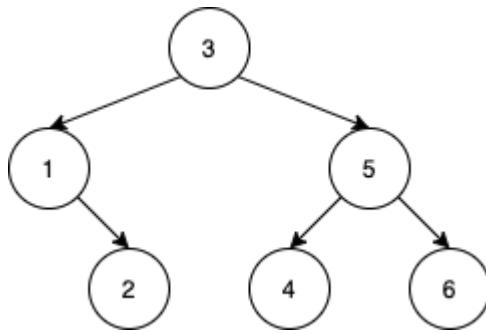


Input: `nums = [1, 2, 3]`

Output: 0

Explanation: There are no other orderings of `nums` that will yield the same BST.

Example 4:



Input: `nums = [3,1,2,5,4,6]`
 Output: 19

Example 5:

Input: `nums = [9,4,2,1,3,6,5,7,8,14,11,10,12,13,16,15,17,18]`
 Output: 216212978
 Explanation: The number of ways to reorder `nums` to get the same BST.

Constraints:

- $1 \leq \text{nums.length} \leq 1000$
- $1 \leq \text{nums}[i] \leq \text{nums.length}$
- All integers in `nums` are **distinct**.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1569-Number-of-Ways-to-Reorder-Array-to-Get-Same-BST](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1570. Dot Product of Two Sparse Vectors

Given two sparse vectors, compute their dot product.

Implement class `SparseVector` :

- `SparseVector(nums)` Initializes the object with the vector `nums`
- `dotProduct(vec)` Compute the dot product between the instance of `SparseVector` and `vec`

A **sparse vector** is a vector that has mostly zero values, you should store the sparse vector **efficiently** and compute the dot product between two `SparseVector`.

Follow up: What if only one of the vectors is sparse?

Example 1:

Input: `nums1 = [1,0,0,2,3]`, `nums2 = [0,3,0,4,0]`
Output: 8

Explanation: `v1 = SparseVector(nums1)` , `v2 = SparseVector(nums2)`
`v1.dotProduct(v2) = 1*0 + 0*3 + 0*0 + 2*4 + 3*0 = 8`

Example 2:

Input: `nums1 = [0,1,0,0,0]`, `nums2 = [0,0,0,0,2]`
Output: 0

Explanation: `v1 = SparseVector(nums1)` , `v2 = SparseVector(nums2)`
`v1.dotProduct(v2) = 0*0 + 1*0 + 0*0 + 0*0 + 0*2 = 0`

Example 3:

```
Input: nums1 = [0,1,0,0,2,0,0] , nums2 = [1,0,0,0,3,0,4]
Output: 6
```

Constraints:

- $n == \text{nums1.length} == \text{nums2.length}$
- $1 \leq n \leq 10^5$
- $0 \leq \text{nums1}[i], \text{nums2}[i] \leq 100$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1570-Dot-Product-of-Two-Sparse-Vectors](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1571. Warehouse Manager

SQL Schema >

Table: Warehouse

Column Name	Type
name	varchar
product_id	int
units	int

(name, product_id) is the primary key for this table.
Each row of this table contains the information of the products

Table: Products

Column Name	Type
product_id	int
product_name	varchar
Width	int
Length	int
Height	int

product_id is the primary key for this table.
Each row of this table contains the information about the products

Write an SQL query to report, How much cubic feet of **volume** does the inventory occupy in each warehouse.

- warehouse_name
- volume

Return the result table in **any order**.

The query result format is in the following example.

Warehouse table:

name	product_id	units
LCHouse1	1	1
LCHouse1	2	10
LCHouse1	3	5
LCHouse2	1	2
LCHouse2	2	2
LCHouse3	4	1

Products table:

product_id	product_name	Width	Length	Height
1	LC-TV	5	50	40
2	LC-KeyChain	5	5	5
3	LC-Phone	2	10	10
4	LC-T-Shirt	4	10	20

Result table:

warehouse_name	volume
LCHouse1	12250
LCHouse2	20250
LCHouse3	800

Volume of product_id = 1 (LC-TV), $5 \times 50 \times 40 = 10000$

Volume of product_id = 2 (LC-KeyChain), $5 \times 5 \times 5 = 125$

Volume of product_id = 3 (LC-Phone), $2 \times 10 \times 10 = 200$

Volume of product_id = 4 (LC-T-Shirt), $4 \times 10 \times 20 = 800$

LCHouse1: 1 unit of LC-TV + 10 units of LC-KeyChain + 5 units of LC-Phone
Total volume: $1 \times 10000 + 10 \times 125 + 5 \times 200 = 12250$ cubic feet

LCHouse2: 2 units of LC-TV + 2 units of LC-KeyChain.

Total volume: $2 \times 10000 + 2 \times 125 = 20250$ cubic feet

LCHouse3: 1 unit of LC-T-Shirt.

Total volume: $1 \times 800 = 800$ cubic feet.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1571-Warehouse-Manager](#)

All Problems:

[Link to All Problems](#)

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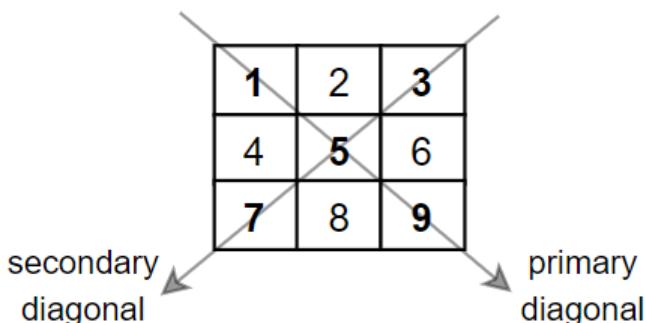
Welcome to Subscribe On Youtube:

1572. Matrix Diagonal Sum

Given a square matrix `mat` , return the sum of the matrix diagonals.

Only include the sum of all the elements on the primary diagonal and all the elements on the secondary diagonal that are not part of the primary diagonal.

Example 1:



Input: `mat = [[1,2,3], [4,5,6], [7,8,9]]`

Output: 25

Explanation: Diagonals sum: $1 + 5 + 9 + 3 + 7 = 25$
Notice that element `mat[1][1] = 5` is counted only once.

Example 2:

```
Input: mat = [[1,1,1,1],  
             [1,1,1,1],  
             [1,1,1,1],  
             [1,1,1,1]]
```

Output: 8

Example 3:

```
Input: mat = [[5]]
```

Output: 5

Constraints:

- $n == \text{mat.length} == \text{mat[i].length}$
- $1 \leq n \leq 100$
- $1 \leq \text{mat[i][j]} \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1572-Matrix-Diagonal-Sum](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1573. Number of Ways to Split a String

Given a binary string s (a string consisting only of '0's and '1's), we can split s into 3 **non-empty** strings s_1, s_2, s_3 ($s_1 + s_2 + s_3 = s$).

Return the number of ways s can be split such that the number of characters '1' is the same in s_1, s_2 , and s_3 .

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

Input: $s = "10101"$

Output: 4

Explanation: There are four ways to split s in 3 parts where each part has one '1'.

"1|010|1"

"1|01|01"

"10|10|1"

"10|1|01"

Example 2:

Input: $s = "1001"$

Output: 0

Example 3:

Input: $s = "0000"$

Output: 3

Explanation: There are three ways to split s in 3 parts.

"0|0|00"

"0|00|0"

"00|0|0"

Example 4:

Input: $s = "100100010100110"$

Output: 12

Constraints:

- $s[i] == '0'$ or $s[i] == '1'$
- $3 \leq s.length \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1573-Number-of-Ways-to-Split-a-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1574. Shortest Subarray to be Removed to Make Array Sorted

Given an integer array `arr`, remove a subarray (can be empty) from `arr` such that the remaining elements in `arr` are **non-decreasing**.

A subarray is a contiguous subsequence of the array.

Return *the length of the shortest subarray to remove*.

Example 1:

Input: `arr = [1,2,3,10,4,2,3,5]`

Output: 3

Explanation: The shortest subarray we can remove is `[10,4,2]` or Another correct solution is to remove the subarray `[3,10,4]`.

Example 2:

Input: `arr = [5,4,3,2,1]`

Output: 4

Explanation: Since the array is strictly decreasing, we can only

Example 3:

Input: `arr = [1,2,3]`

Output: 0

Explanation: The array is already non-decreasing. We do not need

Example 4:

Input: `arr = [1]`

Output: 0

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $0 \leq \text{arr}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1574-Shortest-Subarray-to-be-Removed-to-Make-Array-Sorted](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1575. Count All Possible Routes

You are given an array of **distinct** positive integers locations where locations[i] represents the position of city i . You are also given integers start , finish and fuel representing the starting city, ending city, and the initial amount of fuel you have, respectively.

At each step, if you are at city i , you can pick any city j such that $j \neq i$ and $0 \leq j < \text{locations.length}$ and move to city j . Moving from city i to city j reduces the amount of fuel you have by $|\text{locations}[i] - \text{locations}[j]|$. Please notice that $|x|$ denotes the absolute value of x .

Notice that fuel **cannot** become negative at any point in time, and that you are **allowed** to visit any city more than once (including start and finish).

Return *the count of all possible routes from start to finish*.

Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

```
Input: locations = [2,3,6,8,4], start = 1, finish = 3, fuel = 5
Output: 4
Explanation: The following are all possible routes, each uses 5 fuel
1 -> 3
1 -> 2 -> 3
1 -> 4 -> 3
1 -> 4 -> 2 -> 3
```

Example 2:

```
Input: locations = [4,3,1], start = 1, finish = 0, fuel = 6
Output: 5
Explanation: The following are all possible routes:
1 -> 0, used fuel = 1
1 -> 2 -> 0, used fuel = 5
1 -> 2 -> 1 -> 0, used fuel = 5
1 -> 0 -> 1 -> 0, used fuel = 3
1 -> 0 -> 1 -> 0 -> 1 -> 0, used fuel = 5
```

Example 3:

```
Input: locations = [5,2,1], start = 0, finish = 2, fuel = 3
Output: 0
Explanation: It's impossible to get from 0 to 2 using only 3 units of fuel.
```

Example 4:

```
Input: locations = [2,1,5], start = 0, finish = 0, fuel = 3
Output: 2
Explanation: There are two possible routes, 0 and 0 -> 1 -> 0.
```

Example 5:

```
Input: locations = [1,2,3], start = 0, finish = 2, fuel = 40
Output: 615088286
Explanation: The total number of possible routes is 2615088300.
```

Constraints:

- $2 \leq \text{locations.length} \leq 100$
- $1 \leq \text{locations}[i] \leq 10^9$
- All integers in locations are **distinct**.
- $0 \leq \text{start}, \text{finish} < \text{locations.length}$
- $1 \leq \text{fuel} \leq 200$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1575-Count-All-Possible-Routes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1576. Replace All ?'s to Avoid Consecutive Repeating Characters

Given a string `s` containing only lower case English letters and the '?' character, convert **all** the '?' characters into lower case letters such that the final string does not contain any **consecutive repeating** characters. You **cannot** modify the non '?' characters.

It is **guaranteed** that there are no consecutive repeating characters in the given string **except** for '?'.

Return the final string after all the conversions (possibly zero) have been made. If there is more than one solution, return any of them. It can be shown that an answer is always possible with the given constraints.

Example 1:

Input: `s = "?zs"`

Output: "azs"

Explanation: There are 25 solutions for this problem. From "azs"

Example 2:

Input: `s = "ubv?w"`

Output: "ubvaw"

Explanation: There are 24 solutions for this problem. Only "v" a

Example 3:

Input: `s = "j?qg??b"`

Output: "jaqgacb"

Example 4:

Input: `s = "??yw?ipkj?"`

Output: "acywaipkja"

Constraints:

- `1 <= s.length <= 100`
- `s` contains only lower case English letters and '?'.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1576-Replace-All-'s-to-Avoid-Consecutive-Repeating-Characters-](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1577. Number of Ways Where Square of Number Is Equal to Product of Two Numbers

Given two arrays of integers `nums1` and `nums2`, return the number of triplets formed (type 1 and type 2) under the following rules:

- Type 1: Triplet (i, j, k) if $\text{nums1}[i]^2 == \text{nums2}[j] * \text{nums2}[k]$ where $0 \leq i < \text{nums1.length}$ and $0 \leq j < k < \text{nums2.length}$.
- Type 2: Triplet (i, j, k) if $\text{nums2}[i]^2 == \text{nums1}[j] * \text{nums1}[k]$ where $0 \leq i < \text{nums2.length}$ and $0 \leq j < k < \text{nums1.length}$.

Example 1:

Input: `nums1 = [7,4]`, `nums2 = [5,2,8,9]`

Output: 1

Explanation: Type 1: $(1,1,2)$, $\text{nums1}[1]^2 = \text{nums2}[1] * \text{nums2}[2]$.

Example 2:

Input: `nums1 = [1,1]`, `nums2 = [1,1,1]`

Output: 9

Explanation: All Triplets are valid, because $1^2 = 1 * 1$.

Type 1: $(0,0,1)$, $(0,0,2)$, $(0,1,2)$, $(1,0,1)$, $(1,0,2)$, $(1,1,2)$. n

Type 2: $(0,0,1)$, $(1,0,1)$, $(2,0,1)$. $\text{nums2}[i]^2 = \text{nums1}[j] * \text{nums1}[k]$

Example 3:

Input: `nums1 = [7,7,8,3]`, `nums2 = [1,2,9,7]`

Output: 2

Explanation: There are 2 valid triplets.

Type 1: $(3,0,2)$. $\text{nums1}[3]^2 = \text{nums2}[0] * \text{nums2}[2]$.

Type 2: $(3,0,1)$. $\text{nums2}[3]^2 = \text{nums1}[0] * \text{nums1}[1]$.

Example 4:

Input: `nums1 = [4,7,9,11,23]`, `nums2 = [3,5,1024,12,18]`

Output: 0

Explanation: There are no valid triplets.

Constraints:

- $1 \leq \text{nums1.length}, \text{nums2.length} \leq 1000$
- $1 \leq \text{nums1[i]}, \text{nums2[i]} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1577-Number-of-Ways-Where-Square-of-Number-Is-Equal-to-Product-of-Two-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1578. Minimum Deletion Cost to Avoid Repeating Letters

Given a string s and an array of integers cost where $\text{cost}[i]$ is the cost of deleting the character i in s .

Return the minimum cost of deletions such that there are no two identical letters next to each other.

Notice that you will delete the chosen characters at the same time, in other words, after deleting a character, the costs of deleting other characters will not change.

Example 1:

Input: $s = \text{"abaac"}$, $\text{cost} = [1, 2, 3, 4, 5]$

Output: 3

Explanation: Delete the letter "a" with cost 3 to get "abac" (String length is 4)

Example 2:

Input: $s = \text{"abc"}$, $\text{cost} = [1, 2, 3]$

Output: 0

Explanation: You don't need to delete any character because there are no two identical letters next to each other.

Example 3:

Input: $s = \text{"aabaa"}$, $\text{cost} = [1, 2, 3, 4, 1]$

Output: 2

Explanation: Delete the first and the last character, getting the string "aab".

Constraints:

- $s.length == \text{cost.length}$
- $1 \leq s.length, \text{cost.length} \leq 10^5$
- $1 \leq \text{cost}[i] \leq 10^4$
- s contains only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1578-Minimum-Deletion-Cost-to-Avoid-Repeating-Letters](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1579. Remove Max Number of Edges to Keep Graph Fully Traversable

Alice and Bob have an undirected graph of n nodes and 3 types of edges:

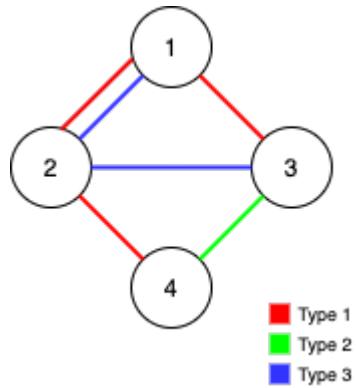
- Type 1: Can be traversed by Alice only.
- Type 2: Can be traversed by Bob only.
- Type 3: Can be traversed by both Alice and Bob.

Given an array `edges` where `edges[i] = [typei, ui, vi]` represents a bidirectional edge of type `type`

i between nodes u_i and v_i , find the maximum number of edges you can remove so that after removing the edges, the graph can still be fully traversed by both Alice and Bob. The graph is fully traversed by Alice and Bob if starting from any node, they can reach all other nodes.

Return *the maximum number of edges you can remove, or return -1 if it's impossible for the graph to be fully traversed by Alice and Bob.*

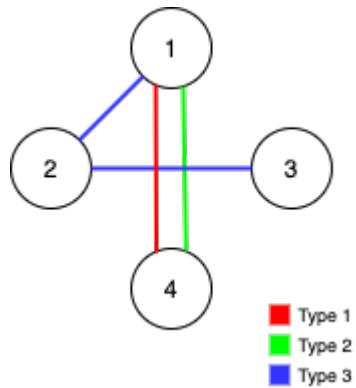
Example 1:



Input: $n = 4$, edges = $[[3,1,2], [3,2,3], [1,1,3], [1,2,4], [1,1,2], [1,1,1]]$
Output: 2

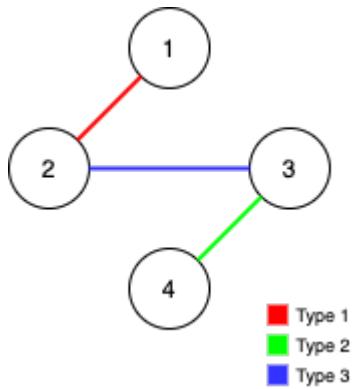
Explanation: If we remove the 2 edges $[1,1,2]$ and $[1,1,3]$. The g

Example 2:



Input: $n = 4$, edges = $[[3,1,2], [3,2,3], [1,1,4], [2,1,4]]$
Output: 0
Explanation: Notice that removing any edge will not make the gra

Example 3:



Input: $n = 4$, $\text{edges} = [[3, 2, 3], [1, 1, 2], [2, 3, 4]]$

Output: -1

Explanation: In the current graph, Alice cannot reach node 4 from node 1.

Constraints:

- $1 \leq n \leq 10^5$
- $1 \leq \text{edges.length} \leq \min(10^5, 3 * n * (n-1) / 2)$
- $\text{edges}[i].length == 3$
- $1 \leq \text{edges}[i][0] \leq 3$
- $1 \leq \text{edges}[i][1] < \text{edges}[i][2] \leq n$
- All tuples $(\text{type}_i, u_i, v_i)$ are distinct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1579-Remove-Max-Number-of-Edges-to-Keep-Graph-Fully-Traversable](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1580. Put Boxes Into the Warehouse II

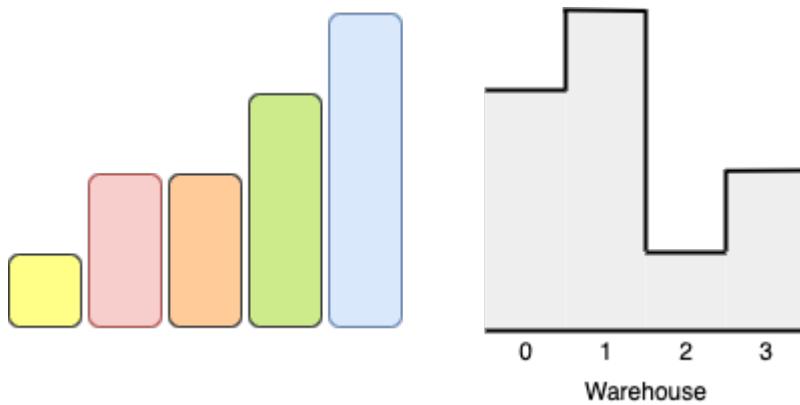
You are given two arrays of positive integers, `boxes` and `warehouse`, representing the heights of some boxes of unit width and the heights of n rooms in a warehouse respectively. The warehouse's rooms are labeled from 0 to $n - 1$ from left to right where `warehouse[i]` (0 -indexed) is the height of the i^{th} room.

Boxes are put into the warehouse by the following rules:

- Boxes cannot be stacked.
- You can rearrange the insertion order of the boxes.
- Boxes can be pushed into the warehouse from **either side** (left or right)
- If the height of some room in the warehouse is less than the height of a box, then that box and all other boxes behind it will be stopped before that room.

Return *the maximum number of boxes you can put into the warehouse.*

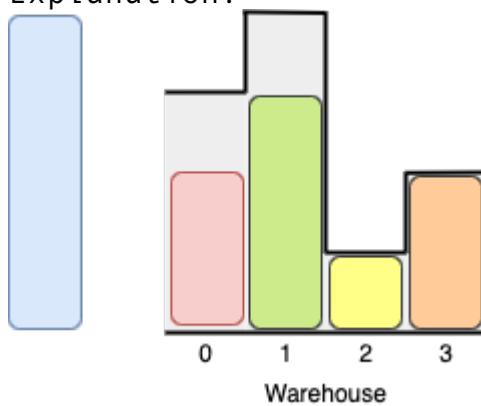
Example 1:



Input: boxes = [1,2,2,3,4], warehouse = [3,4,1,2]

Output: 4

Explanation:

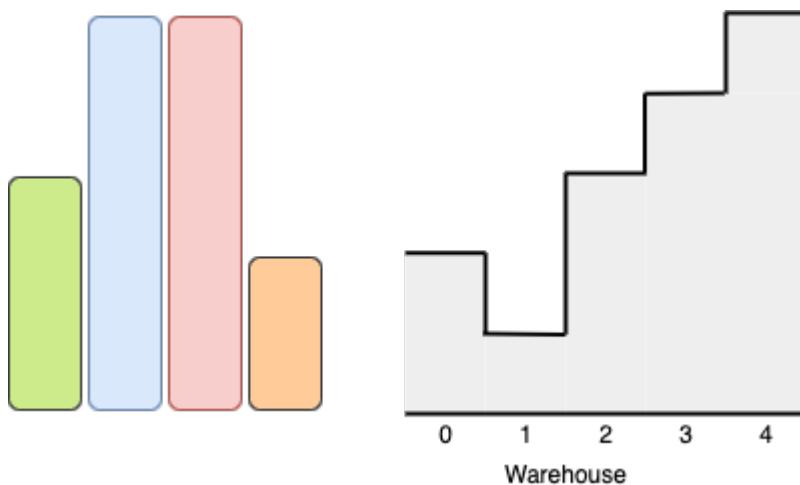


We can store the boxes in the following order:

- 1- Put the yellow box in room 2 from either the left or right side.
- 2- Put the orange box in room 3 from the right side.
- 3- Put the green box in room 1 from the left side.
- 4- Put the red box in room 0 from the left side.

Notice that there are other valid ways to put 4 boxes such as swi

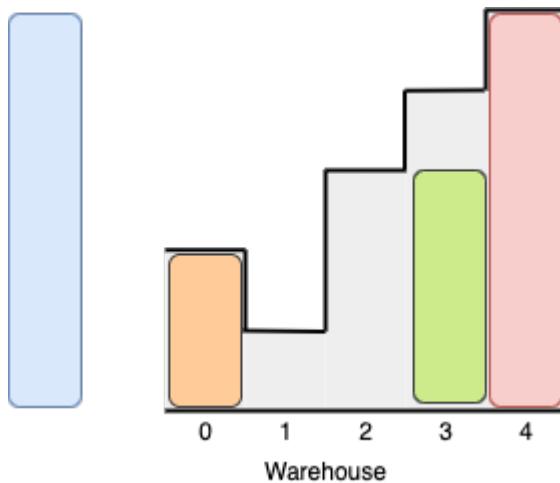
Example 2:



Input: boxes = [3,5,5,2], warehouse = [2,1,3,4,5]

Output: 3

Explanation:



It's not possible to put the two boxes of height 5 in the warehouse.
Other valid solutions are to put the green box in room 2 or to p

Example 3:

Input: boxes = [1,2,3], warehouse = [1,2,3,4]
Output: 3

Example 4:

Input: boxes = [4,5,6], warehouse = [3,3,3,3,3]
Output: 0

Constraints:

- $n == \text{warehouse.length}$
- $1 \leq \text{boxes.length}, \text{warehouse.length} \leq 10^5$
- $1 \leq \text{boxes}[i], \text{warehouse}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1580-Put-Boxes-Into-the-Warehouse-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1581. Customer Who Visited but Did Not Make Any Transactions

[SQL Schema](#) >

Table: Visits

Column Name	Type
visit_id	int
customer_id	int

visit_id is the primary key for this table.

This table contains information about the customers who visited

Table: Transactions

Column Name	Type
transaction_id	int
visit_id	int
amount	int

`transaction_id` is the primary key for this table.
This table contains information about the customers who visited

Write an SQL query to find the IDs of the users who visited without making any transactions and the number of times they made these types of visits.

Return the result table sorted in **any order**.

The query result format is in the following example:

Visits

visit_id	customer_id
1	23
2	9
4	30
5	54
6	96
7	54
8	54

Transactions

transaction_id	visit_id	amount
2	5	310
3	5	300
9	5	200
12	1	910
13	2	970

Result table:

customer_id	count_no_trans
54	2
30	1
96	1

Customer with id = 23 visited the mall once and made one transaction.
Customer with id = 9 visited the mall once and made one transaction.
Customer with id = 30 visited the mall once and did not make any transaction.
Customer with id = 54 visited the mall three times. During 2 visits, he made 2 transactions.
Customer with id = 96 visited the mall once and did not make any transaction.
As we can see, users with IDs 30 and 96 visited the mall one time.

Difficulty:

Easy

Lock:

Prime

Company:**Problem Solution**

[1581-Customer-Who-Visited-but-Did-Not-Make-Any-Transactions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1582. Special Positions in a Binary Matrix

Given a `rows x cols` matrix `mat` , where `mat[i][j]` is either `0` or `1` , return *the number of special positions in mat* .

A position (i, j) is called **special** if $\text{mat}[i][j] == 1$ and all other elements in row i and column j are 0 (rows and columns are **0-indexed**).

Example 1:

Input: mat = [[1, 0, 0],
[0, 0, 1],
[1, 0, 0]]

Output: 1

Explanation: (1,2) is a special position because $\text{mat}[1][2] == 1$.

Example 2:

Input: mat = [[1, 0, 0],
[0, 1, 0],
[0, 0, 1]]

Output: 3

Explanation: (0,0), (1,1) and (2,2) are special positions.

Example 3:

Input: mat = [[0, 0, 0, 1],
[1, 0, 0, 0],
[0, 1, 1, 0],
[0, 0, 0, 0]]

Output: 2

Example 4:

Input: mat = [[0, 0, 0, 0, 0],
[1, 0, 0, 0, 0],
[0, 1, 0, 0, 0],
[0, 0, 1, 0, 0],
[0, 0, 0, 1, 1]]

Output: 3

Constraints:

- rows == mat.length
- cols == mat[i].length
- $1 \leq \text{rows}, \text{cols} \leq 100$
- $\text{mat}[i][j]$ is 0 or 1 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1582-Special-Positions-in-a-Binary-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1583. Count Unhappy Friends

You are given a list of preferences for n friends, where n is always **even**.

For each person i, preferences[i] contains a list of friends **sorted** in the **order of preference**. In other words, a friend earlier in the list is more preferred than a friend later in the list. Friends in each list are denoted by integers from 0 to n-1.

All the friends are divided into pairs. The pairings are given in a list pairs, where pairs[i] = [x_i, y_i]

x_i] denotes x_i is paired with y_i and y_i is paired with x_i .

However, this pairing may cause some of the friends to be unhappy. A friend x is unhappy if x is paired with y and there exists a friend u who is paired with v but:

- x prefers u over y , and
- u prefers x over v .

Return *the number of unhappy friends*.

Example 1:

Input: $n = 4$, preferences = [[1, 2, 3], [3, 2, 0], [3, 1, 0], [1, 0]]
Output: 2

Explanation:

Friend 1 is unhappy because:

- 1 is paired with 0 but prefers 3 over 0, and
- 3 prefers 1 over 2.

Friend 3 is unhappy because:

- 3 is paired with 2 but prefers 1 over 2, and
- 1 prefers 3 over 0.

Friends 0 and 2 are happy.

Example 2:

Input: $n = 2$, preferences = [[1], [0]], pairs = [[1, 0]]
Output: 0
Explanation: Both friends 0 and 1 are happy.

Example 3:

Input: $n = 4$, preferences = [[1, 3, 2], [2, 3, 0], [1, 3, 0], [0, 1]]
Output: 4

Constraints:

- $2 \leq n \leq 500$
- n is even.
- $\text{preferences.length} == n$
- $\text{preferences}[i].length == n - 1$
- $0 \leq \text{preferences}[i][j] \leq n - 1$
- $\text{preferences}[i]$ does not contain i .
- All values in $\text{preferences}[i]$ are unique.
- $\text{pairs.length} == n/2$
- $\text{pairs}[i].length == 2$
- $x_i \neq y_i$
- $0 \leq x_i, y_i \leq n - 1$

- Each person is contained in **exactly one** pair.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1583-Count-Unhappy-Friends](#)

All Problems:

[Link to All Problems](#)

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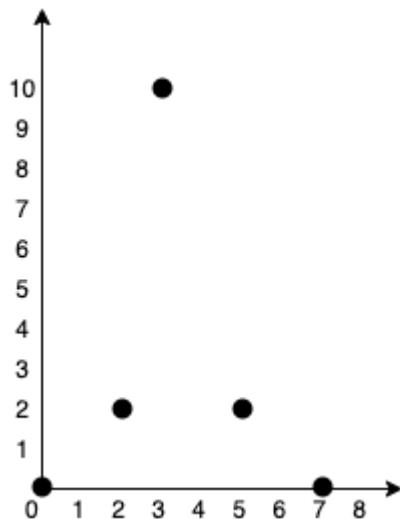
1584. Min Cost to Connect All Points

You are given an array `points` representing integer coordinates of some points on a 2D-plane, where
`points[i] = [xi, yi]`.

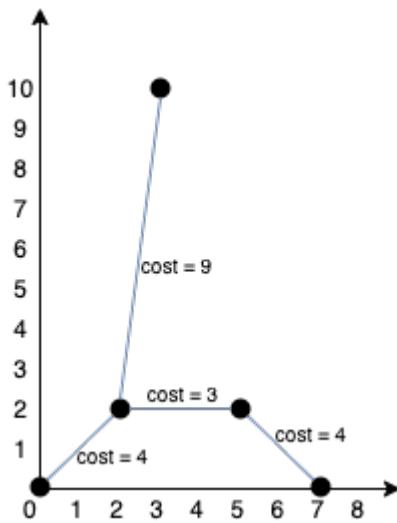
The cost of connecting two points $[x_i, y_i]$ and $[x_j, y_j]$ is the **manhattan distance** between them: $|x_i - x_j| + |y_i - y_j|$, where $|val|$ denotes the absolute value of val .

Return *the minimum cost to make all points connected*. All points are connected if there is **exactly one** simple path between any two points.

Example 1:



Input: `points = [[0,0],[2,2],[3,10],[5,2],[7,0]]`
Output: 20
Explanation:



We can connect the points as shown above to get the minimum cost.
Notice that there is a unique path between every pair of points..

Example 2:

Input: points = [[3,12], [-2,5], [-4,1]]
Output: 18

Example 3:

Input: points = [[0,0], [1,1], [1,0], [-1,1]]
Output: 4

Example 4:

Input: points = [[-1000000, -1000000], [1000000, 1000000]]
Output: 4000000

Example 5:

Input: points = [[0,0]]
Output: 0

Constraints:

- $1 \leq \text{points.length} \leq 1000$
- $-10^6 \leq x_i, y_i \leq 10^6$
- All pairs (x_i, y_i) are distinct.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1584-Min-Cost-to-Connect-All-Points](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1585. Check If String Is Transformable With Substring Sort Operations

Given two strings s and t , you want to transform string s into string t using the following operation any number of times:

- Choose a **non-empty** substring in s and sort it in-place so the characters are in **ascending order** .

For example, applying the operation on the underlined substring in "1 4234" results in "1 2344" .

Return true if it is possible to transform string s into string t . Otherwise, return false .

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: s = "84532", t = "34852"

Output: true

Explanation: You can transform s into t using the following sort
"84532" (from index 2 to 3) -> "84352"
"84352" (from index 0 to 2) -> "34852"

Example 2:

Input: s = "34521", t = "23415"

Output: true

Explanation: You can transform s into t using the following sort
"34521" -> "23451"
"23451" -> "23415"

Example 3:

Input: s = "12345", t = "12435"

Output: false

Example 4:

Input: s = "1", t = "2"

Output: false

Constraints:

- s.length == t.length
- 1 <= s.length <= 10^5
- s and t only contain digits from '0' to '9' .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1585-Check-If-String-Is-Transformable-With-Substring-Sort-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1586. Binary Search Tree Iterator II

Implement the `BSTIterator` class that represents an iterator over the [in-order traversal](#) of a binary search tree (BST):

- `BSTIterator(TreeNode root)` Initializes an object of the `BSTIterator` class. The `root` of the BST is given as part of the constructor. The pointer should be initialized to a non-existent number smaller than any element in the BST.
- `boolean hasNext()` Returns `true` if there exists a number in the traversal to the right of the pointer, otherwise returns `false`.
- `int next()` Moves the pointer to the right, then returns the number at the pointer.

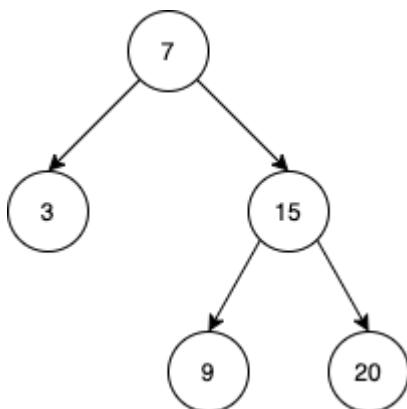
- `boolean hasPrev()` Returns true if there exists a number in the traversal to the left of the pointer, otherwise returns false .
- `int prev()` Moves the pointer to the left, then returns the number at the pointer.

Notice that by initializing the pointer to a non-existent smallest number, the first call to `next()` will return the smallest element in the BST.

You may assume that `next()` and `prev()` calls will always be valid. That is, there will be at least a next/ previous number in the in-order traversal when `next() / prev()` is called.

Follow up: Could you solve the problem without precalculating the values of the tree?

Example 1:



Input

```
["BSTIterator", "next", "next", "prev", "next", "hasNext", "next"]
[[[7, 3, 15, null, null, 9, 20]], [null], [null], [null], [null]]
```

Output

```
[null, 3, 7, 3, 7, true, 9, 15, 20, false, true, 15, 9]
```

Explanation

```
// The underlined element is where the pointer currently is.
BSTIterator bSTIterator = new BSTIterator([7, 3, 15, null, null,
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 3
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 7
bSTIterator.prev(); // state becomes [3, 7, 9, 15, 20], return 3
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 7
bSTIterator.hasNext(); // return true
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 9
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 15
bSTIterator.next(); // state becomes [3, 7, 9, 15, 20], return 20
bSTIterator.hasNext(); // return false
bSTIterator.hasPrev(); // return true
```

```
bSTIterator.prev(); // state becomes [3, 7, 9, 15, 20], return 1  
bSTIterator.prev(); // state becomes [3, 7, 9, 15, 20], return 9
```

Constraints:

- The number of nodes in the tree is in the range $[1, 10^5]$.
- $0 \leq \text{Node.val} \leq 10^6$
- At most 10^5 calls will be made to `hasNext`, `next`, `hasPrev`, and `prev`.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1586-Binary-Search-Tree-Iterator-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1587. Bank Account Summary II

[SQL Schema](#) >

Table: Users

Column Name	Type
account	int
name	varchar

account is the primary key for this table.

Each row of this table contains the account number of each user

Table: Transactions

Column Name	Type
trans_id	int
account	int
amount	int
transacted_on	date

trans_id is the primary key for this table.

Each row of this table contains all changes made to all accounts
amount is positive if the user received money and negative if the

All accounts start with a balance 0.

Write an SQL query to report the name and balance of users with a balance higher than 10000. The balance of an account is equal to the sum of the amounts of all transactions involving that account.

Return the result table in **any** order.

The query result format is in the following example.

Users table:

account	name
900001	Alice
900002	Bob
900003	Charlie

Transactions table:

trans_id	account	amount	transacted_on
1	900001	7000	2020-08-01
2	900001	7000	2020-09-01
3	900001	-3000	2020-09-02
4	900002	1000	2020-09-12
5	900003	6000	2020-08-07
6	900003	6000	2020-09-07
7	900003	-4000	2020-09-11

Result table:

name	balance
Alice	11000

Alice's balance is $(7000 + 7000 - 3000) = 11000$.

Bob's balance is 1000.

Charlie's balance is $(6000 + 6000 - 4000) = 8000$.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1587-Bank-Account-Summary-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1588. Sum of All Odd Length Subarrays

Given an array of positive integers `arr` , calculate the sum of all possible odd-length subarrays.

A subarray is a contiguous subsequence of the array.

Return *the sum of all odd-length subarrays of arr* .

Example 1:

Input: `arr = [1,4,2,5,3]`

Output: 58

Explanation: The odd-length subarrays of `arr` and their sums are:

[1] = 1

[4] = 4

[2] = 2

[5] = 5

[3] = 3

[1,4,2] = 7

[4,2,5] = 11

[2,5,3] = 10

[1,4,2,5,3] = 15

If we add all these together we get 1 + 4 + 2 + 5 + 3 + 7 + 11 +

Example 2:

Input: `arr = [1,2]`

Output: 3

Explanation: There are only 2 subarrays of odd length, [1] and [2]

Example 3:

Input: `arr = [10,11,12]`

Output: 66

Constraints:

- $1 \leq \text{arr.length} \leq 100$
- $1 \leq \text{arr[i]} \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1588-Sum-of-All-Odd-Length-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1589. Maximum Sum Obtained of Any Permutation

We have an array of integers, `nums` , and an array of requests where `requests[i] = [starti, endi]` . The i^{th} request asks for the sum of $\text{nums}[\text{start}_{\text{i}}] + \text{nums}[\text{start}_{\text{i}} + 1] + \dots + \text{nums}[\text{end}_{\text{i}} - 1] + \text{nums}[\text{end}_{\text{i}}]$. Both `starti` and `endi` are 0-indexed .

Return *the maximum total sum of all requests among all permutations* of `nums` .

Since the answer may be too large, return it **modulo** $10^9 + 7$.

Example 1:

Input: `nums = [1,2,3,4,5]` , `requests = [[1,3],[0,1]]`
Output: 19

Explanation: One permutation of `nums` is `[2,1,3,4,5]` with the following calculations:
`requests[0] -> nums[1] + nums[2] + nums[3] = 1 + 3 + 4 = 8`
`requests[1] -> nums[0] + nums[1] = 2 + 1 = 3`
Total sum: $8 + 3 = 11$.

A permutation with a higher total sum is `[3,5,4,2,1]` with the following calculations:
`requests[0] -> nums[1] + nums[2] + nums[3] = 5 + 4 + 2 = 11`
`requests[1] -> nums[0] + nums[1] = 3 + 5 = 8`
Total sum: $11 + 8 = 19$, which is the best that you can do.

Example 2:

Input: `nums = [1,2,3,4,5,6]` , `requests = [[0,1]]`
Output: 11

Explanation: A permutation with the max total sum is `[6,5,4,3,2,1]`.

Example 3:

Input: `nums = [1,2,3,4,5,10]` , `requests = [[0,2],[1,3],[1,1]]`
Output: 47

Explanation: A permutation with the max total sum is `[4,10,5,3,2,1]`.

Constraints:

- `n == nums.length`

- $1 \leq n \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^5$
- $1 \leq \text{requests.length} \leq 10^5$
- $\text{requests}[i].length == 2$
- $0 \leq \text{start}_i \leq \text{end}_i < n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1589-Maximum-Sum-Obtained-of-Any-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1590. Make Sum Divisible by P

Given an array of positive integers `nums` , remove the **smallest** subarray (possibly **empty**) such that the **sum** of the remaining elements is divisible by `p` . It is **not** allowed to remove the whole array.

Return *the length of the smallest subarray that you need to remove, or -1 if it's impossible* .

A **subarray** is defined as a contiguous block of elements in the array.

Example 1:

Input: `nums` = [3,1,4,2] , `p` = 6

Output: 1

Explanation: The sum of the elements in `nums` is 10, which is not

Example 2:

Input: `nums` = [6,3,5,2] , `p` = 9

Output: 2

Explanation: We cannot remove a single element to get a sum divi

Example 3:

Input: `nums` = [1,2,3] , `p` = 3

Output: 0

Explanation: Here the sum is 6. which is already divisible by 3.

Example 4:

Input: `nums` = [1,2,3] , `p` = 7

Output: -1

Explanation: There is no way to remove a subarray in order to ge

Example 5:

Input: `nums` = [1000000000,1000000000,1000000000] , `p` = 3

Output: 0

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$
- $1 \leq p \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1590-Make-Sum-Divisible-by-P](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1591. Strange Printer II

There is a strange printer with the following two special requirements:

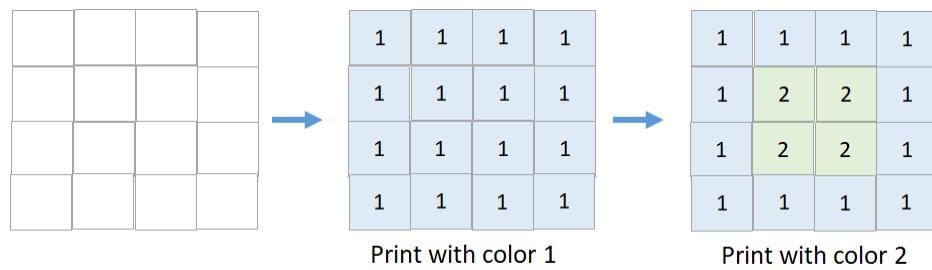
- On each turn, the printer will print a solid rectangular pattern of a single color on the grid. This will cover up the existing colors in the rectangle.

- Once the printer has used a color for the above operation, **the same color cannot be used again**.

You are given a $m \times n$ matrix `targetGrid`, where `targetGrid[row][col]` is the color in the position (row, col) of the grid.

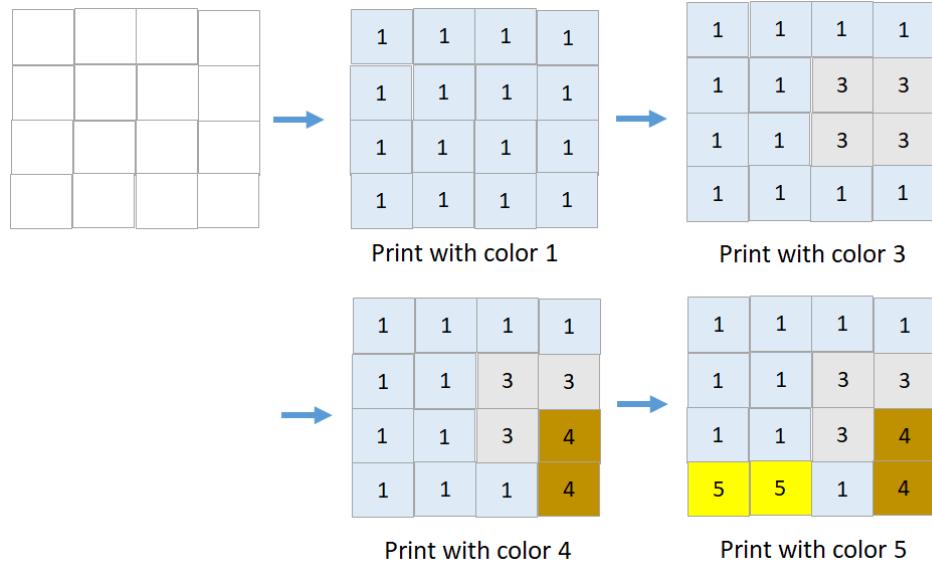
Return `true` if it is possible to print the matrix `targetGrid`, otherwise, return `false`.

Example 1:



Input: `targetGrid = [[1,1,1,1],[1,2,2,1],[1,2,2,1],[1,1,1,1]]`
Output: `true`

Example 2:



Input: `targetGrid = [[1,1,1,1],[1,1,3,3],[1,1,3,4],[5,5,1,4]]`
Output: `true`

Example 3:

Input: `targetGrid = [[1,2,1],[2,1,2],[1,2,1]]`
Output: `false`

Explanation: It is impossible to form `targetGrid` because it is not possible to print the grid with the given constraints.

Example 4:

Input: targetGrid = [[1,1,1],[3,1,3]]
Output: false

Constraints:

- m == targetGrid.length
- n == targetGrid[i].length
- 1 <= m, n <= 60
- 1 <= targetGrid[row][col] <= 60

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1591-Strange-Printer-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1592. Rearrange Spaces Between Words

You are given a string `text` of words that are placed among some number of spaces. Each word consists of one or more lowercase English letters and are separated by at least one space. It's guaranteed that `text` **contains at least one word**.

Rearrange the spaces so that there is an **equal** number of spaces between every pair of adjacent words and that number is **maximized**. If you cannot redistribute all the spaces equally, place the **extra spaces at the end**, meaning the returned string should be the same length as `text`.

Return *the string after rearranging the spaces*.

Example 1:

Input: `text = " this is a sentence "`

Output: "this is a sentence"

Explanation: There are a total of 9 spaces and 4 words. We can e

Example 2:

Input: `text = " practice makes perfect "`

Output: "practice makes perfect "

Explanation: There are a total of 7 spaces and 3 words. 7 / (3-1)

Example 3:

Input: `text = "hello world"`

Output: "hello world"

Example 4:

Input: `text = " walks udp package into bar a "`

Output: "walks udp package into bar a "

Example 5:

Input: `text = "a"`

Output: "a"

Constraints:

- $1 \leq \text{text.length} \leq 100$

- `text` consists of lowercase English letters and '`'`'
- `text` contains at least one word.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1592-Rearrange-Spaces-Between-Words](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1593. Split a String Into the Max Number of Unique Substrings

Given a string s , return *the maximum number of unique substrings that the given string can be split into* .

You can split string s into any list of **non-empty substrings** , where the concatenation of the substrings forms the original string. However, you must split the substrings such that all of them are **unique** .

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: $s = \text{"ababccc"}$
Output: 5

Explanation: One way to split maximally is $[\text{'a'}, \text{'b'}, \text{'ab'}, \text{'c'}, \text{'cc'}]$.

Example 2:

Input: $s = \text{"aba"}$
Output: 2

Explanation: One way to split maximally is $[\text{'a'}, \text{'ba'}]$.

Example 3:

Input: $s = \text{"aa"}$
Output: 1

Explanation: It is impossible to split the string any further.

Constraints:

- $1 \leq s.length \leq 16$
- s contains only lower case English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1593-Split-a-String-Into-the-Max-Number-of-Unique-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1594. Maximum Non Negative Product in a Matrix

You are given a `rows x cols` matrix `grid`. Initially, you are located at the top-left corner $(0, 0)$, and in each step, you can only **move right or down** in the matrix.

Among all possible paths starting from the top-left corner $(0, 0)$ and ending in the bottom-right corner $(\text{rows} - 1, \text{cols} - 1)$, find the path with the **maximum non-**

negative product. The product of a path is the product of all integers in the grid cells visited along the path.

Return the *maximum non-negative product modulo $10^9 + 7$* . If the maximum product is **negative** return -1 .

Notice that the modulo is performed after getting the maximum product.

Example 1:

Input: grid = [[-1,-2,-3],
[-2,-3,-3],
[-3,-3,-2]]

Output: -1

Explanation: It's not possible to get non-negative product in the grid.

Example 2:

Input: grid = [[1,-2,1],
[1,-2,1],
[3,-4,1]]

Output: 8

Explanation: Maximum non-negative product is in bold (1 * 1 * -2 * 1)

Example 3:

Input: grid = [[1, 3],
[0, -4]]

Output: 0

Explanation: Maximum non-negative product is in bold (1 * 0 * -4)

Example 4:

Input: grid = [[1, 4, 4, 0],
[-2, 0, 0, 1],
[1,-1,1,1]]

Output: 2

Explanation: Maximum non-negative product is in bold (1 * -2 * 1)

Constraints:

- $1 \leq \text{rows}, \text{cols} \leq 15$
- $-4 \leq \text{grid}[\text{i}][\text{j}] \leq 4$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1594-Maximum-Non-Negative-Product-in-a-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1595. Minimum Cost to Connect Two Groups of Points

You are given two groups of points where the first group has `size1` points, the second group has `size2` points, and `size1 >= size2`.

The cost of the connection between any two points are given in an `size1 × size2` matrix where `cost[i][j]` is the cost of connecting point `i` of the first group and point `j` of the second group. The groups are connected if **each point in both groups is connected to one or more points in the opposite group**. In other words, each point in the first group must be connected to at least one point in the second group, and each point in the second group must be connected to at least one point in the first group.

Return *the minimum cost it takes to connect the two groups*.

Example 1:

Input: `cost = [[15, 96], [36, 2]]`

Output: 17

Explanation: The optimal way of connecting the groups is:

1--A

2--B

This results in a total cost of 17.

Example 2:

Input: `cost = [[1, 3, 5], [4, 1, 1], [1, 5, 3]]`

Output: 4

Explanation: The optimal way of connecting the groups is:

1--A

2--B

2--C

3--A

This results in a total cost of 4.

Note that there are multiple points connected to point 2 in the

Example 3:

Input: `cost = [[2, 5, 1], [3, 4, 7], [8, 1, 2], [6, 2, 4], [3, 8, 6]]`

Output: 10

Constraints:

- `size1 == cost.length`
- `size2 == cost[i].length`
- `1 <= size1, size2 <= 12`
- `size1 >= size2`
- `0 <= cost[i][j] <= 100`

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1595-Minimum-Cost-to-Connect-Two-Groups-of-Points](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1596. The Most Frequently Ordered Products for Each Customer

SQL Schema >

Table: Customers

Column Name	Type
customer_id	int
name	varchar

customer_id is the primary key for this table.

This table contains information about the customers.

Table: Orders

Column Name	Type
order_id	int
order_date	date
customer_id	int
product_id	int

order_id is the primary key for this table.

This table contains information about the orders made by customers.

No customer will order the same product more than once in a single order.

Table: Products

Column Name	Type
product_id	int
product_name	varchar
price	int

product_id is the primary key for this table.

This table contains information about the products.

Write an SQL query to find the most frequently ordered product(s) for each customer.

The result table should have the `product_id` and `product_name` for each `customer_id` who ordered at least one order. Return the result table in **any order**.

The query result format is in the following example:

Customers

customer_id	name
1	Alice
2	Bob
3	Tom

4	Jerry
5	John

Orders

order_id	order_date	customer_id	product_id
1	2020-07-31	1	1
2	2020-07-30	2	2
3	2020-08-29	3	3
4	2020-07-29	4	1
5	2020-06-10	1	2
6	2020-08-01	2	1
7	2020-08-01	3	3
8	2020-08-03	1	2
9	2020-08-07	2	3
10	2020-07-15	1	2

Products

product_id	product_name	price
1	keyboard	120
2	mouse	80
3	screen	600
4	hard disk	450

Result table:

customer_id	product_id	product_name
1	2	mouse
2	1	keyboard
2	2	mouse
2	3	screen
3	3	screen
4	1	keyboard

Alice (customer 1) ordered the mouse three times and the keyboard twice.
Bob (customer 2) ordered the keyboard, the mouse, and the screen twice.
Tom (customer 3) only ordered the screen (two times), so that is two orders.
Jerry (customer 4) only ordered the keyboard (one time), so that is one order.
John (customer 5) did not order anything, so we do not include them.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1596-The-Most-Frequently-Ordered-Products-for-Each-Customer](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1597. Build Binary Expression Tree From Infix Expression

A [binary expression tree](#) is a kind of binary tree used to represent arithmetic expressions. Each node of a binary expression tree has either zero or two children. Leaf nodes (nodes with 0 children) correspond to operands (numbers), and internal nodes (nodes with 2 children)

correspond to the operators '+' (addition), '-' (subtraction), '*' (multiplication), and '/' (division).

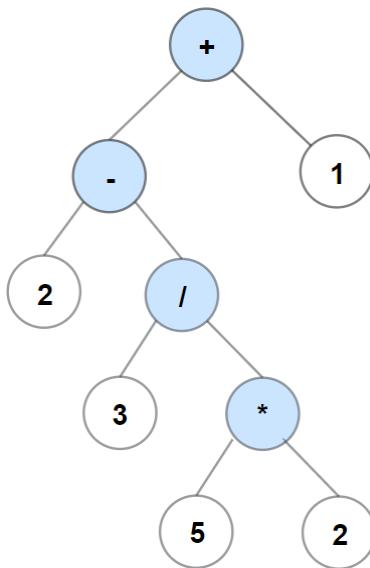
For each internal node with operator o , the [**infix expression**](#) that it represents is $(A \ o \ B)$, where A is the expression the left subtree represents and B is the expression the right subtree represents.

You are given a string s , an **infix expression** containing operands, the operators described above, and parentheses '(' and ')'. .

Return *the binary expression tree*, which its [**in-order traversal**](#) reproduce s .

Please note that order of operations applies in s .
That is, expressions in parentheses are evaluated first, and multiplication and division happen before addition and subtraction.

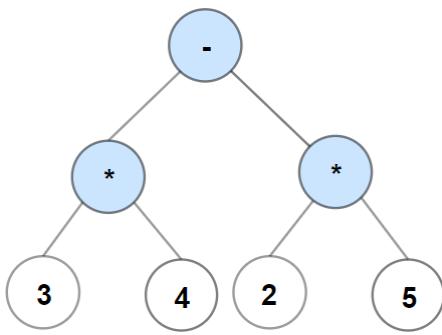
Example 1:



Input: $s = "2-3/(5*2)+1"$

Output: `[+, -, 1, 2, /, null, null, null, null, 3, *, null, null, 5, 2]`

Example 2:



Input: s = "3*4-2*5"
 Output: [-, *, *, 3, 4, 2, 5]

Example 3:

Input: s = "1+2+3+4+5"
 Output: [+ , + , 5 , + , 4 , null , null , + , 3 , null , null , 1 , 2]

Constraints:

- $1 \leq s.length \leq 10^5$
- s consists of digits and the characters '+', '- ', '*', '/', '(', and ')'.
- Operands in s are **exactly** 1 digit.
- It is guaranteed that s is a valid expression.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1597-Build-Binary-Expression-Tree-From-Infix-Expression](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1598. Crawler Log Folder

The Leetcode file system keeps a log each time some user performs a *change folder* operation.

The operations are described below:

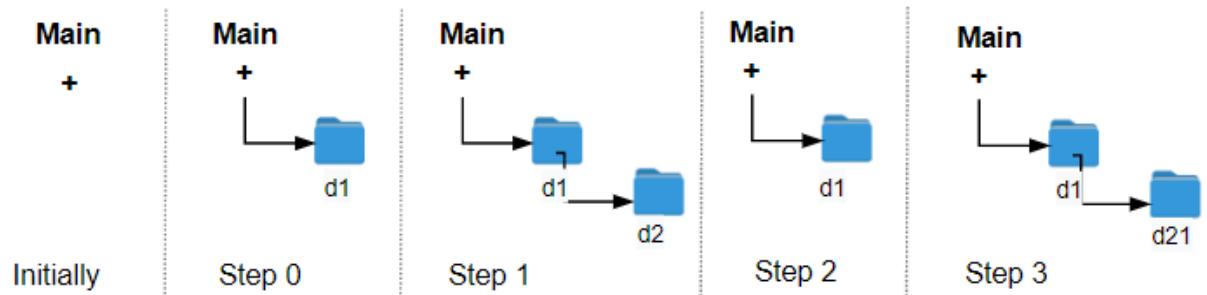
- ". / " : Move to the parent folder of the current folder. (If you are already in the main folder, **remain in the same folder**).
- ". ." : Remain in the same folder.
- "x/ " : Move to the child folder named x (This folder is **guaranteed to always exist**).

You are given a list of strings `logs` where `logs[i]` is the operation performed by the user at the i^{th} step.

The file system starts in the main folder, then the operations in `logs` are performed.

Return *the minimum number of operations needed to go back to the main folder after the change folder operations*.

Example 1:

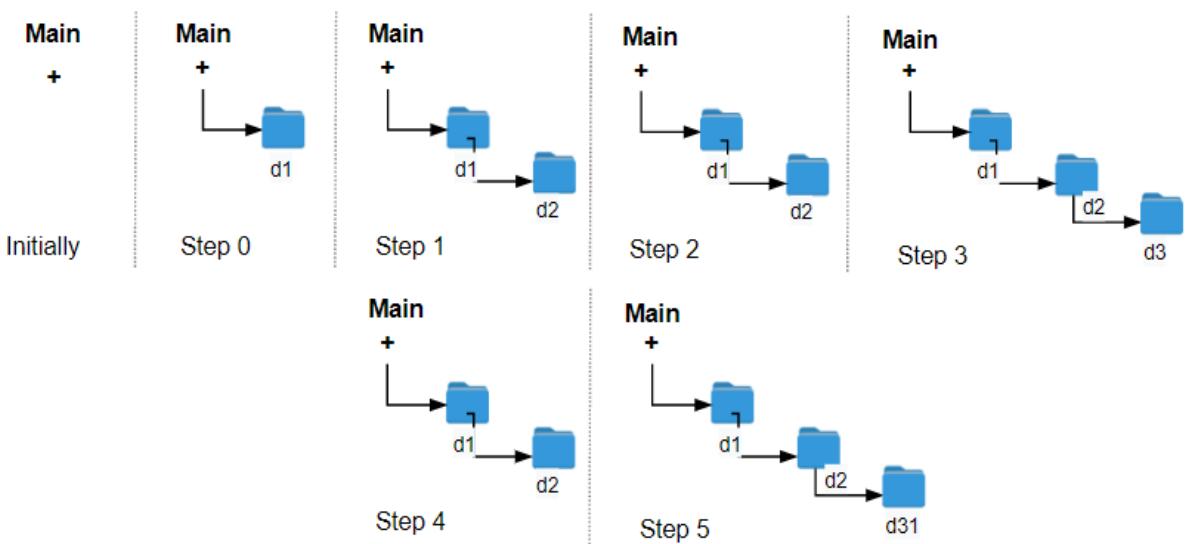


Input: logs = ["d1/", "d2/", "../", "d21/", "./"]

Output: 2

Explanation: Use this change folder operation "../" 2 times and get to the last folder "d21/".

Example 2:



Input: logs = ["d1/", "d2/", "./", "d3/", "../", "d31/"]

Output: 3

Example 3:

Input: logs = ["d1/", "../", "./", "./"]

Output: 0

Constraints:

- $1 \leq \text{logs.length} \leq 10^3$
- $2 \leq \text{logs[i].length} \leq 10$
- logs[i] contains lowercase English letters, digits, '.', and '/' .
- logs[i] follows the format described in the statement.
- Folder names consist of lowercase English letters and digits.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1598-Crawler-Log-Folder](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1599. Maximum Profit of Operating a Centennial Wheel

You are the operator of a Centennial Wheel that has **four gondolas**, and each gondola has room for **up to four**

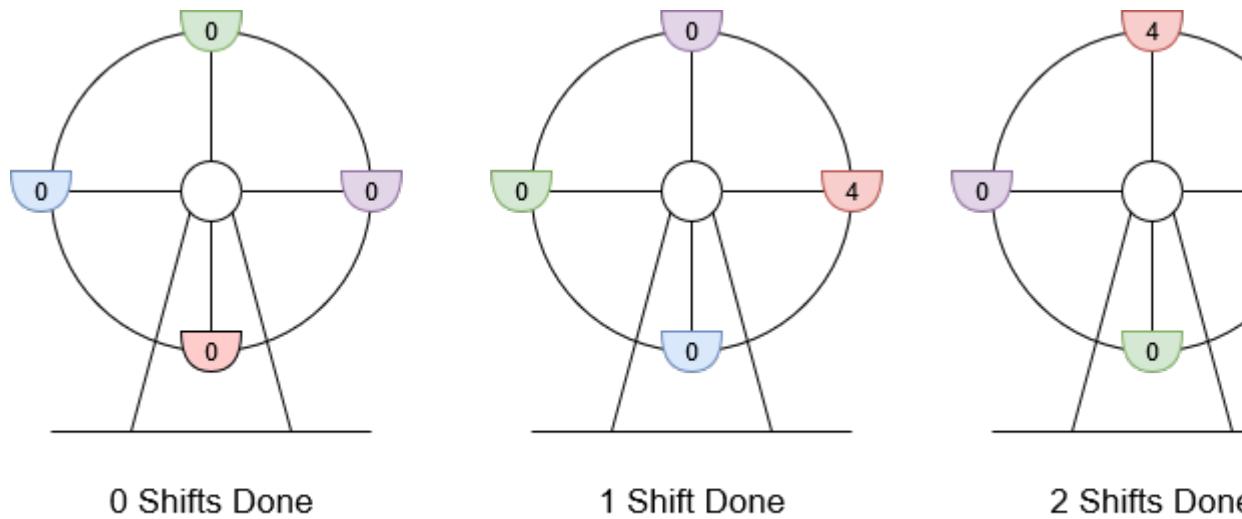
people. You have the ability to rotate the gondolas **counterclockwise**, which costs you **runningCost** dollars.

You are given an array **customers** of length **n** where **customers[i]** is the number of new customers arriving just before the **ith** rotation (0-indexed). This means you **must rotate** the wheel **i** times before **customers[i]** arrive. Each customer pays **boardingCost** dollars when they board on the gondola closest to the ground and will exit once that gondola reaches the ground again.

You can stop the wheel at any time, including **before serving all customers**. If you decide to stop serving customers, **all subsequent rotations are free** in order to get all the customers down safely. Note that if there are currently more than four customers waiting at the wheel, only four will board the gondola, and the rest will wait **for the next rotation**.

Return *the minimum number of rotations you need to perform to maximize your profit*. If there is **no scenario** where the profit is positive, return -1 .

Example 1:



Input: **customers** = [8, 3], **boardingCost** = 5, **runningCost** = 6
Output: 3

Explanation: The numbers written on the gondolas are the number of customers on each gondola.
1. 8 customers arrive, 4 board and 4 wait for the next gondola,
2. 3 customers arrive, the 4 waiting board the wheel and the other 3 wait for the next gondola.

3. The final 3 customers board the gondola, the wheel rotates. The highest profit was \$37 after rotating the wheel 3 times.

Example 2:

Input: customers = [10,9,6], boardingCost = 6, runningCost = 4
Output: 7

Explanation:

1. 10 customers arrive, 4 board and 6 wait for the next gondola,
2. 9 customers arrive, 4 board and 11 wait (2 originally waiting)
3. The final 6 customers arrive, 4 board and 13 wait, the wheel rotates.
4. 4 board and 9 wait, the wheel rotates. Current profit is 16 * 6 - 4 * 4
5. 4 board and 5 wait, the wheel rotates. Current profit is 20 * 6 - 4 * 4
6. 4 board and 1 waits, the wheel rotates. Current profit is 24 * 6 - 4 * 4
7. 1 boards, the wheel rotates. Current profit is 25 * \$6 - 7 * 4

The highest profit was \$122 after rotating the wheel 7 times.

Example 3:

Input: customers = [3,4,0,5,1], boardingCost = 1, runningCost = 1
Output: -1

Explanation:

1. 3 customers arrive, 3 board and 0 wait, the wheel rotates. Current profit is 3 * 1 - 1 * 1
2. 4 customers arrive, 4 board and 0 wait, the wheel rotates. Current profit is 7 * 1 - 2 * 1
3. 0 customers arrive, 0 board and 0 wait, the wheel rotates. Current profit is 7 * 1 - 2 * 1
4. 5 customers arrive, 4 board and 1 waits, the wheel rotates. Current profit is 12 * 1 - 3 * 1
5. 1 customer arrives, 2 board and 0 wait, the wheel rotates. Current profit is 14 * 1 - 4 * 1

The profit was never positive, so return -1.

Example 4:

Input: customers = [10,10,6,4,7], boardingCost = 3, runningCost = 4
Output: 9

Explanation:

1. 10 customers arrive, 4 board and 6 wait, the wheel rotates. Current profit is 10 * 3 - 4 * 4
2. 10 customers arrive, 4 board and 12 wait, the wheel rotates. Current profit is 14 * 3 - 5 * 4
3. 6 customers arrive, 4 board and 14 wait, the wheel rotates. Current profit is 18 * 3 - 6 * 4
4. 4 customers arrive, 4 board and 14 wait, the wheel rotates. Current profit is 22 * 3 - 7 * 4
5. 7 customers arrive, 4 board and 17 wait, the wheel rotates. Current profit is 25 * 3 - 8 * 4
6. 4 board and 13 wait, the wheel rotates. Current profit is 24 * 3 - 9 * 4
7. 4 board and 9 wait, the wheel rotates. Current profit is 28 * 3 - 10 * 4
8. 4 board and 5 wait, the wheel rotates. Current profit is 32 * 3 - 11 * 4
9. 4 board and 1 waits, the wheel rotates. Current profit is 36 * 3 - 12 * 4
10. 1 board and 0 wait, the wheel rotates. Current profit is 37 * 3 - 13 * 4

The highest profit was \$36 after rotating the wheel 9 times.

Constraints:

- n == customers.length
- 1 <= n <= 10⁵
- 0 <= customers[i] <= 50
- 1 <= boardingCost, runningCost <= 100

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1599-Maximum-Profit-of-Operating-a-Centennial-Wheel](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1600. Throne Inheritance

A kingdom consists of a king, his children, his grandchildren, and so on. Every once in a while, someone in the family dies or a child is born.

The kingdom has a well-defined order of inheritance that consists of the king as the first member. Let's define the recursive function `Successor(x, curOrder)` , which given a person `x` and the inheritance order so far, returns who should be the next person after `x` in the order of inheritance.

`Successor(x, curOrder):`

```
if x has no children or all of x's children are in curOrder:  
    if x is the king return null  
    else return Successor(x's parent, curOrder)  
else return x's oldest child who's not in curOrder
```

For example, assume we have a kingdom that consists of the king, his children Alice and Bob (Alice is older than Bob), and finally Alice's son Jack.

1. In the beginning, `curOrder` will be `["king"]` .
2. Calling `Successor(king, curOrder)` will return Alice, so we append to `curOrder` to get `["king", "Alice"]` .
3. Calling `Successor(Alice, curOrder)` will return Jack, so we append to `curOrder` to get `["king", "Alice", "Jack"]` .
4. Calling `Successor(Jack, curOrder)` will return Bob, so we append to `curOrder` to get `["king", "Alice", "Jack", "Bob"]` .
5. Calling `Successor(Bob, curOrder)` will return null . Thus the order of inheritance will be `["king", "Alice", "Jack", "Bob"]` .

Using the above function, we can always obtain a unique order of inheritance.

Implement the `ThroneInheritance` class:

- `ThroneInheritance(string kingName)`
Initializes an object of the `ThroneInheritance` class. The name of the king is given as part of the constructor.
- `void birth(string parentName, string childName)` Indicates that `parentName` gave birth to `childName` .
- `void death(string name)` Indicates the death of `name` . The death of the person doesn't affect the `Successor` function nor the current inheritance

order. You can treat it as just marking the person as dead.

- `string[] getInheritanceOrder()` Returns a list representing the current order of inheritance **excluding** dead people.

Example 1:

Input

```
["ThroneInheritance", "birth", "birth", "birth", "birth", "birth",  
[["king"], ["king", "andy"], ["king", "bob"], ["king", "catherine"]]
```

Output

```
[null, null, null, null, null, null, null, ["king", "andy", "matthew"]]
```

Explanation

```
ThroneInheritance t= new ThroneInheritance("king"); // order: king > bob  
t.birth("king", "andy"); // order: king > andy  
t.birth("king", "bob"); // order: king > andy > bob  
t.birth("king", "catherine"); // order: king > andy > bob > catherine  
t.birth("andy", "matthew"); // order: king > andy > matthew > bob > alex  
t.birth("bob", "alex"); // order: king > andy > matthew > bob > alex  
t.birth("bob", "asha"); // order: king > andy > matthew > bob > alex  
t.getInheritanceOrder(); // return ["king", "andy", "matthew", "bob", "alex", "asha"]  
t.death("bob"); // order: king > andy > matthew > bob > alex > asha  
t.getInheritanceOrder(); // return ["king", "andy", "matthew", "alex"]
```

Constraints:

- `1 <= KingName.length, ParentName.length, ChildName.length, Name.length <= 15`
- `KingName`, `ParentName`, `ChildName`, and `Name` consist of lowercase English letters only.
- All arguments `ChildName` and `KingName` are **distinct**.
- All `Name` arguments of `death` will be passed to either the constructor or as `ChildName` to `birth` first.
- For each call to `birth(ParentName, ChildName)`, it is guaranteed that `ParentName` is alive.
- At most 10^5 calls will be made to `birth` and `death`.
- At most 10 calls will be made to `getInheritanceOrder`.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1600-Throne-Inheritance](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1601. Maximum Number of Achievable Transfer Requests

We have n buildings numbered from 0 to $n - 1$. Each building has a number of employees. It's transfer season, and some employees want to change the building they reside in.

You are given an array `requests` where `requests[i] = [fromi, toi]` represents an employee's request to transfer from building `fromi` to building `toi`.

All buildings are full, so a list of requests is achievable only if for each building, the **net change in employee transfers is zero**. This means the number of employees **leaving** is **equal** to the number of employees **moving in**. For example if $n = 3$ and two employees are leaving building 0, one is leaving building 1, and one is leaving building 2, there should be two employees moving to building 0, one employee moving to building 1, and one employee moving to building 2.

Return *the maximum number of achievable requests*.

Example 1:

Input: $n = 5$, `requests = [[0,1],[1,0],[0,1],[1,2],[2,0],[3,4]]`
Output: 5
Explanation: Let's see the requests:
From building 0 we have employees x and y and both want to move to building 1.
From building 1 we have employees a and b and they want to move to building 0.
From building 2 we have employee z and they want to move to building 3.
From building 3 we have employee c and they want to move to building 4.
From building 4 we don't have any requests.
We can achieve the requests of users x and b by swapping their positions.
We can achieve the requests of users y, a and z by swapping the positions.

Example 2:

Input: $n = 3$, `requests = [[0,0],[1,2],[2,1]]`
Output: 3
Explanation: Let's see the requests:
From building 0 we have employee x and they want to stay in the same building.
From building 1 we have employee y and they want to move to building 2.
From building 2 we have employee z and they want to move to building 1.
We can achieve all the requests.

Example 3:

Input: $n = 4$, `requests = [[0,3],[3,1],[1,2],[2,0]]`
Output: 4

Constraints:

- $1 \leq n \leq 20$
- $1 \leq \text{requests.length} \leq 16$
- $\text{requests}[i].length == 2$

• $0 \leq from_i, to_i < n$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1601-Maximum-Number-of-Achievable-Transfer-Requests](#)

All Problems:

[Link to All Problems](#)

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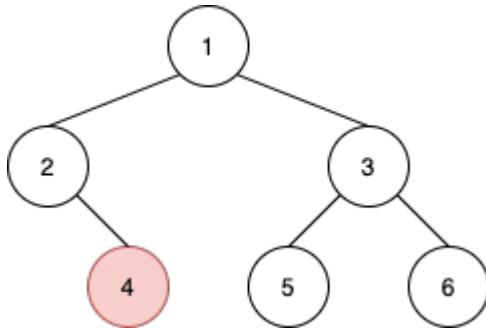
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Welcome to Subscribe On Youtube:

1602. Find Nearest Right Node in Binary Tree

Given the root of a binary tree and a node u in the tree, return *the nearest node on the same level that is to the right of u* , or return null if u is the rightmost node in its level.

Example 1:

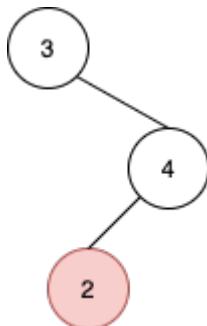


Input: root = [1,2,3,null,4,5,6], $u = 4$

Output: 5

Explanation: The nearest node on the same level to the right of 4 is 5.

Example 2:



Input: root = [3,null,4,2], $u = 2$

Output: null

Explanation: There are no nodes to the right of 2.

Example 3:

Input: root = [1], $u = 1$

Output: null

Example 4:

Input: root = [3,4,2,null,null,null,1], $u = 4$

Output: 2

Constraints:

- The number of nodes in the tree is in the range $[1, 10^5]$.
- $1 \leq \text{Node.val} \leq 10^5$
- All values in the tree are **distinct**.
- u is a node in the binary tree rooted at `root`.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1602-Find-Nearest-Right-Node-in-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1603. Design Parking System

Design a parking system for a parking lot. The parking lot has three kinds of parking spaces: big, medium, and small, with a fixed number of slots for each size.

Implement the `ParkingSystem` class:

- `ParkingSystem(int big, int medium, int small)` Initializes object of the `ParkingSystem` class. The number of slots for each parking space are given as part of the constructor.
- `bool addCar(int carType)` Checks whether there is a parking space of `carType` for the car that wants to get into the parking lot. `carType` can be of three kinds: big, medium, or small, which are represented by 1 , 2 , and 3 respectively. **A car can only park in a parking space of its carType .** If there is no space available, return `false` , else park the car in that size space and return `true` .

Example 1:

Input
["ParkingSystem", "addCar", "addCar", "addCar", "addCar"]
[[1, 1, 0], [1], [2], [3], [1]]
Output
[null, true, true, false, false]

Explanation

```
ParkingSystem parkingSystem = new ParkingSystem(1, 1, 0);
parkingSystem.addCar(1); // return true because there is 1 avail
parkingSystem.addCar(2); // return true because there is 1 avail
parkingSystem.addCar(3); // return false because there is no avail
parkingSystem.addCar(1); // return false because there is no avail
```

Constraints:

- $0 \leq \text{big}, \text{medium}, \text{small} \leq 1000$
- `carType` is 1 , 2 , or 3
- At most 1000 calls will be made to `addCar`

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1603-Design-Parking-System](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1604. Alert Using Same Key-Card Three or More Times in a One Hour Period

Leetcode company workers use key-cards to unlock office doors. Each time a worker uses their key-card, the security system saves the worker's name and the time when it was used. The system emits an **alert** if any

worker uses the key-card **three or more times** in a one-hour period.

You are given a list of strings `keyName` and `keyTime` where `[keyName[i], keyTime[i]]` corresponds to a person's name and the time when their key-card was used **in a single day**.

Access times are given in the **24-hour time format "HH:MM"**, such as "23:51" and "09:49".

Return a *list of unique worker names who received an alert for frequent keycard use*. Sort the names in **ascending order alphabetically**.

Notice that "10:00" - "11:00" is considered to be within a one-hour period, while "23:51" - "00:10" is not considered to be within a one-hour period.

Example 1:

Input: `keyName = ["daniel", "daniel", "daniel", "luis", "luis", "luis"]`
Output: `["daniel"]`
Explanation: "daniel" used the keycard 3 times in a one-hour period

Example 2:

Input: `keyName = ["alice", "alice", "alice", "bob", "bob", "bob", "bob"]`
Output: `["bob"]`
Explanation: "bob" used the keycard 3 times in a one-hour period

Example 3:

Input: `keyName = ["john", "john", "john"]`, `keyTime = ["23:58", "23:58", "23:58"]`
Output: `[]`

Example 4:

Input: `keyName = ["leslie", "leslie", "leslie", "clare", "clare", "clare"]`
Output: `["clare", "leslie"]`

Constraints:

- $1 \leq \text{keyName.length}, \text{keyTime.length} \leq 10$
- $\text{keyName.length} == \text{keyTime.length}$
- `keyTime` are in the format **"HH:MM"**.
- `[keyName[i], keyTime[i]]` is **unique**.
- $1 \leq \text{keyName[i].length} \leq 10$

- `keyName[i]` contains only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1604-Alert-Using-Same-Key-Card-Three-or-More-Times-in-a-One-Hour-Period](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1605. Find Valid Matrix Given Row and Column Sums

You are given two arrays `rowSum` and `colSum` of non-negative integers where `rowSum[i]` is the sum of the elements in the i^{th} row and `colSum[j]` is the sum of the elements of the j^{th} column of a 2D matrix. In other words, you do not know the elements of the matrix, but you do know the sums of each row and column.

Find any matrix of **non-negative** integers of size `rowSum.length` x `colSum.length` that satisfies the `rowSum` and `colSum` requirements.

Return a 2D array representing **any** matrix that fulfills the requirements. It's guaranteed that **at least one** matrix that fulfills the requirements exists.

Example 1:

Input: `rowSum = [3,8]`, `colSum = [4,7]`
Output: `[[3,0], [1,7]]`

Explanation:

0th row: $3 + 0 = 3 == \text{rowSum}[0]$

1st row: $1 + 7 = 8 == \text{rowSum}[1]$

0th column: $3 + 1 = 4 == \text{colSum}[0]$

1st column: $0 + 7 = 7 == \text{colSum}[1]$

The row and column sums match, and all matrix elements are non-negative.

Another possible matrix is: `[[1,2], [3,5]]`

Example 2:

Input: `rowSum = [5,7,10]`, `colSum = [8,6,8]`
Output: `[[0,5,0], [6,1,0], [2,0,8]]`

Example 3:

Input: `rowSum = [14,9]`, `colSum = [6,9,8]`
Output: `[[0,9,5], [6,0,3]]`

Example 4:

```
Input: rowSum = [1,0], colSum = [1]
Output: [[1],
          [0]]
```

Example 5:

```
Input: rowSum = [0], colSum = [0]
Output: [[0]]
```

Constraints:

- $1 \leq \text{rowSum.length}, \text{colSum.length} \leq 500$
- $0 \leq \text{rowSum}[i], \text{colSum}[i] \leq 10^8$
- $\text{sum(rows)} == \text{sum(columns)}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1605-Find-Valid-Matrix-Given-Row-and-Column-Sums](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1606. Find Servers That Handled Most Number of Requests

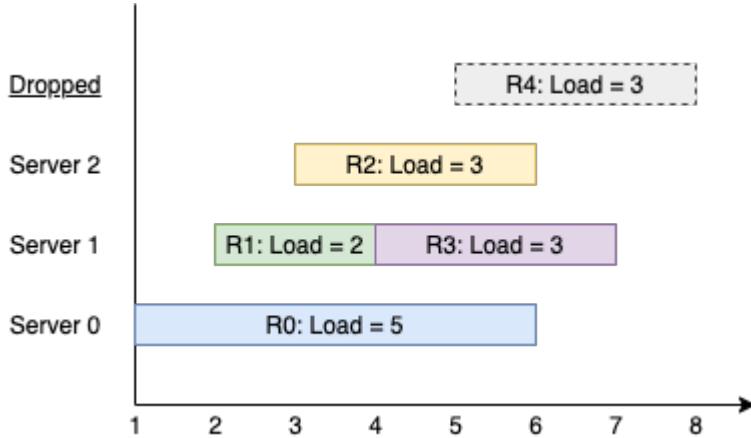
You have k servers numbered from 0 to $k-1$ that are being used to handle multiple requests simultaneously. Each server has infinite computational capacity but **cannot handle more than one request at a time**. The requests are assigned to servers according to a specific algorithm:

- The i^{th} (0-indexed) request arrives.
- If all servers are busy, the request is dropped (not handled at all).
- If the $(i \% k)^{\text{th}}$ server is available, assign the request to that server.
- Otherwise, assign the request to the next available server (wrapping around the list of servers and starting from 0 if necessary). For example, if the i^{th} server is busy, try to assign the request to the $(i+1)^{\text{th}}$ server, then the $(i+2)^{\text{th}}$ server, and so on.

You are given a **strictly increasing** array `arrival` of positive integers, where `arrival[i]` represents the arrival time of the i^{th} request, and another array `load`, where `load[i]` represents the load of the i^{th} request (the time it takes to complete). Your goal is to find the **busiest server(s)**. A server is considered **busiest** if it handled the most number of requests successfully among all the servers.

Return a list containing the IDs (0-indexed) of the **busiest server(s)**. You may return the IDs in any order.

Example 1:



Input: $k = 3$, arrival = [1,2,3,4,5], load = [5,2,3,3,3]

Output: [1]

Explanation:

All of the servers start out available.

The first 3 requests are handled by the first 3 servers in order.

Request 3 comes in. Server 0 is busy, so it's assigned to the next server.

Request 4 comes in. It cannot be handled since all servers are busy.

Servers 0 and 2 handled one request each, while server 1 handled two.

Example 2:

Input: $k = 3$, arrival = [1,2,3,4], load = [1,2,1,2]

Output: [0]

Explanation:

The first 3 requests are handled by first 3 servers.

Request 3 comes in. It is handled by server 0 since the server is available.

Server 0 handled two requests, while servers 1 and 2 handled one.

Example 3:

Input: $k = 3$, arrival = [1,2,3], load = [10,12,11]

Output: [0,1,2]

Explanation: Each server handles a single request, so they are all available.

Example 4:

Input: $k = 3$, arrival = [1,2,3,4,8,9,10], load = [5,2,10,3,1,2,2]

Output: [1]

Example 5:

Input: $k = 1$, arrival = [1], load = [1]

Output: [0]

Constraints:

- $1 \leq k \leq 10^5$

- $1 \leq \text{arrival.length}, \text{load.length} \leq 10^5$
- $\text{arrival.length} == \text{load.length}$
- $1 \leq \text{arrival}[i], \text{load}[i] \leq 10^9$
- **arrival is strictly increasing.**

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1606-Find-Servers-That-Handled-Most-Number-of-Requests](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1607. Sellers With No Sales

SQL Schema >

Table: Customer

Column Name	Type
customer_id	int
customer_name	varchar

customer_id is the primary key for this table.

Each row of this table contains the information of each customer.

Table: Orders

Column Name	Type
order_id	int
sale_date	date
order_cost	int
customer_id	int
seller_id	int

order_id is the primary key for this table.

Each row of this table contains all orders made in the webstore.
sale_date is the date when the transaction was made between the

Table: Seller

Column Name	Type
seller_id	int
seller_name	varchar

seller_id is the primary key for this table.

Each row of this table contains the information of each seller.

Write an SQL query to report the names of all sellers who did not make any sales in 2020.

Return the result table ordered by seller_name in **ascending order**.

The query result format is in the following example.

Customer table:

customer_id	customer_name
101	Alice
102	Bob
103	Charlie

Orders table:

order_id	sale_date	order_cost	customer_id	seller_id
1	2020-03-01	1500	101	1
2	2020-05-25	2400	102	2
3	2019-05-25	800	101	3
4	2020-09-13	1000	103	2
5	2019-02-11	700	101	2

Seller table:

seller_id	seller_name
1	Daniel
2	Elizabeth
3	Frank

Result table:

seller_name
Frank

Daniel made 1 sale in March 2020.

Elizabeth made 2 sales in 2020 and 1 sale in 2019.

Frank made 1 sale in 2019 but no sales in 2020.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1607-Sellers-With-No-Sales](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1608. Special Array With X Elements Greater Than or Equal X

You are given an array `nums` of non-negative integers. `nums` is considered **special** if there exists a number `x` such that there are **exactly `x`** numbers in `nums` that are **greater than or equal to `x`**.

Notice that `x` **does not** have to be an element in `nums`.

Return `x` *if the array is **special**, otherwise, return -1*. It can be proven that if `nums` is special, the value for `x` is **unique**.

Example 1:

Input: `nums` = [3, 5]

Output: 2

Explanation: There are 2 values (3 and 5) that are greater than 2.

Example 2:

Input: `nums = [0, 0]`

Output: `-1`

Explanation: No numbers fit the criteria for x .

If $x = 0$, there should be 0 numbers $\geq x$, but there are 2.

If $x = 1$, there should be 1 number $\geq x$, but there are 0.

If $x = 2$, there should be 2 numbers $\geq x$, but there are 0.

x cannot be greater since there are only 2 numbers in `nums`.

Example 3:

Input: `nums = [0, 4, 3, 0, 4]`

Output: `3`

Explanation: There are 3 values that are greater than or equal to x .

Example 4:

Input: `nums = [3, 6, 7, 7, 0]`

Output: `-1`

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $0 \leq \text{nums}[i] \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1608-Special-Array-With-X-Elements-Greater-Than-or-Equal-X](#)

All Problems:

[Link to All Problems](#)

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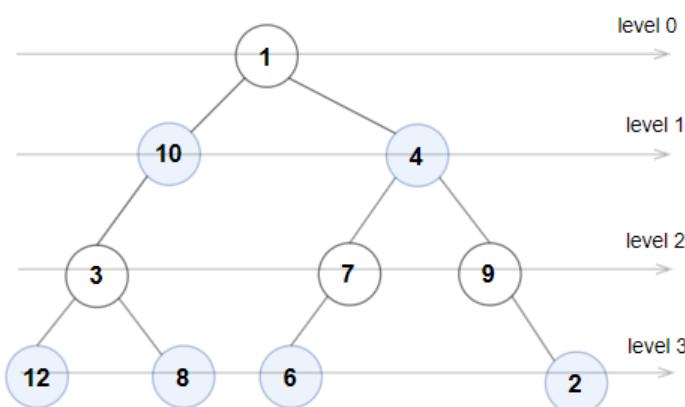
1609. Even Odd Tree

A binary tree is named **Even-Odd** if it meets the following conditions:

- The root of the binary tree is at level index 0 , its children are at level index 1 , their children are at level index 2 , etc.
- For every **even-indexed** level, all nodes at the level have **odd** integer values in **strictly increasing** order (from left to right).
- For every **odd-indexed** level, all nodes at the level have **even** integer values in **strictly decreasing** order (from left to right).

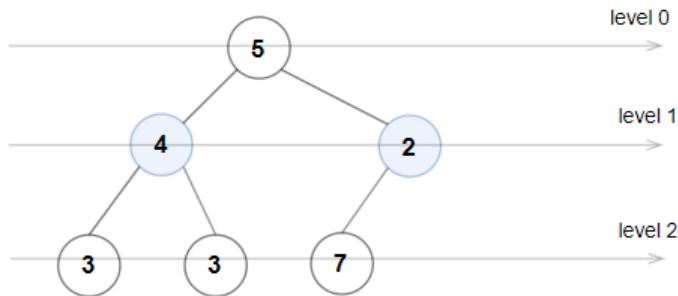
Given the root of a binary tree, *return true if the binary tree is Even-Odd, otherwise return false .*

Example 1:



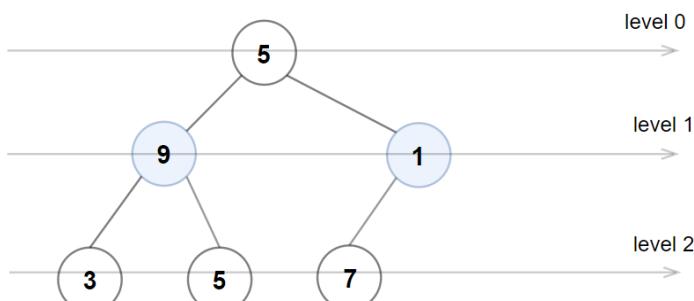
Input: root = [1,10,4,3,null,7,9,12,8,6,null,null,2]
Output: true
Explanation: The node values on each level are:
Level 0: [1]
Level 1: [10, 4]
Level 2: [3, 7, 9]
Level 3: [12, 8, 6, 2]
Since levels 0 and 2 are all odd and increasing, and levels 1 and

Example 2:



Input: root = [5,4,2,3,3,7]
Output: false
Explanation: The node values on each level are:
Level 0: [5]
Level 1: [4,2]
Level 2: [3,3,7]
Node values in the level 2 must be in strictly increasing order,

Example 3:



Input: root = [5,9,1,3,5,7]
Output: false
Explanation: Node values in the level 1 should be even integers.

Example 4:

Input: root = [1]
Output: true

Example 5:

```
Input: root = [11,8,6,1,3,9,11,30,20,18,16,12,10,4,2,17]
Output: true
```

Constraints:

- The number of nodes in the tree is in the range $[1, 10^5]$.
- $1 \leq \text{Node.val} \leq 10^6$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1609-Even-Odd-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1610. Maximum Number of Visible Points

You are given an array `points` , an integer `angle` , and your location , where `location = [posx, posy]` and `points[i] = [xi, yi]` both denote **integral coordinates** on the X-Y plane.

Initially, you are facing directly east from your position. You **cannot move** from your position, but you can **rotate** . In other words, `posx` and `posy` cannot be changed. Your field of view in **degrees** is represented by `angle` , determining how wide you can see from any given view direction. Let `d` be the amount in degrees that you rotate counterclockwise. Then, your field of view is the **inclusive** range of angles $[d - \text{angle}/2, d + \text{angle}/2]$.

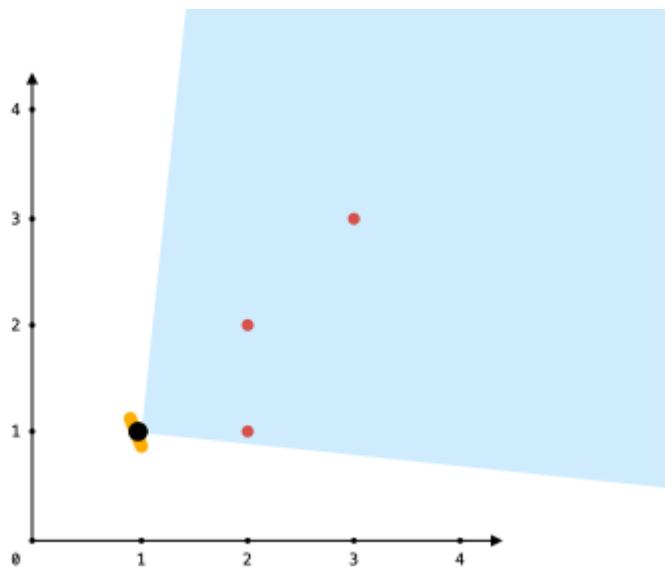
Your browser does not support the video tag or this video format.

You can **see** some set of points if, for each point, the **angle** formed by the point, your position, and the immediate east direction from your position is **in your field of view** .

There can be multiple points at one coordinate. There may be points at your location, and you can always see these points regardless of your rotation. Points do not obstruct your vision to other points.

Return *the maximum number of points you can see* .

Example 1:



Input: `points = [[2,1],[2,2],[3,3]]`, angle = 90, location = [1,1]
 Output: 3

Explanation: The shaded region represents your field of view. All

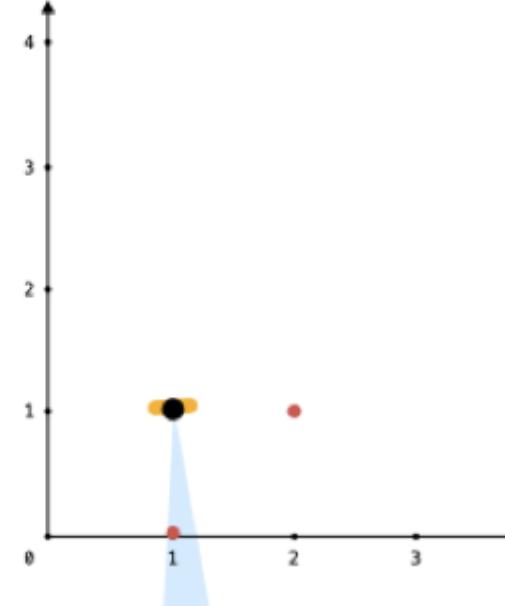
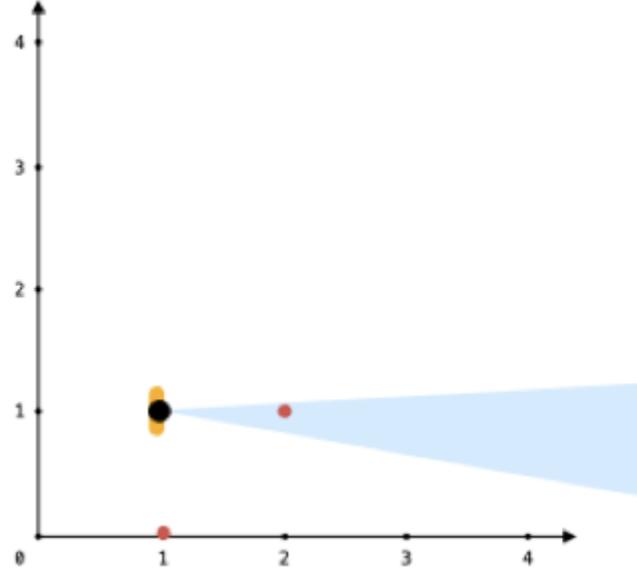
Example 2:

Input: `points = [[2,1],[2,2],[3,4],[1,1]]`, angle = 90, location :

Output: 4

Explanation: All points can be made visible in your field of view.

Example 3:



Input: `points = [[1,0],[2,1]]`, angle = 13, location = [1,1]
 Output: 1

Explanation: You can only see one of the two points, as shown above.

Constraints:

- $1 \leq \text{points.length} \leq 10^5$
- $\text{points[i].length} == 2$
- $\text{location.length} == 2$
- $0 \leq \text{angle} < 360$
- $0 \leq \text{pos}_x, \text{pos}_y, x_i, y_i \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution****[1610-Maximum-Number-of-Visible-Points](#)****All Problems:****[Link to All Problems](#)**

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Welcome to Subscribe On Youtube:

1611. Minimum One Bit Operations to Make Integers Zero

Given an integer n , you must transform it into 0 using the following operations any number of times:

- Change the rightmost (0^{th}) bit in the binary representation of n .
- Change the i^{th} bit in the binary representation of n if the $(i-1)^{\text{th}}$ bit is set to 1 and the $(i-2)^{\text{th}}$ through 0^{th} bits are set to 0.

Return *the minimum number of operations to transform n into 0* .

Example 1:

Input: $n = 0$
Output: 0

Example 2:

Input: $n = 3$
Output: 2
Explanation: The binary representation of 3 is "11".
"11" -> "01" with the 2nd operation since the 0th bit is 1.
"01" -> "00" with the 1st operation.

Example 3:

Input: $n = 6$
Output: 4
Explanation: The binary representation of 6 is "110".
"110" -> "010" with the 2nd operation since the 1st bit is 1 and
"010" -> "011" with the 1st operation.
"011" -> "001" with the 2nd operation since the 0th bit is 1.
"001" -> "000" with the 1st operation.

Example 4:

Input: $n = 9$
Output: 14

Example 5:

Input: n = 333
Output: 393

Constraints:

- $0 \leq n \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1611-Minimum-One-Bit-Operations-to-Make-Integers-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1612. Check If Two Expression Trees are Equivalent

A [binary expression tree](#) is a kind of binary tree used to represent arithmetic expressions. Each node of a binary expression tree has either zero or two children. Leaf nodes (nodes with 0 children) correspond to operands (variables), and internal nodes (nodes with two children) correspond to the operators. In this problem, we only consider the '+' operator (i.e. addition).

You are given the roots of two binary expression trees, `root1` and `root2`. Return `true` if the two binary expression trees are equivalent. Otherwise, return `false`.

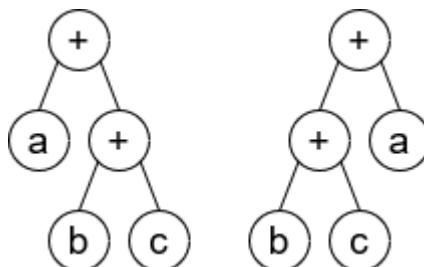
Two binary expression trees are equivalent if they **evaluate to the same value** regardless of what the variables are set to.

Follow up: What will you change in your solution if the tree also supports the '-' operator (i.e. subtraction)?

Example 1:

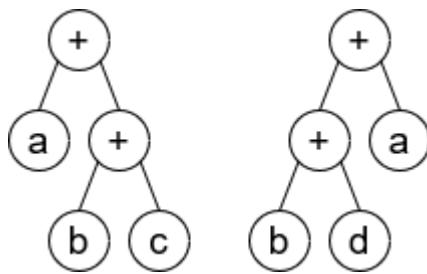
Input: `root1 = [x]`, `root2 = [x]`
Output: `true`

Example 2:



Input: `root1 = [+ , a , + , null , null , b , c]`, `root2 = [+ , + , b , c , a]`
Output: `true`
Explanation: $a + (b + c) == (b + c) + a$

Example 3:



Input: `root1 = [+ , a , + , null , null , b , c]` , `root2 = [+ , + , b , d , a]`

Output: false

Explanation: $a + (b + c) \neq (b + d) + a$

Constraints:

- The number of nodes in both trees are equal, odd and, in the range `[1, 4999]` .
- Node `.val` is `'+'` or a lower-case English letter.
- It's **guaranteed** that the tree given is a valid binary expression tree.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1612-Check-If-Two-Expression-Trees-are-Equivalent](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1613. Find the Missing IDs

[SQL Schema](#) >

Table: Customers

Column Name	Type
customer_id	int
customer_name	varchar

customer_id is the primary key for this table.
Each row of this table contains the name and the id customer.

Write an SQL query to find the missing customer IDs. The missing IDs are ones that are not in the Customers table but are in the range between 1 and the **maximum customer_id** present in the table.

Notice that the maximum customer_id will not exceed 100 .

Return the result table ordered by ids in **ascending order** .

The query result format is in the following example.

Customer table:

customer_id	customer_name
1	Alice
4	Bob
5	Charlie

Result table:

```
+----+  
| ids |  
+----+  
| 2   |  
| 3   |  
+----+
```

The maximum customer_id present in the table is 5, so in the range [1, 5], the missing number is 4.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1613-Find-the-Missing-IDs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1614. Maximum Nesting Depth of the Parentheses

A string is a **valid parentheses string** (denoted **VPS**) if it meets one of the following:

- It is an empty string "", or a single character not equal to "(" or ")" ,
- It can be written as AB (A concatenated with B), where A and B are **VPS**'s, or
- It can be written as (A) , where A is a **VPS** .

We can similarly define the **nesting depth** $\text{depth}(S)$ of any VPS S as follows:

- $\text{depth}("") = 0$
- $\text{depth}(A + B) = \max(\text{depth}(A), \text{depth}(B))$, where A and B are **VPS**'s
- $\text{depth}("(" + A + ")") = 1 + \text{depth}(A)$, where A is a **VPS** .

For example, "", "()()", and "((())())" are **VPS**'s (with nesting depths 0, 1, and 2), and ")" and "(()" are not **VPS**'s.

Given a **VPS** represented as string s , return *the nesting depth of s* .

Example 1:

Input: s = "(1+(2*3)+((8)/4))+1"

Output: 3

Explanation: Digit 8 is inside of 3 nested parentheses in the st

Example 2:

Input: s = "(1)+((2))+(((3)))"

Output: 3

Example 3:

Input: s = "1+(2*3)/(2-1)"

Output: 1

Example 4:

Input: s = "1"
Output: 0

Constraints:

- $1 \leq s.length \leq 100$
- s consists of digits 0-9 and characters '+', '-', '*', '/', '(', and ')'.
• It is guaranteed that parentheses expression s is a VPS.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1614-Maximum-Nesting-Depth-of-the-Parentheses](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1615. Maximal Network Rank

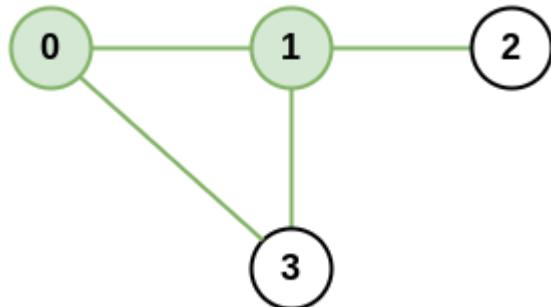
There is an infrastructure of n cities with some number of roads connecting these cities. Each $\text{roads}[i] = [a_i, b_i]$ indicates that there is a bidirectional road between cities a_i and b_i .

The **network rank** of two different cities is defined as the total number of directly connected roads to **either** city. If a road is directly connected to both cities, it is only counted **once**.

The **maximal network rank** of the infrastructure is the **maximum network rank** of all pairs of different cities.

Given the integer n and the array roads , return *the maximal network rank of the entire infrastructure*.

Example 1:

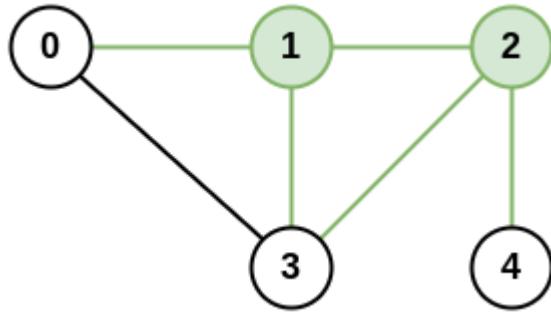


Input: $n = 4$, $\text{roads} = [[0,1],[0,3],[1,2],[1,3]]$

Output: 4

Explanation: The network rank of cities 0 and 1 is 4 as there are

Example 2:



Input: $n = 5$, roads = $[[0,1],[0,3],[1,2],[1,3],[2,3],[2,4]]$

Output: 5

Explanation: There are 5 roads that are connected to cities 1 or

Example 3:

Input: $n = 8$, roads = $[[0,1],[1,2],[2,3],[2,4],[5,6],[5,7]]$

Output: 5

Explanation: The network rank of 2 and 5 is 5. Notice that all t

Constraints:

- $2 \leq n \leq 100$
- $0 \leq \text{roads.length} \leq n * (n - 1) / 2$
- $\text{roads}[i].length == 2$
- $0 \leq a_i, b_i \leq n-1$
- $a_i \neq b_i$
- Each pair of cities has **at most one** road connecting them.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1615-Maximal-Network-Rank](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1616. Split Two Strings to Make Palindrome

You are given two strings a and b of the same length. Choose an index and split both strings **at the same index**, splitting a into two strings: a_{prefix} and a_{suffix} where $a = a_{\text{prefix}} + a_{\text{suffix}}$, and splitting b into two strings: b_{prefix} and b_{suffix} where $b = b_{\text{prefix}} + b_{\text{suffix}}$. Check if $a_{\text{prefix}} + b_{\text{suffix}}$ or $b_{\text{prefix}} + a_{\text{suffix}}$ forms a palindrome.

When you split a string s into s_{prefix} and s_{suffix} , either s_{suffix} or s_{prefix} is allowed to be empty. For example, if $s = "abc"$, then $" " + "abc"$, $"a" + "bc"$, $"ab" + "c"$, and $"abc" + " "$ are valid splits.

Return `true` if it is possible to form a palindrome string, otherwise return `false`.

Notice that $x + y$ denotes the concatenation of strings x and y .

Example 1:

Input: a = "x", b = "y"
Output: true
Explanation: If either a or b are palindromes the answer is true
 $a_{prefix} = "", a_{suffix} = "x"$
 $b_{prefix} = "", b_{suffix} = "y"$
Then, $a_{prefix} + b_{suffix} = "" + "y" = "y"$, which is a palindrome.

Example 2:

Input: a = "abdef", b = "fecab"
Output: true

Example 3:

Input: a = "ulacfd", b = "jizalu"
Output: true
Explanation: Split them at index 3:
 $a_{prefix} = "ula", a_{suffix} = "cf"$
 $b_{prefix} = "jiz", b_{suffix} = "alu"$
Then, $a_{prefix} + b_{suffix} = "ula" + "alu" = "ulaalu"$, which is a palindrome.

Example 4:

Input: a = "xbdef", b = "xecab"
Output: false

Constraints:

- $1 \leq a.length, b.length \leq 10^5$
- $a.length == b.length$
- a and b consist of lowercase English letters

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1616-Split-Two-Strings-to-Make-Palindrome](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1617. Count Subtrees With Max Distance Between Cities

There are n cities numbered from 1 to n . You are given an array edges of size $n-1$, where $\text{edges}[i] = [u_i, v_i]$ represents a bidirectional edge between cities u_i and v_i . There exists a unique path between each pair of cities. In other words, the cities form a **tree**.

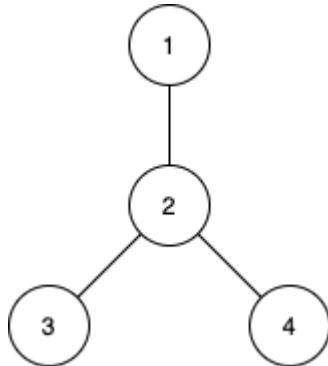
A **subtree** is a subset of cities where every city is reachable from every other city in the subset, where the path between each pair passes through only the cities from the subset. Two subtrees are different if there is a city in one subtree that is not present in the other.

For each d from 1 to $n-1$, find the number of subtrees in which the **maximum distance** between any two cities in the subtree is equal to d .

Return an array of size $n-1$ where the d^{th} element (**1-indexed**) is the number of subtrees in which the maximum distance between any two cities is equal to d .

Notice that the **distance** between the two cities is the number of edges in the path between them.

Example 1:



Input: $n = 4$, edges = $[[1,2], [2,3], [2,4]]$

Output: $[3, 4, 0]$

Explanation:

The subtrees with subsets $\{1,2\}$, $\{2,3\}$ and $\{2,4\}$ have a max distance of 1.

The subtrees with subsets $\{1,2,3\}$, $\{1,2,4\}$, $\{2,3,4\}$ and $\{1,2,3,4\}$ have a max distance of 2.

No subtree has two nodes where the max distance between them is greater than 2.

Example 2:

Input: $n = 2$, edges = $[[1,2]]$

Output: $[1]$

Example 3:

Input: $n = 3$, edges = $[[1,2], [2,3]]$

Output: $[2, 1]$

Constraints:

- $2 \leq n \leq 15$
- $\text{edges.length} == n-1$
- $\text{edges}[i].length == 2$
- $1 \leq u_i, v_i \leq n$
- All pairs (u_i, v_i) are distinct.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1617-Count-Subtrees-With-Max-Distance-Between-Cities](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1618. Maximum Font to Fit a Sentence in a Screen

You are given a string `text` . We want to display `text` on a screen of width `w` and height `h` . You can choose any font size from array `fonts` , which contains the available font sizes **in ascending order** .

You can use the `FontInfo` interface to get the width and height of any character at any available font size.

The `FontInfo` interface is defined as such:

```
interface FontInfo {  
    // Returns the width of character ch on the screen using font  
    // O(1) per call  
    public int getWidth(int fontSize, char ch);  
  
    // Returns the height of any character on the screen using font  
    // O(1) per call  
    public int getHeight(int fontSize);  
}
```

The calculated width of `text` for some `fontSize` is the **sum** of every `getWidth(fontSize, text[i])` call for each $0 \leq i < \text{text.length}$ (**0-indexed**). The calculated height of `text` for some `fontSize` is `getHeight(fontSize)`. Note that `text` is displayed on a **single line**.

It is guaranteed that `FontInfo` will return the same value if you call `getHeight` or `getWidth` with the same parameters.

It is also guaranteed that for any font size `fontSize` and any character `ch` :

- `getHeight(fontSize) <= getHeight(fontSize+1)`
- `getWidth(fontSize, ch) <= getWidth(fontSize+1, ch)`

Return *the maximum font size you can use to display text on the screen*. If `text` cannot fit on the display with any font size, return -1 .

Example 1:

Input: `text = "helloworld"`, `w = 80`, `h = 20`, `fonts = [6,8,10,12,14]`
Output: 6

Example 2:

Input: `text = "leetcode"`, `w = 1000`, `h = 50`, `fonts = [1,2,4]`
Output: 4

Example 3:

Input: `text = "easyquestion"`, `w = 100`, `h = 100`, `fonts = [10,15,20]`
Output: -1

Constraints:

- $1 \leq \text{text.length} \leq 50000$
- `text` contains only lowercase English letters.
- $1 \leq w \leq 10^7$
- $1 \leq h \leq 10^4$
- $1 \leq \text{fonts.length} \leq 10^5$
- $1 \leq \text{fonts}[i] \leq 10^5$
- `fonts` is sorted in ascending order and does not contain duplicates.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1618-Maximum-Font-to-Fit-a-Sentence-in-a-Screen](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1619. Mean of Array After Removing Some Elements

Given an integer array `arr` , return *the mean of the remaining integers after removing the smallest 5% and the largest 5% of the elements.*

Answers within 10^{-5} of the **actual answer** will be considered accepted.

Example 1:

Input: `arr = [1,2,3]`

Output: `2.00000`

Explanation: After erasing the minimum and the maximum values of

Example 2:

Input: `arr = [6,2,7,5,1,2,0,3,10,2,5,0,5,5,0,8,7,6,8,0]`

Output: `4.00000`

Example 3:

Input: `arr = [6,0,7,0,7,5,7,8,3,4,0,7,8,1,6,8,1,1,2,4,8,1,9,5,4,1]`

Output: `4.77778`

Example 4:

Input: `arr = [9,7,8,7,7,8,4,4,6,8,8,7,6,8,8,9,2,6,0,0,1,10,8,6,3]`

Output: `5.27778`

Example 5:

Input: `arr = [4,8,4,10,0,7,1,3,7,8,8,3,4,1,6,2,1,1,8,0,9,8,0,3,9]`

Output: `5.29167`

Constraints:

- $20 \leq \text{arr.length} \leq 1000$
- `arr.length` is a multiple of 20 .
- $0 \leq \text{arr}[i] \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1619-Mean-of-Array-After-Removing-Some-Elements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1620. Coordinate With Maximum Network Quality

You are given an array of network towers `towers` and an integer `radius`, where `towers[i] = [xi, yi, qi]` denotes the i^{th} network tower with location (x_i, y_i) and quality factor q_i . All the coordinates are **integral coordinates** on the X-Y plane, and the distance between two coordinates is the **Euclidean distance**.

The integer `radius` denotes the **maximum distance** in which the tower is **reachable**. The tower is **reachable** if the distance is less than or equal to `radius`. Outside that distance, the signal becomes garbled, and the tower is **not reachable**.

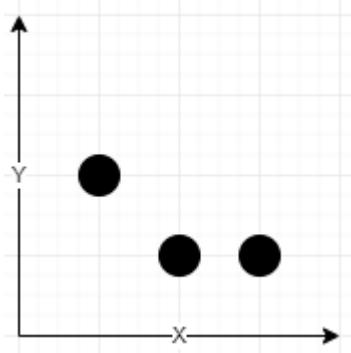
The signal quality of the i^{th} tower at a coordinate (x, y) is calculated with the formula $\lceil q_i / (1 + d) \rceil$, where d is the distance between the tower and the coordinate. The **network quality** at a coordinate is the sum of the signal qualities from all the **reachable** towers.

Return *the integral coordinate where the network quality is maximum*. If there are multiple coordinates with the same **network quality**, return *the lexicographically minimum coordinate*.

Note:

- A coordinate (x_1, y_1) is lexicographically smaller than (x_2, y_2) if either $x_1 < x_2$ or $x_1 == x_2$ and $y_1 < y_2$.
- $\lceil val \rceil$ is the greatest integer less than or equal to val (the floor function).

Example 1:



Input: towers = [[1,2,5],[2,1,7],[3,1,9]], radius = 2

Output: [2,1]

Explanation:

At coordinate (2, 1) the total quality is 13

- Quality of 7 from (2, 1) results in $7 / (1 + \sqrt{0})$

= 7

- Quality of 5 from (1, 2) results in $5 / (1 + \sqrt{2})$

= 2.5

- Quality of 9 from (3, 1) results in $9 / (1 + \sqrt{1})$

= 9

No other coordinate has higher quality.

Example 2:

Input: towers = [[23,11,21]], radius = 9

Output: [23,11]

Example 3:

Input: towers = [[1,2,13],[2,1,7],[0,1,9]], radius = 2

Output: [1,2]

Example 4:

Input: towers = [[2,1,9],[0,1,9]], radius = 2

Output: [0,1]

Explanation: Both (0, 1) and (2, 1) are optimal in terms of quality.

Constraints:

- $1 \leq \text{towers.length} \leq 50$
- $\text{towers}[i].length == 3$
- $0 \leq x_i, y_i, q_i \leq 50$
- $1 \leq \text{radius} \leq 50$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1620-Coordinate-With-Maximum-Network-Quality](#)

All Problems:

[Link to All Problems](#)

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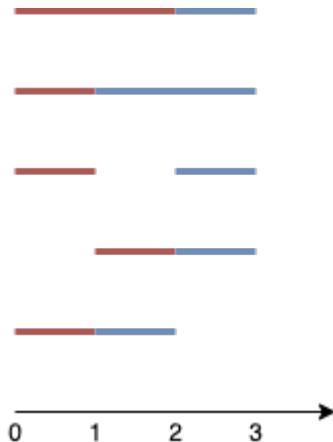
Welcome to Subscribe On Youtube:

1621. Number of Sets of K Non-Overlapping Line Segments

Given n points on a 1-D plane, where the i^{th} point (from 0 to $n-1$) is at $x = i$, find the number of ways we can draw **exactly k non-overlapping** line segments such that each segment covers two or more points. The endpoints of each segment must have **integral coordinates**. The k line segments **do not** have to cover all n points, and they are **allowed** to share endpoints.

Return *the number of ways we can draw k non-overlapping line segments*. Since this number can be huge, return it **modulo $10^9 + 7$** .

Example 1:



Input: $n = 4$, $k = 2$

Output: 5

Explanation:

The two line segments are shown in red and blue.

The image above shows the 5 different ways $\{(0,2),(2,3)\}$, $\{(0,1),(2,3)\}$, $\{(0,1),(1,3)\}$, $\{(0,2),(1,3)\}$, $\{(1,2),(2,3)\}$.

Example 2:

Input: $n = 3$, $k = 1$

Output: 3

Explanation: The 3 ways are $\{(0,1)\}$, $\{(0,2)\}$, $\{(1,2)\}$.

Example 3:

Input: $n = 30$, $k = 7$

Output: 796297179

Explanation: The total number of possible ways to draw 7 line segments on a horizontal axis from 0 to 30 is 796297179.

Example 4:

Input: $n = 5$, $k = 3$

Output: 7

Example 5:

Input: $n = 3$, $k = 2$

Output: 1

Constraints:

- $2 \leq n \leq 1000$
- $1 \leq k \leq n-1$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1621-Number-of-Sets-of-K-Non-Overlapping-Line-Segments](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1622. Fancy Sequence

Write an API that generates fancy sequences using the `append` , `addAll` , and `multAll` operations.

Implement the `Fancy` class:

- `Fancy()` Initializes the object with an empty sequence.
- `void append(val)` Appends an integer `val` to the end of the sequence.
- `void addAll(inc)` Increments all existing values in the sequence by an integer `inc`.
- `void multAll(m)` Multiplies all existing values in the sequence by an integer `m`.
- `int getIndex(idx)` Gets the current value at index `idx` (0-indexed) of the sequence **modulo 10⁹ + 7**. If the index is greater or equal than the length of the sequence, return -1.

Example 1:

Input

```
["Fancy", "append", "addAll", "append", "multAll", "getIndex", ""]  
[[], [2], [3], [7], [2], [0], [3], [10], [2], [0], [1], [2]]
```

Output

```
[null, null, null, null, null, 10, null, null, null, 26, 34, 20]
```

Explanation

```
Fancy fancy = new Fancy();  
fancy.append(2); // fancy sequence: [2]  
fancy.addAll(3); // fancy sequence: [2+3] -> [5]  
fancy.append(7); // fancy sequence: [5, 7]  
fancy.multAll(2); // fancy sequence: [5*2, 7*2] -> [10, 14]  
fancy.getIndex(0); // return 10  
fancy.addAll(3); // fancy sequence: [10+3, 14+3] -> [13, 17]  
fancy.append(10); // fancy sequence: [13, 17, 10]  
fancy.multAll(2); // fancy sequence: [13*2, 17*2, 10*2] -> [26,  
fancy.getIndex(0); // return 26  
fancy.getIndex(1); // return 34  
fancy.getIndex(2); // return 20
```

Constraints:

- $1 \leq val, inc, m \leq 100$
- $0 \leq idx \leq 10^5$
- At most 10^5 calls total will be made to `append`, `addAll`, `multAll`, and `getIndex`.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1622-Fancy-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1623. All Valid Triplets That Can Represent a Country

[SQL Schema](#) >

Table: SchoolA

Column Name	Type
student_id	int

student_name	varchar
--------------	---------

student_id is the primary key for this table.
 Each row of this table contains the name and the id of a student
 All student_name are distinct.

Table: SchoolB

Column Name	Type
-------------	------

student_id	int
student_name	varchar

student_id is the primary key for this table.
 Each row of this table contains the name and the id of a student
 All student_name are distinct.

Table: SchoolC

Column Name	Type
-------------	------

student_id	int
student_name	varchar

student_id is the primary key for this table.
 Each row of this table contains the name and the id of a student
 All student_name are distinct.

There is a country with three schools, where each student is enrolled in **exactly one** school. The country is joining a competition and wants to select one student from each school to represent the country such that:

- member_A is selected from SchoolA ,
- member_B is selected from SchoolB ,
- member_C is selected from SchoolC , and
- The selected students' names and IDs are pairwise distinct (i.e. no two students share the same name, and no two students share the same ID).

Write an SQL query to find all the possible triplets representing the country under the given constraints.

Return the result table in **any order** .

The query result format is in the following example.

SchoolA table:

--	--

student_id	student_name
1	Alice
2	Bob

SchoolB table:

student_id	student_name
3	Tom

SchoolC table:

student_id	student_name
3	Tom
2	Jerry
10	Alice

Result table:

member_A	member_B	member_C
Alice	Tom	Jerry
Bob	Tom	Alice

Let us see all the possible triplets.

- (Alice, Tom, Tom) --> Rejected because member_B and member_C have same value
- (Alice, Tom, Jerry) --> Valid triplet.
- (Alice, Tom, Alice) --> Rejected because member_A and member_C have same value
- (Bob, Tom, Tom) --> Rejected because member_B and member_C have same value
- (Bob, Tom, Jerry) --> Rejected because member_A and member_C have same value
- (Bob, Tom, Alice) --> Valid triplet.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1623-All-Valid-Triplets-That-Can-Represent-a-Country](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1624. Largest Substring Between Two Equal Characters

Given a string s , return *the length of the longest substring between two equal characters, excluding the two characters*. If there is no such substring return -1 .

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: $s = "aa"$

Output: 0

Explanation: The optimal substring here is an empty substring be

Example 2:

Input: s = "abca"
Output: 2
Explanation: The optimal substring here is "bc".

Example 3:

Input: s = "cbzxy"
Output: -1
Explanation: There are no characters that appear twice in s.

Example 4:

Input: s = "cabbac"
Output: 4
Explanation: The optimal substring here is "abba". Other non-optimal substrings include "bbaa" and "abab".

Constraints:

- $1 \leq s.length \leq 300$
- s contains only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1624-Largest-Substring-Between-Two-Equal-Characters](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1625. Lexicographically Smallest String After Applying Operations

You are given a string s of **even length** consisting of digits from 0 to 9 , and two integers a and b .

You can apply either of the following two operations any number of times and in any order on s :

- Add a to all odd indices of s (**0-indexed**) . Digits post 9 are cycled back to 0 . For example, if $s = "3456"$ and $a = 5$, s becomes "3951" .
- Rotate s to the right by b positions. For example, if $s = "3456"$ and $b = 1$, s becomes "6345" .

Return the **lexicographically smallest** string you can obtain by applying the above operations any number of times on s .

A string a is lexicographically smaller than a string b (of the same length) if in the first position where a and b differ, string a has a letter that appears earlier in the alphabet than the corresponding letter in b . For example, "0158" is lexicographically smaller than "0190" because the first position they differ is at the third letter, and '5' comes before '9' .

Example 1:

Input: $s = "5525"$, $a = 9$, $b = 2$

Output: "2050"

Explanation: We can apply the following operations:

```
Start: "5525"
Rotate: "2555"
Add: "2454"
Add: "2353"
Rotate: "5323"
Add: "5222"
â   â   â   â   â   â   Add:    "5121"
â   â   â   â   â   â   Rotate: "2151"
â   â   â   â   â   â   Add:    "2050"â   â   â   â   â   â   â
There is no way to obtain a string that is lexicographically sma
```

Example 2:

Input: s = "74", a = 5, b = 1

Output: "24"

Explanation: We can apply the following operations:

Start: "74"

Rotate: "47"

â â â â â â Add: "42"

â â â â â â Rotate: "24"â â â â â â â

There is no way to obtain a string that is lexicographically sma

Example 3:

Input: s = "0011", a = 4, b = 2

Output: "0011"

Explanation: There are no sequence of operations that will give

Example 4:

Input: s = "43987654", a = 7, b = 3

Output: "00553311"

Constraints:

- $2 \leq s.length \leq 100$
- $s.length$ is even.
- s consists of digits from 0 to 9 only.
- $1 \leq a \leq 9$
- $1 \leq b \leq s.length - 1$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1625-Lexicographically-Smallest-String-After-Applying-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1626. Best Team With No Conflicts

You are the manager of a basketball team. For the upcoming tournament, you want to choose the team with the highest overall score. The score of the team is the **sum** of scores of all the players in the team.

However, the basketball team is not allowed to have **conflicts**. A **conflict** exists if a younger player has a **strictly higher** score than an older player. A conflict does **not** occur between players of the same age.

Given two lists, `scores` and `ages`, where each `scores[i]` and `ages[i]` represents the score and age

of the i^{th} player, respectively, return *the highest overall score of all possible basketball teams*.

Example 1:

Input: scores = [1,3,5,10,15], ages = [1,2,3,4,5]

Output: 34

Explanation: You can choose all the players.

Example 2:

Input: scores = [4,5,6,5], ages = [2,1,2,1]

Output: 16

Explanation: It is best to choose the last 3 players. Notice tha

Example 3:

Input: scores = [1,2,3,5], ages = [8,9,10,1]

Output: 6

Explanation: It is best to choose the first 3 players.

Constraints:

- $1 \leq \text{scores.length}, \text{ages.length} \leq 1000$
- $\text{scores.length} == \text{ages.length}$
- $1 \leq \text{scores}[i] \leq 10^6$
- $1 \leq \text{ages}[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1626-Best-Team-With-No-Conflicts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1627. Graph Connectivity With Threshold

We have n cities labeled from 1 to n . Two different cities with labels x and y are directly connected by a bidirectional road if and only if x and y share a common divisor **strictly greater** than some threshold . More formally, cities with labels x and y have a road between them if there exists an integer z such that all of the following are true:

- $x \% z == 0$,
- $y \% z == 0$, and
- $z > \text{threshold}$.

Given the two integers, n and threshold , and an array of queries , you must determine for each $\text{queries}[i] = [a_i, b_i]$ if cities a_i and b_i are connected (i.e. there is some path between them).

Return an array answer , where $\text{answer}.length == \text{queries}.length$ and $\text{answer}[i]$ is true if for the i^{th} query, there is a path between a_i and b_i , or $\text{answer}[i]$ is false if there is no path.

Example 1:

Input: n = 6, threshold = 2, queries = [[1,4],[2,5],[3,6]]
Output: [false,false,true]
Explanation: The divisors for each number:

1: 1
2: 1, 2
3: 1, 3
4: 1, 2, 4
5: 1, 5
6: 1, 2, 3, 6

Using the underlined divisors above the threshold, only cities 3 and 6 are directly connected. The result of each query:

[1,4] 1 is not connected to 4
[2,5] 2 is not connected to 5
[3,6] 3 is connected to 6 through path 3--6

Example 2:

Input: n = 6, threshold = 0, queries = [[4,5],[3,4],[3,2],[2,6]]
Output: [true,true,true,true]

Explanation: The divisors for each number are the same as the previous example. All divisors can be used. Since all numbers share 1 as a divisor.

Example 3:

Input: n = 5, threshold = 1, queries = [[4,5],[4,5],[3,2],[2,3]]
Output: [false,false,false,false]

Explanation: Only cities 2 and 4 share a common divisor 2 which is greater than the threshold. Please notice that there can be multiple queries for the same pair of cities.

Constraints:

- $2 \leq n \leq 10^4$
- $0 \leq \text{threshold} \leq n$
- $1 \leq \text{queries.length} \leq 10^5$
- $\text{queries}[i].length == 2$
- $1 \leq a_i, b_i \leq \text{cities}$
- $a_i \neq b_i$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1627-Graph-Connectivity-With-Threshold](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1628. Design an Expression Tree With Evaluate Function

Given the `postfix` tokens of an arithmetic expression, build and return *the binary expression tree that represents this expression*.

Postfix notation is a notation for writing arithmetic expressions in which the operands (numbers) appear before their operators. For example, the postfix tokens of the expression $4 * (5 - (2 + 7))$ are represented in the array `postfix = ["4", "5", "7", "2", "+", "-", "*"]`.

The class `Node` is an interface you should use to implement the binary expression tree. The returned tree will be tested using the `evaluate` function, which is supposed to evaluate the tree's value. You should not remove the `Node` class; however, you can modify it as

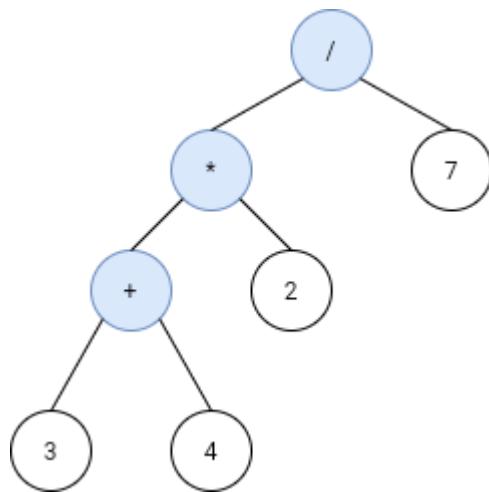
you wish, and you can define other classes to implement it if needed.

A **binary expression tree** is a kind of binary tree used to represent arithmetic expressions. Each node of a binary expression tree has either zero or two children. Leaf nodes (nodes with 0 children) correspond to operands (numbers), and internal nodes (nodes with two children) correspond to the operators '+' (addition), '-' (subtraction), '*' (multiplication), and '/' (division).

It's guaranteed that no subtree will yield a value that exceeds 10^9 in absolute value, and all the operations are valid (i.e., no division by zero).

Follow up: Could you design the expression tree such that it is more modular? For example, is your design able to support additional operators without making changes to your existing `evaluate` implementation?

Example 1:

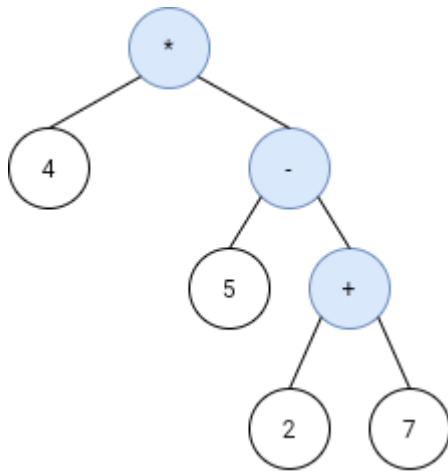


Input: `s = ["3", "4", "+", "2", "*", "7", "/"]`

Output: 2

Explanation: this expression evaluates to the above binary tree

Example 2:



Input: `s = ["4", "5", "7", "2", "+", "-", "*"]`

Output: `-16`

Explanation: this expression evaluates to the above binary tree

Example 3:

Input: `s = ["4", "2", "+", "3", "5", "1", "-", "*", "+"]`

Output: `18`

Example 4:

Input: `s = ["100", "200", "+", "2", "/", "5", "*", "7", "+"]`

Output: `757`

Constraints:

- `1 <= s.length < 100`
- `s.length` is odd.
- `s` consists of numbers and the characters '`+`' , '`-`' , '`*`' , and '`/`' .
- If `s[i]` is a number, its integer representation is no more than 10^5 .
- It is guaranteed that `s` is a valid expression.
- The absolute value of the result and intermediate values will not exceed 10^9 .
- It is guaranteed that no expression will include division by zero.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1628-Design-an-Expression-Tree-With-Evaluate-Function](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1629. Slowest Key

A newly designed keypad was tested, where a tester pressed a sequence of n keys, one at a time.

You are given a string `keysPressed` of length n , where `keysPressed[i]` was the i^{th} key pressed in the testing sequence, and a sorted list `releaseTimes`, where `releaseTimes[i]` was the time the i^{th} key was released. Both arrays are **0-indexed**. The 0^{th} key was pressed at the time 0 , and every subsequent key was pressed at the **exact** time the previous key was released.

The tester wants to know the key of the keypress that had the **longest duration**. The i^{th} keypress had a **duration** of $\text{releaseTimes}[i] - \text{releaseTimes}[i - 1]$, and the 0^{th} keypress had a duration of $\text{releaseTimes}[0]$.

Note that the same key could have been pressed multiple times during the test, and these multiple presses of the same key **may not** have had the same **duration**.

*Return the key of the keypress that had the **longest duration**. If there are multiple such keypresses, return the lexicographically largest key of the keypresses.*

Example 1:

Input: `releaseTimes = [9,29,49,50]`, `keysPressed = "cbcd"`
Output: "c"

Explanation: The keypresses were as follows:

Keypress for 'c' had a duration of 9 (pressed at time 0 and released at time 9).
Keypress for 'b' had a duration of $29 - 9 = 20$ (pressed at time 9 and released at time 29).
Keypress for 'c' had a duration of $49 - 29 = 20$ (pressed at time 29 and released at time 49).
Keypress for 'd' had a duration of $50 - 49 = 1$ (pressed at time 49 and released at time 50).
The longest of these was the keypress for 'b' and the second keypress for 'c' is lexicographically larger than 'b', so the answer is 'c'.

Example 2:

Input: `releaseTimes = [12,23,36,46,62]`, `keysPressed = "spuda"`
Output: "a"

Explanation: The keypresses were as follows:

Keypress for 's' had a duration of 12.
Keypress for 'p' had a duration of $23 - 12 = 11$.
Keypress for 'u' had a duration of $36 - 23 = 13$.
Keypress for 'd' had a duration of $46 - 36 = 10$.
Keypress for 'a' had a duration of $62 - 46 = 16$.
The longest of these was the keypress for 'a' with duration 16.

Constraints:

- `releaseTimes.length == n`
- `keysPressed.length == n`
- $2 \leq n \leq 1000$
- $0 \leq \text{releaseTimes}[i] \leq 10^9$
- `releaseTimes[i] < releaseTimes[i+1]`
- `keysPressed` contains only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1629-Slowest-Key](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1630. Arithmetic Subarrays

A sequence of numbers is called **arithmetic** if it consists of at least two elements, and the difference between every two consecutive elements is the same. More

formally, a sequence s is arithmetic if and only if $s[i+1] - s[i] == s[1] - s[0]$ for all valid i .

For example, these are **arithmetic** sequences:

1, 3, 5, 7, 9
7, 7, 7, 7
3, -1, -5, -9

The following sequence is not **arithmetic**:

1, 1, 2, 5, 7

You are given an array of n integers, nums , and two arrays of m integers each, l and r , representing the m range queries, where the i^{th} query is the range $[l[i], r[i]]$. All the arrays are **0-indexed**.

Return a list of boolean elements answer , where $\text{answer}[i]$ is true if the subarray $\text{nums}[l[i]], \text{nums}[l[i]+1], \dots, \text{nums}[r[i]]$ can be rearranged to form an **arithmetic** sequence, and false otherwise.

Example 1:

Input: $\text{nums} = [4, 6, 5, 9, 3, 7]$, $l = [0, 0, 2]$, $r = [2, 3, 5]$

Output: [true, false, true]

Explanation:

In the 0^{th} query, the subarray is $[4, 6, 5]$. This can be rearranged.

In the 1^{st} query, the subarray is $[4, 6, 5, 9]$. This cannot be rearranged.

In the 2^{nd} query, the subarray is $[5, 9, 3, 7]$. This can be rearranged.

Example 2:

Input: $\text{nums} = [-12, -9, -3, -12, -6, 15, 20, -25, -20, -15, -10]$, $l = [0, 1, 2]$

Output: [false, true, false, false, true]

Constraints:

- $n == \text{nums.length}$
- $m == l.length$
- $m == r.length$
- $2 \leq n \leq 500$
- $1 \leq m \leq 500$
- $0 \leq l[i] < r[i] < n$
- $-10^5 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[1630-Arithmetic-Subarrays](#)**All Problems:**[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1631. Path With Minimum Effort

You are a hiker preparing for an upcoming hike. You are given `heights` , a 2D array of size `rows x columns` , where `heights[row][col]` represents the height of cell `(row, col)` . You are situated in the top-left cell, `(0,`

(0) , and you hope to travel to the bottom-right cell, $(\text{rows}-1, \text{columns}-1)$ (i.e., **0-indexed**). You can move **up** , **down** , **left** , or **right** , and you wish to find a route that requires the minimum **effort** .

A route's **effort** is the **maximum absolute difference** in heights between two consecutive cells of the route.

Return *the minimum effort required to travel from the top-left cell to the bottom-right cell.*

Example 1:

1	2	2
3	8	2
5	3	5

Input: `heights = [[1,2,2],[3,8,2],[5,3,5]]`
Output: 2

Explanation: The route of `[1,3,5,3,5]` has a maximum absolute difference of 5.
This is better than the route of `[1,2,2,2,5]`, where the maximum absolute difference is 4.

Example 2:

1	2	3
3	8	4
5	3	5

Input: heights = [[1,2,3],[3,8,4],[5,3,5]]

Output: 1

Explanation: The route of [1,2,3,4,5] has a maximum absolute difference of 1.

Example 3:

1	2	1	1	1
1	2	1	2	1
1	2	1	2	1
1	2	1	2	1
1	1	1	2	1

Input: heights = [[1,2,1,1,1],[1,2,1,2,1],[1,2,1,2,1],[1,2,1,2,1]]

Output: 0

Explanation: This route does not require any effort.

Constraints:

- rows == heights.length
- columns == heights[i].length
- 1 <= rows, columns <= 100
- 1 <= heights[i][j] <= 10⁶

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**1631-Path-With-Minimum-Effort**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1632. Rank Transform of a Matrix

Given an $m \times n$ matrix , return a new matrix answer where $\text{answer}[\text{row}][\text{col}]$ is the **rank** of $\text{matrix}[\text{row}][\text{col}]$.

The **rank** is an **integer** that represents how large an element is compared to other elements. It is calculated using the following rules:

- If an element is the smallest element in its row and column, then its **rank** is 1.
- If two elements p and q are in the **same row or column**, then:
 - If $p < q$ then $\text{rank}(p) < \text{rank}(q)$
 - If $p == q$ then $\text{rank}(p) == \text{rank}(q)$
 - If $p > q$ then $\text{rank}(p) > \text{rank}(q)$
- The **rank** should be as **small** as possible.

It is guaranteed that answer is unique under the given rules.

Example 1:

Input: matrix = [[1,2],[3,4]]

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

Explanation:

The rank of matrix[0][0] is 1 because it is the smallest integer

The rank of matrix[0][1] is 2 because matrix[0][1] > matrix[0][0]

The rank of matrix[1][0] is 2 because matrix[1][0] > matrix[0][0]

The rank of matrix[1][1] is 3 because matrix[1][1] > matrix[0][1]

Example 2:

Input: matrix = [[7,7],[7,7]]

Output: [[1,1],[1,1]]

Example 3:

Input: matrix = [[20,-21,14],[-19,4,19],[22,-47,24],[-19,4,19]]

Output: [[4,2,3],[1,3,4],[5,1,6],[1,3,4]]

Example 4:

Input: matrix = [[7,3,6],[1,4,5],[9,8,2]]

Output: [[5,1,4],[1,2,3],[6,3,1]]

Constraints:

- $m == \text{matrix.length}$
- $n == \text{matrix}[i].length$
- $1 \leq m, n \leq 500$
- $-10^9 \leq \text{matrix}[row][col] \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1632-Rank-Transform-of-a-Matrix](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1633. Percentage of Users Attended a Contest

SQL Schema ›

Table: Users

Column Name	Type
user_id	int
user_name	varchar

user_id is the primary key for this table.

Each row of this table contains the name and the id of a user.

Table: Register

Column Name	Type
contest_id	int
user_id	int

(contest_id, user_id) is the primary key for this table.

Each row of this table contains the id of a user and the contest

Write an SQL query to find the percentage of the users registered in each contest rounded to two decimals.

Return the result table ordered by percentage in **descending order**. In case of a tie, order it by contest_id in **ascending order**.

The query result format is in the following example.

Users table:

user_id	user_name
6	Alice
2	Bob
7	Alex

Register table:

contest_id	user_id
215	6
209	2
208	2
210	6
208	6
209	7
209	6
215	7
208	7
210	2
207	2

```

| 210      | 7      |
+-----+-----+
Result table:
+-----+-----+
| contest_id | percentage |
+-----+-----+
| 208      | 100.0   |
| 209      | 100.0   |
| 210      | 100.0   |
| 215      | 66.67    |
| 207      | 33.33    |
+-----+-----+

```

All the users registered in contests 208, 209, and 210. The percentage of Alice and Alex registered in contest 215 and the percentage is 66.67. Bob registered in contest 207 and the percentage is $((1/3) * 100)$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1633-Percentage-of-Users-Attended-a-Contest](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1634. Add Two Polynomials Represented as Linked Lists

A polynomial linked list is a special type of linked list where every node represents a term in a polynomial expression.

Each node has three attributes:

- `coefficient` : an integer representing the number multiplier of the term. The coefficient of the term $9x^4$ is 9 .
- `power` : an integer representing the exponent. The power of the term $9x^4$ is 4 .
- `next` : a pointer to the next node in the list, or `null` if it is the last node of the list.

For example, the polynomial $5x^3 + 4x - 7$ is represented by the polynomial linked list illustrated below:



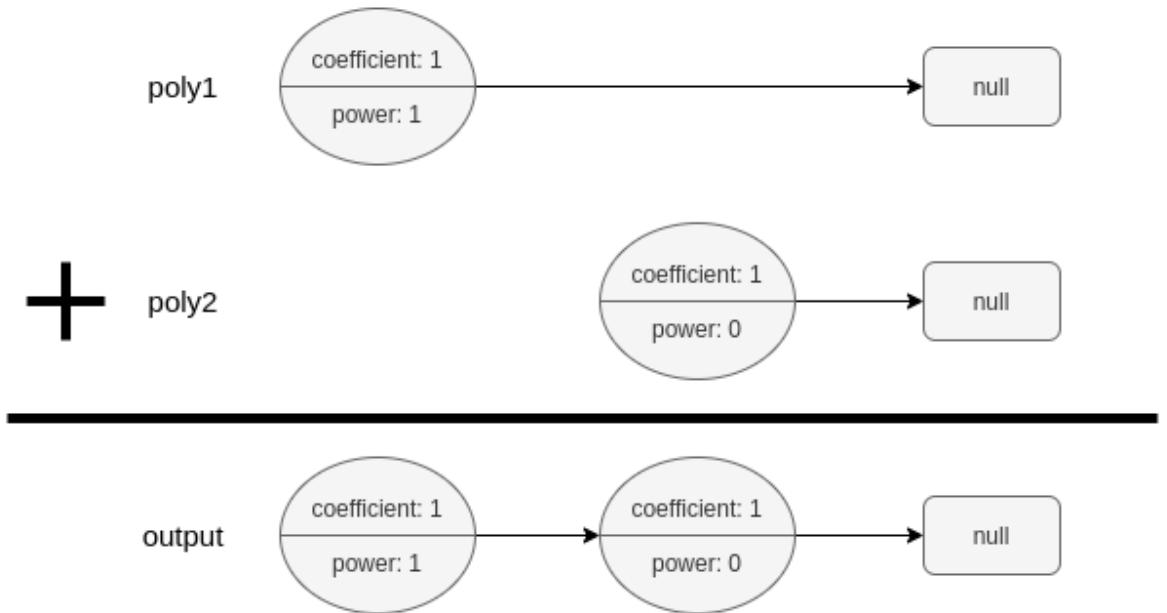
The polynomial linked list must be in its standard form: the polynomial must be in **strictly** descending order by its `power` value. Also, terms with a `coefficient` of 0 are omitted.

Given two polynomial linked list heads, `poly1` and `poly2` , add the polynomials together and return *the head of the sum of the polynomials* .

PolyNode **format**:

The input/output format is as a list of n nodes, where each node is represented as its [coefficient, power]. For example, the polynomial $5x^3 + 4x - 7$ would be represented as: [[5, 3], [4, 1], [-7, 0]] .

Example 1:



Input: $\text{poly1} = [[1,1]]$, $\text{poly2} = [[1,0]]$

Output: [[1,1], [1,0]]

Explanation: $\text{poly1} = x$. $\text{poly2} = 1$. The sum is $x + 1$.

Example 2:

Input: $\text{poly1} = [[2,2],[4,1],[3,0]]$, $\text{poly2} = [[3,2],[-4,1],[-1,0]]$

Output: [[5,2], [2,0]]

Explanation: $\text{poly1} = 2x^2 + 4x + 3$. $\text{poly2} = 3x^2 - 4x - 1$. The sum

Example 3:

Input: $\text{poly1} = [[1,2]]$, $\text{poly2} = [[-1,2]]$

Output: []

Explanation: The sum is 0. We return an empty list.

Constraints:

- $0 \leq n \leq 10^4$
- $-10^9 \leq \text{PolyNode.coefficient} \leq 10^9$
- $\text{PolyNode.coefficient} \neq 0$
- $0 \leq \text{PolyNode.power} \leq 10^9$
- $\text{PolyNode.power} > \text{PolyNode.next.power}$

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1634-Add-Two-Polynomials-Represented-as-Linked-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1635. Hopper Company Queries I

SQL Schema ›

Table: Drivers

Column Name	Type
driver_id	int
join_date	date

driver_id is the primary key for this table.

Each row of this table contains the driver's ID and the date they joined the company.

Table: Rides

Column Name	Type
ride_id	int
user_id	int
requested_at	date

ride_id is the primary key for this table.

Each row of this table contains the ID of a ride, the user's ID who requested it, and the date when the request was made.

There may be some ride requests in this table that were not accepted.

Table: AcceptedRides

Column Name	Type
ride_id	int
driver_id	int
ride_distance	int
ride_duration	int

ride_id is the primary key for this table.

Each row of this table contains some information about an accepted ride.

It is guaranteed that each accepted ride exists in the Rides table.

Write an SQL query to report the following statistics for each month of **2020** :

- The number of drivers currently with the Hopper company by the end of the month (`active_drivers`).
- The number of accepted rides in that month (`accepted_rides`).

Return the result table ordered by `month` in ascending order, where `month` is the month's number (January is 1, February is 2 , etc.).

The query result format is in the following example.

Drivers table:

driver_id	join_date
10	2019-12-10
8	2020-1-13
5	2020-2-16
7	2020-3-8
4	2020-5-17
1	2020-10-24
6	2021-1-5

Rides table:

ride_id	user_id	requested_at
6	75	2019-12-9
1	54	2020-2-9
10	63	2020-3-4
19	39	2020-4-6
3	41	2020-6-3
13	52	2020-6-22
7	69	2020-7-16
17	70	2020-8-25
20	81	2020-11-2
5	57	2020-11-9
2	42	2020-12-9
11	68	2021-1-11
15	32	2021-1-17
12	11	2021-1-19
14	18	2021-1-27

AcceptedRides table:

ride_id	driver_id	ride_distance	ride_duration
10	10	63	38
13	10	73	96
7	8	100	28
17	7	119	68
20	1	121	92
5	7	42	101
2	4	6	38
11	8	37	43
15	8	108	82
12	8	38	34
14	1	90	74

Result table:

month	active_drivers	accepted_rides

1	2		0
2	3		0
3	4		1
4	4		0
5	5		0
6	5		1
7	5		1
8	5		1
9	5		0
10	6		0
11	6		2
12	6		1

By the end of January --> two active drivers (10, 8) and no accepted drivers
 By the end of February --> three active drivers (10, 8, 5) and no accepted drivers
 By the end of March --> four active drivers (10, 8, 5, 7) and one accepted driver
 By the end of April --> four active drivers (10, 8, 5, 7) and no accepted drivers
 By the end of May --> five active drivers (10, 8, 5, 7, 4) and no accepted drivers
 By the end of June --> five active drivers (10, 8, 5, 7, 4) and one accepted driver
 By the end of July --> five active drivers (10, 8, 5, 7, 4) and no accepted drivers
 By the end of August --> five active drivers (10, 8, 5, 7, 4) and no accepted drivers
 By the end of September --> five active drivers (10, 8, 5, 7, 4) and no accepted drivers
 By the end of October --> six active drivers (10, 8, 5, 7, 4, 1)
 By the end of November --> six active drivers (10, 8, 5, 7, 4, 1)
 By the end of December --> six active drivers (10, 8, 5, 7, 4, 1)

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1635-Hopper-Company-Queries-I](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1636. Sort Array by Increasing Frequency

Given an array of integers `nums` , sort the array in **increasing** order based on the frequency of the values. If multiple values have the same frequency, sort them in **decreasing** order.

Return the *sorted array* .

Example 1:

Input: `nums = [1,1,2,2,2,3]`

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

Explanation: '3' has a frequency of 1, '1' has a frequency of 2,

Example 2:

Input: `nums = [2,3,1,3,2]`

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

Explanation: '2' and '3' both have a frequency of 2, so they are

Example 3:

Input: `nums = [-1,1,-6,4,5,-6,1,4,1]`

Output: `[5,-1,4,4,-6,-6,1,1,1]`

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $-100 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1636-Sort-Array-by-Increasing-Frequency](#)

All Problems:

[Link to All Problems](#)

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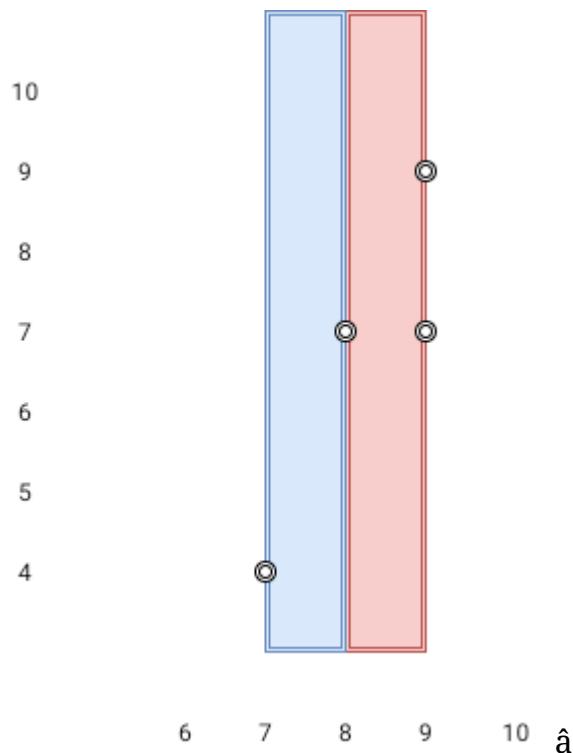
1637. Widest Vertical Area Between Two Points Containing No Points

Given n points on a 2D plane where $\text{points}[i] = [x_i, y_i]$, Return the **widest vertical area** between two points such that no points are inside the area.

A **vertical area** is an area of fixed-width extending infinitely along the y-axis (i.e., infinite height). The **widest vertical area** is the one with the maximum width.

Note that points **on the edge** of a vertical area **are not** considered included in the area.

Example 1:



Input: `points = [[8,7],[9,9],[7,4],[9,7]]`

Output: 1

Explanation: Both the red and the blue area are optimal.

Example 2:

```
Input: points = [[3,1],[9,0],[1,0],[1,4],[5,3],[8,8]]  
Output: 3
```

Constraints:

- $n == \text{points.length}$
- $2 \leq n \leq 10^5$
- $\text{points}[i].length == 2$
- $0 \leq x_i, y_i \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1637-Widest-Vertical-Area-Between-Two-Points-Containing-No-Points](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1638. Count Substrings That Differ by One Character

Given two strings s and t , find the number of ways you can choose a non-empty substring of s and replace a **single character** by a different character such that the resulting substring is a substring of t . In other words, find the number of substrings in s that differ from some substring in t by **exactly** one character.

For example, the underlined substrings in "computer" and "computation" only differ by the 'e' / 'a', so this is a valid way.

Return *the number of substrings that satisfy the condition above*.

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: $s = "aba"$, $t = "baba"$

Output: 6

Explanation: The following are the pairs of substrings from s and t :

- ("aba", "bba)
- ("aba", "bbaba)

The underlined portions are the substrings that are chosen from s and t .

Example 2:

Input: $s = "ab"$, $t = "bb"$

Output: 3

Explanation: The following are the pairs of substrings from s and t :

- ("ab", "bb)
- ("ab", "bb)
- ("ab", "bb)

The underlined portions are the substrings that are chosen from s and t .

Example 3:

Input: s = "a", t = "a"
Output: 0

Example 4:

Input: s = "abe", t = "bbc"
Output: 10

Constraints:

- $1 \leq s.length, t.length \leq 100$
- s and t consist of lowercase English letters only.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1638-Count-Substrings-That-Differ-by-One-Character](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1639. Number of Ways to Form a Target String Given a Dictionary

You are given a list of strings of the **same length** words and a string target .

Your task is to form target using the given words under the following rules:

- target should be formed from left to right.
- To form the i^{th} character (**0-indexed**) of target, you can choose the k^{th} character of the j^{th} string in words if $\text{target}[i] = \text{words}[j][k]$.
- Once you use the k^{th} character of the j^{th} string of words , you **can no longer** use the x^{th} character of any string in words where $x \leq k$. In other words, all characters to the left of or at index k become unusable for every string.
- Repeat the process until you form the string target .

Notice that you can use **multiple characters** from the **same string** in words provided the conditions above are met.

Return *the number of ways to form target from words* .

Since the answer may be too large, return it **modulo $10^9 + 7$** .

Example 1:

Input: words = ["acca", "bbbb", "caca"], target = "aba"
Output: 6

Explanation: There are 6 ways to form target.

"aba" -> index 0 ("acca"), index 1 ("bbbb"), index 3 ("caca")
"aba" -> index 0 ("acca"), index 2 ("bb_b"), index 3 ("caca")
"aba" -> index 0 ("acca"), index 1 ("bb_b"), index 3 ("acc_a")
"aba" -> index 0 ("acca"), index 2 ("bb_b"), index 3 ("acca")

"aba" -> index 1 ("caca"), index 2 ("bbbb"), index 3 ("acca")
"aba" -> index 1 ("caca"), index 2 ("bbbb"), index 3 ("caca")

Example 2:

Input: words = ["abba", "baab"], target = "bab"

Output: 4

Explanation: There are 4 ways to form target.

"bab" -> index 0 ("baab"), index 1 ("baab"), index 2 ("abba")

"bab" -> index 0 ("baab"), index 1 ("baab"), index 3 ("baab")

"bab" -> index 0 ("baab"), index 2 ("baab"), index 3 ("baab")

"bab" -> index 1 ("abba"), index 2 ("baab"), index 3 ("baab")

Example 3:

Input: words = ["abcd"], target = "abcd"

Output: 1

Example 4:

Input: words = ["abab", "baba", "abba", "baab"], target = "abba"

Output: 16

Constraints:

- $1 \leq \text{words.length} \leq 1000$
- $1 \leq \text{words[i].length} \leq 1000$
- All strings in words have the same length.
- $1 \leq \text{target.length} \leq 1000$
- words[i] and target contain only lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1639-Number-of-Ways-to-Form-a-Target-String-Given-a-Dictionary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1640. Check Array Formation Through Concatenation

You are given an array of **distinct** integers `arr` and an array of integer arrays `pieces` , where the integers in `pieces` are **distinct**. Your goal is to form `arr` by concatenating the arrays in `pieces` **in any order** . However, you are **not** allowed to reorder the integers in each array `pieces[i]` .

Return `true` if it is possible to form the array `arr` from `pieces` . Otherwise, return `false` .

Example 1:

Input: `arr = [85]`, `pieces = [[85]]`
Output: `true`

Example 2:

Input: `arr = [15,88]`, `pieces = [[88],[15]]`
Output: `true`
Explanation: Concatenate `[15]` then `[88]`

Example 3:

Input: arr = [49,18,16], pieces = [[16,18,49]]

Output: false

Explanation: Even though the numbers match, we cannot reorder pi

Example 4:

Input: arr = [91,4,64,78], pieces = [[78],[4,64],[91]]

Output: true

Explanation: Concatenate [91] then [4,64] then [78]

Example 5:

Input: arr = [1,3,5,7], pieces = [[2,4,6,8]]

Output: false

Constraints:

- $1 \leq \text{pieces.length} \leq \text{arr.length} \leq 100$
- $\text{sum}(\text{pieces}[i].length) == \text{arr.length}$
- $1 \leq \text{pieces}[i].length \leq \text{arr.length}$
- $1 \leq \text{arr}[i], \text{pieces}[i][j] \leq 100$
- The integers in arr are **distinct**.
- The integers in pieces are **distinct** (i.e., If we flatten pieces in a 1D array, all the integers in this array are distinct).

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1640-Check-Array-Formation-Through-
Concatenation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1641. Count Sorted Vowel Strings

Given an integer n , return *the number of strings of length n that consist only of vowels (a , e , i , o , u) and are lexicographically sorted .*

A string s is **lexicographically sorted** if for all valid i , $s[i]$ is the same as or comes before $s[i+1]$ in the alphabet.

Example 1:

Input: $n = 1$

Output: 5

Explanation: The 5 sorted strings that consist of vowels only are

Example 2:

Input: $n = 2$

Output: 15

Explanation: The 15 sorted strings that consist of vowels only are ["aa", "ae", "ai", "ao", "au", "ee", "ei", "eo", "eu", "ii", "io", "iu", "oo"]

Note that "ea" is not a valid string since 'e' comes after 'a' in the alphabet.

Example 3:

Input: n = 33
Output: 66045

Constraints:

- $1 \leq n \leq 50$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1641-Count-Sorted-Vowel-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1642. Furthest Building You Can Reach

You are given an integer array `heights` representing the heights of buildings, some `bricks`, and some `ladders`.

You start your journey from building `0` and move to the next building by possibly using bricks or ladders.

While moving from building `i` to building `i+1` (**0-indexed**),

- If the current building's height is **greater than or equal** to the next building's height, you do **not** need a ladder or bricks.
- If the current building's height is **less than** the next building's height, you can either use **one ladder** or $(h[i+1] - h[i])$ **bricks**.

Return the furthest building index (0-indexed) you can reach if you use the given ladders and bricks optimally.

Example 1:



Input: heights = [4,2,7,6,9,14,12], bricks = 5, ladders = 1
Output: 4

Explanation: Starting at building 0, you can follow these steps:

- Go to building 1 without using ladders nor bricks since $4 \geq 2$
- Go to building 2 using 5 bricks. You must use either bricks or ladders.
- Go to building 3 without using ladders nor bricks since $7 \geq 6$
- Go to building 4 using your only ladder. You must use either bricks or ladders.

It is impossible to go beyond building 4 because you do not have enough bricks or ladders.

Example 2:

Input: heights = [4,12,2,7,3,18,20,3,19], bricks = 10, ladders = 2
Output: 7

Example 3:

Input: heights = [14,3,19,3], bricks = 17, ladders = 0
Output: 3

Constraints:

- $1 \leq \text{heights.length} \leq 10^5$
- $1 \leq \text{heights}[i] \leq 10^6$
- $0 \leq \text{bricks} \leq 10^9$
- $0 \leq \text{ladders} \leq \text{heights.length}$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1642-Furthest-Building-You-Can-Reach](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1643. Kth Smallest Instructions

Bob is standing at cell $(0, 0)$, and he wants to reach destination : $(\text{row}, \text{column})$. He can only travel **right** and **down**. You are going to help Bob by providing **instructions** for him to reach destination .

The **instructions** are represented as a string, where each character is either:

- 'H' , meaning move horizontally (go **right**), or
- 'V' , meaning move vertically (go **down**).

Multiple **instructions** will lead Bob to destination . For example, if destination is $(2, 3)$, both "HHHVV" and "HVHVF" are valid **instructions**.

However, Bob is very picky. Bob has a lucky number k , and he wants the k^{th} **lexicographically smallest instructions** that will lead him to destination . k is **1-indexed**.

Given an integer array destination and an integer k , return *the k^{th} **lexicographically smallest instructions** that will take Bob to destination*.

Example 1:

(0,0)	(0,1)	(0,2)	(0,3)
(1,0)	(1,1)	(1,2)	(1,3)
(2,0)	(2,1)	(2,2)	(2,3)

Input: destination = [2,3], k = 1

Output: "HHHVV"

Explanation: All the instructions that reach $(2, 3)$ in lexicographical order are ["HHHVV", "HHVHV", "HHVVH", "HVHHV", "HVHVF", "HVVHH", "VHHHV"],

Example 2:

(0,0)	(0,1)	(0,2)	(0,3)
(1,0)	(1,1)	(1,2)	(1,3)
(2,0)	(2,1)	(2,2)	(2,3)

Input: destination = [2, 3], k = 2
Output: "HHVHV"

Example 3:

(0,0)	(0,1)	(0,2)	(0,3)
(1,0)	(1,1)	(1,2)	(1,3)
(2,0)	(2,1)	(2,2)	(2,3)

Input: destination = [2, 3], k = 3
Output: "HHV VH"

Constraints:

- `destination.length == 2`
- `1 <= row, column <= 15`
- `1 <= k <= nCr(row + column, row)`, where `nCr(a, b)` denotes a choose b.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1643-Kth-Smallest-Instructions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

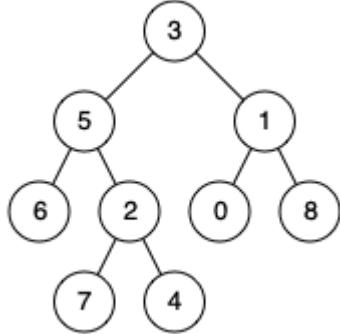
1644. Lowest Common Ancestor of a Binary Tree II

Given the root of a binary tree, return *the lowest common ancestor (LCA) of two given nodes, p and q*. If either node p or q **does not exist** in the tree, return null. All values of the nodes in the tree are **unique**.

According to the [definition of LCA on Wikipedia](#): "The lowest common ancestor of two nodes p and q in a

binary tree T is the lowest node that has both p and q as **descendants** (where we allow a node to be a descendant of itself)". A **descendant** of a node x is a node y that is on the path from node x to some leaf node.

Example 1:

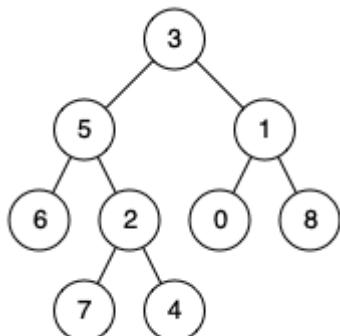


Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 1

Output: 3

Explanation: The LCA of nodes 5 and 1 is 3.

Example 2:

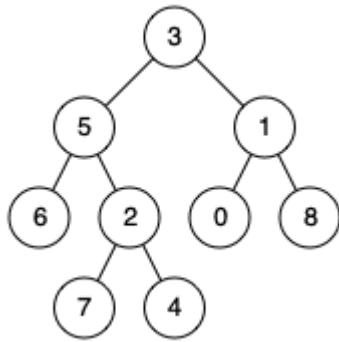


Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 4

Output: 5

Explanation: The LCA of nodes 5 and 4 is 5. A node can be a descen-

Example 3:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 10

Output: null

Explanation: Node 10 does not exist in the tree, so return null.

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- $-10^9 \leq \text{Node.val} \leq 10^9$
- All `Node.val` are **unique**.
- $p \neq q$

Follow up: Can you find the LCA traversing the tree, without checking nodes existence?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1644-Lowest-Common-Ancestor-of-a-Binary-Tree-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1645. Hopper Company Queries II

[SQL Schema](#) >

Table: Drivers

Column Name	Type
driver_id	int
join_date	date

driver_id is the primary key for this table.

Each row of this table contains the driver's ID and the date they

Table: Rides

Column Name	Type
ride_id	int
user_id	int
requested_at	date

ride_id is the primary key for this table.

Each row of this table contains the ID of a ride, the user's ID. There may be some ride requests in this table that were not accep

Table: AcceptedRides

Column Name	Type
ride_id	int
driver_id	int
ride_distance	int
ride_duration	int

ride_id is the primary key for this table.

Each row of this table contains some information about an accepted ride.

It is guaranteed that each accepted ride exists in the Rides table.

Write an SQL query to report the **percentage** of working drivers (`working_percentage`) for each month of **2020** where:

$$\text{percentage}_{\text{month}} = \frac{\# \text{ drivers that accepted at least one ride in month}}{\# \text{ available drivers during month}}$$

Note that if the number of available drivers during a month is zero, we consider the `working_percentage` to be 0 .

Return the result table ordered by `month` in **ascending** order, where `month` is the month's number (January is 1, February is 2 , etc.). Round `working_percentage` to the nearest **2 decimal places** .

The query result format is in the following example.

Drivers table:

driver_id	join_date
10	2019-12-10
8	2020-1-13
5	2020-2-16
7	2020-3-8
4	2020-5-17
1	2020-10-24
6	2021-1-5

Rides table:

ride_id	user_id	requested_at
6	75	2019-12-9
1	54	2020-2-9
10	63	2020-3-4
19	39	2020-4-6

3	41	2020-6-3
13	52	2020-6-22
7	69	2020-7-16
17	70	2020-8-25
20	81	2020-11-2
5	57	2020-11-9
2	42	2020-12-9
11	68	2021-1-11
15	32	2021-1-17
12	11	2021-1-19
14	18	2021-1-27

AcceptedRides table:

ride_id	driver_id	ride_distance	ride_duration
10	10	63	38
13	10	73	96
7	8	100	28
17	7	119	68
20	1	121	92
5	7	42	101
2	4	6	38
11	8	37	43
15	8	108	82
12	8	38	34
14	1	90	74

Result table:

month	working_percentage
1	0.00
2	0.00
3	25.00
4	0.00
5	0.00
6	20.00
7	20.00
8	20.00
9	0.00
10	0.00
11	33.33
12	16.67

By the end of January --> two active drivers (10, 8) and no accepted rides.

By the end of February --> three active drivers (10, 8, 5) and no accepted rides.

By the end of March --> four active drivers (10, 8, 5, 7) and one accepted ride.

By the end of April --> four active drivers (10, 8, 5, 7) and no accepted rides.

By the end of May --> five active drivers (10, 8, 5, 7, 4) and one accepted ride.

By the end of June --> five active drivers (10, 8, 5, 7, 4) and one accepted ride.

By the end of July --> five active drivers (10, 8, 5, 7, 4) and
By the end of August --> five active drivers (10, 8, 5, 7, 4) and
By the end of Septemeber --> five active drivers (10, 8, 5, 7, 4)
By the end of October --> six active drivers (10, 8, 5, 7, 4, 1)
By the end of November --> six active drivers (10, 8, 5, 7, 4, 1)
By the end of December --> six active drivers (10, 8, 5, 7, 4, 1)

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1645-Hopper-Company-Queries-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1646. Get Maximum in Generated Array

You are given an integer n . An array nums of length $n + 1$ is generated in the following way:

- $\text{nums}[0] = 0$
- $\text{nums}[1] = 1$
- $\text{nums}[2 * i] = \text{nums}[i]$ when $2 \leq 2 * i \leq n$
- $\text{nums}[2 * i + 1] = \text{nums}[i] + \text{nums}[i + 1]$ when $2 \leq 2 * i + 1 \leq n$

Return *the maximum integer in the array nums*
â â â .

Example 1:

Input: $n = 7$

Output: 3

Explanation: According to the given rules:

- $\text{nums}[0] = 0$
- $\text{nums}[1] = 1$
- $\text{nums}[(1 * 2) = 2] = \text{nums}[1] = 1$
- $\text{nums}[(1 * 2) + 1 = 3] = \text{nums}[1] + \text{nums}[2] = 1 + 1 = 2$
- $\text{nums}[(2 * 2) = 4] = \text{nums}[2] = 1$
- $\text{nums}[(2 * 2) + 1 = 5] = \text{nums}[2] + \text{nums}[3] = 1 + 2 = 3$
- $\text{nums}[(3 * 2) = 6] = \text{nums}[3] = 2$
- $\text{nums}[(3 * 2) + 1 = 7] = \text{nums}[3] + \text{nums}[4] = 2 + 1 = 3$

Hence, $\text{nums} = [0, 1, 1, 2, 1, 3, 2, 3]$, and the maximum is 3.

Example 2:

Input: $n = 2$

Output: 1

Explanation: According to the given rules, the maximum between n

Example 3:

Input: $n = 3$

Output: 2

Explanation: According to the given rules, the maximum between n

Constraints:

- $0 \leq n \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1646-Get-Maximum-in-Generated-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1647. Minimum Deletions to Make Character Frequencies Unique

A string s is called **good** if there are no two different characters in s that have the same **frequency**.

Given a string s , return *the minimum number of characters you need to delete to make s good* .

The **frequency** of a character in a string is the number of times it appears in the string. For example, in the string "aab" , the **frequency** of 'a' is 2 , while the **frequency** of 'b' is 1 .

Example 1:

Input: $s = \text{"aab"}$
Output: 0
Explanation: s is already good.

Example 2:

Input: $s = \text{"aaabbcc"}$
Output: 2
Explanation: You can delete two 'b's resulting in the good string "aaabcc".
Another way is to delete one 'b' and one 'c' resulting in the good string "aaabcc".

Example 3:

Input: $s = \text{"ceabaacb"}$
Output: 2
Explanation: You can delete both 'c's resulting in the good string "eabaacb".
Note that we only care about characters that are still in the string.

Constraints:

- $1 \leq s.length \leq 10^5$
- s contains only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1647-Minimum-Deletions-to-Make-Character-Frequencies-Unique](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1648. Sell Diminishing-Valued Colored Balls

You have an `inventory` of different colored balls, and there is a customer that wants `orders` balls of `any` color.

The customer weirdly values the colored balls. Each colored ball's value is the number of balls **of that color** you currently have in your `inventory`. For example, if you own 6 yellow balls, the customer would pay 6 for the first yellow ball. After the transaction, there are only 5 yellow balls left, so the next yellow ball is then valued at 5 (i.e., the value of the balls decreases as you sell more to the customer).

You are given an integer array, `inventory`, where `inventory[i]` represents the number of balls of the i^{th} color that you initially own. You are also given an

integer `orders` , which represents the total number of balls that the customer wants. You can sell the balls **in any order** .

Return the **maximum total value** that you can attain after selling `orders` colored balls . As the answer may be too large, return it **modulo $10^9 + 7$** .

Example 1:



Input: `inventory = [2,5]`, `orders = 4`

Output: 14

Explanation: Sell the 1st color 1 time (2) and the 2nd color 3 times. The maximum total value is $2 + 5 + 4 + 3 = 14$.

Example 2:

Input: `inventory = [3,5]`, `orders = 6`

Output: 19

Explanation: Sell the 1st color 2 times ($3 + 2$) and the 2nd color 4 times. The maximum total value is $3 + 2 + 5 + 4 + 3 + 2 = 19$.

Example 3:

Input: `inventory = [2,8,4,10,6]`, `orders = 20`

Output: 110

Example 4:

Input: `inventory = [1000000000]`, `orders = 1000000000`

Output: 21

Explanation: Sell the 1st color 1000000000 times for a total val

Constraints:

- $1 \leq \text{inventory.length} \leq 10^5$
- $1 \leq \text{inventory}[i] \leq 10^9$
- $1 \leq \text{orders} \leq \min(\sum(\text{inventory}[i]), 10^9)$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1648-Sell-Diminishing-Valued-Colored-Balls](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1649. Create Sorted Array through Instructions

Given an integer array `instructions` , you are asked to create a sorted array from the elements in `instructions` . You start with an empty container `nums` . For each element from **left to right** in `instructions` , insert it into `nums` . The **cost** of each insertion is the **minimum** of the following:

- The number of elements currently in `nums` that are **strictly less than** `instructions[i]` .
- The number of elements currently in `nums` that are **strictly greater than** `instructions[i]` .

For example, if inserting element 3 into `nums` = `[1,2,3,5]` , the **cost** of insertion is $\min(2, 1)$ (elements 1 and 2 are less than 3 , element 5 is greater than 3) and `nums` will become `[1,2,3,3,5]` .

Return *the total cost to insert all elements from `instructions` into `nums`* . Since the answer may be large, return it **modulo** $10^9 + 7$

Example 1:

Input: `instructions` = `[1,5,6,2]`
Output: 1
Explanation: Begin with `nums` = `[]`.
Insert 1 with cost $\min(0, 0) = 0$, now `nums` = `[1]`.
Insert 5 with cost $\min(1, 0) = 0$, now `nums` = `[1,5]`.
Insert 6 with cost $\min(2, 0) = 0$, now `nums` = `[1,5,6]`.
Insert 2 with cost $\min(1, 2) = 1$, now `nums` = `[1,2,5,6]`.
The total cost is $0 + 0 + 0 + 1 = 1$.

Example 2:

Input: `instructions` = `[1,2,3,6,5,4]`
Output: 3
Explanation: Begin with `nums` = `[]`.
Insert 1 with cost $\min(0, 0) = 0$, now `nums` = `[1]`.
Insert 2 with cost $\min(1, 0) = 0$, now `nums` = `[1,2]`.
Insert 3 with cost $\min(2, 0) = 0$, now `nums` = `[1,2,3]`.
Insert 6 with cost $\min(3, 0) = 0$, now `nums` = `[1,2,3,6]`.
Insert 5 with cost $\min(3, 1) = 1$, now `nums` = `[1,2,3,5,6]`.
Insert 4 with cost $\min(3, 2) = 2$, now `nums` = `[1,2,3,4,5,6]`.
The total cost is $0 + 0 + 0 + 0 + 1 + 2 = 3$.

Example 3:

```
Input: instructions = [1,3,3,3,2,4,2,1,2]
Output: 4
Explanation: Begin with nums = [].
Insert 1 with cost min(0, 0) = 0, now nums = [1].
Insert 3 with cost min(1, 0) = 0, now nums = [1,3].
Insert 3 with cost min(1, 0) = 0, now nums = [1,3,3].
Insert 3 with cost min(1, 0) = 0, now nums = [1,3,3,3].
Insert 2 with cost min(1, 3) = 1, now nums = [1,2,3,3,3].
Insert 4 with cost min(5, 0) = 0, now nums = [1,2,3,3,3,4].
â   â   â   â   â   Insert 2 with cost min(1, 4) = 1, now nums
â   â   â   â   â   Insert 1 with cost min(0, 6) = 0, now nums
â   â   â   â   â   Insert 2 with cost min(2, 4) = 2, now nums
The total cost is 0 + 0 + 0 + 0 + 1 + 0 + 1 + 0 + 2 = 4.
```

Constraints:

- $1 \leq \text{instructions.length} \leq 10^5$
- $1 \leq \text{instructions}[i] \leq 10^5$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1649-Create-Sorted-Array-through-Instructions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1650. Lowest Common Ancestor of a Binary Tree III

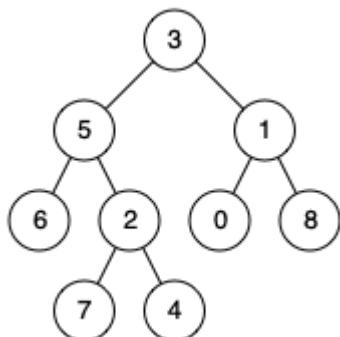
Given two nodes of a binary tree p and q , return *their lowest common ancestor (LCA)*.

Each node will have a reference to its parent node. The definition for Node is below:

```
class Node {  
    public int val;  
    public Node left;  
    public Node right;  
    public Node parent;  
}
```

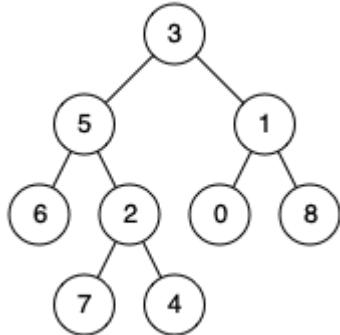
According to the [definition of LCA on Wikipedia](#): "The lowest common ancestor of two nodes p and q in a tree T is the lowest node that has both p and q as descendants (where we allow a node to be a descendant of itself)."

Example 1:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 1
Output: 3
Explanation: The LCA of nodes 5 and 1 is 3.

Example 2:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 4
Output: 5
Explanation: The LCA of nodes 5 and 4 is 5 since a node can be a

Example 3:

Input: root = [1,2], p = 1, q = 2
Output: 1

Constraints:

- The number of nodes in the tree is in the range $[2, 10^5]$.
- $-10^9 \leq \text{Node.val} \leq 10^9$
- All `Node.val` are **unique**.
- $p \neq q$
- p and q exist in the tree.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1650-Lowest-Common-Ancestor-of-a-Binary-Tree-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1651. Hopper Company Queries III

SQL Schema >

Table: Drivers

Column Name	Type
driver_id	int
join_date	date

driver_id is the primary key for this table.

Each row of this table contains the driver's ID and the date the

Table: Rides

Column Name	Type

ride_id	int	
user_id	int	
requested_at	date	
+-----+-----+		

ride_id is the primary key for this table.

Each row of this table contains the ID of a ride, the user's ID

There may be some ride requests in this table that were not accepted.

Table: AcceptedRides

Column Name	Type	
+-----+-----+		
ride_id	int	
driver_id	int	
ride_distance	int	
ride_duration	int	
+-----+-----+		

ride_id is the primary key for this table.

Each row of this table contains some information about an accepted ride.

It is guaranteed that each accepted ride exists in the Rides table.

Write an SQL query to compute the average_ride_distance and average_ride_duration of every 3-month window starting from **January - March 2020** to **October - December 2020**. Round average_ride_distance and average_ride_duration to the nearest **two decimal places**.

The average_ride_distance is calculated by summing up the total ride_distance values from the three months and dividing it by 3 . The average_ride_duration is calculated in a similar way.

Return the result table ordered by month in ascending order, where month is the starting month's number (January is 1 , February is 2 , etc.).

The query result format is in the following example.

Drivers table:

+-----+-----+		
driver_id	join_date	
+-----+-----+		
10	2019-12-10	
8	2020-1-13	
5	2020-2-16	
7	2020-3-8	
4	2020-5-17	
1	2020-10-24	

	6		2021-1-5	
+	-	-	-	-

Rides table:

ride_id	user_id	requested_at
6	75	2019-12-9
1	54	2020-2-9
10	63	2020-3-4
19	39	2020-4-6
3	41	2020-6-3
13	52	2020-6-22
7	69	2020-7-16
17	70	2020-8-25
20	81	2020-11-2
5	57	2020-11-9
2	42	2020-12-9
11	68	2021-1-11
15	32	2021-1-17
12	11	2021-1-19
14	18	2021-1-27

AcceptedRides table:

ride_id	driver_id	ride_distance	ride_duration
10	10	63	38
13	10	73	96
7	8	100	28
17	7	119	68
20	1	121	92
5	7	42	101
2	4	6	38
11	8	37	43
15	8	108	82
12	8	38	34
14	1	90	74

Result table:

month	average_ride_distance	average_ride_duration
1	21.00	12.67
2	21.00	12.67
3	21.00	12.67
4	24.33	32.00
5	57.67	41.33
6	97.33	64.00
7	73.00	32.00
8	39.67	22.67
9	54.33	64.33

10	56.33	77.00
+-----+	-----+	-----+

By the end of January --> average_ride_distance = $(0+0+63)/3=21$,
 By the end of February --> average_ride_distance = $(0+63+0)/3=21$,
 By the end of March --> average_ride_distance = $(63+0+0)/3=21$, a
 By the end of April --> average_ride_distance = $(0+0+73)/3=24.33$,
 By the end of May --> average_ride_distance = $(0+73+100)/3=57.67$,
 By the end of June --> average_ride_distance = $(73+100+119)/3=97.00$,
 By the end of July --> average_ride_distance = $(100+119+0)/3=73.00$,
 By the end of August --> average_ride_distance = $(119+0+0)/3=39.00$,
 By the end of Septemeber --> average_ride_distance = $(0+0+163)/3=54.33$,
 By the end of October --> average_ride_distance = $(0+163+6)/3=56.00$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1651-Hopper-Company-Queries-III](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1652. Defuse the Bomb

You have a bomb to defuse, and your time is running out! Your informer will provide you with a **circular** array `code` of length n and a key k .

To decrypt the code, you must replace every number. All the numbers are replaced **simultaneously**.

- If $k > 0$, replace the i^{th} number with the sum of the **next** k numbers.
- If $k < 0$, replace the i^{th} number with the sum of the **previous** k numbers.
- If $k == 0$, replace the i^{th} number with 0 .

As `code` is circular, the next element of `code[n-1]` is `code[0]`, and the previous element of `code[0]` is `code[n-1]`.

Given the **circular** array `code` and an integer key k , return *the decrypted code to defuse the bomb!*

Example 1:

Input: `code = [5,7,1,4], k = 3`

Output: `[12,10,16,13]`

Explanation: Each number is replaced by the sum of the next 3 numbers.

Example 2:

Input: `code = [1,2,3,4], k = 0`

Output: `[0,0,0,0]`

Explanation: When k is zero, the numbers are replaced by 0.

Example 3:

Input: `code = [2,4,9,3], k = -2`

Output: `[12,5,6,13]`

Explanation: The decrypted code is $[3+9, 2+3, 4+2, 9+4]$. Notice that the first two numbers are swapped.

Constraints:

- $n == \text{code.length}$
- $1 \leq n \leq 100$

- $1 \leq \text{code}[i] \leq 100$
- $-(n - 1) \leq k \leq n - 1$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1652-Defuse-the-Bomb](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1653. Minimum Deletions to Make String Balanced

You are given a string s consisting only of characters ' a ' and ' b ' \wedge \wedge \wedge \wedge .

You can delete any number of characters in s to make s **balanced**. s is **balanced** if there is no pair of indices (i, j) such that $i < j$ and $s[i] = 'b'$ and $s[j] = 'a'$.

Return *the minimum number of deletions needed to make s balanced*.

Example 1:

Input: $s = "aababbab"$

Output: 2

Explanation: You can either:

Delete the characters at 0-indexed positions 2 and 6 ("aababbab")

Delete the characters at 0-indexed positions 3 and 6 ("aababbab")

Example 2:

Input: $s = "bbaaaaabb"$

Output: 2

Explanation: The only solution is to delete the first two charac

Constraints:

- $1 \leq s.length \leq 10^5$
- $s[i]$ is 'a' or 'b' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1653-Minimum-Deletions-to-Make-String-Balanced](#)

Problem Solution

[1653-Minimum-Deletions-to-Make-String-Balanced](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1654. Minimum Jumps to Reach Home

A certain bug's home is on the x-axis at position x . Help them get there from position 0 .

The bug jumps according to the following rules:

- It can jump exactly a positions **forward** (to the right).
- It can jump exactly b positions **backward** (to the left).
- It cannot jump backward twice in a row.
- It cannot jump to any **forbidden** positions.

The bug may jump forward **beyond** its home, but it **cannot jump** to positions numbered with **negative** integers.

Given an array of integers `forbidden` , where `forbidden[i]` means that the bug cannot jump to the position `forbidden[i]` , and integers `a` , `b` , and `x` , return *the minimum number of jumps needed for the bug to reach its home* . If there is no possible sequence of jumps that lands the bug on position `x` , return -1 .

Example 1:

Input: `forbidden = [14,4,18,1,15]` , `a = 3` , `b = 15` , `x = 9`
Output: 3

Explanation: 3 jumps forward (`0 -> 3 -> 6 -> 9`) will get the bug

Example 2:

Input: `forbidden = [8,3,16,6,12,20]` , `a = 15` , `b = 13` , `x = 11`
Output: -1

Example 3:

Input: `forbidden = [1,6,2,14,5,17,4]` , `a = 16` , `b = 9` , `x = 7`
Output: 2
Explanation: One jump forward (`0 -> 16`) then one jump backward (`16 -> 9`)

Constraints:

- `1 <= forbidden.length <= 1000`
- `1 <= a, b, forbidden[i] <= 2000`
- `0 <= x <= 2000`
- All the elements in `forbidden` are distinct.
- Position `x` is not forbidden.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1654-Minimum-Jumps-to-Reach-Home](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1655. Distribute Repeating Integers

You are given an array of n integers, nums , where there are at most 50 unique values in the array. You are also given an array of m customer order quantities, quantity , where $\text{quantity}[i]$ is the amount of integers the i^{th} customer ordered. Determine if it is possible to distribute nums such that:

- The i^{th} customer gets **exactly** $\text{quantity}[i]$ integers,
- The integers the i^{th} customer gets are **all equal**, and
- Every customer is satisfied.

Return `true` if it is possible to distribute nums according to the above conditions .

Example 1:

Input: $\text{nums} = [1, 2, 3, 4]$, $\text{quantity} = [2]$

Output: `false`

Explanation: The 0th customer cannot be given two different integers.

Example 2:

Input: nums = [1,2,3,3], quantity = [2]

Output: true

Explanation: The 0th customer is given [3,3]. The integers [1,2]

Example 3:

Input: nums = [1,1,2,2], quantity = [2,2]

Output: true

Explanation: The 0th customer is given [1,1], and the 1st customer

Example 4:

Input: nums = [1,1,2,3], quantity = [2,2]

Output: false

Explanation: Although the 0th customer could be given [1,1], the

Example 5:

Input: nums = [1,1,1,1,1], quantity = [2,3]

Output: true

Explanation: The 0th customer is given [1,1], and the 1st customer

Constraints:

- $n == \text{nums.length}$
- $1 \leq n \leq 10^5$
- $1 \leq \text{nums}[i] \leq 1000$
- $m == \text{quantity.length}$
- $1 \leq m \leq 10$
- $1 \leq \text{quantity}[i] \leq 10^5$
- There are at most 50 unique values in `nums`.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1655-Distribute-Repeating-Integers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1656. Design an Ordered Stream

There are `n` (`id`, `value`) pairs, where `id` is an integer between 1 and `n` and `value` is a string. No two pairs have the same `id`.

Design a stream that takes the `n` pairs in an **arbitrary** order, and returns the values over several calls in **increasing order of their ids**.

Implement the `OrderedStream` class:

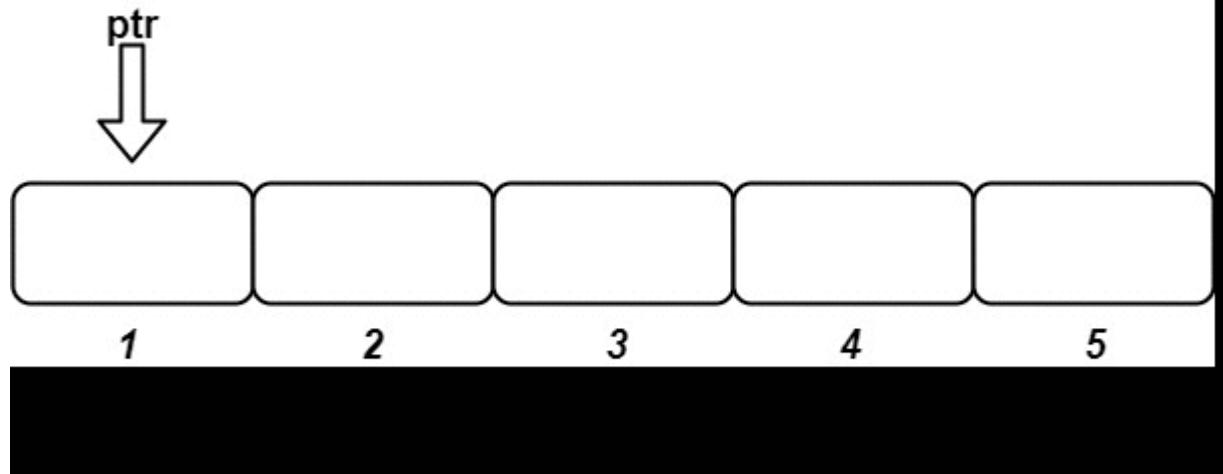
- `OrderedStream(int n)` Constructs the stream to take `n` values and sets a current `ptr` to 1.
- `String[] insert(int id, String value)` Stores the new (`id`, `value`) pair in the stream.

After storing the pair:

- If the stream has stored a pair with `id = ptr`, then find the **longest contiguous incrementing sequence** of ids starting with `id = ptr` and return a list of the values associated with those ids **in order**. Then, update `ptr` to the last `id + 1`.

- Otherwise, return an empty list.

Example:



Input

```
["OrderedStream", "insert", "insert", "insert", "insert", "insert"]
[[5], [3, "ccccc"], [1, "aaaaa"], [2, "bbbb"], [5, "eeeee"], [4,
```

Output

```
[null, [], ["aaaaa"], ["bbbb"], "ccccc"], [], ["ddddd", "eeeee"]]
```

Explanation

```
OrderedStream os= new OrderedStream(5);
os.insert(3, "ccccc"); // Inserts (3, "ccccc"), returns [].
os.insert(1, "aaaaa"); // Inserts (1, "aaaaa"), returns ["aaaaa"]
os.insert(2, "bbbb"); // Inserts (2, "bbbb"), returns ["bbbb"]
os.insert(5, "eeeee"); // Inserts (5, "eeeee"), returns [].
os.insert(4, "ddddd"); // Inserts (4, "ddddd"), returns ["ddddd"]
```

Constraints:

- $1 \leq n \leq 1000$
- $1 \leq id \leq n$
- $value.length == 5$
- $value$ consists only of lowercase letters.
- Each call to `insert` will have a unique `id`.
- Exactly n calls will be made to `insert`.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1656-Design-an-Ordered-Stream](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1657. Determine if Two Strings Are Close

Two strings are considered **close** if you can attain one from the other using the following operations:

- Operation 1: Swap any two **existing** characters.
 - For example, a b cd e -> a e cd b
- Operation 2: Transform **every** occurrence of one **existing** character into another **existing** character, and do the same with the other character.
 - For example, aa c abb -> bb c baa (all a 's turn into b 's, and all b 's turn into a 's)

You can use the operations on either string as many times as necessary.

Given two strings, word1 and word2 , return true if word1 and word2 are close , and false otherwise.

Example 1:

Input: word1 = "abc" , word2 = "bca"

Output: true

Explanation: You can attain word2 from word1 in 2 operations.

Apply Operation 1: "abc" -> "acb"

Apply Operation 1: "acb" -> "bca"

Example 2:

Input: word1 = "a" , word2 = "aa"

Output: false

Explanation: It is impossible to attain word2 from word1, or vice versa.

Example 3:

Input: word1 = "cabbba" , word2 = "abbccc"

Output: true

Explanation: You can attain word2 from word1 in 3 operations.

Apply Operation 1: "cabbba" -> "caabbbb"

Apply Operation 2: "caabbbb" -> "baaccc"

Apply Operation 2: "baaccc" -> "abbccc"

Example 4:

Input: word1 = "cabbba" , word2 = "aabbss"

Output: false

Explanation: It is impossible to attain word2 from word1, or vice versa.

Constraints:

- $1 \leq \text{word1.length}, \text{word2.length} \leq 10^5$
- word1 and word2 contain only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1657-Determine-if-Two-Strings-Are-Close](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1658. Minimum Operations to Reduce X to Zero

You are given an integer array `nums` and an integer `x` . In one operation, you can either remove the leftmost or the rightmost element from the array `nums` and subtract its value from `x` . Note that this **modifies** the array for future operations.

Return *the minimum number of operations to reduce x to exactly 0 if it's possible , otherwise, return -1* .

Example 1:

Input: `nums = [1,1,4,2,3]` , `x = 5`

Output: 2

Explanation: The optimal solution is to remove the last two elements.

Example 2:

Input: nums = [5,6,7,8,9], x = 4
Output: -1

Example 3:

Input: nums = [3,2,20,1,1,3], x = 10
Output: 5

Explanation: The optimal solution is to remove the last three elements.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^4$
- $1 \leq x \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1658-Minimum-Operations-to-Reduce-X-to-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1659. Maximize Grid Happiness

You are given four integers, m , n , `introvertsCount`, and `extrovertsCount`. You have an $m \times n$ grid, and there are two types of people: introverts and extroverts. There are `introvertsCount` introverts and `extrovertsCount` extroverts.

You should decide how many people you want to live in the grid and assign each of them one grid cell. Note that you **do not** have to have all the people living in the grid.

The **happiness** of each person is calculated as follows:

- Introverts **start** with 120 happiness and **lose** 30 happiness for each neighbor (introvert or extrovert).
- Extroverts **start** with 40 happiness and **gain** 20 happiness for each neighbor (introvert or extrovert).

Neighbors live in the directly adjacent cells north, east, south, and west of a person's cell.

The **grid happiness** is the **sum** of each person's happiness. Return *the maximum possible grid happiness*.

Example 1:

120		60
		60

Input: $m = 2$, $n = 3$, introvertsCount = 1, extrovertsCount = 2
Output: 240
Explanation: Assume the grid is 1-indexed with coordinates (row, column). We can put the introvert in cell (1,1) and put the extroverts in cells (1,3) and (2,3).
- Introvert at (1,1) happiness: 120 (starting happiness) - (0 * 1 * 2)
- Extrovert at (1,3) happiness: 40 (starting happiness) + (1 * 2 * 1)
- Extrovert at (2,3) happiness: 40 (starting happiness) + (1 * 2 * 1)
The grid happiness is $120 + 60 + 60 = 240$.
The above figure shows the grid in this example with each person's happiness value.

Example 2:

Input: $m = 3$, $n = 1$, introvertsCount = 2, extrovertsCount = 1
Output: 260
Explanation: Place the two introverts in (1,1) and (3,1) and the extrovert in (2,1).
- Introvert at (1,1) happiness: 120 (starting happiness) - (1 * 2 * 1)
- Extrovert at (2,1) happiness: 40 (starting happiness) + (2 * 1 * 1)
- Introvert at (3,1) happiness: 120 (starting happiness) - (1 * 2 * 1)
The grid happiness is $90 + 80 + 90 = 260$.

Example 3:

Input: $m = 2$, $n = 2$, introvertsCount = 4, extrovertsCount = 0
Output: 240

Constraints:

- $1 \leq m, n \leq 5$
- $0 \leq \text{introvertsCount}, \text{extrovertsCount} \leq \min(m * n, 6)$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1659-Maximize-Grid-Happiness](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1660. Correct a Binary Tree

You have a binary tree with a small defect. There is **exactly one** invalid node where its right child incorrectly points to another node at the **same depth** but to the **invalid node's right**.

Given the root of the binary tree with this defect, `root` , return *the root of the binary tree after removing this invalid node and every node underneath it (minus the node it incorrectly points to)*.

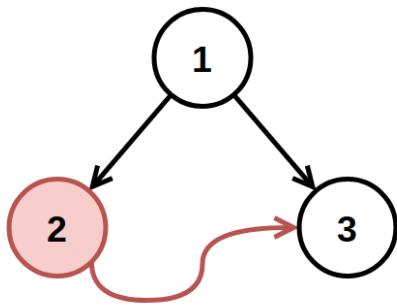
Custom testing:

The test input is read as 3 lines:

- `TreeNode root`
- `int fromNode (not available to correctBinaryTree)`
- `int toNode (not available to correctBinaryTree)`

After the binary tree rooted at `root` is parsed, the `TreeNode` with value of `fromNode` will have its right child pointer pointing to the `TreeNode` with a value of `toNode` . Then, `root` is passed to `correctBinaryTree` .

Example 1:

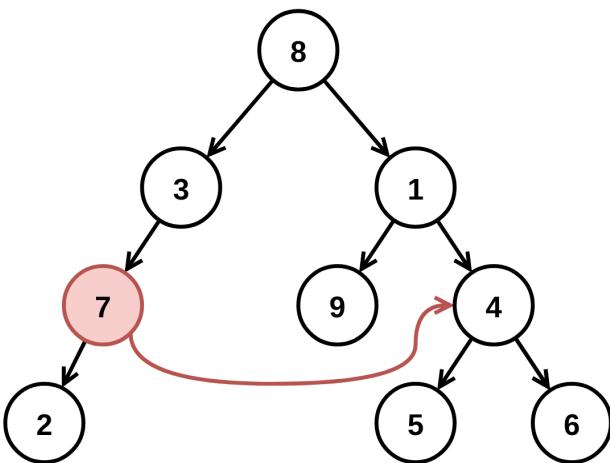


Input: root = [1,2,3], fromNode = 2, toNode = 3

Output: [1,null,3]

Explanation: The node with value 2 is invalid, so remove it.

Example 2:



Input: root = [8,3,1,7,null,9,4,2,null,null,null,5,6], fromNode = 7

Output: [8,3,1,null,null,9,4,null,null,5,6]

Explanation: The node with value 7 is invalid, so remove it and

Constraints:

- The number of nodes in the tree is in the range $[3, 10^4]$.
- $-10^9 \leq \text{Node.val} \leq 10^9$
- All `Node.val` are **unique**.
- `fromNode != toNode`
- `fromNode` and `toNode` will exist in the tree and will be on the same depth.
- `toNode` is to the **right** of `fromNode`.
- `fromNode.right` is `null` in the initial tree from the test data.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1660-Correct-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1661. Average Time of Process per Machine

SQL Schema ›

Table: Activity

Column Name	Type
machine_id	int
process_id	int
activity_type	enum
timestamp	float

The table shows the user activities for a factory website. (machine_id, process_id, activity_type) is the primary key of the table. machine_id is the ID of a machine. process_id is the ID of a process running on the machine with ID machine_id. activity_type is an ENUM of type ('start', 'end'). timestamp is a float representing the current time in seconds. 'start' means the machine starts the process at the given timestamp. 'end' means the machine ends the process at the given timestamp.

There is a factory website that has several machines each running the **same number of processes**. Write an SQL query to find the **average time** each machine takes to complete a process.

The time to complete a process is the 'end' timestamp minus the 'start' timestamp. The average time is calculated by the total time to complete every process on the machine divided by the number of processes that were run.

The resulting table should have the machine_id along with the **average time** as processing_time , which should be **rounded to 3 decimal places** .

The query result format is in the following example:

Activity table:

machine_id	process_id	activity_type	timestamp
0	0	start	0.712
0	0	end	1.520
0	1	start	3.140
0	1	end	4.120
1	0	start	0.550
1	0	end	1.550
1	1	start	0.430
1	1	end	1.420
2	0	start	4.100
2	0	end	4.512
2	1	start	2.500
2	1	end	5.000

```

Result table:
+-----+-----+
| machine_id | processing_time |
+-----+-----+
| 0          | 0.894           |
| 1          | 0.995           |
| 2          | 1.456           |
+-----+-----+

```

There are 3 machines running 2 processes each.

Machine 0's average time is $((1.520 - 0.712) + (4.120 - 3.140))$

Machine 1's average time is $((1.550 - 0.550) + (1.420 - 0.430))$

Machine 2's average time is $((4.512 - 4.100) + (5.000 - 2.500))$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1661-Average-Time-of-Process-per-Machine](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1662. Check If Two String Arrays are Equivalent

Given two string arrays `word1` and `word2`, return true if the two arrays represent the same string, and false otherwise.

A string is represented by an array if the array elements concatenated in order forms the string.

Example 1:

Input: `word1 = ["ab", "c"]`, `word2 = ["a", "bc"]`
Output: true
Explanation:
`word1` represents string "ab" + "c" -> "abc"
`word2` represents string "a" + "bc" -> "abc"
The strings are the same, so return true.

Example 2:

Input: `word1 = ["a", "cb"]`, `word2 = ["ab", "c"]`
Output: false

Example 3:

Input: `word1 = ["abc", "d", "defg"]`, `word2 = ["abcddefg"]`
Output: true

Constraints:

- $1 \leq \text{word1.length}, \text{word2.length} \leq 10^3$
- $1 \leq \text{word1[i].length}, \text{word2[i].length} \leq 10^3$
- $1 \leq \text{sum(word1[i].length)}, \text{sum(word2[i].length)} \leq 10^3$
- `word1[i]` and `word2[i]` consist of lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1662-Check-If-Two-String-Arrays-are-Equivalent](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1663. Smallest String With A Given Numeric Value

The **numeric value** of a **lowercase character** is defined as its position (1-indexed) in the alphabet, so the numeric value of a is 1 , the numeric value of b is 2 , the numeric value of c is 3 , and so on.

The **numeric value** of a **string** consisting of lowercase characters is defined as the sum of its characters'

numeric values. For example, the numeric value of the string "abe" is equal to $1 + 2 + 5 = 8$.

You are given two integers n and k . Return *the lexicographically smallest string with length equal to n and numeric value equal to k* .

Note that a string x is lexicographically smaller than string y if x comes before y in dictionary order, that is, either x is a prefix of y , or if i is the first position such that $x[i] \neq y[i]$, then $x[i]$ comes before $y[i]$ in alphabetic order.

Example 1:

Input: $n = 3$, $k = 27$

Output: "aay"

Explanation: The numeric value of the string is $1 + 1 + 25 = 27$,

Example 2:

Input: $n = 5$, $k = 73$

Output: "aaszz"

Constraints:

- $1 \leq n \leq 10^5$
- $n \leq k \leq 26 * n$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1663-Smallest-String-With-A-Given-Numeric-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1664. Ways to Make a Fair Array

You are given an integer array `nums` . You can choose **exactly one** index (**0-indexed**) and remove the element. Notice that the index of the elements may change after the removal.

For example, if `nums = [6, 1, 7, 4, 1]` :

- Choosing to remove index 1 results in `nums = [6, 7, 4, 1]` .
- Choosing to remove index 2 results in `nums = [6, 1, 4, 1]` .
- Choosing to remove index 4 results in `nums = [6, 1, 7, 4]` .

An array is **fair** if the sum of the odd-indexed values equals the sum of the even-indexed values.

Return the **number of indices that you could choose such that after the removal, `nums` is fair** .

Example 1:

Input: nums = [2,1,6,4]
Output: 1
Explanation:
Remove index 0: [1,6,4] -> Even sum: 1 + 4 = 5. Odd sum: 6. Not Fair.
Remove index 1: [2,6,4] -> Even sum: 2 + 4 = 6. Odd sum: 6. Fair.
Remove index 2: [2,1,4] -> Even sum: 2 + 4 = 6. Odd sum: 1. Not Fair.
Remove index 3: [2,1,6] -> Even sum: 2 + 6 = 8. Odd sum: 1. Not Fair.
There is 1 index that you can remove to make nums fair.

Example 2:

Input: nums = [1,1,1]
Output: 3
Explanation: You can remove any index and the remaining array is fair.

Example 3:

Input: nums = [1,2,3]
Output: 0
Explanation: You cannot make a fair array after removing any index.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1664-Ways-to-Make-a-Fair-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1665. Minimum Initial Energy to Finish Tasks

You are given an array tasks where `tasks[i] = [actuali, minimumi]`:

- `actuali` is the actual amount of energy you **spend to finish** the i^{th} task.
- `minimumi` is the minimum amount of energy you **require to begin** the i^{th} task.

For example, if the task is `[10, 12]` and your current energy is `11`, you cannot start this task. However, if your current energy is `13`, you can complete this task, and your energy will be `3` after finishing it.

You can finish the tasks in **any order** you like.

Return *the minimum initial amount of energy you will need to finish all the tasks*.

Example 1:

Input: `tasks = [[1,2],[2,4],[4,8]]`

Output: `8`

Explanation:

Starting with `8` energy, we finish the tasks in the following order

- 3rd task. Now energy = $8 - 4 = 4$.
- 2nd task. Now energy = $4 - 2 = 2$.
- 1st task. Now energy = $2 - 1 = 1$.

Notice that even though we have leftover energy, starting with `7`

Example 2:

Input: tasks = [[1,3],[2,4],[10,11],[10,12],[8,9]]

Output: 32

Explanation:

Starting with 32 energy, we finish the tasks in the following order:

- 1st task. Now energy = 32 - 1 = 31.
- 2nd task. Now energy = 31 - 2 = 29.
- 3rd task. Now energy = 29 - 10 = 19.
- 4th task. Now energy = 19 - 10 = 9.
- 5th task. Now energy = 9 - 8 = 1.

Example 3:

Input: tasks = [[1,7],[2,8],[3,9],[4,10],[5,11],[6,12]]

Output: 27

Explanation:

Starting with 27 energy, we finish the tasks in the following order:

- 5th task. Now energy = 27 - 5 = 22.
- 2nd task. Now energy = 22 - 2 = 20.
- 3rd task. Now energy = 20 - 3 = 17.
- 1st task. Now energy = 17 - 1 = 16.
- 4th task. Now energy = 16 - 4 = 12.
- 6th task. Now energy = 12 - 6 = 6.

Constraints:

- $1 \leq \text{tasks.length} \leq 10^5$
- $1 \leq \text{actual}_{\text{task}} \leq \text{minimum}_{\text{task}} \leq 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1665-Minimum-Initial-Energy-to-Finish-Tasks](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1666. Change the Root of a Binary Tree

Given the `root` of a binary tree and a `leaf` node, reroot the tree so that the `leaf` is the new root.

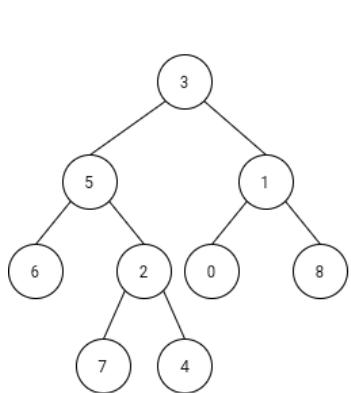
You can reroot the tree with the following steps for each node `cur` on the path **starting from the leaf up to the root** **excluding the root**:

1. If `cur` has a left child, then that child becomes `cur`'s right child. Note that it is guaranteed that `cur` will have at most one child.
2. `cur`'s original parent becomes `cur`'s left child.

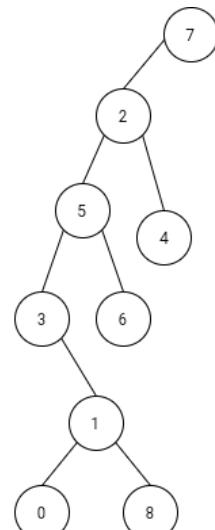
Return *the new root of the rerooted tree*.

Note: Ensure that your solution sets the `Node.parent` pointers correctly after rerooting or you will receive "Wrong Answer".

Example 1:



Before Flip



After Flip

Input: root = [3,5,1,6,2,0,8,null,null,7,4], leaf = 7
Output: [7,2,null,5,4,3,6,null,null,null,1,null,null,0,8]

Example 2:

Input: root = [3,5,1,6,2,0,8,null,null,7,4], leaf = 0
Output: [0,1,null,3,8,5,null,null,null,6,2,null,null,7,4]

Constraints:

- The number of nodes in the tree is in the range [2 , 100] .
- $-10^9 \leq \text{Node.val} \leq 10^9$
- All Node.val are **unique** .
- leaf exist in the tree.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1666-Change-the-Root-of-a-Binary-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1667. Fix Names in a Table

SQL Schema >

Table: Users

Column Name	Type
user_id	int
name	varchar

user_id is the primary key for this table.

This table contains the ID and the name of the user. The name co

Write an SQL query to fix the names so that only the first character is uppercase and the rest are lowercase.

Return the result table ordered by user_id .

The query result format is in the following example:

Users table:

user_id	name
1	aLice
2	b0B

```
+-----+-----+
Result table:
+-----+-----+
| user_id | name   |
+-----+-----+
| 1        | Alice  |
| 2        | Bob    |
+-----+-----+
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1667-Fix-Names-in-a-Table](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1668. Maximum Repeating Substring

For a string sequence , a string word is k -**repeating** if word concatenated k times is a substring of sequence . The word 's **maximum k -repeating value** is the highest value k where word is k -repeating in sequence . If word is not a substring of sequence , word 's maximum k -repeating value is 0 .

Given strings sequence and word , return *the maximum k -repeating value of word in sequence* .

Example 1:

Input: sequence = "ababc" , word = "ab"

Output: 2

Explanation: "abab" is a substring in "ababc".

Example 2:

Input: sequence = "ababc" , word = "ba"

Output: 1

Explanation: "ba" is a substring in "ababc". "baba" is not a sub

Example 3:

Input: sequence = "ababc" , word = "ac"

Output: 0

Explanation: "ac" is not a substring in "ababc".

Constraints:

- $1 \leq \text{sequence.length} \leq 100$
- $1 \leq \text{word.length} \leq 100$
- sequence and word contains only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1668-Maximum-Repeating-Substring](#)

All Problems:

[Link to All Problems](#)

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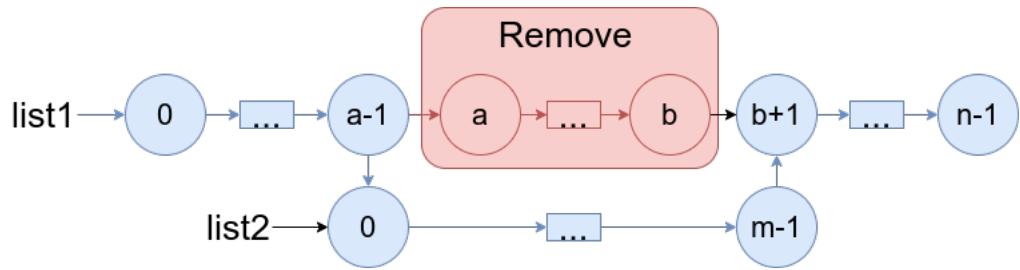
Welcome to Subscribe On Youtube:

1669. Merge In Between Linked Lists

You are given two linked lists: `list1` and `list2` of sizes n and m respectively.

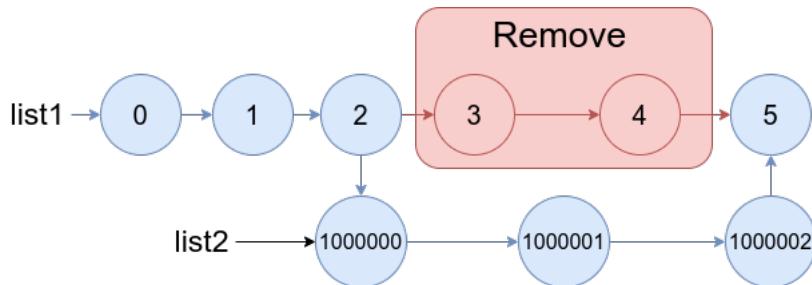
Remove `list1`'s nodes from the a^{th} node to the b^{th} node, and put `list2` in their place.

The blue edges and nodes in the following figure indicate the result:



Build the result list and return its head.

Example 1:

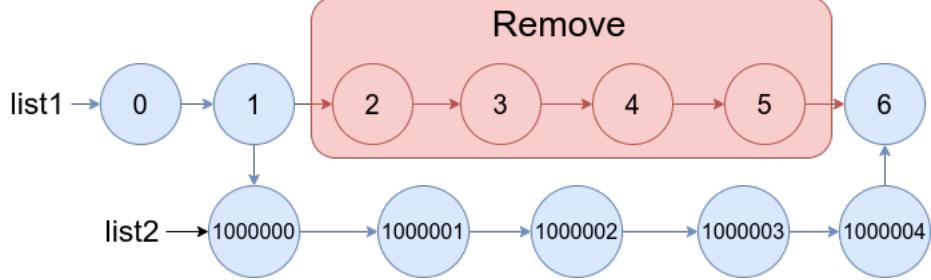


Input: list1 = [0,1,2,3,4,5], a = 3, b = 4, list2 = [1000000,1000001]

Output: [0,1,2,1000000,1000001,1000002,5]

Explanation: We remove the nodes 3 and 4 and put the entire list

Example 2:



Input: list1 = [0,1,2,3,4,5,6], a = 2, b = 5, list2 = [1000000,1000001]

Output: [0,1,1000000,1000001,1000002,1000003,1000004,6]

Explanation: The blue edges and nodes in the above figure indicate

Constraints:

- $3 \leq \text{list1.length} \leq 10^4$
- $1 \leq a \leq b < \text{list1.length} - 1$
- $1 \leq \text{list2.length} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1669-Merge-In-Between-Linked-Lists](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1670. Design Front Middle Back Queue

Design a queue that supports push and pop operations in the front, middle, and back.

Implement the `FrontMiddleBack` class:

- `FrontMiddleBack()` Initializes the queue.
- `void pushFront(int val)` Adds `val` to the **front** of the queue.

- `void pushMiddle(int val)` Adds `val` to the **middle** of the queue.
- `void pushBack(int val)` Adds `val` to the **back** of the queue.
- `int popFront()` Removes the **front** element of the queue and returns it. If the queue is empty, return `-1`.
- `int popMiddle()` Removes the **middle** element of the queue and returns it. If the queue is empty, return `-1`.
- `int popBack()` Removes the **back** element of the queue and returns it. If the queue is empty, return `-1`.

Notice that when there are **two** middle position choices, the operation is performed on the **frontmost** middle position choice. For example:

- Pushing `6` into the middle of `[1, 2, 3, 4, 5]` results in `[1, 2, 6, 3, 4, 5]`.
- Popping the middle from `[1, 2, 3, 4, 5, 6]` returns `3` and results in `[1, 2, 4, 5, 6]`.

Example 1:

Input:

```
["FrontMiddleBackQueue", "pushFront", "pushBack", "pushMiddle",
[], [1], [2], [3], [4], [], [], [], []]
```

Output:

```
[null, null, null, null, null, 1, 3, 4, 2, -1]
```

Explanation:

```
FrontMiddleBackQueue q = new FrontMiddleBackQueue();
q.pushFront(1);    // [1]
q.pushBack(2);    // [1, 2]
q.pushMiddle(3);  // [1, 3, 2]
q.pushMiddle(4);  // [1, 4, 3, 2]
q.popFront();     // return 1 -> [4, 3, 2]
q.popMiddle();    // return 3 -> [4, 2]
q.popMiddle();    // return 4 -> [2]
q.popBack();      // return 2 -> []
q.popFront();    // return -1 -> [] (The queue is empty)
```

Constraints:

- $1 \leq \text{val} \leq 10^9$
- At most 1000 calls will be made to `pushFront` , `pushMiddle` , `pushBack` , `popFront` , `popMiddle` , and `popBack` .

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1670-Design-Front-Middle-Back-Queue](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1671. Minimum Number of Removals to Make Mountain Array

You may recall that an array `arr` is a **mountain array** if and only if:

- `arr.length >= 3`
- There exists some index `i` (**0-indexed**) with `0 < i < arr.length - 1` such that:
 - `arr[0] < arr[1] < ... < arr[i - 1] < arr[i]`
 - `arr[i] > arr[i + 1] > ... > arr[arr.length - 1]`

Given an integer array `nums` , return *the minimum number of elements to remove to make `nums` a mountain array*.

Example 1:

Input: `nums = [1,3,1]`

Output: `0`

Explanation: The array itself is a mountain array so we do not need to remove any elements.

Example 2:

Input: `nums = [2,1,1,5,6,2,3,1]`

Output: `3`

Explanation: One solution is to remove the elements at indices 0, 1, and 2.

Example 3:

Input: `nums = [4,3,2,1,1,2,3,1]`

Output: `4`

Example 4:

Input: `nums = [1,2,3,4,4,3,2,1]`

Output: `1`

Constraints:

- `3 <= nums.length <= 1000`
- `1 <= nums[i] <= 109`

- It is guaranteed that you can make a mountain array out of `nums` .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1671-Minimum-Number-of-Removals-to-Make-Mountain-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1672. Richest Customer Wealth

You are given an $m \times n$ integer grid `accounts` where `accounts[i][j]` is the amount of money the i^{th} customer has in the j^{th} bank. Return *the wealth that the richest customer has*.

A customer's **wealth** is the amount of money they have in all their bank accounts. The richest customer is the customer that has the maximum **wealth**.

Example 1:

Input: `accounts = [[1,2,3],[3,2,1]]`

Output: 6

Explanation:

1st customer has wealth = $1 + 2 + 3 = 6$

2nd customer has wealth = $3 + 2 + 1 = 6$

Both customers are considered the richest with a wealth of 6 each.

Example 2:

Input: `accounts = [[1,5],[7,3],[3,5]]`

Output: 10

Explanation:

1st customer has wealth = 6

2nd customer has wealth = 10

3rd customer has wealth = 8

The 2nd customer is the richest with a wealth of 10.

Example 3:

Input: `accounts = [[2,8,7],[7,1,3],[1,9,5]]`

Output: 17

Constraints:

- $m == \text{accounts.length}$
- $n == \text{accounts[i].length}$
- $1 \leq m, n \leq 50$
- $1 \leq \text{accounts[i][j]} \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1672-Richest-Customer-Wealth](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1673. Find the Most Competitive Subsequence

Given an integer array `nums` and a positive integer `k` , return *the most competitive subsequence of `nums` of size `k`* .

An array's subsequence is a resulting sequence obtained by erasing some (possibly zero) elements from the array.

We define that a subsequence a is more **competitive** than a subsequence b (of the same length) if in the first position where a and b differ, subsequence a has a number **less** than the corresponding number in b . For example, $[1, 3, 4]$ is more competitive than $[1, 3, 5]$ because the first position they differ is at the final number, and 4 is less than 5 .

Example 1:

Input: $\text{nums} = [3, 5, 2, 6]$, $k = 2$

Output: $[2, 6]$

Explanation: Among the set of every possible subsequence: $\{[3, 5], [3, 2], [5, 2], [3, 6], [3, 5, 2], [3, 5, 6], [3, 2, 6], [5, 2, 6], [3, 5, 2, 6]\}$

Example 2:

Input: $\text{nums} = [2, 4, 3, 3, 5, 4, 9, 6]$, $k = 4$

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

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^9$
- $1 \leq k \leq \text{nums.length}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1673-Find-the-Most-Competitive-Subsequence](#)

All Problems:

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Welcome to Subscribe On Youtube:

1674. Minimum Moves to Make Array Complementary

You are given an integer array `nums` of **even** length `n` and an integer `limit`. In one move, you can replace any integer from `nums` with another integer between 1 and `limit`, inclusive.

The array `nums` is **complementary** if for all indices `i` (**0-indexed**), `nums[i] + nums[n - 1 - i]` equals the same number. For example, the array [1, 2, 3, 4] is complementary because for all indices `i`, `nums[i] + nums[n - 1 - i] = 5`.

Return the **minimum number of moves required to make** `nums` **complementary**.

Example 1:

Input: `nums = [1, 2, 4, 3]`, `limit = 4`

Output: 1

Explanation: In 1 move, you can change `nums` to [1, 2, 2, 3] (underlined)

$\text{nums}[0] + \text{nums}[3] = 1 + 3 = 4$.

$\text{nums}[1] + \text{nums}[2] = 2 + 2 = 4$.

$\text{nums}[2] + \text{nums}[1] = 2 + 2 = 4$.

$\text{nums}[3] + \text{nums}[0] = 3 + 1 = 4$.

Therefore, $\text{nums}[i] + \text{nums}[n-1-i] = 4$ for every `i`, so `nums` is comp

Example 2:

Input: nums = [1,2,2,1], limit = 2

Output: 2

Explanation: In 2 moves, you can change nums to [2,2,2,2]. You can

Example 3:

Input: nums = [1,2,1,2], limit = 2

Output: 0

Explanation: nums is already complementary.

Constraints:

- $n == \text{nums.length}$
- $2 \leq n \leq 10^5$
- $1 \leq \text{nums}[i] \leq \text{limit} \leq 10^5$
- n is even.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1674-Minimum-Moves-to-Make-Array-Complementary](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1675. Minimize Deviation in Array

You are given an array `nums` of n positive integers.

You can perform two types of operations on any element of the array any number of times:

- If the element is **even**, **divide** it by 2 .
 - For example, if the array is [1, 2, 3, 4] , then you can do this operation on the last element, and the array will be [1, 2, 3, 2] .
- If the element is **odd**, **multiply** it by 2 .
 - For example, if the array is [1, 2, 3, 4] , then you can do this operation on the first element, and the array will be [2, 2, 3, 4] .

The **deviation** of the array is the **maximum difference** between any two elements in the array.

Return *the minimum deviation the array can have after performing some number of operations.*

Example 1:

Input: `nums` = [1, 2, 3, 4]

Output: 1

Explanation: You can transform the array to [1, 2, 3, 2] , then to [

Example 2:

Input: `nums` = [4, 1, 5, 20, 3]

Output: 3

Explanation: You can transform the array after two operations to

Example 3:

Input: nums = [2,10,8]
Output: 3

Constraints:

- $n == \text{nums.length}$
- $2 \leq n \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1675-Minimize-Deviation-in-Array](#)

All Problems:

[Link to All Problems](#)

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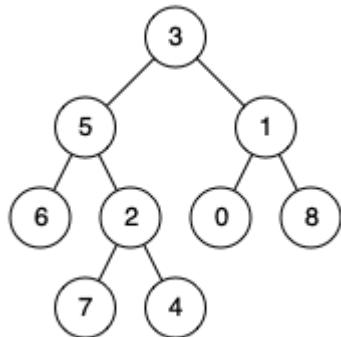
1676. Lowest Common Ancestor of a Binary Tree

IV

Given the root of a binary tree and an array of `TreeNode` objects `nodes`, return *the lowest common ancestor (LCA) of all the nodes in nodes*. All the nodes will exist in the tree, and all values of the tree's nodes are **unique**.

Extending the [definition of LCA on Wikipedia](#): "The lowest common ancestor of n nodes p_1, p_2, \dots, p_n in a binary tree T is the lowest node that has every p_i as a **descendant** (where we allow a node to be a descendant of itself) for every valid i ". A **descendant** of a node x is a node y that is on the path from node x to some leaf node.

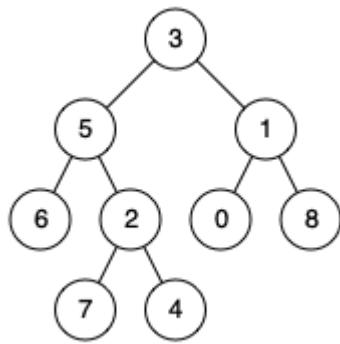
Example 1:



Input: `root = [3,5,1,6,2,0,8,null,null,7,4]`, `nodes = [4,7]`
Output: 2

Explanation: The lowest common ancestor of nodes 4 and 7 is node 2.

Example 2:

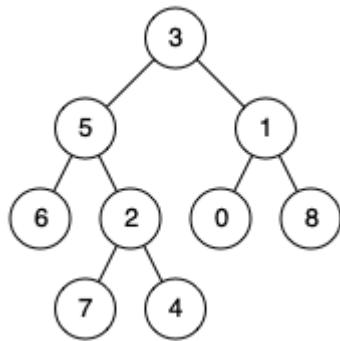


Input: root = [3,5,1,6,2,0,8,null,null,7,4], nodes = [1]

Output: 1

Explanation: The lowest common ancestor of a single node is the node itself.

Example 3:

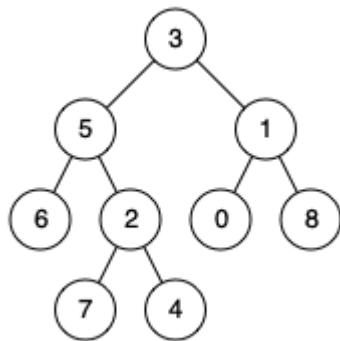


Input: root = [3,5,1,6,2,0,8,null,null,7,4], nodes = [7,6,2,4]

Output: 5

Explanation: The lowest common ancestor of the nodes 7, 6, 2, and 4 is the node 5.

Example 4:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], nodes = [0,1,2,3,4]

Output: 3

Explanation: The lowest common ancestor of all the nodes is the root node 3.

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- $-10^9 \leq \text{Node.val} \leq 10^9$
- All `Node.val` are **unique**.
- All `nodes[i]` will exist in the tree.
- All `nodes[i]` are distinct.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1676-Lowest-Common-Ancestor-of-a-Binary-Tree-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1677. Product's Worth Over Invoices

[SQL Schema](#) >

Table: Product

Column Name	Type
product_id	int
name	varchar

product_id is the primary key for this table.

This table contains the ID and the name of the product. The name

Table: Invoice

Column Name	Type
invoice_id	int
product_id	int
rest	int
paid	int
canceled	int
refunded	int

invoice_id is the primary key for this table and the id of this product_id is the id of the product for this invoice.

rest is the amount left to pay for this invoice.

paid is the amount paid for this invoice.

canceled is the amount canceled for this invoice.

refunded is the amount refunded for this invoice.

Write an SQL query that will, for all products, return each product name with total amount due, paid, canceled, and refunded across all invoices.

Return the result table ordered by product_name .

The query result format is in the following example:

Product table:

product_id	name
0	ham
1	bacon

Invoice table:

invoice_id	product_id	rest	paid	canceled	refunded	
23	0	2	0	5	0	
12	0	0	4	0	3	
1	1	1	1	0	1	
2	1	1	0	1	1	
3	1	0	1	1	1	
4	1	1	1	1	0	

Result table:

name	rest	paid	canceled	refunded
bacon	3	3	3	3
ham	2	4	5	3

- The amount of money left to pay for bacon is $1 + 1 + 0 + 1 = 3$
- The amount of money paid for bacon is $1 + 0 + 1 + 1 = 3$
- The amount of money canceled for bacon is $0 + 1 + 1 + 1 = 3$
- The amount of money refunded for bacon is $1 + 1 + 1 + 0 = 3$
- The amount of money left to pay for ham is $2 + 0 = 2$
- The amount of money paid for ham is $0 + 4 = 4$
- The amount of money canceled for ham is $5 + 0 = 5$
- The amount of money refunded for ham is $0 + 3 = 3$

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1677-Product's-Worth-Over-Invoices](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1678. Goal Parser Interpretation

You own a **Goal Parser** that can interpret a string command . The command consists of an alphabet of "G" , "()" and/or "(al)" in some order. The Goal Parser will interpret "G" as the string "G" , "()" as the string "o" , and "(al)" as the string "al" . The interpreted strings are then concatenated in the original order.

Given the string command , return *the Goal Parser 's interpretation of command* .

Example 1:

Input: command = "G()(al)"
Output: "Goal"

Explanation: The Goal Parser interprets the command as follows:

G -> G
() -> o
(al) -> al

The final concatenated result is "Goal".

Example 2:

Input: command = "G()()()()(al)"
Output: "Gooooal"

Example 3:

Input: command = "(al)G(al)()()G"
Output: "alGalooG"

Constraints:

- $1 \leq \text{command.length} \leq 100$
- `command` consists of "G" , "()" , and/or "(al)" in some order.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1678-Goal-Parser-Interpretation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1679. Max Number of K-Sum Pairs

You are given an integer array `nums` and an integer `k`.

In one operation, you can pick two numbers from the array whose sum equals `k` and remove them from the array.

Return *the maximum number of operations you can perform on the array*.

Example 1:

Input: `nums = [1,2,3,4]`, `k = 5`

Output: 2

Explanation: Starting with `nums = [1,2,3,4]`:

- Remove numbers 1 and 4, then `nums = [2,3]`
- Remove numbers 2 and 3, then `nums = []`

There are no more pairs that sum up to 5, hence a total of 2 operations.

Example 2:

Input: `nums = [3,1,3,4,3]`, `k = 6`

Output: 1

Explanation: Starting with `nums = [3,1,3,4,3]`:

- Remove the first two 3's, then `nums = [1,4,3]`

There are no more pairs that sum up to 6, hence a total of 1 operation.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$
- $1 \leq k \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1679-Max-Number-of-K-Sum-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1680. Concatenation of Consecutive Binary Numbers

Given an integer n , return the **decimal value of the binary string formed by concatenating the binary representations of 1 to n in order, modulo $10^9 + 7$** .

Example 1:

Input: $n = 1$

Output: 1

Explanation: "1" in binary corresponds to the decimal value 1.

Example 2:

Input: $n = 3$

Output: 27

Explanation: In binary, 1, 2, and 3 corresponds to "1", "10", and After concatenating them, we have "11011", which corresponds to

Example 3:

Input: n = 12
Output: 505379714
Explanation: The concatenation results in "110111001011101111000
The decimal value of that is 118505380540.
After modulo $10^9 + 7$, the result is 505379714.

Constraints:

- $1 \leq n \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1680-Concatenation-of-Consecutive-Binary-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1681. Minimum Incompatibility

You are given an integer array `nums` and an integer `k`. You are asked to distribute this array into `k` subsets of **equal size** such that there are no two equal elements in the same subset.

A subset's **incompatibility** is the difference between the maximum and minimum elements in that array.

Return *the minimum possible sum of incompatibilities of the k subsets after distributing the array optimally, or return -1 if it is not possible.*

A subset is a group integers that appear in the array with no particular order.

Example 1:

Input: `nums = [1,2,1,4]`, `k = 2`

Output: 4

Explanation: The optimal distribution of subsets is `[1,2]` and `[1,4]`. The incompatibility is $(2-1) + (4-1) = 4$.

Note that `[1,1]` and `[2,4]` would result in a smaller sum, but the

Example 2:

Input: `nums = [6,3,8,1,3,1,2,2]`, `k = 4`

Output: 6

Explanation: The optimal distribution of subsets is `[1,2]`, `[2,3]`, `[6,8]` and `[3,1]`. The incompatibility is $(2-1) + (3-2) + (8-6) + (3-1) = 6$.

Example 3:

Input: `nums = [5,3,3,6,3,3]`, `k = 3`

Output: -1

Explanation: It is impossible to distribute `nums` into 3 subsets

Constraints:

- $1 \leq k \leq \text{nums.length} \leq 16$
- `nums.length` is divisible by `k`
- $1 \leq \text{nums}[i] \leq \text{nums.length}$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**1681-Minimum-Incompatibility**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1682. Longest Palindromic Subsequence II

A subsequence of a string s is considered a **good palindromic subsequence** if:

- It is a subsequence of s .
- It is a palindrome (has the same value if reversed).

- It has an **even** length.
- No two consecutive characters are equal, except the two middle ones.

For example, if $s = "abcabcabb"$, then "abba" is considered a **good palindromic subsequence** , while "bcb" (not even length) and "bbbb" (has equal consecutive characters) are not.

Given a string s , return *the length of the longest good palindromic subsequence in s* .

Example 1:

Input: $s = "bbbabab"$

Output: 4

Explanation: The longest good palindromic subsequence of s is "babab" .

Example 2:

Input: $s = "dcbccacdb"$

Output: 4

Explanation: The longest good palindromic subsequence of s is "dcbbdc" .

Constraints:

- $1 \leq s.length \leq 250$
- s consists of lowercase English letters.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1682-Longest-Palindromic-Subsequence-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1683. Invalid Tweets

SQL Schema >

Table: Tweets

Column Name	Type
tweet_id	int
content	varchar

tweet_id is the primary key for this table.
This table contains all the tweets in a social media app.

Write an SQL query to find the IDs of the invalid tweets.
The tweet is invalid if the number of characters used in
the content of the tweet is **strictly greater** than 15 .

Return the result table **in any order** .

The query result format is in the following example:

Tweets table:

tweet_id	content
1	Vote for Biden

```
| 2           | Let us make America great again! |
+-----+-----+
Result table:
+-----+
| tweet_id |
+-----+
| 2         |
+-----+
Tweet 1 has length = 14. It is a valid tweet.
Tweet 2 has length = 32. It is an invalid tweet.
```

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1683-Invalid-Tweets](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1684. Count the Number of Consistent Strings

You are given a string `allowed` consisting of **distinct** characters and an array of strings `words`. A string is **consistent** if all characters in the string appear in the string `allowed`.

Return *the number of consistent strings in the array words*.

Example 1:

Input: `allowed` = "ab", `words` = ["ad", "bd", "aaab", "baa", "badab"]
Output: 2
Explanation: Strings "aaab" and "baa" are consistent since they contain only characters 'a' and 'b'.

Example 2:

Input: `allowed` = "abc", `words` = ["a", "b", "c", "ab", "ac", "bc", "abc"]
Output: 7
Explanation: All strings are consistent.

Example 3:

Input: `allowed` = "cad", `words` = ["cc", "acd", "b", "ba", "bac", "bad"]
Output: 4
Explanation: Strings "cc", "acd", "ac", and "d" are consistent.

Constraints:

- $1 \leq \text{words.length} \leq 10^4$
- $1 \leq \text{allowed.length} \leq 26$
- $1 \leq \text{words[i].length} \leq 10$
- The characters in `allowed` are **distinct**.
- `words[i]` and `allowed` contain only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1684-Count-the-Number-of-Consistent-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1685. Sum of Absolute Differences in a Sorted Array

You are given an integer array `nums` sorted in **non-decreasing** order.

Build and return *an integer array result with the same length as nums such that result[i] is equal to the summation of absolute differences between nums[i] and all the other elements in the array.*

In other words, `result[i]` is equal to `sum(|nums[i] - nums[j]|)` where $0 \leq j < \text{nums.length}$ and $j \neq i$ (**0-indexed**).

Example 1:

Input: `nums = [2,3,5]`

Output: `[4,3,5]`

Explanation: Assuming the arrays are 0-indexed, then
 $\text{result}[0] = |2-2| + |2-3| + |2-5| = 0 + 1 + 3 = 4$,
 $\text{result}[1] = |3-2| + |3-3| + |3-5| = 1 + 0 + 2 = 3$,
 $\text{result}[2] = |5-2| + |5-3| + |5-5| = 3 + 2 + 0 = 5$.

Example 2:

Input: `nums = [1,4,6,8,10]`

Output: `[24,15,13,15,21]`

Constraints:

- $2 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq \text{nums}[i + 1] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1685-Sum-of-Absolute-Differences-in-a-Sorted-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1686. Stone Game VI

Alice and Bob take turns playing a game, with Alice starting first.

There are n stones in a pile. On each player's turn, they can **remove** a stone from the pile and receive points based on the stone's value. Alice and Bob may **value the stones differently**.

You are given two integer arrays of length n , `aliceValues` and `bobValues`. Each `aliceValues[i]` and `bobValues[i]` represents how Alice and Bob, respectively, value the i^{th} stone.

The winner is the person with the most points after all the stones are chosen. If both players have the same amount of points, the game results in a draw. Both players will play **optimally**.

Determine the result of the game, and:

- If Alice wins, return 1.
- If Bob wins, return -1.
- If the game results in a draw, return 0.

Example 1:

Input: `aliceValues = [1,3]`, `bobValues = [2,1]`
Output: 1

Explanation:

If Alice takes stone 1 (0-indexed) first, Alice will receive 3 points.
Bob can only choose stone 0, and will only receive 2 points.
Alice wins.

Example 2:

Input: aliceValues = [1,2] , bobValues = [3,1]

Output: 0

Explanation:

If Alice takes stone 0, and Bob takes stone 1, they will both have 1 point.
Draw.

Example 3:

Input: aliceValues = [2,4,3] , bobValues = [1,6,7]

Output: -1

Explanation:

Regardless of how Alice plays, Bob will be able to have more points.
For example, if Alice takes stone 1, Bob can take stone 2, and Alice takes stone 3.
Bob wins.

Constraints:

- $n == \text{aliceValues.length} == \text{bobValues.length}$
- $1 \leq n \leq 10^5$
- $1 \leq \text{aliceValues}[i], \text{bobValues}[i] \leq 100$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1686-Stone-Game-VI](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1687. Delivering Boxes from Storage to Ports

You have the task of delivering some boxes from storage to their ports using only one ship. However, this ship has a **limit** on the **number of boxes** and the **total weight** that it can carry.

You are given an array `boxes` , where `boxes[i] = [portsi, weightsi]` , and three integers `portsCount` , `maxBoxes` , and `maxWeight` .

- `portsi` is the port where you need to deliver the i^{th} box and `weightsi` is the weight of the i^{th} box.
- `portsCount` is the number of ports.
- `maxBoxes` and `maxWeight` are the respective box and weight limits of the ship.

The boxes need to be delivered **in the order they are given** . The ship will follow these steps:

- The ship will take some number of boxes from the `boxes` queue, not violating the `maxBoxes` and `maxWeight` constraints.
- For each loaded box **in order** , the ship will make a **trip** to the port the box needs to be delivered to and deliver it. If the ship is already at the correct port, no **trip** is needed, and the box can immediately be delivered.
- The ship then makes a return **trip** to storage to take more boxes from the queue.

The ship must end at storage after all the boxes have been delivered.

Return *the minimum number of trips the ship needs to make to deliver all boxes to their respective ports*.

Example 1:

Input: boxes = [[1,1],[2,1],[1,1]], portsCount = 2, maxBoxes = 3
Output: 4

Explanation: The optimal strategy is as follows:

- The ship takes all the boxes in the queue, goes to port 1, then storage. 2
- So the total number of trips is 4.

Note that the first and third boxes cannot be delivered together.

Example 2:

Input: boxes = [[1,2],[3,3],[3,1],[3,1],[2,4]], portsCount = 3, maxBoxes = 3
Output: 6

Explanation: The optimal strategy is as follows:

- The ship takes the first box, goes to port 1, then returns to storage. 2
- The ship takes the second, third and fourth boxes, goes to port 2, then returns to storage. 2
- The ship takes the fifth box, goes to port 3, then returns to storage. 2
- So the total number of trips is $2 + 2 + 2 = 6$.

Example 3:

Input: boxes = [[1,4],[1,2],[2,1],[2,1],[3,2],[3,4]], portsCount = 3, maxBoxes = 3
Output: 6

Explanation: The optimal strategy is as follows:

- The ship takes the first and second boxes, goes to port 1, then returns to storage. 2
- The ship takes the third and fourth boxes, goes to port 2, then returns to storage. 2
- The ship takes the fifth and sixth boxes, goes to port 3, then returns to storage. 2
- So the total number of trips is $2 + 2 + 2 = 6$.

Example 4:

Input: boxes = [[2,4],[2,5],[3,1],[3,2],[3,7],[3,1],[4,4],[1,3],[2,1],[3,1]], portsCount = 3, maxBoxes = 3
Output: 14

Explanation: The optimal strategy is as follows:

- The ship takes the first box, goes to port 2, then storage. 2
- The ship takes the second box, goes to port 2, then storage. 2
- The ship takes the third and fourth boxes, goes to port 3, then storage. 2
- The ship takes the fifth box, goes to port 3, then storage. 2
- The ship takes the sixth and seventh boxes, goes to port 3, then storage. 2
- The ship takes the eighth and ninth boxes, goes to port 1, then storage. 3
- So the total number of trips is $2 + 2 + 2 + 2 + 3 + 3 = 14$.

Constraints:

- $1 \leq \text{boxes.length} \leq 10^5$

- $1 \leq \text{portsCount}, \text{maxBoxes}, \text{maxWeight} \leq 10^5$
- $1 \leq \text{ports}_i \leq \text{portsCount}$
- $1 \leq \text{weights}_i \leq \text{maxWeight}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1687-Delivering-Boxes-from-Storage-to-Ports](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1688. Count of Matches in Tournament

You are given an integer n , the number of teams in a tournament that has strange rules:

- If the current number of teams is **even**, each team gets paired with another team. A total of $n / 2$ matches are played, and $n / 2$ teams advance to the next round.
- If the current number of teams is **odd**, one team randomly advances in the tournament, and the rest gets paired. A total of $(n - 1) / 2$ matches are played, and $(n - 1) / 2 + 1$ teams advance to the next round.

Return *the number of matches played in the tournament until a winner is decided.*

Example 1:

Input: $n = 7$

Output: 6

Explanation: Details of the tournament:

- 1st Round: Teams = 7, Matches = 3, and 4 teams advance.
 - 2nd Round: Teams = 4, Matches = 2, and 2 teams advance.
 - 3rd Round: Teams = 2, Matches = 1, and 1 team is declared the winner.
- Total number of matches = $3 + 2 + 1 = 6$.

Example 2:

Input: $n = 14$

Output: 13

Explanation: Details of the tournament:

- 1st Round: Teams = 14, Matches = 7, and 7 teams advance.
 - 2nd Round: Teams = 7, Matches = 3, and 4 teams advance.
 - 3rd Round: Teams = 4, Matches = 2, and 2 teams advance.
 - 4th Round: Teams = 2, Matches = 1, and 1 team is declared the winner.
- Total number of matches = $7 + 3 + 2 + 1 = 13$.

Constraints:

- $1 \leq n \leq 200$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1688-Count-of-Matches-in-Tournament](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1689. Partitioning Into Minimum Number Of Deci-Binary Numbers

A decimal number is called **deci-binary** if each of its digits is either 0 or 1 without any leading zeros. For example, 101 and 1100 are **deci-binary**, while 112 and 3001 are not.

Given a string n that represents a positive decimal integer, return *the minimum number of positive deci-binary numbers needed so that they sum up to n* .

Example 1:

Input: $n = "32"$

Output: 3

Explanation: $10 + 11 + 11 = 32$

Example 2:

Input: $n = "82734"$

Output: 8

Example 3:

Input: $n = "27346209830709182346"$

Output: 9

Constraints:

- $1 \leq n.length \leq 10^5$
- n consists of only digits.
- n does not contain any leading zeros and represents a positive integer.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1689-Partitioning-Into-Minimum-Number-Of-Deci-Binary-Numbers](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1690. Stone Game VII

Alice and Bob take turns playing a game, with **Alice starting first**.

There are n stones arranged in a row. On each player's turn, they can **remove** either the leftmost stone or the rightmost stone from the row and receive points equal to the **sum** of the remaining stones' values in the row. The winner is the one with the higher score when there are no stones left to remove.

Bob found that he will always lose this game (poor Bob, he always loses), so he decided to **minimize the score's difference**. Alice's goal is to **maximize the difference** in the score.

Given an array of integers `stones` where `stones[i]` represents the value of the i^{th} stone **from the left**, return *the difference in Alice and Bob's score if they both play optimally*.

Example 1:

Input: `stones = [5,3,1,4,2]`

Output: 6

Explanation:

- Alice removes 2 and gets $5 + 3 + 1 + 4 = 13$ points. Alice = 13
- Bob removes 5 and gets $3 + 1 + 4 = 8$ points. Alice = 13, Bob = 8
- Alice removes 3 and gets $1 + 4 = 5$ points. Alice = 18, Bob = 8

- Bob removes 1 and gets 4 points. Alice = 18, Bob = 12, stones = [7, 90, 5, 1, 100, 10, 10, 2]
 - Alice removes 4 and gets 0 points. Alice = 18, Bob = 12, stones = [7, 90, 5, 1, 100, 10, 10, 2]
- The score difference is 18 - 12 = 6.

Example 2:

Input: stones = [7, 90, 5, 1, 100, 10, 10, 2]
Output: 122

Constraints:

- $n == \text{stones.length}$
- $2 \leq n \leq 1000$
- $1 \leq \text{stones}[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1690-Stone-Game-VII](#)

All Problems:

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Welcome to Subscribe On Youtube:

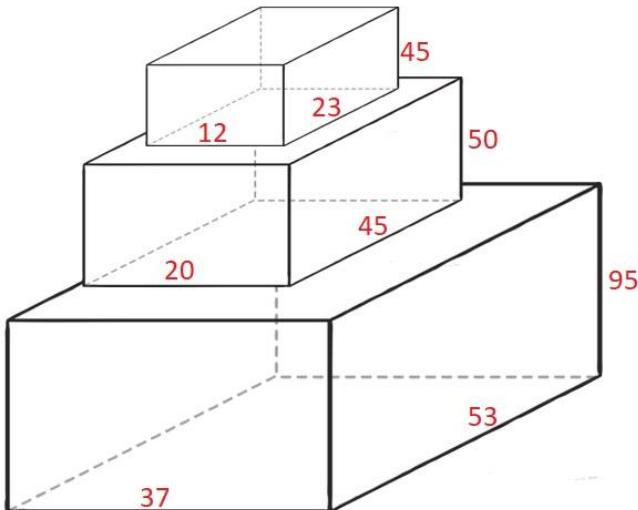
1691. Maximum Height by Stacking Cuboids

Given n cuboids where the dimensions of the i^{th} cuboid is $\text{cuboids}[i] = [\text{width}_i, \text{length}_i, \text{height}_i]$ (**0-indexed**). Choose a **subset** of cuboids and place them on each other.

You can place cuboid i on cuboid j if $\text{width}_i \leq \text{width}_j$ and $\text{length}_i \leq \text{length}_j$ and $\text{height}_i \leq \text{height}_j$. You can rearrange any cuboid's dimensions by rotating it to put it on another cuboid.

Return *the maximum height of the stacked cuboids*.

Example 1:



Input: $\text{cuboids} = [[50, 45, 20], [95, 37, 53], [45, 23, 12]]$

Output: 190

Explanation:

Cuboid 1 is placed on the bottom with the 53×37 side facing down

Cuboid 0 is placed next with the 45×20 side facing down with hei

Cuboid 2 is placed next with the 23×12 side facing down with hei

The total height is $95 + 50 + 45 = 190$.

Example 2:

Input: cuboids = [[38,25,45],[76,35,3]]

Output: 76

Explanation:

You can't place any of the cuboids on the other.

We choose cuboid 1 and rotate it so that the 35x3 side is facing

Example 3:

Input: cuboids = [[7,11,17],[7,17,11],[11,7,17],[11,17,7],[17,7,

Output: 102

Explanation:

After rearranging the cuboids, you can see that all cuboids have

You can place the 11x7 side down on all cuboids so their heights

The maximum height of stacked cuboids is $6 * 17 = 102$.

Constraints:

- $n == \text{cuboids.length}$
- $1 \leq n \leq 100$
- $1 \leq \text{width}_i, \text{length}_i, \text{height}_i \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1691-Maximum-Height-by-Stacking-Cuboids](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1692. Count Ways to Distribute Candies

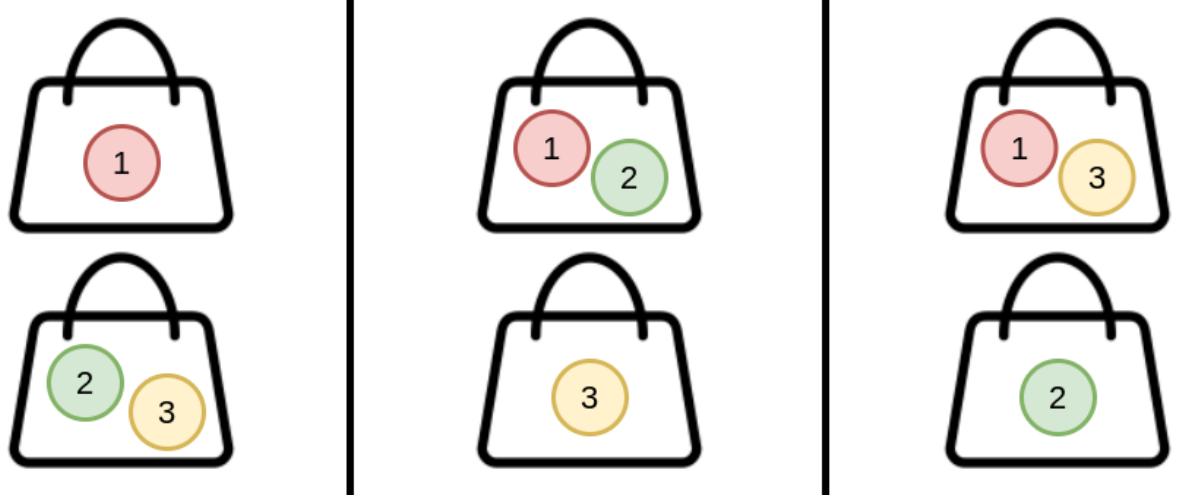
There are n **unique** candies (labeled 1 through n) and k bags. You are asked to distribute **all** the candies into the bags such that every bag has **at least** one candy.

There can be multiple ways to distribute the candies. Two ways are considered **different** if the candies in one bag in the first way are not all in the same bag in the second way. The order of the bags and the order of the candies within each bag do not matter.

For example, (1), (2, 3) and (2), (1, 3) are considered different because candies 2 and 3 in the bag (2, 3) in the first way are not in the same bag in the second way (they are split between the bags (2) and (1, 3)). However, (1), (2, 3) and (3, 2), (1) are considered the same because the candies in each bag are all in the same bags in both ways.

Given two integers, n and k , return *the number of different ways to distribute the candies*. As the answer may be too large, return it **modulo** $10^9 + 7$.

Example 1:



Input: $n = 3$, $k = 2$

Output: 3

Explanation: You can distribute 3 candies into 2 bags in 3 ways:

(1), (2,3)

(1,2), (3)

(1,3), (2)

Example 2:

Input: $n = 4$, $k = 2$

Output: 6

Explanation: You can distribute 4 candies into 2 bags in 7 ways:

(1), (2,3,4)

(1,2), (3,4)

(1,3), (2,4)

(1,4), (2,3)

(1,2,3), (4)

(1,2,4), (3)

(1,3,4), (2)

Example 3:

Input: $n = 20$, $k = 5$

Output: 206085257

Explanation: You can distribute 20 candies into 5 bags in 188178 ways.

Constraints:

- $1 \leq k \leq n \leq 1000$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1692-Count-Ways-to-Distribute-Candies](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1693. Daily Leads and Partners

SQL Schema >

Table: DailySales

Column Name	Type
date_id	date
make_name	varchar
lead_id	int
partner_id	int

This table does not have a primary key.

This table contains the date and the name of the product sold and The name consists of only lowercase English letters.

Write an SQL query that will, for each `date_id` and `make_name`, return the number of **distinct** `lead_id`'s and **distinct** `partner_id`'s.

Return the result table in any order.

The query result format is in the following example:

`DailySales` table:

<code>date_id</code>	<code>make_name</code>	<code>lead_id</code>	<code>partner_id</code>
2020-12-8	toyota	0	1
2020-12-8	toyota	1	0
2020-12-8	toyota	1	2
2020-12-7	toyota	0	2
2020-12-7	toyota	0	1
2020-12-8	honda	1	2
2020-12-8	honda	2	1
2020-12-7	honda	0	1
2020-12-7	honda	1	2
2020-12-7	honda	2	1

Result table:

<code>date_id</code>	<code>make_name</code>	<code>unique_leads</code>	<code>unique_partners</code>
2020-12-8	toyota	2	3
2020-12-7	toyota	1	2
2020-12-8	honda	2	2
2020-12-7	honda	3	2

For 2020-12-8, toyota gets leads = [0, 1] and partners = [0, 1, 2]

For 2020-12-7, toyota gets leads = [0] and partners = [1, 2] while

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1693-Daily-Leads-and-Partners](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1694. Reformat Phone Number

You are given a phone number as a string `number`.
`number` consists of digits, spaces ' ', and/or dashes '-'.

You would like to reformat the phone number in a certain manner. Firstly, **remove** all spaces and dashes. Then, **group** the digits from left to right into blocks of length 3 **until** there are 4 or fewer digits. The final digits are then grouped as follows:

- 2 digits: A single block of length 2.
- 3 digits: A single block of length 3.
- 4 digits: Two blocks of length 2 each.

The blocks are then joined by dashes. Notice that the reformatting process should **never** produce any blocks of length 1 and produce **at most** two blocks of length 2.

Return *the phone number after formatting*.

Example 1:

Input: number = "1-23-45 6"
Output: "123-456"
Explanation: The digits are "123456".
Step 1: There are more than 4 digits, so group the next 3 digits
Step 2: There are 3 digits remaining, so put them in a single block
Joining the blocks gives "123-456".

Example 2:

Input: number = "123 4-567"
Output: "123-45-67"
Explanation: The digits are "1234567".
Step 1: There are more than 4 digits, so group the next 3 digits
Step 2: There are 4 digits left, so split them into two blocks of 2 digits each
Joining the blocks gives "123-45-67".

Example 3:

Input: number = "123 4-5678"
Output: "123-456-78"
Explanation: The digits are "12345678".
Step 1: The 1st block is "123".
Step 2: The 2nd block is "456".
Step 3: There are 2 digits left, so put them in a single block of 2 digits.
Joining the blocks gives "123-456-78".

Example 4:

Input: number = "12"
Output: "12"

Example 5:

Input: number = "--17-5 229 35-39475 "
Output: "175-229-353-94-75"

Constraints:

- $2 \leq \text{number.length} \leq 100$
- number consists of digits and the characters '-' and '.'.
- There are at least **two** digits in number .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1694-Reformat-Phone-Number](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1695. Maximum Erasure Value

You are given an array of positive integers `nums` and want to erase a subarray containing **unique elements**. The **score** you get by erasing the subarray is equal to the **sum** of its elements.

Return *the maximum score you can get by erasing exactly one subarray*.

An array `b` is called to be a subarray of `a` if it forms a contiguous subsequence of `a`, that is, if it is equal to `a[l], a[l+1], ..., a[r]` for some (l, r) .

Example 1:

Input: nums = [4,2,4,5,6]
Output: 17
Explanation: The optimal subarray here is [2,4,5,6].

Example 2:

Input: nums = [5,2,1,2,5,2,1,2,5]
Output: 8
Explanation: The optimal subarray here is [5,2,1] or [1,2,5].

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums[i]} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1695-Maximum-Erasure-Value](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1696. Jump Game VI

You are given a **0-indexed** integer array `nums` and an integer `k`.

You are initially standing at index `0`. In one move, you can jump at most `k` steps forward without going outside the boundaries of the array. That is, you can jump from index `i` to any index in the range `[i + 1, min(n - 1, i + k)] inclusive`.

You want to reach the last index of the array (index `n - 1`). Your **score** is the **sum** of all `nums[j]` for each index `j` you visited in the array.

Return *the maximum score you can get*.

Example 1:

Input: `nums = [1, -1, -2, 4, -7, 3]`, `k = 2`
Output: 7

Explanation: You can choose your jumps forming the subsequence [

Example 2:

Input: `nums = [10, -5, -2, 4, 0, 3]`, `k = 3`
Output: 17

Explanation: You can choose your jumps forming the subsequence [

Example 3:

Input: `nums = [1, -5, -20, 4, -1, 3, -6, -3]`, `k = 2`
Output: 0

Constraints:

- $1 \leq \text{nums.length}, k \leq 10^5$
- $-10^4 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1696-Jump-Game-VI](#)

All Problems:

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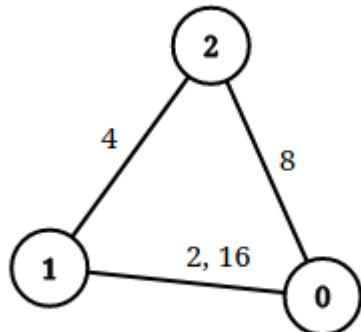
1697. Checking Existence of Edge Length Limited Paths

An undirected graph of n nodes is defined by `edgeList`, where `edgeList[i] = [ui, vi, disi]` denotes an edge between nodes u_i and v_i with distance dis_i . Note that there may be **multiple** edges between two nodes.

Given an array `queries` , where `queries[j] = [pj , qj , limitj]` , your task is to determine for each `queries[j]` whether there is a path between p_j and q_j such that each edge on the path has a distance **strictly less than** limit_j .

Return a **boolean array** `answer` , where `answer.length == queries.length` and the jth value of `answer` is true if there is a path for `queries[j]` is true , and false otherwise .

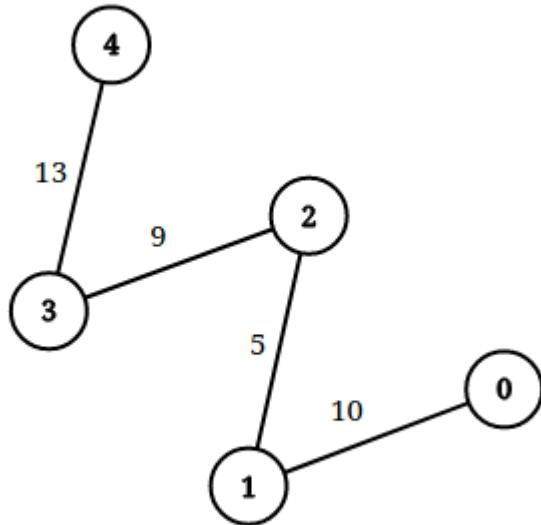
Example 1:



Input: n = 3, edgeList = [[0,1,2],[1,2,4],[2,0,8],[1,0,16]], queries[[0,1,4],[1,0,16]]
Output: [false,true]

Explanation: The above figure shows the given graph. Note that the edges are weighted. For the first query, between 0 and 1 there is no path where each edge's weight is strictly less than 4. For the second query, there is a path (0 -> 1 -> 2) of two edges.

Example 2:



Input: $n = 5$, $\text{edgeList} = [[0,1,10], [1,2,5], [2,3,9], [3,4,13]]$, $\text{queries} = [[0,1,10], [1,2,5], [2,3,9], [3,4,13]]$

Output: [true, false]

Explanation: The above figure shows the given graph.

Constraints:

- $2 \leq n \leq 10^5$
- $1 \leq \text{edgeList.length}, \text{queries.length} \leq 10^5$
- $\text{edgeList}[i].length == 3$
- $\text{queries}[j].length == 3$
- $0 \leq u_i, v_i, p_j, q_j \leq n - 1$
- $u_i \neq v_i$
- $p_j \neq q_j$
- $1 \leq \text{dis}_i, \text{limit}_j \leq 10^9$
- There may be **multiple** edges between two nodes.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1697-Checking-Existence-of-Edge-Length-Limited-Paths](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1698. Number of Distinct Substrings in a String

Given a string s , return *the number of distinct substrings of s* .

A **substring** of a string is obtained by deleting any number of characters (possibly zero) from the front of the string and any number (possibly zero) from the back of the string.

Example 1:

Input: s = "aabbaba"

Output: 21

Explanation: The set of distinct strings is ["a", "b", "aa", "bb", "ab", "ba"].

Example 2:

Input: s = "abcdefg"

Output: 28

Constraints:

- $1 \leq s.length \leq 500$
 - s consists of lowercase English letters.

Follow up: Can you solve this problem in $O(n)$ time complexity?

Hints:

Hint 1

Calculate the prefix hashing array for s.

Hint 2

Use the prefix hashing array to calculate the hashing value of each substring.

Hint 3

Compare the hashing values to determine the unique substrings.

Hint 4

There could be collisions if you use hashing, what about double hashing.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1698-Number-of-Distinct-Substrings-in-a-String](#)

All Problems:

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Welcome to Subscribe On Youtube:

1699. Number of Calls Between Two Persons

SQL Schema >

Table: Calls

Column Name	Type
from_id	int
to_id	int
duration	int

This table does not have a primary key, it may contain duplicates.
This table contains the duration of a phone call between from_id
from_id != to_id

Write an SQL query to report the number of calls and the total call duration between each pair of distinct persons (person1, person2) where person1 < person2 .

Return the result table in any order.

The query result format is in the following example:

Calls table:

from_id	to_id	duration
1	2	59
2	1	11
1	3	20
3	4	100
3	4	200
3	4	200
4	3	499

Result table:

person1	person2	call_count	total_duration
1	2	2	70
1	3	1	20
3	4	4	999

Users 1 and 2 had 2 calls and the total duration is 70 (59 + 11)

Users 1 and 3 had 1 call and the total duration is 20.

Users 3 and 4 had 4 calls and the total duration is 999 (100 + 200 + 200 + 499)

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1699-Number-of-Calls-Between-Two-Persons](#)

All Problems:

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Welcome to Subscribe On Youtube:

1700. Number of Students Unable to Eat Lunch

The school cafeteria offers circular and square sandwiches at lunch break, referred to by numbers 0 and 1 respectively. All students stand in a queue. Each student either prefers square or circular sandwiches.

The number of sandwiches in the cafeteria is equal to the number of students. The sandwiches are placed in a **stack**. At each step:

- If the student at the front of the queue **prefers** the sandwich on the top of the stack, they will **take it** and leave the queue.
- Otherwise, they will **leave it** and go to the queue's end.

This continues until none of the queue students want to take the top sandwich and are thus unable to eat.

You are given two integer arrays `students` and `sandwiches` where `sandwiches[i]` is the type of the i^{th} sandwich in the stack ($i = 0$ is

the top of the stack) and `students[j]` is the preference of the j^{th} student in the initial queue ($j = 0$ is the front of the queue). Return *the number of students that are unable to eat*.

Example 1:

Input: `students = [1,1,0,0]`, `sandwiches = [0,1,0,1]`

Output: 0

Explanation:

- Front student leaves the top sandwich and returns to the end of the queue.
- Front student leaves the top sandwich and returns to the end of the queue.
- Front student takes the top sandwich and leaves the line making it shorter.
- Front student leaves the top sandwich and returns to the end of the queue.
- Front student takes the top sandwich and leaves the line making it shorter.
- Front student leaves the top sandwich and returns to the end of the queue.
- Front student takes the top sandwich and leaves the line making it shorter.
- Front student takes the top sandwich and leaves the line making it shorter.

Hence all students are able to eat.

Example 2:

Input: `students = [1,1,1,0,0,1]`, `sandwiches = [1,0,0,0,1,1]`

Output: 3

Constraints:

- $1 \leq \text{students.length}, \text{sandwiches.length} \leq 100$
- $\text{students.length} == \text{sandwiches.length}$
- $\text{sandwiches}[i]$ is 0 or 1 .
- $\text{students}[i]$ is 0 or 1 .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1700-Number-of-Students-Unable-to-Eat-Lunch](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1701. Average Waiting Time

There is a restaurant with a single chef. You are given an array `customers` , where `customers[i] = [arrivali, timei]`:

- `arrivali` is the arrival time of the i^{th} customer. The arrival times are sorted in **non-decreasing** order.
- `timei` is the time needed to prepare the order of the i^{th} customer.

When a customer arrives, he gives the chef his order, and the chef starts preparing it once he is idle. The customer waits till the chef finishes preparing his order. The chef does not prepare food for more than one customer at a

time. The chef prepares food for customers **in the order they were given in the input**.

Return *the average waiting time of all customers*.

Solutions within 10^{-5} from the actual answer are considered accepted.

Example 1:

Input: `customers = [[1,2],[2,5],[4,3]]`

Output: `5.00000`

Explanation:

- 1) The first customer arrives at time 1, the chef takes his order.
 - 2) The second customer arrives at time 2, the chef takes his order.
 - 3) The third customer arrives at time 4, the chef takes his order.
- So the average waiting time = $(2 + 6 + 7) / 3 = 5$.

Example 2:

Input: `customers = [[5,2],[5,4],[10,3],[20,1]]`

Output: `3.25000`

Explanation:

- 1) The first customer arrives at time 5, the chef takes his order.
 - 2) The second customer arrives at time 5, the chef takes his order.
 - 3) The third customer arrives at time 10, the chef takes his order.
 - 4) The fourth customer arrives at time 20, the chef takes his order.
- So the average waiting time = $(2 + 6 + 4 + 1) / 4 = 3.25$.

Constraints:

- $1 \leq \text{customers.length} \leq 10^5$
- $1 \leq \text{arrival}_i, \text{time}_i \leq 10^4$
- $\text{arrival}_i \leq \text{arrival}_{i+1}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1701-Average-Waiting-Time](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1702. Maximum Binary String After Change

You are given a binary string `binary` consisting of only 0 's or 1 's. You can apply each of the following operations any number of times:

- Operation 1: If the number contains the substring "`00`" , you can replace it with "`10`" .
 - For example, "00 010" -> "10 010 "
- Operation 2: If the number contains the substring "`10`" , you can replace it with "`01`" .
 - For example, "000 10" -> "000 01"

*Return the **maximum binary string** you can obtain after any number of operations. Binary string x is greater than binary string y if x 's decimal representation is greater than y 's decimal representation.*

Example 1:

```
Input: binary = "000110"
Output: "111011"
Explanation: A valid transformation sequence can be:
"000110" -> "000101"
"000101" -> "100101"
"100101" -> "110101"
"110101" -> "110011"
"110011" -> "111011"
```

Example 2:

```
Input: binary = "01"
Output: "01"
Explanation: "01" cannot be transformed any further.
```

Constraints:

- $1 \leq \text{binary.length} \leq 10^5$
- binary consist of '0' and '1' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1702-Maximum-Binary-String-After-Change](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1703. Minimum Adjacent Swaps for K Consecutive Ones

You are given an integer array, `nums` , and an integer `k` .
`nums` comprises of only 0 's and 1 's. In one move, you can choose two **adjacent** indices and swap their values.

Return *the minimum number of moves required so that `nums` has k consecutive 1 's* .

Example 1:

Input: `nums` = [1,0,0,1,0,1] , `k` = 2

Output: 1

Explanation: In 1 move, `nums` could be [1,0,0,0,1,1] and have 2 consecutive 1's.

Example 2:

Input: `nums` = [1,0,0,0,0,0,1,1] , `k` = 3

Output: 5

Explanation: In 5 moves, the leftmost 1 can be shifted right until it is adjacent to the second 1.

Example 3:

Input: `nums` = [1,1,0,1] , `k` = 2

Output: 0

Explanation: `nums` already has 2 consecutive 1's.

Constraints:

- `1 <= nums.length <= 105`
- `nums[i]` is 0 or 1 .
- `1 <= k <= sum(nums)`

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1703-Minimum-Adjacent-Swaps-for-K-Consecutive-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1704. Determine if String Halves Are Alike

You are given a string s of even length. Split this string into two halves of equal lengths, and let a be the first half and b be the second half.

Two strings are **alike** if they have the same number of vowels ('a' , 'e' , 'i' , 'o' , 'u' , 'A' , 'E' , 'I' , 'O' , 'U'). Notice that s contains uppercase and lowercase letters.

Return true if a and b are **alike**. Otherwise, return false .

Example 1:

Input: s = "book"

Output: true

Explanation: a = "bo" and b = "ok". a has 1 vowel and b has 1 vowel.

Example 2:

Input: s = "textbook"

Output: false

Explanation: a = "text" and b = "book". a has 1 vowel whereas b has 2 vowels.

Notice that the vowel o is counted twice.

Example 3:

Input: s = "MerryChristmas"

Output: false

Example 4:

Input: s = "AbCdEfGh"

Output: true

Constraints:

- $2 \leq s.length \leq 1000$
- s.length is even.
- s consists of **uppercase and lowercase** letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1704-Determine-if-String-Halves-Are-Alike](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1705. Maximum Number of Eaten Apples

There is a special kind of apple tree that grows apples every day for n days. On the i^{th} day, the tree grows $\text{apples}[i]$ apples that will rot after $\text{days}[i]$ days, that is on day $i + \text{days}[i]$ the apples will be rotten and cannot be eaten. On some days, the apple tree does not grow any apples, which are denoted by $\text{apples}[i] == 0$ and $\text{days}[i] == 0$.

You decided to eat **at most** one apple a day (to keep the doctors away). Note that you can keep eating after the first n days.

Given two integer arrays days and apples of length n , return *the maximum number of apples you can eat*.

Example 1:

Input: apples = [1,2,3,5,2], days = [3,2,1,4,2]

Output: 7

Explanation: You can eat 7 apples:

- On the first day, you eat an apple that grew on the first day.
- On the second day, you eat an apple that grew on the second day.
- On the third day, you eat an apple that grew on the second day.
- On the fourth to the seventh days, you eat apples that grew on

Example 2:

Input: apples = [3,0,0,0,0,2], days = [3,0,0,0,0,2]

Output: 5

Explanation: You can eat 5 apples:

- On the first to the third day you eat apples that grew on the
- Do nothing on the fourth and fifth days.
- On the sixth and seventh days you eat apples that grew on the

Constraints:

- apples.length == n
- days.length == n
- $1 \leq n \leq 2 * 10^4$
- $0 \leq \text{apples}[i], \text{days}[i] \leq 2 * 10^4$
- days[i] = 0 if and only if apples[i] = 0 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1705-Maximum-Number-of-Eaten-Apples](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1706. Where Will the Ball Fall

You have a 2-D grid of size $m \times n$ representing a box, and you have n balls. The box is open on the top and bottom sides.

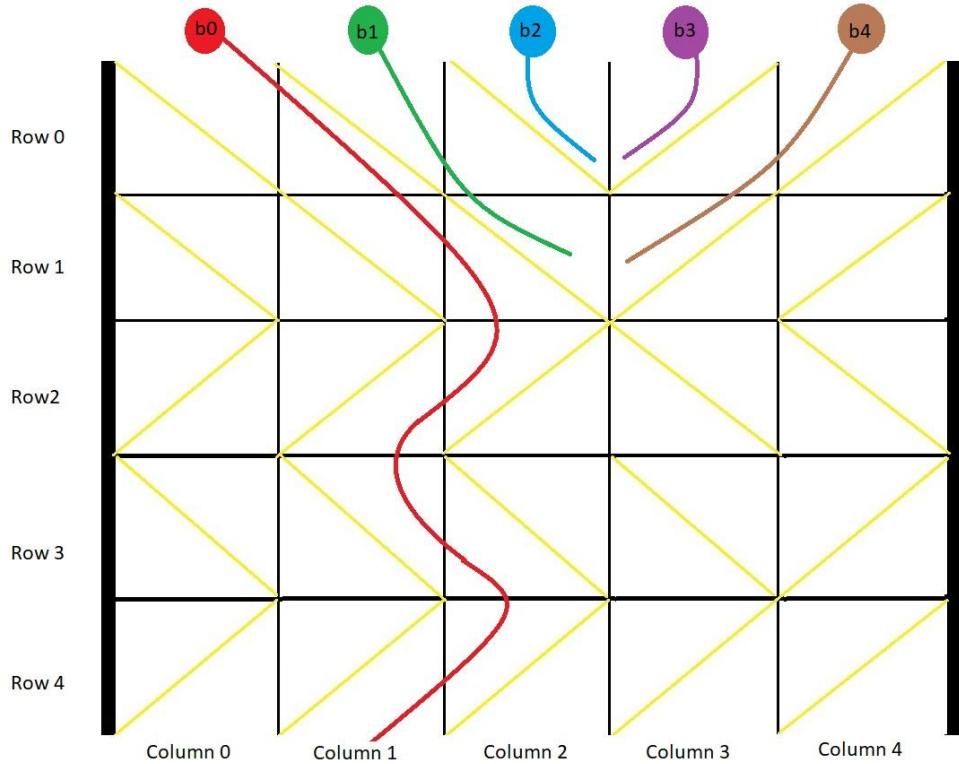
Each cell in the box has a diagonal board spanning two corners of the cell that can redirect a ball to the right or to the left.

- A board that redirects the ball to the right spans the top-left corner to the bottom-right corner and is represented in the grid as 1 .
- A board that redirects the ball to the left spans the top-right corner to the bottom-left corner and is represented in the grid as -1 .

We drop one ball at the top of each column of the box. Each ball can get stuck in the box or fall out of the bottom. A ball gets stuck if it hits a "V" shaped pattern between two boards or if a board redirects the ball into either wall of the box.

Return an array answer of size n where $\text{answer}[i]$ is the column that the ball falls out of at the bottom after dropping the ball from the i^{th} column at the top, or -1 if the ball gets stuck in the box .

Example 1:



Input: `grid = [[1,1,1,-1,-1],[1,1,1,-1,-1],[-1,-1,-1,1,1],[1,1,1]`
Output: `[1,-1,-1,-1,-1]`

Explanation: This example is shown in the photo.
Ball b0 is dropped at column 0 and falls out of the box at column 4.
Ball b1 is dropped at column 1 and will get stuck in the box between Row 1 and Row 2.
Ball b2 is dropped at column 2 and will get stuck on the box between Row 1 and Row 2.
Ball b3 is dropped at column 3 and will get stuck on the box between Row 1 and Row 2.
Ball b4 is dropped at column 4 and will get stuck on the box between Row 1 and Row 2.

Example 2:

Input: `grid = [[-1]]`

Output: `[-1]`

Explanation: The ball gets stuck against the left wall.

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= m, n <= 100`
- `grid[i][j] is 1 or -1 .`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1706-Where-Will-the-Ball-Fall](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1707. Maximum XOR With an Element From Array

You are given an array `nums` consisting of non-negative integers. You are also given a `queries` array, where `queries[i] = [xi, mi]`.

The answer to the i^{th} query is the maximum bitwise XOR value of x_i and any element of `nums` that does not exceed m_i . In other words, the answer is $\max(\text{nums}[j] \text{ XOR } x_i)$ for all j such that $\text{nums}[j] \leq m_i$. If all elements in `nums` are larger than m_i , then the answer is -1.

Return *an integer array answer where answer.length == queries.length and answer[i] is the answer to the ith query.*

Example 1:

Input: nums = [0,1,2,3,4], queries = [[3,1],[1,3],[5,6]]

Output: [3,3,7]

Explanation:

- 1) 0 and 1 are the only two integers not greater than 1. 0 XOR 3
- 2) 1 XOR 2 = 3.
- 3) 5 XOR 2 = 7.

Example 2:

Input: nums = [5,2,4,6,6,3], queries = [[12,4],[8,1],[6,3]]

Output: [15,-1,5]

Constraints:

- $1 \leq \text{nums.length}, \text{queries.length} \leq 10^5$
- $\text{queries}[i].length == 2$
- $0 \leq \text{nums}[j], x_i, m_i \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1707-Maximum-XOR-With-an-Element-From-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1708. Largest Subarray Length K

An array A is larger than some array B if for the first index i where $A[i] \neq B[i]$, $A[i] > B[i]$.

For example, consider 0 -indexing:

- $[1, 3, 2, 4] > [1, 2, 2, 4]$, since at index 1, $3 > 2$.
- $[1, 4, 4, 4] < [2, 1, 1, 1]$, since at index 0, $1 < 2$.

A subarray is a contiguous subsequence of the array.

Given an integer array `nums` of **distinct** integers, return the **largest** subarray of `nums` of length `k`.

Example 1:

Input: `nums = [1, 4, 5, 2, 3]`, `k = 3`
Output: `[5, 2, 3]`

Explanation: The subarrays of size 3 are: `[1, 4, 5]`, `[4, 5, 2]`, and of these, `[5, 2, 3]` is the largest.

Example 2:

Input: `nums = [1, 4, 5, 2, 3]`, `k = 4`
Output: `[4, 5, 2, 3]`

Explanation: The subarrays of size 4 are: `[1, 4, 5, 2]`, and `[4, 5, 2, 3]`. Of these, `[4, 5, 2, 3]` is the largest.

Example 3:

Input: nums = [1, 4, 5, 2, 3], k = 1
Output: [5]

Constraints:

- $1 \leq k \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^9$
- All the integers of nums are **unique**.

Follow up: What if the integers in nums are not distinct?

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[2021-02-11-1708-Largest-Subarray-Length-K](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1709. Biggest Window Between Visits

SQL Schema >

Table: UserVisits

Column Name	Type
user_id	int
visit_date	date

This table does not have a primary key.

This table contains logs of the dates that users visited a certain website.

Assume today's date is '2021-1-1' .

Write an SQL query that will, for each user_id , find out the largest window of days between each visit and the one right after it (or today if you are considering the last visit).

Return the result table ordered by user_id .

The query result format is in the following example:

UserVisits table:

user_id	visit_date
1	2020-11-28
1	2020-10-20
1	2020-12-3
2	2020-10-5
2	2020-12-9
3	2020-11-11

Result table:

user_id	biggest_window
1	39
2	65
3	51

For the first user, the windows in question are between dates:

- 2020-10-20 and 2020-11-28 with a total of 39 days.
- 2020-11-28 and 2020-12-3 with a total of 5 days.

- 2020-12-3 and 2021-1-1 with a total of 29 days.
Making the biggest window the one with 39 days.
For the second user, the windows in question are between dates:
- 2020-10-5 and 2020-12-9 with a total of 65 days.
- 2020-12-9 and 2021-1-1 with a total of 23 days.
Making the biggest window the one with 65 days.
For the third user, the only window in question is between dates

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1709-Biggest-Window-Between-Visits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1710. Maximum Units on a Truck

You are assigned to put some amount of boxes onto **one truck**. You are given a 2D array `boxTypes`, where
`boxTypes[i] = [numberOfBoxesi,
numberOfUnitsPerBoxi]`:

- `numberOfBoxesi` is the number of boxes of type `i`.
- `numberOfUnitsPerBoxi` is the number of units in each box of the type `i`.

You are also given an integer `truckSize`, which is the **maximum** number of **boxes** that can be put on the truck. You can choose any boxes to put on the truck as long as the number of boxes does not exceed `truckSize`.

Return *the maximum total number of units that can be put on the truck.*

Example 1:

Input: `boxTypes = [[1,3],[2,2],[3,1]]`, `truckSize = 4`
Output: 8

Explanation: There are:

- 1 box of the first type that contains 3 units.
- 2 boxes of the second type that contain 2 units each.
- 3 boxes of the third type that contain 1 unit each.

You can take all the boxes of the first and second types, and one of the third type.
The total number of units will be = $(1 * 3) + (2 * 2) + (1 * 1) = 8$

Example 2:

Input: `boxTypes = [[5,10],[2,5],[4,7],[3,9]]`, `truckSize = 10`
Output: 91

Constraints:

- $1 \leq \text{boxTypes.length} \leq 1000$
- $1 \leq \text{numberOfBoxes}_i,$
 $\text{numberOfUnitsPerBox}_i \leq 1000$
- $1 \leq \text{truckSize} \leq 10^6$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[2021-02-13-1710-Maximum-Units-on-a-Truck](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1711. Count Good Meals

A **good meal** is a meal that contains **exactly two different food items** with a sum of deliciousness equal to a power of two.

You can pick **any** two different foods to make a good meal.

Given an array of integers deliciousness where deliciousness[i] is the deliciousness of the i-th item of food, return *the number of different good meals you can make from this list modulo $10^9 + 7$* .

Note that items with different indices are considered different even if they have the same deliciousness value.

Example 1:

Input: deliciousness = [1,3,5,7,9]

Output: 4

Explanation: The good meals are (1,3), (1,7), (3,5) and, (7,9). Their respective sums are 4, 8, 8, and 16, all of which are power

Example 2:

Input: deliciousness = [1,1,1,3,3,3,7]

Output: 15

Explanation: The good meals are (1,1) with 3 ways, (1,3) with 9

Constraints:

- $1 \leq \text{deliciousness.length} \leq 10^5$
- $0 \leq \text{deliciousness}[i] \leq 2^{20}$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1711-Count-Good-Meals](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1712. Ways to Split Array Into Three Subarrays

A split of an integer array is **good** if:

- The array is split into three **non-empty** contiguous subarrays - named `left` , `mid` , `right` respectively from left to right.
- The sum of the elements in `left` is less than or equal to the sum of the elements in `mid` , and the sum of the elements in `mid` is less than or equal to the sum of the elements in `right` .

Given `nums` , an array of **non-negative** integers, return *the number of good ways to split* `nums` . As the number may be too large, return it **modulo** $10^9 + 7$.

Example 1:

Input: `nums = [1,1,1]`

Output: 1

Explanation: The only good way to split `nums` is [1] [1] [1].

Example 2:

Input: `nums = [1,2,2,2,5,0]`

Output: 3

Explanation: There are three good ways of splitting `nums`:
[1] [2] [2,2,5,0]

```
[1] [2,2] [2,5,0]
[1,2] [2,2] [5,0]
```

Example 3:

Input: nums = [3,2,1]

Output: 0

Explanation: There is no good way to split nums.

Constraints:

- $3 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1712-Ways-to-Split-Array-Into-Three-Subarrays](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1713. Minimum Operations to Make a Subsequence

You are given an array `target` that consists of **distinct** integers and another integer array `arr` that **can** have duplicates.

In one operation, you can insert any integer at any position in `arr`. For example, if `arr = [1, 4, 1, 2]`, you can add 3 in the middle and make it `[1, 4, 3, 1, 2]`. Note that you can insert the integer at the very beginning or end of the array.

Return *the minimum number of operations needed to make target a subsequence of arr*.

A **subsequence** of an array is a new array generated from the original array by deleting some elements (possibly none) without changing the remaining elements' relative order. For example, `[2, 7, 4]` is a subsequence of `[4, 2, 3, 7, 2, 1, 4]` (the underlined elements), while `[2, 4, 2]` is not.

Example 1:

Input: `target = [5, 1, 3]`, `arr = [9, 4, 2, 3, 4]`
Output: 2

Explanation: You can add 5 and 1 in such a way that makes `arr = [5, 1, 3]`.

Example 2:

Input: `target = [6, 4, 8, 1, 3, 2]`, `arr = [4, 7, 6, 2, 3, 8, 6, 1]`
Output: 3

Constraints:

- $1 \leq \text{target.length}, \text{arr.length} \leq 10^5$
- $1 \leq \text{target}[i], \text{arr}[i] \leq 10^9$
- `target` contains no duplicates.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1713-Minimum-Operations-to-Make-a-Subsequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1714. Sum Of Special Evenly-Spaced Elements In Array

You are given a **0-indexed** integer array `nums` consisting of n non-negative integers.

You are also given an array `queries`, where `queries[i] = [xi, yi]`. The answer to the i^{th} query is the sum of all `nums[j]` where $x_i \leq j < n$ and $(j - x_i)$ is divisible by y_i .

Return an array `answer` where `answer.length == queries.length` and `answer[i]` is the answer to the i^{th} query **modulo** $10^9 + 7$.

Example 1:

Input: `nums = [0,1,2,3,4,5,6,7]`, `queries = [[0,3],[5,1],[4,2]]`
Output: `[9,18,10]`

Explanation: The answers of the queries are as follows:

- 1) The j indices that satisfy this query are 0, 3, and 6. `nums[0]`
- 2) The j indices that satisfy this query are 5, 6, and 7. `nums[5]`
- 3) The j indices that satisfy this query are 4 and 6. `nums[4] +`

Example 2:

Input: `nums = [100,200,101,201,102,202,103,203]`, `queries = [[0,7],[3,0]]`
Output: `[303]`

Constraints:

- $n == \text{nums.length}$
- $1 \leq n \leq 5 * 10^4$
- $0 \leq \text{nums}[i] \leq 10^9$
- $1 \leq \text{queries.length} \leq 1.5 * 10^5$
- $0 \leq x_i < n$
- $1 \leq y_i \leq 5 * 10^4$

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1714-Sum-Of-Special-Evenly-Spaced-Elements-In-Array](#)

All Problems:

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Welcome to Subscribe On Youtube:

1715. Count Apples and Oranges

SQL Schema >

Table: Boxes

Column Name	Type
box_id	int

```

| chest_id | int |
| apple_count | int |
| orange_count | int |
+-----+-----+
box_id is the primary key for this table.
chest_id is a foreign key of the chests table.
This table contains information about the boxes and the number o

```

Table: Boxes

```

+-----+-----+
| Column Name | Type |
+-----+-----+
| chest_id | int |
| apple_count | int |
| orange_count | int |
+-----+-----+
chest_id is the primary key for this table.
This table contains information about the boxes we have, and the

```

Write an SQL query to count the number of apples and oranges in all the boxes. If a box contains a chest, you should also include the number of apples and oranges it has.

Return the result table in **any order**.

The query result format is in the following example:

Boxes table:

```

+-----+-----+-----+-----+
| box_id | chest_id | apple_count | orange_count |
+-----+-----+-----+-----+
| 2      | null     | 6          | 15         |
| 18     | 14       | 4          | 15         |
| 19     | 3        | 8          | 4          |
| 12     | 2        | 19         | 20         |
| 20     | 6        | 12         | 9          |
| 8      | 6        | 9          | 9          |
| 3      | 14      | 16         | 7          |
+-----+-----+-----+-----+

```

Chests table:

```

+-----+-----+-----+
| chest_id | apple_count | orange_count |
+-----+-----+-----+
| 6        | 5          | 6          |
| 14       | 20         | 10         |
| 2        | 8          | 8          |
| 3        | 19         | 4          |
| 16       | 19         | 19         |
+-----+-----+-----+

```

```

Result table:
+-----+-----+
| apple_count | orange_count |
+-----+-----+
| 151         | 123         |
+-----+-----+
box 2 has 6 apples and 15 oranges.
box 18 has 4 + 20 (from the chest) = 24 apples and 15 + 10 (from t
box 19 has 8 + 19 (from the chest) = 27 apples and 4 + 4 (from t
box 12 has 19 + 8 (from the chest) = 27 apples and 20 + 8 (from t
box 20 has 12 + 5 (from the chest) = 17 apples and 9 + 6 (from t
box 8 has 9 + 5 (from the chest) = 14 apples and 9 + 6 (from the
box 3 has 16 + 20 (from the chest) = 36 apples and 7 + 10 (from t
Total number of apples = 6 + 24 + 27 + 27 + 17 + 14 + 36 = 151
Total number of oranges = 15 + 25 + 8 + 28 + 15 + 15 + 17 = 123

```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1715-Count-Apples-and-Oranges/index.html](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1716. Calculate Money in Leetcode Bank

Hercy wants to save money for his first car. He puts money in the Leetcode bank **every day**.

He starts by putting in \$1 on Monday, the first day. Every day from Tuesday to Sunday, he will put in \$1 more than the day before. On every subsequent Monday, he will put in \$1 more than the **previous Monday**.

Given n , return *the total amount of money he will have in the Leetcode bank at the end of the n^{th} day*.

Example 1:

Input: $n = 4$

Output: 10

Explanation: After the 4^{th} day, the total is $1 + 2 + 3 + 4 = 10$.

Example 2:

Input: $n = 10$

Output: 37

Explanation: After the 10^{th} day, the total is $(1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10) = 55$.

Example 3:

Input: $n = 20$

Output: 96

Explanation: After the 20^{th} day, the total is $(1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20) = 210$.

Constraints:

- $1 \leq n \leq 1000$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[-1716-Calculate-Money-in-Leetcode-Bank](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1717. Maximum Score From Removing Substrings

You are given a string s and two integers x and y . You can perform two types of operations any number of times.

- Remove substring "ab" and gain x points.
 - For example, when removing "ab" from "c
ab_xbae" it becomes "cxbae".

- Remove substring "ba" and gain y points.
 - For example, when removing "ba" from "cabx bae" it becomes "cabxe" .

Return *the maximum points you can gain after applying the above operations on s* .

Example 1:

Input: s = "cdbcbbaaabab", x = 4, y = 5

Output: 19

Explanation:

- Remove the "ba" underlined in "cdbcbbaaabab". Now, s = "cdbcbbaaab"
 - Remove the "ab" underlined in "cdbcbbaaab". Now, s = "cdbcbbaaa"
 - Remove the "ba" underlined in "cdbcbbaa". Now, s = "cdbcba" and 5
 - Remove the "ba" underlined in "cdbcba". Now, s = "cdbc" and 5
- Total score = 5 + 4 + 5 + 5 = 19.

Example 2:

Input: s = "aabbaaxybbaabb", x = 5, y = 4

Output: 20

Constraints:

- $1 \leq s.length \leq 10^5$
- $1 \leq x, y \leq 10^4$
- s consists of lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[-1717-Maximum-Score-From-Removing-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1718. Construct the Lexicographically Largest Valid Sequence

Given an integer n , find a sequence that satisfies all of the following:

- The integer 1 occurs once in the sequence.
- Each integer between 2 and n occurs twice in the sequence.
- For every integer i between 2 and n , the **distance** between the two occurrences of i is exactly i .

The **distance** between two numbers on the sequence, $a[i]$ and $a[j]$, is the absolute difference of their indices, $|j - i|$.

Return the **lexicographically largest sequence**. It is guaranteed that under the given constraints, there is always a solution.

A sequence a is lexicographically larger than a sequence b (of the same length) if in the first position where a and b differ, sequence a has a number greater than the corresponding number in b . For example, $[0, 1, 9, 0]$ is lexicographically larger than $[0, 1, 5, 6]$ because the first position they differ is at the third number, and 9 is greater than 5.

Example 1:

Input: $n = 3$

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

Explanation: $[2, 3, 2, 1, 3]$ is also a valid sequence, but $[3, 1, 2, 3, 1]$ is not.

Example 2:

Input: $n = 5$

Output: $[5, 3, 1, 4, 3, 5, 2, 4, 2]$

Constraints:

- $1 \leq n \leq 20$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[-1718-Construct-the-Lexicographically-Largest-Valid-Sequence](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1719. Number Of Ways To Reconstruct A Tree

You are given an array `pairs` , where `pairs[i] = [xi, yi]` , and:

- There are no duplicates.
- $x_i < y_i$

Let `ways` be the number of rooted trees that satisfy the following conditions:

- The tree consists of nodes whose values appeared in `pairs` .
- A pair $[x_i, y_i]$ exists in `pairs` if and only if x_i is an ancestor of y_i or y_i is an ancestor of x_i .
- **Note:** the tree does not have to be a binary tree.

Two ways are considered to be different if there is at least one node that has different parents in both ways.

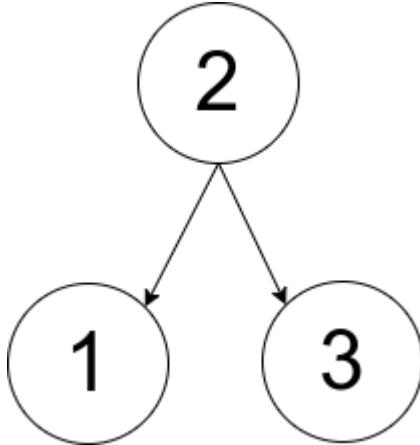
Return:

- 0 if `ways == 0`
- 1 if `ways == 1`
- 2 if `ways > 1`

A **rooted tree** is a tree that has a single root node, and all edges are oriented to be outgoing from the root.

An **ancestor** of a node is any node on the path from the root to that node (excluding the node itself). The root has no ancestors.

Example 1:

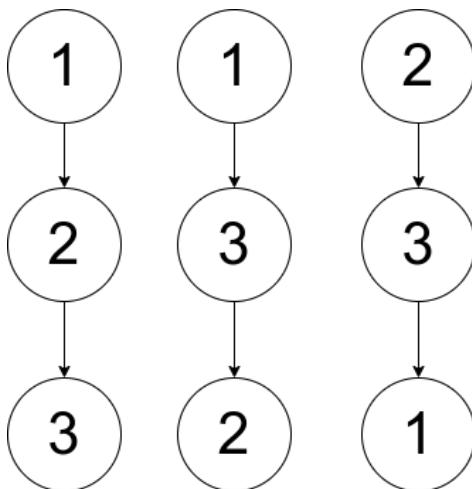


Input: pairs = [[1,2],[2,3]]

Output: 1

Explanation: There is exactly one valid rooted tree, which is shown above.

Example 2:



Input: pairs = [[1,2],[2,3],[1,3]]

Output: 2

Explanation: There are multiple valid rooted trees. Three of them are shown above.

Example 3:

Input: pairs = [[1,2],[2,3],[2,4],[1,5]]

Output: 0

Explanation: There are no valid rooted trees.

Constraints:

- $1 \leq \text{pairs.length} \leq 10^5$

- $1 \leq x_i < y_i \leq 500$
- The elements in `pairs` are unique.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[-1719-Number-Of-Ways-To-Reconstruct-A-Tree](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1720. Decode XORed Array

There is a **hidden** integer array `arr` that consists of n non-negative integers.

It was encoded into another integer array encoded of length $n - 1$, such that $\text{encoded}[i] = \text{arr}[i] \text{ XOR } \text{arr}[i + 1]$. For example, if $\text{arr} = [1, 0, 2, 1]$, then $\text{encoded} = [1, 2, 3]$.

You are given the encoded array. You are also given an integer first, that is the first element of arr, i.e. $\text{arr}[0]$.

Return *the original array arr*. It can be proved that the answer exists and is unique.

Example 1:

Input: $\text{encoded} = [1, 2, 3]$, $\text{first} = 1$

Output: $[1, 0, 2, 1]$

Explanation: If $\text{arr} = [1, 0, 2, 1]$, then $\text{first} = 1$ and $\text{encoded} = [1, 2, 3]$

Example 2:

Input: $\text{encoded} = [6, 2, 7, 3]$, $\text{first} = 4$

Output: $[4, 2, 0, 7, 4]$

Constraints:

- $2 \leq n \leq 10^4$
- $\text{encoded.length} == n - 1$
- $0 \leq \text{encoded}[i] \leq 10^5$
- $0 \leq \text{first} \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[-1720-Decode-XORed-Array](#)

All Problems:

[Link to All Problems](#)

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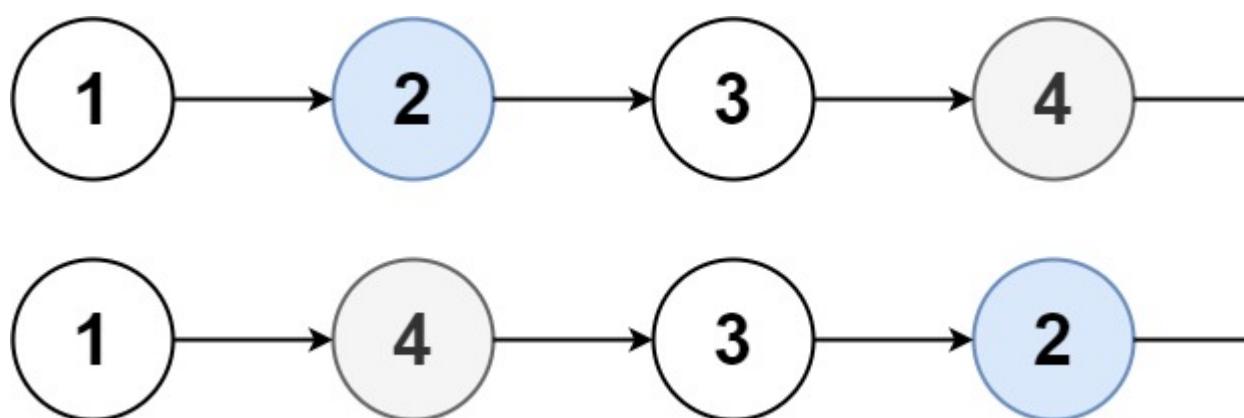
Welcome to Subscribe On Youtube:

1721. Swapping Nodes in a Linked List

You are given the head of a linked list, and an integer k .

Return the head of the linked list after **swapping** the values of the k^{th} node from the beginning and the k^{th} node from the end (the list is 1-indexed).

Example 1:



Input: head = [1,2,3,4,5], k = 2

Input: Head [1,2,
Output: [1,4,3,2,5]

Example 2:

Input: head = [7,9,6,6,7,8,3,0,9,5], k = 5
Output: [7,9,6,6,8,7,3,0,9,5]

Example 3:

Input: head = [1], k = 1
Output: [1]

Example 4:

Input: head = [1,2], k = 1
Output: [2,1]

Example 5:

Input: head = [1,2,3], k = 2
Output: [1,2,3]

Constraints:

- The number of nodes in the list is n .
- $1 \leq k \leq n \leq 10^5$
- $0 \leq \text{Node.val} \leq 100$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[-1721-Swapping-Nodes-in-a-Linked-List](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1722. Minimize Hamming Distance After Swap Operations

You are given two integer arrays, `source` and `target` , both of length n . You are also given an array `allowedSwaps` where each `allowedSwaps[i] = [ai, bi]` indicates that you are allowed to swap the elements at index a_i and index b_i (**0-indexed**) of array `source` . Note that you can swap elements at a specific pair of indices **multiple** times and in **any** order.

The **Hamming distance** of two arrays of the same length, `source` and `target` , is the number of positions where the elements are different. Formally, it is the number of indices i for $0 \leq i \leq n-1$ where `source[i] != target[i]` (**0-indexed**) .

Return *the minimum Hamming distance of source and target after performing any amount of swap operations on array source* .

Example 1:

Input: `source = [1,2,3,4]` , `target = [2,1,4,5]` , `allowedSwaps = [[0,1], [2,3]]`
Output: 1

Explanation: `source` can be transformed the following way:
- Swap indices 0 and 1: `source = [2,1,3,4]`

- Swap indices 2 and 3: source = [2,1,4,3]
The Hamming distance of source and target is 1 as they differ in

Example 2:

Input: source = [1,2,3,4], target = [1,3,2,4], allowedSwaps = []
Output: 2

Explanation: There are no allowed swaps.

The Hamming distance of source and target is 2 as they differ in

Example 3:

Input: source = [5,1,2,4,3], target = [1,5,4,2,3], allowedSwaps :
Output: 0

Constraints:

- $n == \text{source.length} == \text{target.length}$
- $1 \leq n \leq 10^5$
- $1 \leq \text{source}[i], \text{target}[i] \leq 10^5$
- $0 \leq \text{allowedSwaps.length} \leq 10^5$
- $\text{allowedSwaps}[i].length == 2$
- $0 \leq a_i, b_i \leq n - 1$
- $a_i \neq b_i$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[-1722-Minimize-Hamming-Distance-After-Swap-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1723. Find Minimum Time to Finish All Jobs

You are given an integer array `jobs` , where `jobs[i]` is the amount of time it takes to complete the i^{th} job.

There are k workers that you can assign jobs to. Each job should be assigned to **exactly** one worker. The **working time** of a worker is the sum of the time it takes to complete all jobs assigned to them. Your goal is to devise an optimal assignment such that the **maximum working time** of any worker is **minimized** .

*Return the **minimum** possible **maximum working time** of any assignment.*

Example 1:

Input: `jobs = [3,2,3]` , $k = 3$

Output: 3

Explanation: By assigning each person one job, the maximum time

Example 2:

Input: `jobs = [1,2,4,7,8]` , $k = 2$

Output: 11

Explanation: Assign the jobs the following way:

Worker 1: 1, 2, 8 (working time = $1 + 2 + 8 = 11$)

Worker 2: 4, 7 (working time = $4 + 7 = 11$)

The maximum working time is 11.

Constraints:

- $1 \leq k \leq \text{jobs.length} \leq 12$
- $1 \leq \text{jobs}[i] \leq 10^7$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[-1723-Find-Minimum-Time-to-Finish-All-Jobs](#)

All Problems:

[Link to All Problems](#)

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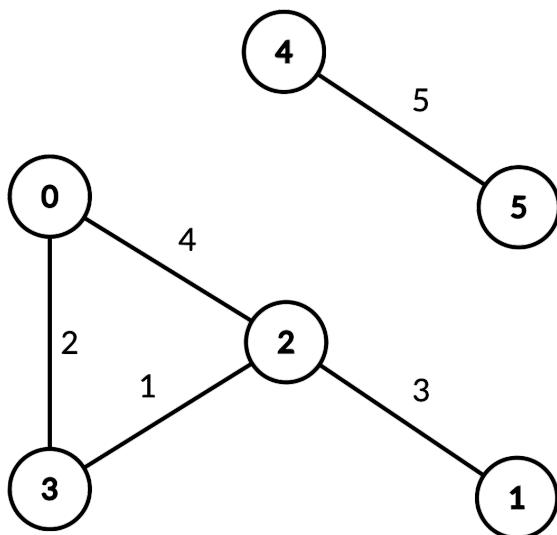
1724. Checking Existence of Edge Length Limited Paths II

An undirected graph of n nodes is defined by `edgeList`, where `edgeList[i] = [ui, vi, disi]` denotes an edge between nodes u_i and v_i with distance dis_i . Note that there may be **multiple** edges between two nodes, and the graph may not be connected.

Implement the `DistanceLimitedPathsExist` class:

- `DistanceLimitedPathsExist(int n, int[][][] edgeList)` Initializes the class with an undirected graph.
- `boolean query(int p, int q, int limit)`
Returns `true` if there exists a path from p to q such that each edge on the path has a distance **strictly less than** $limit$, and otherwise `false`.

Example 1:



Input

```
["DistanceLimitedPathsExist", "query", "query", "query", "query", "query"]  
[[6, [[0, 2, 4], [0, 3, 2], [1, 2, 3], [2, 3, 1], [4, 5, 5]]], [
```

Output

```
[null, true, false, true, false]
```

Explanation

```
DistanceLimitedPathsExist distanceLimitedPathsExist = new DistanceLimitedPathsExist();
distanceLimitedPathsExist.query(2, 3, 2); // return true. There
distanceLimitedPathsExist.query(1, 3, 3); // return false. There
distanceLimitedPathsExist.query(2, 0, 3); // return true. There
distanceLimitedPathsExist.query(0, 5, 6); // return false. There
```

Constraints:

- $2 \leq n \leq 10^4$
- $0 \leq \text{edgeList.length} \leq 10^4$
- $\text{edgeList}[i].length == 3$
- $0 \leq u_i, v_i, p, q \leq n-1$
- $u_i \neq v_i$
- $p \neq q$
- $1 \leq \text{dis}_i, \text{limit} \leq 10^9$
- At most 10^4 calls will be made to query .

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[-1724-Checking-Existence-of-Edge-Length-Limited-Paths-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1725. Number Of Rectangles That Can Form The Largest Square

You are given an array `rectangles` where `rectangles[i] = [li, wi]` represents the i^{th} rectangle of length l_i and width w_i .

You can cut the i^{th} rectangle to form a square with a side length of k if both $k \leq l_i$ and $k \leq w_i$. For example, if you have a rectangle $[4, 6]$, you can cut it to get a square with a side length of at most 4.

Let `maxLen` be the side length of the **largest** square you can obtain from any of the given rectangles.

Return *the number of rectangles that can make a square with a side length of `maxLen`*.

Example 1:

Input: `rectangles = [[5,8],[3,9],[5,12],[16,5]]`
Output: 3

Explanation: The largest squares you can get from each rectangle
The largest possible square is of length 5, and you can get it o

Example 2:

Input: `rectangles = [[2,3],[3,7],[4,3],[3,7]]`
Output: 3

Constraints:

- $1 \leq \text{rectangles.length} \leq 1000$

- `rectangles[i].length == 2`
- `1 <= li, wi <= 109`
- `li != wi`

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[-1725-Number-Of-Rectangles-That-Can-Form-The-Largest-Square](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1726. Tuple with Same Product

Given an array `nums` of **distinct** positive integers, return *the number of tuples* (a, b, c, d) such that $a * b = c * d$ where a, b, c , and d are elements of `nums`, and $a \neq b \neq c \neq d$.

Example 1:

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

Output: 8

Explanation: There are 8 valid tuples:

(2, 6, 3, 4) , (2, 6, 4, 3) , (6, 2, 3, 4) , (6, 2, 4, 3)
(3, 4, 2, 6) , (4, 3, 2, 6) , (3, 4, 6, 2) , (4, 3, 6, 2)

Example 2:

Input: `nums` = [1, 2, 4, 5, 10]

Output: 16

Explanation: There are 16 valid tuples:

(1, 10, 2, 5) , (1, 10, 5, 2) , (10, 1, 2, 5) , (10, 1, 5, 2)
(2, 5, 1, 10) , (2, 5, 10, 1) , (5, 2, 1, 10) , (5, 2, 10, 1)
(2, 10, 4, 5) , (2, 10, 5, 4) , (10, 2, 4, 5) , (10, 2, 4, 5)
(4, 5, 2, 10) , (4, 5, 10, 2) , (5, 4, 2, 10) , (5, 4, 10, 2)

Example 3:

Input: `nums` = [2, 3, 4, 6, 8, 12]

Output: 40

Example 4:

Input: `nums` = [2, 3, 5, 7]

Output: 0

Constraints:

- $1 \leq \text{nums.length} \leq 1000$
- $1 \leq \text{nums}[i] \leq 10^4$
- All elements in `nums` are **distinct**.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[-1726-Tuple-with-Same-Product](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1727. Largest Submatrix With Rearrangements

You are given a binary matrix `matrix` of size $m \times n$, and you are allowed to rearrange the **columns** of the `matrix` in any order.

Return *the area of the largest submatrix within matrix where every element of the submatrix is 1 after reordering the columns optimally.*

Example 1:

0	0	1
1	1	1
1	0	1

→

0	1	0
1	1	1
1	1	0

Input: matrix = [[0,0,1],[1,1,1],[1,0,1]]

Output: 4

Explanation: You can rearrange the columns as shown above. The largest submatrix of 1s, in bold, has an area of 4.

Example 2:

1	0	1	0	1
1	1	1	0	0

Input: matrix = [[1,0,1,0,1]]

Output: 3

Explanation: You can rearrange the columns as shown above. The largest submatrix of 1s, in bold, has an area of 3.

Example 3:

Input: matrix = [[1,1,0],[1,0,1]]

Output: 2

Explanation: Notice that you must rearrange entire columns, and

Example 4:

Input: matrix = [[0,0],[0,0]]

Output: 0

Explanation: As there are no 1s, no submatrix of 1s can be formed.

Constraints:

- m == matrix.length
- n == matrix[i].length
- 1 <= m * n <= 10⁵
- matrix[i][j] is 0 or 1 .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[-1727-Largest-Submatrix-With-Rearrangements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1728. Cat and Mouse II

A game is played by a cat and a mouse named Cat and Mouse.

The environment is represented by a grid of size `rows` x `cols`, where each element is a wall, floor, player (Cat, Mouse), or food.

- Players are represented by the characters '`C`' (Cat), '`M`' (Mouse).

- Floors are represented by the character '.' and can be walked on.
- Walls are represented by the character '#' and cannot be walked on.
- Food is represented by the character 'F' and can be walked on.
- There is only one of each character 'C' , 'M' , and 'F' in grid .

Mouse and Cat play according to the following rules:

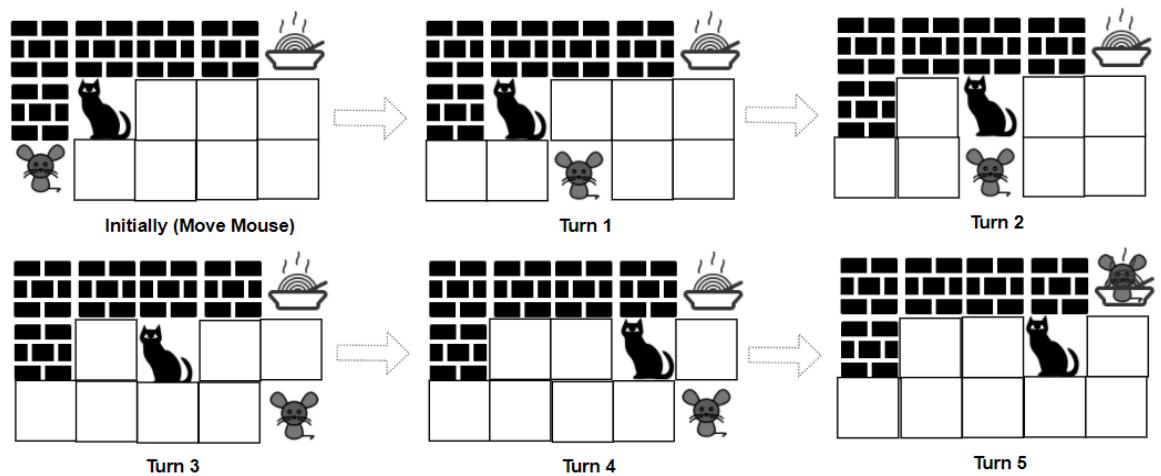
- Mouse **moves first** , then they take turns to move.
- During each turn, Cat and Mouse can jump in one of the four directions (left, right, up, down). They cannot jump over the wall nor outside of the grid .
- `catJump` , `mouseJump` are the maximum lengths Cat and Mouse can jump at a time, respectively. Cat and Mouse can jump less than the maximum length.
- Staying in the same position is allowed.
- Mouse can jump over Cat.

The game can end in 4 ways:

- If Cat occupies the same position as Mouse, Cat wins.
- If Cat reaches the food first, Cat wins.
- If Mouse reaches the food first, Mouse wins.
- If Mouse cannot get to the food within 1000 turns, Cat wins.

Given a `rows` x `cols` matrix `grid` and two integers `catJump` and `mouseJump` , return true if Mouse can win the game if both Cat and Mouse play optimally, otherwise return false .

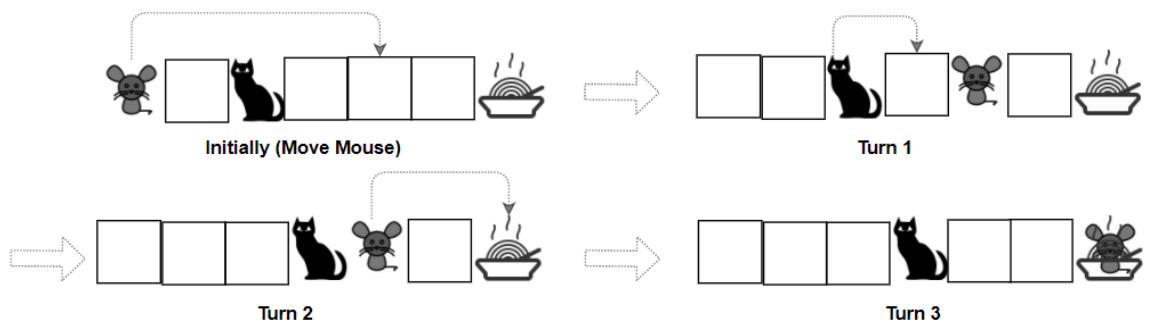
Example 1:



Input: grid = ["####F", "#C...", "M...."], catJump = 1, mouseJump = 1
 Output: true

Explanation: Cat cannot catch Mouse on its turn nor can it get to the bowl.

Example 2:



Input: grid = ["M.C...F"], catJump = 1, mouseJump = 4
 Output: true

Example 3:

Input: grid = ["M.C...F"], catJump = 1, mouseJump = 3
 Output: false

Example 4:

Input: grid = ["C...#", "...#F", "...#.", "M...."], catJump = 2, mouseJump = 1
 Output: false

Example 5:

Input: grid = [".M...", "...#..", "#..#.," , "C#.#.," , "...#F"], catJump = 2, mouseJump = 1
 Output: true

Constraints:

- rows == grid.length
- cols = grid[i].length

- $1 \leq \text{rows}, \text{cols} \leq 8$
- $\text{grid}[i][j]$ consist only of characters 'C' , 'M' , 'F' , '.' , and '#' .
- There is only one of each character 'C' , 'M' , and 'F' in grid .
- $1 \leq \text{catJump}, \text{mouseJump} \leq 8$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[-1728-Cat-and-Mouse-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1729. Find Followers Count

SQL Schema >

Table: Followers

Column Name	Type
user_id	int
follower_id	int

(user_id, follower_id) is the primary key for this table.
This table contains the IDs of a user and a follower in a social

Write an SQL query that will, for each user, return the number of followers.

Return the result table ordered by user_id .

The query result format is in the following example:

Followers table:

user_id	follower_id
0	1
1	0
2	0
2	1

Result table:

user_id	followers_count
0	1
1	1
2	2

The followers of 0 are {1}

The followers of 1 are {0}

The followers of 2 are {0,1}

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[-1729-Find-Followers-Count](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1730. Shortest Path to Get Food

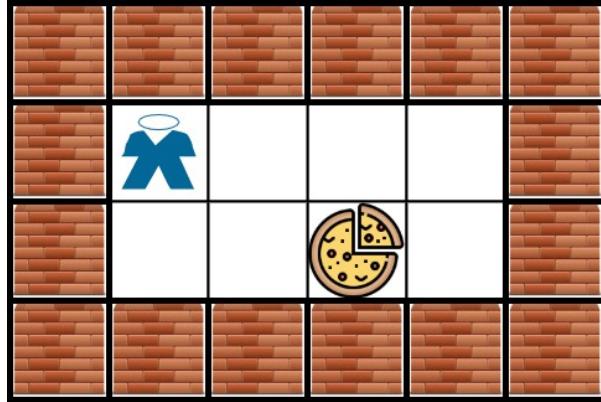
You are starving and you want to eat food as quickly as possible. You want to find the shortest path to arrive at a food cell.

You are given an $m \times n$ character matrix, `grid` , of these different types of cells:

- '*' is your location. There is **exactly one** '*' cell.
- '#' is a food cell. There may be **multiple** food cells.
- '0' is free space, and you can travel through these cells.
- 'X' is an obstacle, and you cannot travel through these cells.

Return *the length of the shortest path for you to reach any food cell*. If there is no path for you to reach food, return -1 .

Example 1:

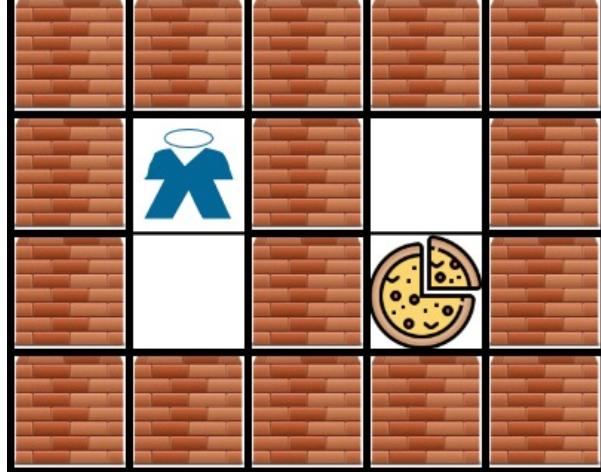


Input: grid = [["X", "X", "X", "X", "X", "X"], ["X", "*", "0", "0", "0", "X"]]

Output: 3

Explanation: It takes 3 steps to reach the food.

Example 2:

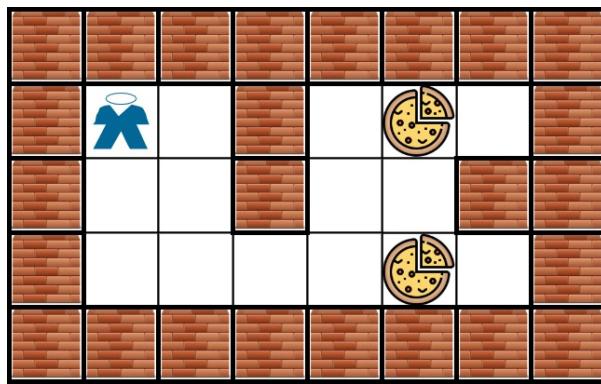


Input: grid = [["X", "X", "X", "X", "X"], ["X", "*", "X", "0", "X"], ["X", "X", "X", "X", "X"]]

Output: -1

Explanation: It is not possible to reach the food.

Example 3:



Input: grid = [["X", "X", "X", "X", "X", "X", "X", "X"], ["X", "*", "0", "X"]]
 Output: 6

Explanation: There can be multiple food cells. It only takes 6 steps.

Example 4:

Input: grid = [["0", "*"], ["#", "0"]]
 Output: 2

Example 5:

Input: grid = [["X", "*"], ["#", "X"]]
 Output: -1

Constraints:

- m == grid.length
- n == grid[i].length
- 1 <= m, n <= 200
- grid[row][col] is '*' , 'X' , '0' , or '#' .
- The grid contains **exactly one '*'** .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[-1730-Shortest-Path-to-Get-Food](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1731. The Number of Employees Which Report to Each Employee

[SQL Schema](#) >

Table: Employees

Column Name	Type
employee_id	int
name	varchar
reports_to	int
age	int

employee_id is the primary key for this table.

This table contains information about the employees and the id o

For this problem, we will consider a **manager** an employee who has at least 1 other employee reporting to them.

Write an SQL query to report the ids and the names of all **managers**, the number of employees who report

directly to them, and the average age of the reports rounded to the nearest integer.

Return the result table ordered by `employee_id` .

The query result format is in the following example:

Employees table:

employee_id	name	reports_to	age
9	Hercy	null	43
6	Alice	9	41
4	Bob	9	36
2	Winston	null	37

Result table:

employee_id	name	reports_count	average_age
9	Hercy	2	39

Hercy has 2 people report directly to him, Alice and Bob. Their

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[-1731-The-Number-of-Employees-Which-Report-to-Each-Employee](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1732. Find the Highest Altitude

There is a biker going on a road trip. The road trip consists of $n + 1$ points at different altitudes. The biker starts his trip on point 0 with altitude equal 0 .

You are given an integer array `gain` of length n where `gain[i]` is the **net gain in altitude** between points i and $i + 1$ for all ($0 \leq i < n$) .
Return *the highest altitude of a point*.

Example 1:

Input: `gain = [-5, 1, 5, 0, -7]`

Output: `1`

Explanation: The altitudes are $[0, -5, -4, 1, 1, -6]$. The highest is 1 .

Example 2:

Input: `gain = [-4, -3, -2, -1, 4, 3, 2]`

Output: `0`

Explanation: The altitudes are $[0, -4, -7, -9, -10, -6, -3, -1]$. The highest is 0 .

Constraints:

- $n == gain.length$
- $1 \leq n \leq 100$
- $-100 \leq gain[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[-1732-Find-the-Highest-Altitude](#)

All Problems:

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Welcome to Subscribe On Youtube:

1733. Minimum Number of People to Teach

On a social network consisting of m users and some friendships between users, two users can communicate with each other if they know a common language.

You are given an integer n , an array `languages`, and an array `friendships` where:

- There are n languages numbered 1 through n ,
- `languages[i]` is the set of languages the i user knows,
- `friendships[i] = [u, v]` denotes a friendship between the users u and v .

You can choose **one** language and teach it to some users so that all friends can communicate with each other. Return *the minimum number of users you need to teach*.

Note that friendships are not transitive, meaning if x is a friend of y and y is a friend of z , this doesn't guarantee that x is a friend of z .

Example 1:

Input: $n = 2$, `languages = [[1], [2], [1, 2]]`, `friendships = [[1, 2], [2, 1]]`
Output: 1
Explanation: You can either teach user 1 the second language or

Example 2:

Input: $n = 3$, `languages = [[2], [1, 3], [1, 2], [3]]`, `friendships = [[1, 2], [2, 1], [1, 3], [3, 1]]`
Output: 2
Explanation: Teach the third language to users 1 and 3, yielding

Constraints:

- $2 \leq n \leq 500$
- `languages.length == m`
- $1 \leq m \leq 500$
- $1 \leq \text{languages}[i].length \leq n$
- $1 \leq \text{languages}[i][j] \leq n$
- $1 \leq u, v \leq n$
- $u \neq v$
- $1 \leq \text{friendships.length} \leq 500$
- All tuples (u, v) are unique
- `languages[i]` contains only unique values

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[-1733-Minimum-Number-of-People-to-Teach](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1734. Decode XORed Permutation

There is an integer array `perm` that is a permutation of the first `n` positive integers, where `n` is always **odd**.

It was encoded into another integer array `encoded` of length `n - 1`, such that `encoded[i] = perm[i] XOR`

`perm[i + 1]`. For example, if `perm = [1, 3, 2]`, then `encoded = [2, 1]`.

Given the `encoded` array, return *the original array perm*. It is guaranteed that the answer exists and is unique.

Example 1:

Input: `encoded = [3, 1]`

Output: `[1, 2, 3]`

Explanation: If `perm = [1, 2, 3]`, then `encoded = [1 XOR 2, 2 XOR 3]`

Example 2:

Input: `encoded = [6, 5, 4, 6]`

Output: `[2, 4, 1, 5, 3]`

Constraints:

- $3 \leq n < 10^5$
- n is odd.
- `encoded.length == n - 1`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[-1734-Decode-XORed-Permutation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1735. Count Ways to Make Array With Product

You are given a 2D integer array, `queries` . For each `queries[i]` , where `queries[i] = [ni, ki]` , find the number of different ways you can place positive integers into an array of size n_i such that the product of the integers is k_i . As the number of ways may be too large, the answer to the i^{th} query is the number of ways **modulo** $10^9 + 7$.

Return *an integer array answer where answer.length == queries.length, and answer[i] is the answer to the i^{th} query.*

Example 1:

Input: `queries = [[2,6],[5,1],[73,660]]`
Output: `[4,1,50734910]`

Explanation: Each query is independent.

`[2,6]`: There are 4 ways to fill an array of size 2 that multiply

`[5,1]`: There is 1 way to fill an array of size 5 that multiply to

`[73,660]`: There are 1050734917 ways to fill an array of size 73

Example 2:

Input: `queries = [[1,1],[2,2],[3,3],[4,4],[5,5]]`
Output: `[1,2,3,10,5]`

Constraints:

- $1 \leq \text{queries.length} \leq 10^4$

• $1 \leq n_i, k_i \leq 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[-1735-Count-Ways-to-Make-Array-With-Product](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1736. Latest Time by Replacing Hidden Digits

You are given a string `time` in the form of `hh:mm` , where some of the digits in the string are hidden (represented by `?`).

The valid times are those inclusively between `00:00` and `23:59` .

Return *the latest valid time you can get from `time` by replacing the hidden digits* .

Example 1:

Input: `time = "2?:?0"`

Output: `"23:50"`

Explanation: The latest hour beginning with the digit '2' is 23 .

Example 2:

Input: `time = "0?:3?"`

Output: `"09:39"`

Example 3:

Input: `time = "1?:22"`

Output: `"19:22"`

Constraints:

- `time` is in the format `hh:mm` .
- It is guaranteed that you can produce a valid time from the given string.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1736-Latest-Time-by-Replacing-Hidden-Digits](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1737. Change Minimum Characters to Satisfy One of Three Conditions

You are given two strings a and b that consist of lowercase letters. In one operation, you can change any character in a or b to **any lowercase letter**.

Your goal is to satisfy **one** of the following three conditions:

- **Every** letter in a is **strictly less** than **every** letter in b in the alphabet.
- **Every** letter in b is **strictly less** than **every** letter in a in the alphabet.
- **Both** a and b consist of **only one** distinct letter.

Return *the minimum number of operations needed to achieve your goal.*

Example 1:

Input: a = "aba", b = "caa"

Output: 2

Explanation: Consider the best way to make each condition true:

1) Change b to "ccc" in 2 operations, then every letter in a is

2) Change a to "bbb" and b to "aaa" in 3 operations, then every

3) Change a to "aaa" and b to "aaa" in 2 operations, then a and b

The best way was done in 2 operations (either condition 1 or condition 2).

Example 2:

Input: a = "dabadd", b = "cda"

Output: 3

Explanation: The best way is to make condition 1 true by changing

Constraints:

- $1 \leq a.length, b.length \leq 10^5$
- a and b consist only of lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1737-Change-Minimum-Characters-to-Satisfy-One-of-Three-Conditions](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1738. Find Kth Largest XOR Coordinate Value

You are given a 2D matrix of size $m \times n$, consisting of non-negative integers. You are also given an integer k .

The **value** of coordinate (a, b) of the matrix is the XOR of all $\text{matrix}[i][j]$ where $0 \leq i \leq a < m$ and $0 \leq j \leq b < n$ (**0-indexed**).

Find the k^{th} largest value (**1-indexed**) of all the coordinates of `matrix`.

Example 1:

Input: `matrix = [[5,2],[1,6]]`, $k = 1$

Output: 7

Explanation: The value of coordinate $(0,1)$ is $5 \text{ XOR } 2 = 7$, which is the largest value in the matrix.

Example 2:

Input: `matrix = [[5,2],[1,6]]`, $k = 2$

Output: 5

Explanation: The value of coordinate $(0,0)$ is $5 = 5$, which is the second largest value in the matrix.

Example 3:

Input: `matrix = [[5,2],[1,6]]`, $k = 3$

Output: 4

Explanation: The value of coordinate $(1,0)$ is $5 \text{ XOR } 1 = 4$, which is the third largest value in the matrix.

Example 4:

Input: `matrix = [[5,2],[1,6]]`, $k = 4$

Output: 0

Explanation: The value of coordinate $(1,1)$ is $5 \text{ XOR } 2 \text{ XOR } 1 \text{ XOR } 0 = 0$, which is the fourth largest value in the matrix.

Constraints:

- $m == \text{matrix.length}$
- $n == \text{matrix[i].length}$
- $1 \leq m, n \leq 1000$
- $0 \leq \text{matrix}[i][j] \leq 10^6$
- $1 \leq k \leq m * n$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1738-Find-Kth-Largest-XOR-Coordinate-Value](#)

All Problems:

[Link to All Problems](#)

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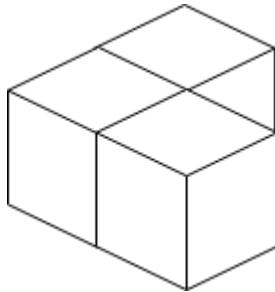
1739. Building Boxes

You have a cubic storeroom where the width, length, and height of the room are all equal to n units. You are asked to place n boxes in this room where each box is a cube of unit side length. There are however some rules to placing the boxes:

- You can place the boxes anywhere on the floor.
- If box x is placed on top of the box y , then each side of the four vertical sides of the box y **must** either be adjacent to another box or to a wall.

Given an integer n , return *the minimum possible number of boxes touching the floor*.

Example 1:

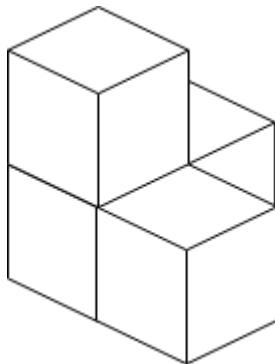


Input: $n = 3$

Output: 3

Explanation: The figure above is for the placement of the three boxes. These boxes are placed in the corner of the room, where the corner

Example 2:

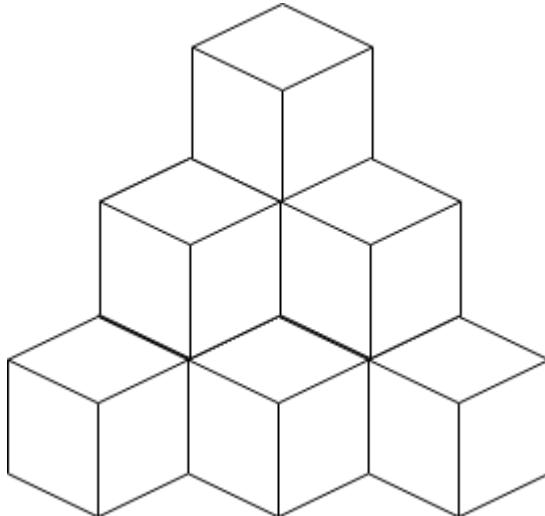


Input: $n = 4$

Output: 3

Explanation: The figure above is for the placement of the four boxes. These boxes are placed in the corner of the room, where the corner

Example 3:



Input: $n = 10$

Output: 6

Explanation: The figure above is for the placement of the ten boxes. These boxes are placed in the corner of the room, where the corner

Constraints:

- $1 \leq n \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1739-Building-Boxes](#)

All Problems:

[Link to All Problems](#)

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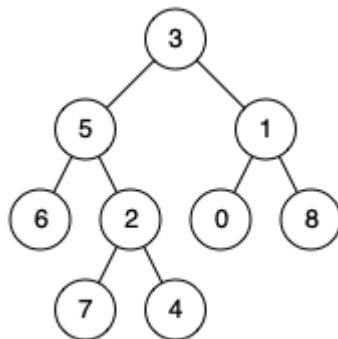
Welcome to Subscribe On Youtube:

1740. Find Distance in a Binary Tree

Given the root of a binary tree and two integers p and q , return *the distance between the nodes of value p and value q in the tree*.

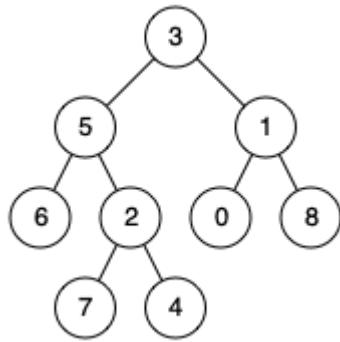
The **distance** between two nodes is the number of edges on the path from one to the other.

Example 1:



Input: `root = [3,5,1,6,2,0,8,null,null,7,4]`, $p = 5$, $q = 0$
Output: 3
Explanation: There are 3 edges between 5 and 0: 5-3-1-0.

Example 2:

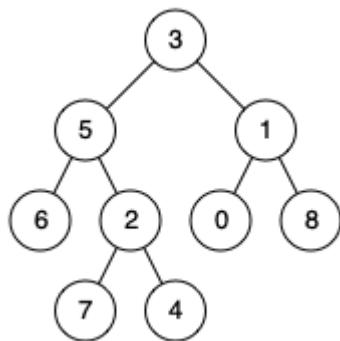


Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 7

Output: 2

Explanation: There are 2 edges between 5 and 7: 5-2-7.

Example 3:



Input: root = [3,5,1,6,2,0,8,null,null,7,4], p = 5, q = 5

Output: 0

Explanation: The distance between a node and itself is 0.

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- $0 \leq \text{Node.val} \leq 10^9$
- All `Node.val` are **unique**.
- p and q are values in the tree.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1740-Find-Distance-in-a-Binary-Tree](#)

All Problems:

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Welcome to Subscribe On Youtube:

1741. Find Total Time Spent by Each Employee

SQL Schema ›

Table: Employees

Column Name	Type
emp_id	int
event_day	date
in_time	int
out_time	int

(emp_id, event_day, in_time) is the primary key of this table. The table shows the employees' entries and exits in an office.

event_day is the day at which this event happened and in_time is the time at which the employee entered the office. It's guaranteed that no two events on the same day intersect in time.

Write an SQL query to calculate the total time **in minutes** spent by each employee on each day at the office. Note that within one day, an employee can enter and leave more than once.

Return the result table in **any order**.

The query result format is in the following example:

Employees table:

emp_id	event_day	in_time	out_time
1	2020-11-28	4	32
1	2020-11-28	55	200
1	2020-12-03	1	42
2	2020-11-28	3	33
2	2020-12-09	47	74

Result table:

day	emp_id	total_time
2020-11-28	1	173
2020-11-28	2	30
2020-12-03	1	41
2020-12-09	2	27

Employee 1 has three events two on day 2020-11-28 with a total of 173 minutes.
Employee 2 has two events one on day 2020-11-28 with a total of 30 minutes.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1741-Find-Total-Time-Spent-by-Each-Employee](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1742. Maximum Number of Balls in a Box

You are working in a ball factory where you have n balls numbered from `lowLimit` up to `highLimit` **inclusive** (i.e., $n == \text{highLimit} - \text{lowLimit} + 1$), and an infinite number of boxes numbered from 1 to infinity.

Your job at this factory is to put each ball in the box with a number equal to the sum of digits of the ball's number. For example, the ball number 321 will be put in the box number $3 + 2 + 1 = 6$ and the ball number 10 will be put in the box number $1 + 0 = 1$.

Given two integers `lowLimit` and `highLimit`, return *the number of balls in the box with the most balls*.

Example 1:

```
Input: lowLimit = 1, highLimit = 10
Output: 2
Explanation:
Box Number: 1 2 3 4 5 6 7 8 9 10 11 ...
Ball Count: 2 1 1 1 1 1 1 1 1 0 0 ...
Box 1 has the most number of balls with 2 balls.
```

Example 2:

```
Input: lowLimit = 5, highLimit = 15
Output: 2
Explanation:
Box Number: 1 2 3 4 5 6 7 8 9 10 11 ...
Ball Count: 1 1 1 1 2 2 1 1 1 0 0 ...
Boxes 5 and 6 have the most number of balls with 2 balls in each
```

Example 3:

```
Input: lowLimit = 19, highLimit = 28
Output: 2
Explanation:
Box Number: 1 2 3 4 5 6 7 8 9 10 11 12 ...
Ball Count: 0 1 1 1 1 1 1 1 1 2 0 0 ...
Box 10 has the most number of balls with 2 balls.
```

Constraints:

- $1 \leq \text{lowLimit} \leq \text{highLimit} \leq 10^5$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1742-Maximum-Number-of-Balls-in-a-Box](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1743. Restore the Array From Adjacent Pairs

There is an integer array `nums` that consists of n **unique** elements, but you have forgotten it. However, you do remember every pair of adjacent elements in `nums`.

You are given a 2D integer array `adjacentPairs` of size $n - 1$ where each `adjacentPairs[i] = [u_i, v_i]` indicates that the elements u_i and v_i are adjacent in `nums`.

It is guaranteed that every adjacent pair of elements `nums[i]` and `nums[i+1]` will exist in `adjacentPairs`, either as `[nums[i], nums[i+1]]` or `[nums[i+1], nums[i]]`. The pairs can appear **in any order**.

Return *the original array* `nums`. If there are multiple solutions, return **any of them**.

Example 1:

Input: `adjacentPairs = [[2,1],[3,4],[3,2]]`
Output: `[1,2,3,4]`

Explanation: This array has all its adjacent pairs in `adjacentPairs`. Notice that `adjacentPairs[i]` may not be in left-to-right order.

Example 2:

Input: adjacentPairs = [[4,-2],[1,4],[-3,1]]
Output: [-2,4,1,-3]
Explanation: There can be negative numbers.
Another solution is [-3,1,4,-2], which would also be accepted.

Example 3:

Input: adjacentPairs = [[100000,-100000]]
Output: [100000,-100000]

Constraints:

- `nums.length == n`
- `adjacentPairs.length == n - 1`
- `adjacentPairs[i].length == 2`
- $2 \leq n \leq 10^5$
- $-10^5 \leq \text{nums}[i], u_i, v_i \leq 10^5$
- There exists some `nums` that has `adjacentPairs` as its pairs.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1743-Restore-the-Array-From-Adjacent-Pairs](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1744. Can You Eat Your Favorite Candy on Your Favorite Day?

You are given a (**0-indexed**) array of positive integers `candiesCount` where `candiesCount[i]` represents the number of candies of the i^{th} type you have. You are also given a 2D array `queries` where `queries[i] = [favoriteTypei, favoriteDayi, dailyCapi]`.

You play a game with the following rules:

- You start eating candies on day 0 .
- You **cannot** eat **any** candy of type i unless you have eaten **all** candies of type $i - 1$.
- You must eat **at least one** candy per day until you have eaten all the candies.

Construct a boolean array `answer` such that `answer.length == queries.length` and `answer[i]` is true if you can eat a candy of type `favoriteTypei` on day `favoriteDayi` without eating **more than** `dailyCapi` candies on **any** day, and false otherwise.

Note that you can eat different types of candy on the same day, provided that you follow rule 2.

Return *the constructed array answer* .

Example 1:

Input: `candiesCount = [7,4,5,3,8]`, `queries = [[0,2,2], [4,2,4], [2,1,1]]`
Output: `[true, false, true]`
Explanation:
1- If you eat 2 candies (type 0) on day 0 and 2 candies (type 0)

- 2- You can eat at most 4 candies each day.
If you eat 4 candies every day, you will eat 4 candies (type 1 and type 2).
On day 2, you can only eat 4 candies (type 1 and type 2), so you will eat 2 candies.
- 3- If you eat 1 candy each day, you will eat a candy of type 2 on day 1.

Example 2:

Input: candiesCount = [5,2,6,4,1], queries = [[3,1,2],[4,10,3],[2,5,1]]
Output: [false,true,true,false]

Constraints:

- $1 \leq \text{candiesCount.length} \leq 10^5$
- $1 \leq \text{candiesCount[i]} \leq 10^5$
- $1 \leq \text{queries.length} \leq 10^5$
- $\text{queries[i].length} == 3$
- $0 \leq \text{favoriteType}_i < \text{candiesCount.length}$
- $0 \leq \text{favoriteDay}_i \leq 10^9$
- $1 \leq \text{dailyCap}_i \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1744-Can-You-Eat-Your-Favorite-Candy-on-Your-Favorite-Day](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1745. Palindrome Partitioning IV

Given a string s , return `true` if it is possible to split the string s into three **non-empty** palindromic substrings. Otherwise, return `false`.

A string is said to be palindrome if it the same string when reversed.

Example 1:

Input: $s = "abcbdd"$

Output: `true`

Explanation: " $abcbdd$ " = " a " + " bcb " + " dd ", and all three substr

Example 2:

Input: $s = "bcbddxy"$

Output: `false`

Explanation: s cannot be split into 3 palindromes.

Constraints:

- $3 \leq s.length \leq 2000$
- s consists only of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1745-Palindrome-Partitioning-IV](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1746. Maximum Subarray Sum After One Operation

You are given an integer array `nums` . You must perform **exactly one** operation where you can **replace** one element `nums[i]` with `nums[i] * nums[i]` .

Return *the maximum possible subarray sum after exactly one operation* . The subarray must be non-empty.

Example 1:

Input: nums = [2, -1, -4, -3]

Output: 17

Explanation: You can perform the operation on index 2 (0-indexed)

Example 2:

Input: nums = [1, -1, 1, 1, -1, -1, 1]

Output: 4

Explanation: You can perform the operation on index 1 (0-indexed)

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^4 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1746-Maximum-Subarray-Sum-After-One-Operation](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1747. Leetflex Banned Accounts

SQL Schema >

Table: LogInfo

Column Name	Type
account_id	int
ip_address	int
login	datetime
logout	datetime

There is no primary key for this table, and it may contain duplicates. The table contains information about the login and logout dates of accounts. It is guaranteed that the logout time is after the login time.

Write an SQL query to find the account_id of the accounts that should be banned from Leetflex. An account should be banned if it was logged in at some moment from two different IP addresses.

Return the result table in **any order**.

The query result format is in the following example:

LogInfo table:

account_id	ip_address	login	logout
1	1	2021-02-01 09:00:00	2021-02-01 09:00:00
1	2	2021-02-01 08:00:00	2021-02-01 11:00:00
2	6	2021-02-01 20:30:00	2021-02-01 22:00:00
2	7	2021-02-02 20:30:00	2021-02-02 22:00:00
3	9	2021-02-01 16:00:00	2021-02-01 16:00:00
3	13	2021-02-01 17:00:00	2021-02-01 17:00:00
4	10	2021-02-01 16:00:00	2021-02-01 17:00:00
4	11	2021-02-01 17:00:00	2021-02-01 17:00:00

```

Result table:
+-----+
| account_id |
+-----+
| 1          |
| 4          |
+-----+
Account ID 1 --> The account was active from "2021-02-01 09:00:00"
Account ID 2 --> The account was active from two different address
Account ID 3 --> The account was active from two different address
Account ID 4 --> The account was active from "2021-02-01 17:00:00"

```

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1747-Leetflex-Banned-Accounts](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1748. Sum of Unique Elements

You are given an integer array `nums` . The unique elements of an array are the elements that appear **exactly once** in the array.

Return *the sum of all the unique elements of `nums`* .

Example 1:

Input: `nums` = [1,2,3,2]

Output: 4

Explanation: The unique elements are [1,3] , and the sum is 4.

Example 2:

Input: `nums` = [1,1,1,1,1]

Output: 0

Explanation: There are no unique elements, and the sum is 0.

Example 3:

Input: `nums` = [1,2,3,4,5]

Output: 15

Explanation: The unique elements are [1,2,3,4,5] , and the sum is 15.

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1748-Sum-of-Unique-Elements](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1749. Maximum Absolute Sum of Any Subarray

You are given an integer array `nums` . The **absolute sum** of a subarray $[nums_l, nums_{l+1}, \dots, nums_{r-1}, nums_r]$ is $\text{abs}(nums_l + nums_{l+1} + \dots + nums_{r-1} + nums_r)$.

Return *the maximum absolute sum of any (possibly empty) subarray of `nums`* .

Note that $\text{abs}(x)$ is defined as follows:

- If x is a negative integer, then $\text{abs}(x) = -x$.
- If x is a non-negative integer, then $\text{abs}(x) = x$.

Example 1:

Input: nums = [1,-3,2,3,-4]
Output: 5
Explanation: The subarray [2,3] has absolute sum = abs(2+3) = abs(5) = 5

Example 2:

Input: nums = [2,-5,1,-4,3,-2]
Output: 8
Explanation: The subarray [-5,1,-4] has absolute sum = abs(-5+1-4) = abs(-8) = 8

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^4 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1749-Maximum-Absolute-Sum-of-Any-Subarray](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1750. Minimum Length of String After Deleting Similar Ends

Given a string s consisting only of characters 'a' , 'b' , and 'c' . You are asked to apply the following algorithm on the string any number of times:

1. Pick a **non-empty** prefix from the string s where all the characters in the prefix are equal.
2. Pick a **non-empty** suffix from the string s where all the characters in this suffix are equal.
3. The prefix and the suffix should not intersect at any index.
4. The characters from the prefix and suffix must be the same.
5. Delete both the prefix and the suffix.

Return *the minimum length of s after performing the above operation any number of times (possibly zero times)*

Example 1:

Input: $s = "ca"$

Output: 2

Explanation: You can't remove any characters, so the string stay

Example 2:

Input: $s = "cabaabac"$

Output: 0

Explanation: An optimal sequence of operations is:

- Take prefix = "c" and suffix = "c" and remove them, $s = "abaab"$
- Take prefix = "a" and suffix = "a" and remove them, $s = "baab"$
- Take prefix = "b" and suffix = "b" and remove them, $s = "aa"$.
- Take prefix = "a" and suffix = "a" and remove them, $s = ""$.

Example 3:

Input: s = "aabccabba"

Output: 3

Explanation: An optimal sequence of operations is:

- Take prefix = "aa" and suffix = "a" and remove them, s = "bccabba"
- Take prefix = "b" and suffix = "bb" and remove them, s = "cca"

Constraints:

- $1 \leq s.length \leq 10^5$
- s only consists of characters 'a' , 'b' , and 'c' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1750-Minimum-Length-of-String-After-Deleting-Similar-Ends](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1751. Maximum Number of Events That Can Be Attended II

You are given an array of events where `events[i] = [startDayi, endDayi, valuei]`. The i^{th} event starts at `startDayi` and ends at `endDayi`, and if you attend this event, you will receive a value of `valuei`. You are also given an integer `k` which represents the maximum number of events you can attend.

You can only attend one event at a time. If you choose to attend an event, you must attend the **entire** event. Note that the end day is **inclusive**: that is, you cannot attend two events where one of them starts and the other ends on the same day.

Return *the maximum sum of values that you can receive by attending events.*

Example 1:

Time	1	2	3	4
Event 0	4			
Event 1			3	
Event 2		1		

Input: `events = [[1,2,4], [3,4,3], [2,3,1]]`, `k = 2`

Output: 7

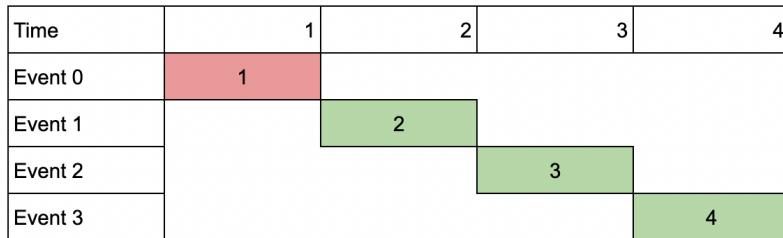
Explanation: Choose the green events, 0 and 1 (0-indexed) for a total value of 7.

Example 2:

Time	1	2	3	4
Event 0	4			
Event 1			3	
Event 2		10		

Input: events = [[1,2,4],[3,4,3],[2,3,10]], k = 2
Output: 10
Explanation: Choose event 2 for a total value of 10.
Notice that you cannot attend any other event as they overlap, a

Example 3:



Input: events = [[1,1,1],[2,2,2],[3,3,3],[4,4,4]], k = 3
Output: 9
Explanation: Although the events do not overlap, you can only at

Constraints:

- $1 \leq k \leq \text{events.length}$
- $1 \leq k * \text{events.length} \leq 10^6$
- $1 \leq \text{startDay}_i \leq \text{endDay}_i \leq 10^9$
- $1 \leq \text{value}_i \leq 10^6$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1751-Maximum-Number-of-Events-That-Can-Be-Attended-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1752. Check if Array Is Sorted and Rotated

Given an array `nums` , return `true` *if the array was originally sorted in non-decreasing order, then rotated some number of positions (including zero)* . Otherwise, return `false` .

There may be **duplicates** in the original array.

Note: An array `A` rotated by `x` positions results in an array `B` of the same length such that `A[i] == B[(i+x) % A.length]` , where `%` is the modulo operation.

Example 1:

Input: `nums = [3,4,5,1,2]`

Output: `true`

Explanation: `[1,2,3,4,5]` is the original sorted array.

You can rotate the array by `x = 3` positions to begin on the the

Example 2:

Input: `nums = [2,1,3,4]`

Output: `false`

Explanation: There is no sorted array once rotated that can make

Example 3:

Input: nums = [1,2,3]
Output: true
Explanation: [1,2,3] is the original sorted array.
You can rotate the array by x = 0 positions (i.e. no rotation) to

Example 4:

Input: nums = [1,1,1]
Output: true
Explanation: [1,1,1] is the original sorted array.
You can rotate any number of positions to make nums.

Example 5:

Input: nums = [2,1]
Output: true
Explanation: [1,2] is the original sorted array.
You can rotate the array by x = 5 positions to begin on the element 2.

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1752-Check-if-Array-Is-Sorted-and-Rotated](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1753. Maximum Score From Removing Stones

You are playing a solitaire game with **three piles** of stones of sizes a , b , and c , respectively. Each turn you choose two **different non-empty** piles, take one stone from each, and add 1 point to your score. The game stops when there are **fewer than two non-empty** piles (meaning there are no more available moves).

Given three integers a , b , and c , return the **maximum score** you can get.

Example 1:

Input: $a = 2$, $b = 4$, $c = 6$

Output: 6

Explanation: The starting state is $(2, 4, 6)$. One optimal set of

- Take from 1st and 3rd piles, state is now $(1, 4, 5)$
- Take from 1st and 3rd piles, state is now $(0, 4, 4)$
- Take from 2nd and 3rd piles, state is now $(0, 3, 3)$
- Take from 2nd and 3rd piles, state is now $(0, 2, 2)$
- Take from 2nd and 3rd piles, state is now $(0, 1, 1)$
- Take from 2nd and 3rd piles, state is now $(0, 0, 0)$

There are fewer than two non-empty piles, so the game ends. Total score is 6.

Example 2:

Input: $a = 4$, $b = 4$, $c = 6$

Output: 7

Explanation: The starting state is (4, 4, 6). One optimal set of moves is:

- Take from 1st and 2nd piles, state is now (3, 3, 6)
- Take from 1st and 3rd piles, state is now (2, 3, 5)
- Take from 1st and 3rd piles, state is now (1, 3, 4)
- Take from 1st and 3rd piles, state is now (0, 3, 3)
- Take from 2nd and 3rd piles, state is now (0, 2, 2)
- Take from 2nd and 3rd piles, state is now (0, 1, 1)
- Take from 2nd and 3rd piles, state is now (0, 0, 0)

There are fewer than two non-empty piles, so the game ends. Total score is 8.

Example 3:

Input: a = 1, b = 8, c = 8

Output: 8

Explanation: One optimal set of moves is to take from the 2nd and 3rd piles, state is now (0, 7, 7). After that, there are fewer than two non-empty piles, so the game ends. Total score is 8.

Constraints:

- $1 \leq a, b, c \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1753-Maximum-Score-From-Removing-Stones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1754. Largest Merge Of Two Strings

You are given two strings `word1` and `word2`. You want to construct a string `merge` in the following way: while either `word1` or `word2` are non-empty, choose **one** of the following options:

- If `word1` is non-empty, append the **first** character in `word1` to `merge` and delete it from `word1`.
 - For example, if `word1 = "abc"` and `merge = "dv"`, then after choosing this operation, `word1 = "bc"` and `merge = "dva"`.
- If `word2` is non-empty, append the **first** character in `word2` to `merge` and delete it from `word2`.
 - For example, if `word2 = "abc"` and `merge = ""`, then after choosing this operation, `word2 = "bc"` and `merge = "a"`.

Return *the lexicographically largest* `merge` you can construct.

A string `a` is lexicographically larger than a string `b` (of the same length) if in the first position where `a` and `b` differ, `a` has a character strictly larger than the corresponding character in `b`. For example, "`abcd`" is lexicographically larger than "`abcc`" because the first position they differ is at the fourth character, and `d` is greater than `c`.

Example 1:

Input: `word1 = "cabaa"`, `word2 = "bcaaa"`

Output: "`cbcabaaaaa`"

Explanation: One way to get the lexicographically largest merge

- Take from word1: merge = "c", word1 = "abaa", word2 = "bcaaa"
- Take from word2: merge = "cb", word1 = "abaa", word2 = "caaa"
- Take from word2: merge = "cbc", word1 = "abaa", word2 = "aaa"
- Take from word1: merge = "cbc", word1 = "baa", word2 = "aaa"
- Take from word1: merge = "cbcab", word1 = "aa", word2 = "aaa"
- Append the remaining 5 a's from word1 and word2 at the end of merge

Example 2:

Input: word1 = "abcabc", word2 = "abdcaba"
 Output: "abdcabcabcaba"

Constraints:

- $1 \leq \text{word1.length}, \text{word2.length} \leq 3000$
- word1 and word2 consist only of lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1754-Largest-Merge-Of-Two-Strings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1755. Closest Subsequence Sum

You are given an integer array `nums` and an integer `goal`.

You want to choose a subsequence of `nums` such that the sum of its elements is the closest possible to `goal`. That is, if the sum of the subsequence's elements is `sum`, then you want to **minimize the absolute difference** `abs(sum - goal)`.

Return *the minimum possible value of `abs(sum - goal)`*

Note that a subsequence of an array is an array formed by removing some elements (**possibly all or none**) of the original array.

Example 1:

Input: `nums = [5, -7, 3, 5]`, `goal = 6`
Output: `0`

Explanation: Choose the whole array as a subsequence, with a sum. This is equal to the goal, so the absolute difference is 0.

Example 2:

Input: `nums = [7, -9, 15, -2]`, `goal = -5`
Output: `1`

Explanation: Choose the subsequence `[7, -9, -2]`, with a sum of -4. The absolute difference is `abs(-4 - (-5)) = abs(1) = 1`, which is

Example 3:

Input: `nums = [1, 2, 3]`, `goal = -7`
Output: `7`

Constraints:

- $1 \leq \text{nums.length} \leq 40$
- $-10^7 \leq \text{nums}[i] \leq 10^7$
- $-10^9 \leq \text{goal} \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**[**1755-Closest-Subsequence-Sum**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1756. Design Most Recently Used Queue

Design a queue-like data structure that moves the most recently used element to the end of the queue.

Implement the `MRUQueue` class:

- `MRUQueue(int n)` constructs the `MRUQueue` with `n` elements: `[1, 2, 3, ..., n]` .
- `fetch(int k)` moves the `kth` element (**1-indexed**) to the end of the queue and returns it.

Example 1:

Input:

```
["MRUQueue", "fetch", "fetch", "fetch", "fetch"]
[[8], [3], [5], [2], [8]]
```

Output:

```
[null, 3, 6, 2, 2]
```

Explanation:

```
MRUQueue mRUQueue = new MRUQueue(8); // Initializes the queue to [1, 2, 3, 4, 5, 6, 7, 8]
mRUQueue.fetch(3); // Moves the 3rd element (3) to the end of the queue [1, 2, 4, 5, 6, 7, 8, 3]
mRUQueue.fetch(5); // Moves the 5th element (6) to the end of the queue [1, 2, 4, 5, 7, 8, 3, 6]
mRUQueue.fetch(2); // Moves the 2nd element (2) to the end of the queue [1, 4, 5, 7, 8, 3, 6, 2]
mRUQueue.fetch(8); // The 8th element (2) is already at the end of the queue [1, 4, 5, 7, 8, 3, 6, 2]
```

Constraints:

- $1 \leq n \leq 2000$
- $1 \leq k \leq n$
- At most 2000 calls will be made to `fetch` .

Follow up: Finding an $O(n)$ algorithm per `fetch` is a bit easy. Can you find an algorithm with a better complexity for each `fetch` call?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1756-Design-Most-Recently-Used-Queue](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1757. Recyclable and Low Fat Products

SQL Schema >

Table: Products

Column Name	Type
product_id	int
low_fats	enum
recyclable	enum

product_id is the primary key for this table.

low_fats is an ENUM of type ('Y', 'N') where 'Y' means this product is low fat.

Write an SQL query to find the ids of products that are both low fat and recyclable.

Return the result table in **any order**.

The query result format is in the following example:

Products table:

product_id	low_fats	recyclable
0	Y	N
1	Y	Y
2	N	Y
3	Y	Y
4	N	N

Result table:

product_id
1
3

Only products 1 and 3 are both low fat and recyclable.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1757-Recyclable-and-Low-Fat-Products](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1758. Minimum Changes To Make Alternating Binary String

You are given a string s consisting only of the characters '`0`' and '`1`'. In one operation, you can change any '`0`' to '`1`' or vice versa.

The string is called alternating if no two adjacent characters are equal. For example, the string "`010`" is alternating, while the string "`0100`" is not.

Return *the minimum number of operations needed to make s alternating*.

Example 1:

Input: $s = "0100"$

Output: 1

Explanation: If you change the last character to '`1`', s will be

Example 2:

Input: $s = "10"$

Output: 0

Explanation: s is already alternating.

Example 3:

Input: $s = "1111"$

Output: 2

Explanation: You need two operations to reach "`0101`" or "`1010`".

Constraints:

- $1 \leq s.length \leq 10^4$
- $s[i]$ is either '0' or '1' .

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

[1758-Minimum-Changes-To-Make-Alternating-Binary-String](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1759. Count Number of Homogenous Substrings

Given a string s , return *the number of homogenous substrings of s* . Since the answer may be too large, return it **modulo $10^9 + 7$** .

A string is **homogenous** if all the characters of the string are the same.

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: $s = "abbcccaa"$
Output: 13

Explanation: The homogenous substrings are listed as below:
"a" appears 3 times.
"aa" appears 1 time.
"b" appears 2 times.
"bb" appears 1 time.
"c" appears 3 times.
"cc" appears 2 times.
"ccc" appears 1 time.
 $3 + 1 + 2 + 1 + 3 + 2 + 1 = 13$.

Example 2:

Input: $s = "xy"$
Output: 2

Explanation: The homogenous substrings are "x" and "y".

Example 3:

Input: $s = "zzzzz"$
Output: 15

Constraints:

- $1 \leq s.length \leq 10^5$
- s consists of lowercase letters.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1759-Count-Number-of-Homogenous-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1760. Minimum Limit of Balls in a Bag

You are given an integer array `nums` where the i^{th} bag contains `nums[i]` balls. You are also given an integer `maxOperations`.

You can perform the following operation at most `maxOperations` times:

- Take any bag of balls and divide it into two new bags with a **positive** number of balls.
 - For example, a bag of 5 balls can become two new bags of 1 and 4 balls, or two new bags of 2 and 3 balls.

Your penalty is the **maximum** number of balls in a bag. You want to **minimize** your penalty after the operations.

Return *the minimum possible penalty after performing the operations*.

Example 1:

Input: `nums = [9]`, `maxOperations = 2`

Output: 3

Explanation:

- Divide the bag with 9 balls into two bags of sizes 6 and 3. [9]
- Divide the bag with 6 balls into two bags of sizes 3 and 3. [6]

The bag with the most number of balls has 3 balls, so your penal

Example 2:

Input: `nums = [2,4,8,2]`, `maxOperations = 4`

Output: 2

Explanation:

- Divide the bag with 8 balls into two bags of sizes 4 and 4. [2]
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2]
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2]
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2]

The bag with the most number of balls has 2 balls, so your penal

Example 3:

Input: `nums = [7,17]`, `maxOperations = 2`

Output: 7

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{maxOperations}, \text{nums[i]} \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1760-Minimum-Limit-of-Balls-in-a-Bag](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1761. Minimum Degree of a Connected Trio in a Graph

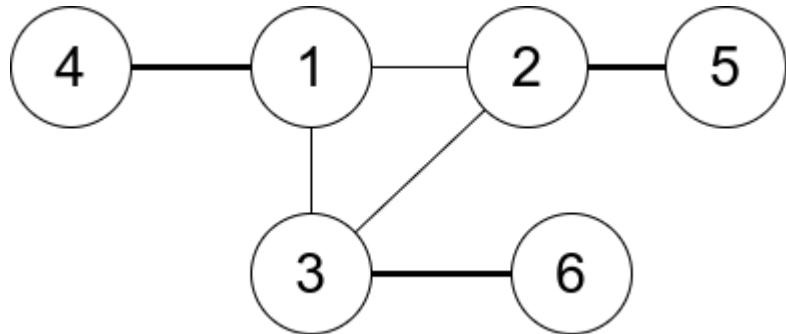
You are given an undirected graph. You are given an integer n which is the number of nodes in the graph and an array edges , where each $\text{edges}[i] = [u_i, v_i]$ indicates that there is an undirected edge between u_i and v_i .

A **connected trio** is a set of **three** nodes where there is an edge between **every** pair of them.

The **degree of a connected trio** is the number of edges where one endpoint is in the trio, and the other is not.

Return *the minimum degree of a connected trio in the graph, or -1 if the graph has no connected trios.*

Example 1:

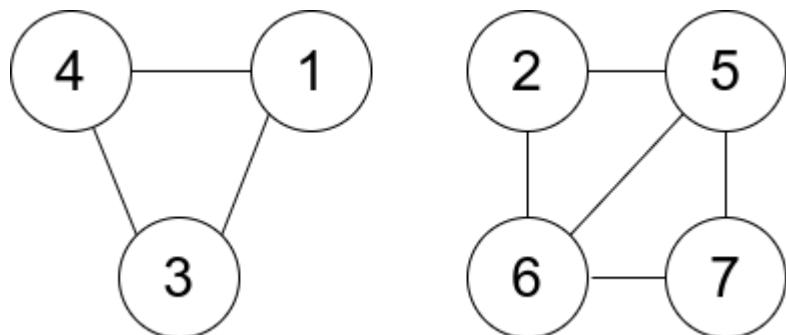


Input: $n = 6$, edges = [[1,2],[1,3],[3,2],[4,1],[5,2],[3,6]]

Output: 3

Explanation: There is exactly one trio, which is [1,2,3]. The edges connecting to the trio are 4 to 1, 5 to 2, and 6 to 3.

Example 2:



Input: $n = 7$, edges = [[1,3],[4,1],[4,3],[2,5],[5,6],[6,7],[7,5]]

Output: 0

Explanation: There are exactly three trios:

- 1) [1,4,3] with degree 0.
- 2) [2,5,6] with degree 2.
- 3) [5,6,7] with degree 2.

Constraints:

- $2 \leq n \leq 400$
- $\text{edges}[i].length == 2$
- $1 \leq \text{edges.length} \leq n * (n-1) / 2$
- $1 \leq u_i, v_i \leq n$
- $u_i \neq v_i$
- There are no repeated edges.

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1761-Minimum-Degree-of-a-Connected-Trio-in-a-Graph](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1762. Buildings With an Ocean View

There are n buildings in a line. You are given an integer array `heights` of size n that represents the heights of the buildings in the line.

The ocean is to the right of the buildings. A building has an ocean view if the building can see the ocean without obstructions. Formally, a building has an ocean view if all the buildings to its right have a **smaller** height.

Return a list of indices (**0-indexed**) of buildings that have an ocean view, sorted in increasing order.

Example 1:

Input: heights = [4,2,3,1]

Output: [0,2,3]

Explanation: Building 1 (0-indexed) does not have an ocean view

Example 2:

Input: heights = [4,3,2,1]

Output: [0,1,2,3]

Explanation: All the buildings have an ocean view.

Example 3:

Input: heights = [1,3,2,4]

Output: [3]

Explanation: Only building 3 has an ocean view.

Example 4:

Input: heights = [2,2,2,2]

Output: [3]

Explanation: Buildings cannot see the ocean if there are buildings taller than them to their left.

Constraints:

- $1 \leq \text{heights.length} \leq 10^5$
- $1 \leq \text{heights}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1762-Buildings-With-an-Ocean-View](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1763. Longest Nice Substring

A string s is **nice** if, for every letter of the alphabet that s contains, it appears **both** in uppercase and lowercase.

For example, "abABB" is nice because 'A' and 'a' appear, and 'B' and 'b' appear. However, "abA" is not because 'b' appears, but 'B' does not.

Given a string s , return *the longest substring of s that is nice*. If there are multiple, return the substring of the **earliest** occurrence. If there are none, return an empty string.

Example 1:

Input: $s = "YazaAay"$

Output: "aAa"

Explanation: "aAa" is a nice string because 'A/a' is the only le "aAa" is the longest nice substring.

Example 2:

Input: s = "Bb"

Output: "Bb"

Explanation: "Bb" is a nice string because both 'B' and 'b' appear.

Example 3:

Input: s = "c"

Output: ""

Explanation: There are no nice substrings.

Example 4:

Input: s = "dDzeE"

Output: "dD"

Explanation: Both "dD" and "eE" are the longest nice substrings. As there are multiple longest nice substrings, return "dD" since it appears first.

Constraints:

- $1 \leq s.length \leq 100$
- s consists of uppercase and lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1763-Longest-Nice-Substring](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1764. Form Array by Concatenating Subarrays of Another Array

You are given a 2D integer array `groups` of length n . You are also given an integer array `nums` .

You are asked if you can choose n **disjoint** subarrays from the array `nums` such that the i^{th} subarray is equal to `groups[i]` (**0-indexed**), and if $i > 0$, the $(i-1)^{\text{th}}$ subarray appears **before** the i^{th} subarray in `nums` (i.e. the subarrays must be in the same order as `groups`).

Return `true` if you can do this task, and `false` otherwise .

Note that the subarrays are **disjoint** if and only if there is no index k such that `nums[k]` belongs to more than one subarray. A subarray is a contiguous sequence of elements within an array.

Example 1:

Input: `groups = [[1,-1,-1],[3,-2,0]]`, `nums = [1,-1,0,1,-1,-1,3,-1]`
Output: `true`

Explanation: You can choose the 0^{th} subarray as `[1,-1,0,1,-1,-1]`. These subarrays are disjoint as they share no common `nums[k]` elements.

Example 2:

Input: groups = [[10,-2],[1,2,3,4]], nums = [1,2,3,4,10,-2]
Output: false
Explanation: Note that choosing the subarrays [1,2,3,4,10,-2] and [10,-2] must come before [1,2,3,4].

Example 3:

Input: groups = [[1,2,3],[3,4]], nums = [7,7,1,2,3,4,7,7]
Output: false
Explanation: Note that choosing the subarrays [7,7,1,2,3,4,7,7].
They share a common elements nums[4] (0-indexed).

Constraints:

- `groups.length == n`
- $1 \leq n \leq 10^3$
- $1 \leq \text{groups}[i].length$,
 $\text{sum}(\text{groups}[i].length) \leq 10^3$
- $1 \leq \text{nums.length} \leq 10^3$
- $-10^7 \leq \text{groups}[i][j], \text{nums}[k] \leq 10^7$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1764-Form-Array-by-Concatenating-Subarrays-of-Another-Array](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1765. Map of Highest Peak

You are given an integer matrix `isWater` of size $m \times n$ that represents a map of **land** and **water** cells.

- If `isWater[i][j] == 0`, cell (i, j) is a **land** cell.
- If `isWater[i][j] == 1`, cell (i, j) is a **water** cell.

You must assign each cell a height in a way that follows these rules:

- The height of each cell must be non-negative.
- If the cell is a **water** cell, its height must be 0 .
- Any two adjacent cells must have an absolute height difference of **at most 1** . A cell is adjacent to another cell if the former is directly north, east, south, or west of the latter (i.e., their sides are touching).

Find an assignment of heights such that the maximum height in the matrix is **maximized** .

Return an integer matrix `height` of size $m \times n$ where `height[i][j]` is cell (i, j) 's height. If there are multiple solutions, return **any** of them .

Example 1:

1	0
2	1

Input: isWater = [[0,1],[0,0]]

Output: [[1,0],[2,1]]

Explanation: The image shows the assigned heights of each cell. The blue cell is the water cell, and the green cells are the land cells.

Example 2:

1	1	0
0	1	1
1	2	2

Input: isWater = [[0,0,1],[1,0,0],[0,0,0]]

Output: [[1,1,0],[0,1,1],[1,2,2]]

Explanation: A height of 2 is the maximum possible height of any land cell. Any height assignment that has a maximum height of 2 while still

Constraints:

- $m == \text{isWater.length}$
- $n == \text{isWater}[i].length$
- $1 \leq m, n \leq 1000$
- $\text{isWater}[i][j]$ is 0 or 1 .
- There is at least one water cell.

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**[**1765-Map-of-Highest-Peak**](#)**All Problems:**[**Link to All Problems**](#)

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Welcome to Subscribe On Youtube:

1766. Tree of Coprimes

There is a tree (i.e., a connected, undirected graph that has no cycles) consisting of n nodes numbered from 0 to $n - 1$ and exactly $n - 1$ edges. Each node has a value associated with it, and the **root** of the tree is node 0 .

To represent this tree, you are given an integer array `nums` and a 2D array `edges`. Each `nums[i]` represents

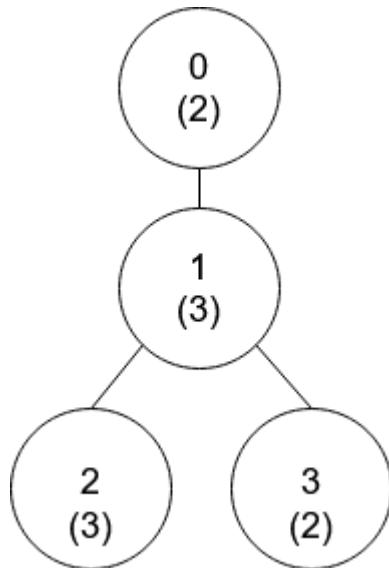
the i^{th} node's value, and each $\text{edges}[j] = [u_j, v_j]$ represents an edge between nodes u_j and v_j in the tree.

Two values x and y are **coprime** if $\text{gcd}(x, y) == 1$ where $\text{gcd}(x, y)$ is the **greatest common divisor** of x and y .

An ancestor of a node i is any other node on the shortest path from node i to the **root**. A node is **not** considered an ancestor of itself.

Return an array ans of size n , where $\text{ans}[i]$ is the closest ancestor to node i such that $\text{nums}[i]$ and $\text{nums}[\text{ans}[i]]$ are **coprime**, or -1 if there is no such ancestor.

Example 1:



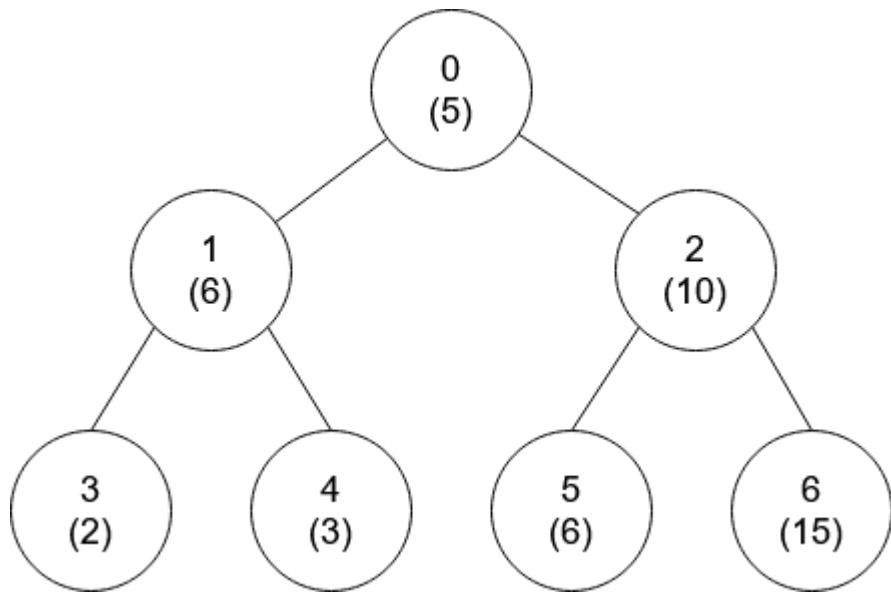
Input: $\text{nums} = [2, 3, 3, 2]$, $\text{edges} = [[0, 1], [1, 2], [1, 3]]$

Output: [-1, 0, 0, 1]

Explanation: In the above figure, each node's value is in parentheses.

- Node 0 has no coprime ancestors.
- Node 1 has only one ancestor, node 0. Their values are coprime ($\text{gcd}(2, 3) == 1$).
- Node 2 has two ancestors, nodes 1 and 0. Node 1's value is not coprime with node 2's value ($\text{gcd}(2, 3) == 1$), so node 0 is the closest valid ancestor.
- Node 3 has two ancestors, nodes 1 and 0. It is coprime with node 0's value ($\text{gcd}(3, 2) == 1$), so node 0 is the closest valid ancestor.

Example 2:



Input: `nums = [5, 6, 10, 2, 3, 6, 15]`, edges = `[[0,1], [0,2], [1,3], [1,4], [2,5], [2,6]]`
Output: `[-1, 0, -1, 0, 0, 0, -1]`

Constraints:

- `nums.length == n`
- `1 <= nums[i] <= 50`
- `1 <= n <= 105`
- `edges.length == n - 1`
- `edges[j].length == 2`
- `0 <= uj, vj < n`
- `uj != vj`

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1766-Tree-of-Coprimes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1767. Find the Subtasks That Did Not Execute

SQL Schema >

Table: Tasks

Column Name	Type
task_id	int
subtasks_count	int

task_id is the primary key for this table.

Each row in this table indicates that task_id was divided into subtasks. It is guaranteed that $2 \leq \text{subtasks_count} \leq 20$.

Table: Executed

Column Name	Type
task_id	int
subtask_id	int

(task_id, subtask_id) is the primary key for this table.

Each row in this table indicates that for the task `task_id`, the subtasks were divided into `subtasks_count` subtasks. It is guaranteed that `subtask_id <= subtasks_count` for each task.

Write an SQL query to report the IDs of the missing subtasks for each `task_id`.

Return the result table in **any order**.

The query result format is in the following example:

`Tasks` table:

<code>task_id</code>	<code>subtasks_count</code>
1	3
2	2
3	4

`Executed` table:

<code>task_id</code>	<code>subtask_id</code>
1	2
3	1
3	2
3	3
3	4

`Result` table:

<code>task_id</code>	<code>subtask_id</code>
1	1
1	3
2	1
2	2

Task 1 was divided into 3 subtasks (1, 2, 3). Only subtask 2 was executed.

Task 2 was divided into 2 subtasks (1, 2). No subtask was executed.

Task 3 was divided into 4 subtasks (1, 2, 3, 4). All of the subtasks were executed.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1767-Find-the-Subtasks-That-Did-Not-Execute](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1768. Merge Strings Alternately

You are given two strings `word1` and `word2`. Merge the strings by adding letters in alternating order, starting with `word1`. If a string is longer than the other, append the additional letters onto the end of the merged string.

Return *the merged string*.

Example 1:

Input: `word1 = "abc"`, `word2 = "pqr"`

Output: `"apbqcr"`

Explanation: The merged string will be merged as so:

`word1: a b c`

```
word2: p q r  
merged: a p b q c r
```

Example 2:

Input: word1 = "ab", word2 = "pqrs"

Output: "apbqrs"

Explanation: Notice that as word2 is longer, "rs" is appended to word1:

```
a b
```

```
p q r s
```

```
merged: a p b q r s
```

Example 3:

Input: word1 = "abcd", word2 = "pq"

Output: "apbqcd"

Explanation: Notice that as word1 is longer, "cd" is appended to word1:

```
a b c d
```

```
p q
```

```
merged: a p b q c d
```

Constraints:

- $1 \leq \text{word1.length}, \text{word2.length} \leq 100$
- word1 and word2 consist of lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1768-Merge-Strings-Alternately](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1769. Minimum Number of Operations to Move All Balls to Each Box

You have n boxes. You are given a binary string `boxes` of length n , where `boxes[i]` is '`0`' if the i^{th} box is **empty**, and '`1`' if it contains **one** ball.

In one operation, you can move **one** ball from a box to an adjacent box. Box i is adjacent to box j if $\text{abs}(i - j) == 1$. Note that after doing so, there may be more than one ball in some boxes.

Return an array `answer` of size n , where `answer[i]` is the **minimum** number of operations needed to move all the balls to the i^{th} box.

Each `answer[i]` is calculated considering the **initial** state of the boxes.

Example 1:

Input: `boxes = "110"`

Output: `[1,1,3]`

Explanation: The answer for each box is as follows:

- 1) First box: you will have to move one ball from the second box
- 2) Second box: you will have to move one ball from the first box
- 3) Third box: you will have to move one ball from the first box

Example 2:

Input: boxes = "001011"
Output: [11,8,5,4,3,4]

Constraints:

- $n == \text{boxes.length}$
- $1 \leq n \leq 2000$
- $\text{boxes}[i]$ is either '0' or '1' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1769-Minimum-Number-of-Operations-to-Move-All-Balls-to-Each-Box](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1770. Maximum Score from Performing Multiplication Operations

You are given two integer arrays `nums` and `multipliers` of size n and m respectively, where $n \geq m$. The arrays are **1-indexed**.

You begin with a score of 0. You want to perform exactly m operations. On the i^{th} operation (**1-indexed**), you will:

- Choose one integer x from **either the start or the end** of the array `nums`.
- Add `multipliers[i] * x` to your score.
- Remove x from the array `nums`.

Return *the maximum score after performing m operations*.

Example 1:

Input: `nums = [1,2,3]`, `multipliers = [3,2,1]`
Output: 14

Explanation: An optimal solution is as follows:

- Choose from the end, `[1,2,3]`, adding $3 * 3 = 9$ to the score.
- Choose from the end, `[1,2]`, adding $2 * 2 = 4$ to the score.
- Choose from the end, `[1]`, adding $1 * 1 = 1$ to the score.

The total score is $9 + 4 + 1 = 14$.

Example 2:

Input: `nums = [-5,-3,-3,-2,7,1]`, `multipliers = [-10,-5,3,4,6]`
Output: 102

Explanation: An optimal solution is as follows:

- Choose from the start, `[-5,-3,-3,-2,7,1]`, adding $-5 * -10 = 50$
- Choose from the start, `[-3,-3,-2,7,1]`, adding $-3 * -5 = 15$ to
- Choose from the start, `[-3,-2,7,1]`, adding $-3 * 3 = -9$ to the
- Choose from the end, `[-2,7,1]`, adding $1 * 4 = 4$ to the score.
- Choose from the end, `[-2,7]`, adding $7 * 6 = 42$ to the score.

The total score is $50 + 15 - 9 + 4 + 42 = 102$.

Constraints:

- $n == \text{nums.length}$
- $m == \text{multipliers.length}$

- $1 \leq m \leq 10^3$
- $m \leq n \leq 10^5$
- $-1000 \leq \text{nums}[i], \text{multipliers}[i] \leq 1000$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1770-Maximum-Score-from-Performing-Multiplication-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1771. Maximize Palindrome Length From Subsequences

You are given two strings, `word1` and `word2`. You want to construct a string in the following manner:

- Choose some **non-empty** subsequence `subsequence1` from `word1`.
- Choose some **non-empty** subsequence `subsequence2` from `word2`.
- Concatenate the subsequences: `subsequence1 + subsequence2`, to make the string.

Return *the length of the longest palindrome that can be constructed in the described manner*. If no palindromes can be constructed, return `0`.

A **subsequence** of a string `s` is a string that can be made by deleting some (possibly none) characters from `s` without changing the order of the remaining characters.

A **palindrome** is a string that reads the same forward as well as backward.

Example 1:

Input: `word1 = "cacb"`, `word2 = "cbba"`

Output: 5

Explanation: Choose "ab" from `word1` and "cba" from `word2` to make "abccba".

Example 2:

Input: `word1 = "ab"`, `word2 = "ab"`

Output: 3

Explanation: Choose "ab" from `word1` and "a" from `word2` to make "aba".

Example 3:

Input: `word1 = "aa"`, `word2 = "bb"`

Output: 0

Explanation: You cannot construct a palindrome from the described manner.

Constraints:

- $1 \leq \text{word1.length}, \text{word2.length} \leq 1000$

- `word1` and `word2` consist of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1771-Maximize-Palindrome-Length-From-Subsequences](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1772. Sort Features by Popularity

You are given a string array `features` where `features[i]` is a single word that represents the name of a feature of the latest product you are working on. You have made a survey where users have reported which features they like. You are given a string array `responses`, where each `responses[i]` is a string containing space-separated words.

The **popularity** of a feature is the number of `responses[i]` that contain the feature. You want to sort the features in non-increasing order by their popularity. If two features have the same popularity, order them by their original index in `features`. Notice that one response could contain the same feature multiple times; this feature is only counted once in its popularity.

Return *the features in sorted order*.

Example 1:

Input: `features = ["cooler", "lock", "touch"]`, `responses = ["i like coolers", "i like locks", "i like touch"]`
Output: `["touch", "cooler", "lock"]`
Explanation: `appearances("cooler") = 1`, `appearances("lock") = 1`,

Example 2:

Input: `features = ["a", "aa", "b", "c"]`, `responses = ["a", "a aa", "a bb", "a cc"]`
Output: `["a", "aa", "b", "c"]`

Constraints:

- $1 \leq \text{features.length} \leq 10^4$
- $1 \leq \text{features[i].length} \leq 10$
- `features` contains no duplicates.
- `features[i]` consists of lowercase letters.
- $1 \leq \text{responses.length} \leq 10^2$
- $1 \leq \text{responses[i].length} \leq 10^3$
- `responses[i]` consists of lowercase letters and spaces.
- `responses[i]` contains no two consecutive spaces.
- `responses[i]` has no leading or trailing spaces.

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

[1772-Sort-Features-by-Popularity](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1773. Count Items Matching a Rule

You are given an array `items` , where each `items[i] = [typei, colori, namei]` describes the type, color, and name of the i^{th} item. You are also given a

rule represented by two strings, ruleKey and ruleValue .

The i^{th} item is said to match the rule if **one** of the following is true:

- ruleKey == "type" and ruleValue == type
 i ·
- ruleKey == "color" and ruleValue == color
 i ·
- ruleKey == "name" and ruleValue == name
 i ·

Return *the number of items that match the given rule* .

Example 1:

Input: items = [["phone", "blue", "pixel"], ["computer", "silver", "laptop"]]

Output: 1

Explanation: There is only one item matching the given rule, which is ["computer", "silver", "laptop"].

Example 2:

Input: items = [["phone", "blue", "pixel"], ["computer", "silver", "laptop"], ["tv", "black", "4k"]]

Output: 2

Explanation: There are only two items matching the given rule, which are ["phone", "blue", "pixel"] and ["tv", "black", "4k"].

Constraints:

- $1 \leq \text{items.length} \leq 10^4$
- $1 \leq \text{type}_i.\text{length}, \text{color}_i.\text{length}, \text{name}_i.\text{length}, \text{ruleValue.length} \leq 10$
- ruleKey is equal to either "type" , "color" , or "name" .
- All strings consist only of lowercase letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1773-Count-Items-Matching-a-Rule](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1774. Closest Dessert Cost

You would like to make dessert and are preparing to buy the ingredients. You have n ice cream base flavors and m types of toppings to choose from. You must follow these rules when making your dessert:

- There must be **exactly one** ice cream base.
- You can add **one or more** types of topping or have no toppings at all.
- There are **at most two of each type** of topping.

You are given three inputs:

- `baseCosts` , an integer array of length n , where each `baseCosts[i]` represents the price of the i^{th} ice cream base flavor.

- `toppingCosts` , an integer array of length `m` , where each `toppingCosts[i]` is the price of **one** of the `i` th topping.
- `target` , an integer representing your target price for dessert.

You want to make a dessert with a total cost as close to `target` as possible.

Return *the closest possible cost of the dessert to target* . If there are multiple, return *the lower one*.

Example 1:

```
Input: baseCosts = [1,7], toppingCosts = [3,4], target = 10
Output: 10
Explanation: Consider the following combination (all 0-indexed):
- Choose base 1: cost 7
- Take 1 of topping 0: cost 1 x 3 = 3
- Take 0 of topping 1: cost 0 x 4 = 0
Total: 7 + 3 + 0 = 10.
```

Example 2:

```
Input: baseCosts = [2,3], toppingCosts = [4,5,100], target = 18
Output: 17
Explanation: Consider the following combination (all 0-indexed):
- Choose base 1: cost 3
- Take 1 of topping 0: cost 1 x 4 = 4
- Take 2 of topping 1: cost 2 x 5 = 10
- Take 0 of topping 2: cost 0 x 100 = 0
Total: 3 + 4 + 10 + 0 = 17. You cannot make a dessert with a tot
```

Example 3:

```
Input: baseCosts = [3,10], toppingCosts = [2,5], target = 9
Output: 8
Explanation: It is possible to make desserts with cost 8 and 10.
```

Example 4:

```
Input: baseCosts = [10], toppingCosts = [1], target = 1
Output: 10
Explanation: Notice that you don't have to have any toppings, bu
```

Constraints:

- `n == baseCosts.length`
- `m == toppingCosts.length`
- `1 <= n, m <= 10`

- $1 \leq \text{baseCosts}[i], \text{toppingCosts}[i] \leq 10^4$
- $1 \leq \text{target} \leq 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1774-Closest-Dessert-Cost](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1775. Equal Sum Arrays With Minimum Number of Operations

You are given two arrays of integers `nums1` and `nums2` , possibly of different lengths. The values in the arrays are between 1 and 6 , inclusive.

In one operation, you can change any integer's value in **any** of the arrays to **any** value between 1 and 6 , inclusive.

Return *the minimum number of operations required to make the sum of values in `nums1` equal to the sum of values in `nums2`* . Return -1 if it is not possible to make the sum of the two arrays equal.

Example 1:

Input: `nums1` = [1,2,3,4,5,6] , `nums2` = [1,1,2,2,2,2]
Output: 3

Explanation: You can make the sums of `nums1` and `nums2` equal with
- Change `nums2[0]` to 6. `nums1` = [1,2,3,4,5,6] , `nums2` = [6,1,2,2,2,2]
- Change `nums1[5]` to 1. `nums1` = [1,2,3,4,5,1] , `nums2` = [6,1,2,2,2,2]
- Change `nums1[2]` to 2. `nums1` = [1,2,2,4,5,1] , `nums2` = [6,1,2,2,2,2]

Example 2:

Input: `nums1` = [1,1,1,1,1,1,1] , `nums2` = [6]
Output: -1

Explanation: There is no way to decrease the sum of `nums1` or to

Example 3:

Input: `nums1` = [6,6] , `nums2` = [1]
Output: 3

Explanation: You can make the sums of `nums1` and `nums2` equal with
- Change `nums1[0]` to 2. `nums1` = [2,6] , `nums2` = [1].
- Change `nums1[1]` to 2. `nums1` = [2,2] , `nums2` = [1].
- Change `nums2[0]` to 4. `nums1` = [2,2] , `nums2` = [4].

Constraints:

- $1 \leq \text{nums1.length}, \text{nums2.length} \leq 10^5$
- $1 \leq \text{nums1[i]}, \text{nums2[i]} \leq 6$

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

[1775-Equal-Sum-Arrays-With-Minimum-Number-of-Operations](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1776. Car Fleet II

There are n cars traveling at different speeds in the same direction along a one-lane road. You are given an

array `cars` of length n , where `cars[i] = [positioni, speedi]` represents:

- `positioni` is the distance between the i^{th} car and the beginning of the road in meters. It is guaranteed that `positioni < positioni+1`.
- `speedi` is the initial speed of the i^{th} car in meters per second.

For simplicity, cars can be considered as points moving along the number line. Two cars collide when they occupy the same position. Once a car collides with another car, they unite and form a single car fleet. The cars in the formed fleet will have the same position and the same speed, which is the initial speed of the **slowest** car in the fleet.

Return an array `answer`, where `answer[i]` is the time, in seconds, at which the i^{th} car collides with the next car, or -1 if the car does not collide with the next car.

Answers within 10^{-5} of the actual answers are accepted.

Example 1:

Input: `cars = [[1,2],[2,1],[4,3],[7,2]]`

Output: `[1.00000,-1.00000,3.00000,-1.00000]`

Explanation: After exactly one second, the first car will collide with the second car.

Example 2:

Input: `cars = [[3,4],[5,4],[6,3],[9,1]]`

Output: `[2.00000,1.00000,1.50000,-1.00000]`

Constraints:

- $1 \leq \text{cars.length} \leq 10^5$
- $1 \leq \text{position}_i, \text{speed}_i \leq 10^6$
- $\text{position}_i < \text{position}_{i+1}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1776-Car-Fleet-II](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1777. Product's Price for Each Store

SQL Schema >

Table: Products

Column Name	Type
product_id	int
store	enum
price	int

```
+-----+-----+
(product_id,store) is the primary key for this table.
store is an ENUM of type ('store1', 'store2', 'store3') where each
price is the price of the product at this store.
```

Write an SQL query to find the price of each product in each store.

Return the result table in **any order**.

The query result format is in the following example:

Products table:

product_id	store	price
0	store1	95
0	store3	105
0	store2	100
1	store1	70
1	store3	80

Result table:

product_id	store1	store2	store3
0	95	100	105
1	70	null	80

Product 0 price's are 95 for store1, 100 for store2 and, 105 for store3. Product 1 price's are 70 for store1, 80 for store3 and, it's not present in store2.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1777-Product's-Price-for-Each-Store](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1778. Shortest Path in a Hidden Grid

This is an **interactive problem**.

You are given a robot in a hidden grid, and it wants to go to a target cell in this grid. The grid is of size $m \times n$, and each cell in the grid can be empty or blocked. It is **guaranteed** that the start point and the robot's destination are different, and neither of them is blocked.

You want to find the robot's minimum distance to the target cell. However, you do not know the grid's dimensions, or the starting point of the robot, or its target destination. You are only allowed to ask queries to your `GridMaster` object.

You are given a class `GridMaster` which you can call the following functions from:

- `boolean GridMaster.canMove(char direction)` returns true if the robot can move in that direction. Otherwise, it returns false .

- `void GridMaster.move(char direction)`
moves the robot in that direction. If this move would move the robot to a blocked cell or off the grid, it will be **ignored**, and the robot would remain in the same position.
- `boolean GridMaster.isTarget()` returns true if the robot is currently on the target cell.
Otherwise, it returns false .

Note that `direction` in the above functions should be a character from { 'U' , 'D' , 'L' , 'R' } , representing the directions up, down, left, and right, respectively.

Return *the minimum distance between the robot's initial starting cell and the target cell if there is a path between them* . Otherwise, return -1 .

Custom testing:

The test input is read as a 2D matrix `grid` of size `m x n` where:

- `grid[i][j] == -1` indicates that the robot is in cell (i, j) .
- `grid[i][j] == 0` indicates that the cell (i, j) is blocked.
- `grid[i][j] == 1` indicates that the cell (i, j) is empty.
- `grid[i][j] == 2` indicates that the cell (i, j) is the target cell.

There is exactly one -1 and 2 in `grid` . Remember that you will not have this information in your code.

Example 1:

Input: `grid = [[1,2],[-1,0]]`
Output: 2

Explanation: One possible interaction is described below:
The robot is initially standing on cell (1, 0), denoted by the -
- `master.canMove('U')` returns True.
- `master.canMove('D')` returns False.
- `master.canMove('L')` returns False.
- `master.canMove('R')` returns False.
- `master.move('U')` moves the robot to the cell (0, 0).
- `master.isTarget()` returns False.
- `master.canMove('U')` returns False.
- `master.canMove('D')` returns True.
- `master.canMove('L')` returns False.

- `master.canMove('R')` returns True.
- `master.move('R')` moves the robot to the cell (0, 1).
- `master.isTarget()` returns True.

We now know that the target is the cell (0, 1), and the shortest

Example 2:

Input: `grid = [[0,0,-1],[1,1,1],[2,0,0]]`

Output: 4

Explanation: The minimum distance between the robot and the targ

Example 3:

Input: `grid = [[-1,0],[0,2]]`

Output: -1

Explanation: There is no path from the robot to the target cell.

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= n, m <= 500`
- `grid[i][j]` is either -1 , 0 , 1 , or 2 .
- There is **exactly one** -1 in `grid` .
- There is **exactly one** 2 in `grid` .

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1778-Shortest-Path-in-a-Hidden-Grid](#)

All Problems:

[Link to All Problems](#)

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Leetcode Solutions Java Python C++

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Welcome to Subscribe On Youtube:

1779. Find Nearest Point That Has the Same X or Y Coordinate

You are given two integers, x and y , which represent your current location on a Cartesian grid: (x, y) . You are also given an array `points` where each `points[i] = [ai, bi]` represents that a point exists at (a_i, b_i) . A point is **valid** if it shares the same x-coordinate or the same y-coordinate as your location.

Return *the index (0-indexed) of the valid point with the smallest Manhattan distance from your current location*. If there are multiple, return *the valid point with the smallest index*. If there are no valid points, return -1.

The **Manhattan distance** between two points (x_1, y_1) and (x_2, y_2) is $\text{abs}(x_1 - x_2) + \text{abs}(y_1 - y_2)$.

Example 1:

Input: $x = 3$, $y = 4$, `points = [[1,2], [3,1], [2,4], [2,3], [4,4]]
Output: 2
Explanation: Of all the points, only [3,1], [2,4] and [4,4] are valid.`

Example 2:

Input: x = 3, y = 4, points = [[3,4]]

Output: 0

Explanation: The answer is allowed to be on the same location as

Example 3:

Input: x = 3, y = 4, points = [[2,3]]

Output: -1

Explanation: There are no valid points.

Constraints:

- $1 \leq \text{points.length} \leq 10^4$
- $\text{points[i].length} == 2$
- $1 \leq x, y, a_i, b_i \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1779-Find-Nearest-Point-That-Has-the-Same-X-or-Y-Coordinate](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1780. Check if Number is a Sum of Powers of Three

Given an integer n , return `true` *if it is possible to represent n as the sum of distinct powers of three.* Otherwise, return `false` .

An integer y is a power of three if there exists an integer x such that $y == 3^x$.

Example 1:

Input: $n = 12$

Output: `true`

Explanation: $12 = 3^1 + 3^2$

Example 2:

Input: $n = 91$

Output: `true`

Explanation: $91 = 3^0 + 3^2 + 3^4$

Example 3:

Input: $n = 21$

Output: `false`

Constraints:

- $1 \leq n \leq 10^7$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1780-Check-if-Number-is-a-Sum-of-Powers-of-Three](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1781. Sum of Beauty of All Substrings

The **beauty** of a string is the difference in frequencies between the most frequent and least frequent characters.

- For example, the beauty of "abaacc" is $3 - 1 = 2$

Given a string s , return *the sum of beauty of all of its substrings*.

Example 1:

Input: s = "aabcb"
Output: 5
Explanation: The substrings with non-zero beauty are ["aab", "aabcb", "abcb", "bcb"]

Example 2:

Input: s = "aabcbbaa"
Output: 17

Constraints:

- $1 \leq s.length \leq 500$
- s consists of only lowercase English letters.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1781-Sum-of-Beauty-of-All-Substrings](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1782. Count Pairs Of Nodes

You are given an undirected graph represented by an integer n , which is the number of nodes, and edges , where $\text{edges}[i] = [u_i, v_i]$ which indicates that there is an undirected edge between u_i and v_i . You are also given an integer array queries .

The answer to the j^{th} query is the number of pairs of nodes (a, b) that satisfy the following conditions:

- $a < b$
- cnt is **strictly greater** than $\text{queries}[j]$, where cnt is the number of edges incident to a **or** b .

Return an array answers such that $\text{answers.length} == \text{queries.length}$ and $\text{answers}[j]$ is the answer of the j^{th} query.

Note that there can be **repeated edges** .

Example 1:

The pair	Number of edges incident to at least one of the pair (cnt)
1,2	5
1,3	4
1,4	4
2,3	5
2,4	4
3,4	3

Input: $n = 4$, $\text{edges} = [[1,2],[2,4],[1,3],[2,3],[2,1]]$, $\text{queries} =$
Output: [6,5]

Explanation: The number of edges incident to at least one of each

Example 2:

Input: n = 5, edges = [[1,5],[1,5],[3,4],[2,5],[1,3],[5,1],[2,3]]
Output: [10,10,9,8,6]

Constraints:

- $2 \leq n \leq 2 * 10^4$
- $1 \leq \text{edges.length} \leq 10^5$
- $1 \leq u_i, v_i \leq n$
- $u_i \neq v_i$
- $1 \leq \text{queries.length} \leq 20$
- $0 \leq \text{queries}[j] < \text{edges.length}$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1782-Count-Pairs-Of-Nodes](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1783. Grand Slam Titles

SQL Schema >

Table: Players

Column Name	Type
player_id	int
player_name	varchar

player_id is the primary key for this table.

Each row in this table contains the name and the ID of a tennis player.

Table: Championships

Column Name	Type
year	int
Wimbledon	int
Fr_open	int
US_open	int
Au_open	int

year is the primary key for this table.

Each row of this table contains the IDs of the players who won a tournament.

Write an SQL query to report the number of grand slam tournaments won by each player. Do not include the players who did not win any tournament.

Return the result table in **any order**.

The query result format is in the following example:

Players table:

player_id	player_name
1	Nadal
2	Federer
3	Novak

Championships table:

year	Wimbledon	Fr_open	US_open	Au_open
2018	1	1	1	1
2019	1	1	2	2
2020	2	1	2	2

Result table:

player_id	player_name	grand_slams_count
2	Federer	5
1	Nadal	7

Player 1 (Nadal) won 7 titles: Wimbledon (2018, 2019), Fr_open (2019)
 Player 2 (Federer) won 5 titles: Wimbledon (2020), US_open (2019)
 Player 3 (Novak) did not win anything, we did not include them in the result.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

[1783-Grand-Slam-Titles](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1784. Check if Binary String Has at Most One Segment of Ones

Given a binary string s without leading zeros, return true if s contains at most one contiguous segment of ones. Otherwise, return false .

Example 1:

Input: $s = "1001"$

Output: false

Explanation: The ones do not form a contiguous segment.

Example 2:

Input: $s = "110"$

Output: true

Constraints:

- $1 \leq s.length \leq 100$
- $s[i]$ is either '0' or '1' .
- $s[0]$ is '1' .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1784-Check-if-Binary-String-Has-at-Most-One-Segment-of-Ones](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1785. Minimum Elements to Add to Form a Given Sum

You are given an integer array `nums` and two integers `limit` and `goal`. The array `nums` has an interesting property that `abs(nums[i]) <= limit`.

Return the minimum number of elements you need to add to make the sum of the array equal to `goal`. The array must maintain its property that `abs(nums[i]) <= limit`.

Note that $\text{abs}(x)$ equals x if $x \geq 0$, and $-x$ otherwise.

Example 1:

Input: `nums = [1, -1, 1]`, `limit = 3`, `goal = -4`
Output: 2

Explanation: You can add -2 and -3, then the sum of the array will be -4.

Example 2:

Input: `nums = [1, -10, 9, 1]`, `limit = 100`, `goal = 0`
Output: 1

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{limit} \leq 10^6$
- $-\text{limit} \leq \text{nums}[i] \leq \text{limit}$
- $-10^9 \leq \text{goal} \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1785-Minimum-Elements-to-Add-to-Form-a-Given-Sum](#)

All Problems:

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Welcome to Subscribe On Youtube:

1786. Number of Restricted Paths From First to Last Node

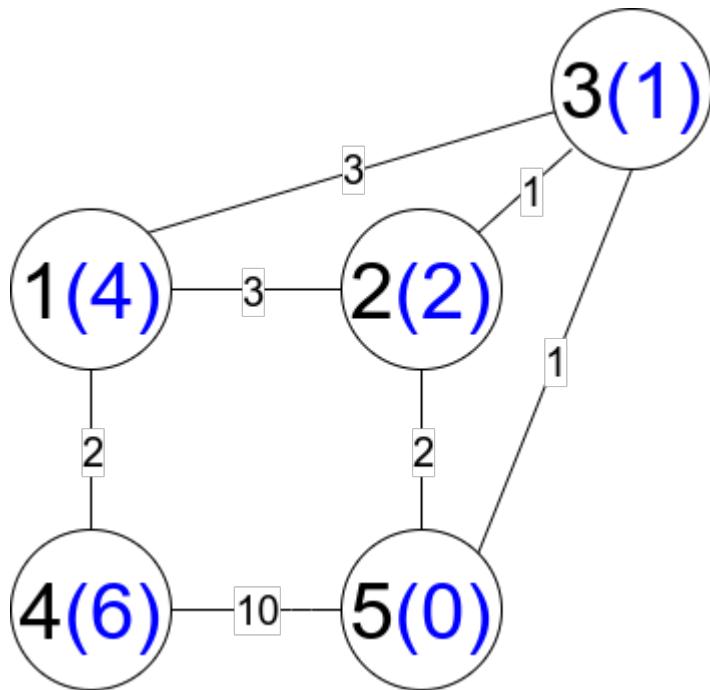
There is an undirected weighted connected graph. You are given a positive integer n which denotes that the graph has n nodes labeled from 1 to n , and an array `edges` where each `edges[i] = [u_i, v_i, weight_i]` denotes that there is an edge between nodes u_i and v_i with weight equal to $weight_i$.

A path from node `start` to node `end` is a sequence of nodes $[z_0, z_1, z_2, \dots, z_k]$ such that $z_0 = start$ and $z_k = end$ and there is an edge between z_i and z_{i+1} where $0 \leq i \leq k-1$.

The distance of a path is the sum of the weights on the edges of the path. Let `distanceToLastNode(x)` denote the shortest distance of a path between node n and node x . A **restricted path** is a path that also satisfies that $distanceToLastNode(z_i) > distanceToLastNode(z_{i+1})$ where $0 \leq i \leq k-1$.

Return *the number of restricted paths from node 1 to node n*. Since that number may be too large, return it **modulo $10^9 + 7$** .

Example 1:

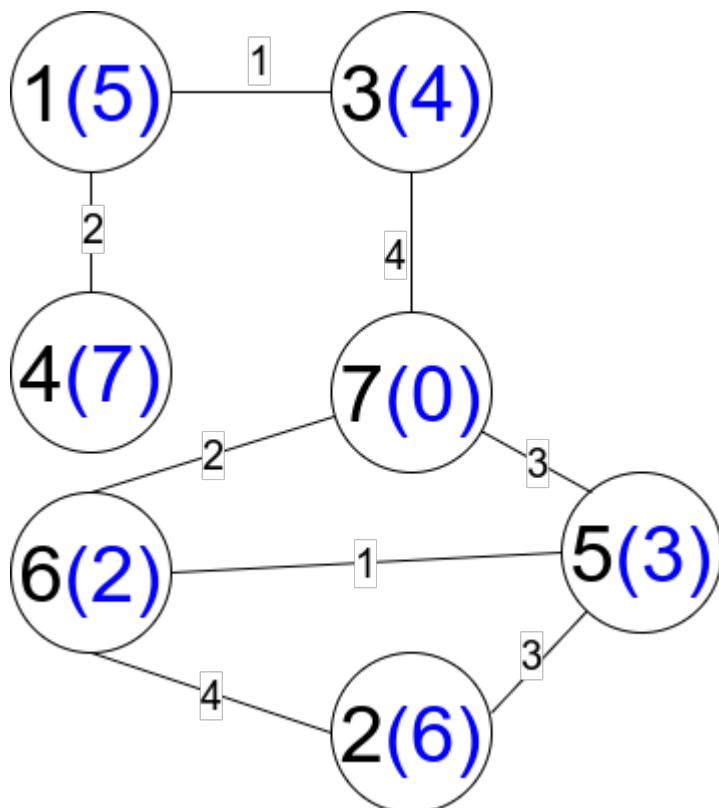


Input: $n = 5$, edges = $\[[1, 2, 3], [1, 3, 3], [2, 3, 1], [1, 4, 2], [5, 2, 2], [3, 5, 1]\]$
Output: 3

Explanation: Each circle contains the node number in black and its value in blue.

- 1) $1 \rightarrow 2 \rightarrow 5$
- 2) $1 \rightarrow 2 \rightarrow 3 \rightarrow 5$
- 3) $1 \rightarrow 3 \rightarrow 5$

Example 2:



Input: n = 7, edges = [[1,3,1],[4,1,2],[7,3,4],[2,5,3],[5,6,1],[6,7,1]]
Output: 1
Explanation: Each circle contains the node number in black and its weight in red.

Constraints:

- $1 \leq n \leq 2 * 10^4$
- $n - 1 \leq \text{edges.length} \leq 4 * 10^4$
- $\text{edges}[i].length == 3$
- $1 \leq u_i, v_i \leq n$
- $u_i \neq v_i$
- $1 \leq \text{weight}_i \leq 10^5$
- There is at most one edge between any two nodes.
- There is at least one path between any two nodes.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1786-Number-of-Restricted-Paths-From-First-to-Last-Node](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1787. Make the XOR of All Segments Equal to Zero

You are given an array `nums` and an integer `k`. The XOR of a segment `[left, right]` where `left <= right` is the XOR of all the elements with indices between `left` and `right`, inclusive:

`nums[left] XOR nums[left+1] XOR ... XOR nums[right]`.

Return *the minimum number of elements to change in the array* such that the XOR of all segments of size `k` is equal to zero.

Example 1:

Input: `nums = [1,2,0,3,0]`, `k = 1`

Output: 3

Explanation: Modify the array from `[1,2,0,3,0]` to `[0,0,0,0,0]`.

Example 2:

Input: `nums = [3,4,5,2,1,7,3,4,7]`, `k = 3`

Output: 3

Explanation: Modify the array from `[3,4,5,2,1,7,3,4,7]` to `[3,4,7,2,1,3,4,7,7]`.

Example 3:

Input: `nums = [1,2,4,1,2,5,1,2,6]`, `k = 3`

Output: 3

Explanation: Modify the array from `[1,2,4,1,2,5,1,2,6]` to `[1,2,3,1,2,5,1,2,6]`.

Constraints:

- $1 \leq k \leq \text{nums.length} \leq 2000$
- $0 \leq \text{nums}[i] < 2^{10}$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

[1787-Make-the-XOR-of-All-Segments-Equal-to-Zero](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1788. Maximize the Beauty of the Garden

There is a garden of n flowers, and each flower has an integer beauty value. The flowers are arranged in a line. You are given an integer array `flowers` of size n and each `flowers[i]` represents the beauty of the i^{th} flower.

A garden is **valid** if it meets these conditions:

- The garden has at least two flowers.
- The first and the last flower of the garden have the same beauty value.

As the appointed gardener, you have the ability to **remove** any (possibly none) flowers from the garden. You want to remove flowers in a way that makes the remaining garden **valid**. The beauty of the garden is the sum of the beauty of all the remaining flowers.

Return the maximum possible beauty of some **valid** garden after you have removed any (possibly none) flowers.

Example 1:

Input: flowers = [1,2,3,1,2]

Output: 8

Explanation: You can produce the valid garden [2,3,1,2] to have a beauty of 8.

Example 2:

Input: flowers = [100,1,1,-3,1]

Output: 3

Explanation: You can produce the valid garden [1,1,1] to have a beauty of 3.

Example 3:

Input: flowers = [-1,-2,0,-1]

Output: -2

Explanation: You can produce the valid garden [-1,-1] to have a beauty of -2.

Constraints:

- $2 \leq \text{flowers.length} \leq 10^5$
- $-10^4 \leq \text{flowers}[i] \leq 10^4$
- It is possible to create a valid garden by removing some (possibly none) flowers.

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

[1788-Maximize-the-Beauty-of-the-Garden](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1789. Primary Department for Each Employee

SQL Schema >

Table: Employee

Column Name	Type
employee_id	int
deptment_id	int
primary_flag	varchar

(employee_id, department_id) is the primary key for this table.
employee_id is the id of the employee.
department_id is the id of the department to which the employee
primary_flag is an ENUM of type ('Y', 'N'). If the flag is 'Y',

Employees can belong to multiple departments. When the employee joins other departments, they need to decide which department is their primary department. Note that when an employee belongs to only one department, their primary column is 'N' .

Write an SQL query to report all the employees with their primary department. For employees who belong to one department, report their only department.

Return the result table in any order.

The query result format is in the following example.

Employee table:

employee_id	department_id	primary_flag
1	1	N
2	1	Y
2	2	N
3	3	N
4	2	N
4	3	Y
4	4	N

Result table:

employee_id	department_id
1	1
2	1
3	3
4	3

- The Primary department for employee 1 is 1.
- The Primary department for employee 2 is 1.
- The Primary department for employee 3 is 3.
- The Primary department for employee 4 is 3.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

[1789-Primary-Department-for-Each-Employee](#)

All Problems:

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Welcome to Subscribe On Youtube:

1790. Check if One String Swap Can Make Strings Equal

You are given two strings s_1 and s_2 of equal length. A **string swap** is an operation where you choose two indices in a string (not necessarily different) and swap the characters at these indices.

Return `true` if it is possible to make both strings equal by performing **at most one string swap** on **exactly one** of the strings. Otherwise, return `false`.

Example 1:

Input: s1 = "bank", s2 = "kanb"

Output: true

Explanation: For example, swap the first character with the last

Example 2:

Input: s1 = "attack", s2 = "defend"

Output: false

Explanation: It is impossible to make them equal with one string swap

Example 3:

Input: s1 = "kelb", s2 = "kelb"

Output: true

Explanation: The two strings are already equal, so no string swap is required.

Example 4:

Input: s1 = "abcd", s2 = "dcba"

Output: false

Constraints:

- $1 \leq s1.length, s2.length \leq 100$
- $s1.length == s2.length$
- $s1$ and $s2$ consist of only lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

[1790-Check-if-One-String-Swap-Can-Make-Strings-Equal](#)

All Problems:

[Link to All Problems](#)

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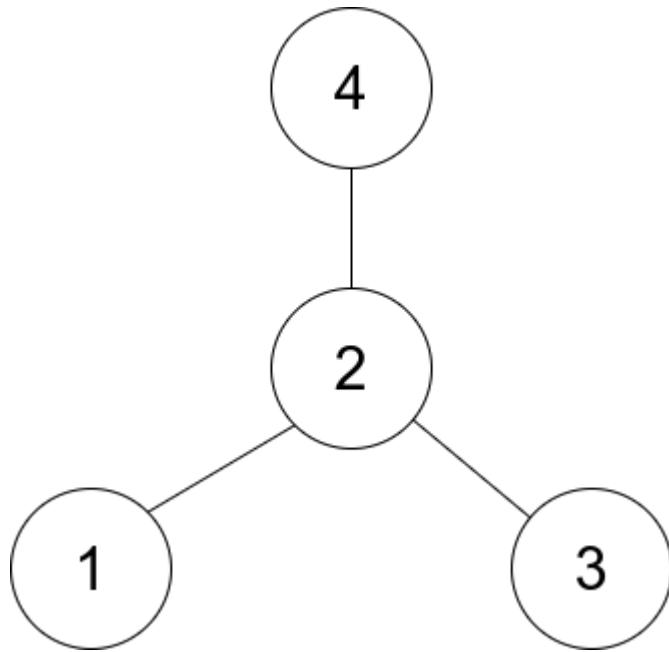
Welcome to Subscribe On Youtube:

1791. Find Center of Star Graph

There is an undirected **star** graph consisting of n nodes labeled from 1 to n . A star graph is a graph where there is one **center** node and **exactly** $n - 1$ edges that connect the center node with every other node.

You are given a 2D integer array `edges` where each `edges[i] = [u_i, v_i]` indicates that there is an edge between the nodes u_i and v_i . Return the center of the given star graph.

Example 1:



Input: edges = [[1,2],[2,3],[4,2]]

Output: 2

Explanation: As shown in the figure above, node 2 is connected to all other nodes.

Example 2:

Input: edges = [[1,2],[5,1],[1,3],[1,4]]

Output: 1

Constraints:

- $3 \leq n \leq 10^5$
- $\text{edges.length} == n - 1$
- $\text{edges}[i].length == 2$
- $1 \leq u_i, v_i \leq n$
- $u_i \neq v_i$
- The given edges represent a valid star graph.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1791-Find-Center-of-Star-Graph](#)

All Problems:

[Link to All Problems](#)

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Welcome to Subscribe On Youtube:

1792. Maximum Average Pass Ratio

There is a school that has classes of students and each class will be having a final exam. You are given a 2D integer array `classes` , where `classes[i] = [passi, totali]` . You know beforehand that in the i^{th} class, there are `totali` total students, but only `passi` number of students will pass the exam.

You are also given an integer `extraStudents` . There are another `extraStudents` brilliant students that are **guaranteed** to pass the exam of any class they are assigned to. You want to assign each of the `extraStudents` students to a class in a way that **maximizes** the **average** pass ratio across **all** the classes.

The **pass ratio** of a class is equal to the number of students of the class that will pass the exam divided by

the total number of students of the class. The **average pass ratio** is the sum of pass ratios of all the classes divided by the number of the classes.

Return *the maximum possible average pass ratio after assigning the extraStudents students*. Answers within 10^{-5} of the actual answer will be accepted.

Example 1:

Input: classes = [[1,2],[3,5],[2,2]], extraStudents = 2
Output: 0.78333

Explanation: You can assign the two extra students to the first class.

Example 2:

Input: classes = [[2,4],[3,9],[4,5],[2,10]], extraStudents = 4
Output: 0.53485

Constraints:

- $1 \leq \text{classes.length} \leq 10^5$
- $\text{classes[i].length} == 2$
- $1 \leq \text{pass}_i \leq \text{total}_i \leq 10^5$
- $1 \leq \text{extraStudents} \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1792-Maximum-Average-Pass-Ratio](#)

All Problems:

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Welcome to Subscribe On Youtube:

1793. Maximum Score of a Good Subarray

You are given an array of integers `nums` (**0-indexed**) and an integer `k`.

The **score** of a subarray (i, j) is defined as

$\min(\text{nums}[i], \text{nums}[i+1], \dots, \text{nums}[j]) * (j - i + 1)$. A **good** subarray is a subarray where $i \leq k \leq j$.

Return *the maximum possible score of a good subarray*.

Example 1:

Input: `nums = [1,4,3,7,4,5]`, `k = 3`

Output: 15

Explanation: The optimal subarray is $(1, 5)$ with a score of $\min(1, 4, 3, 7) * (5 - 1 + 1) = 3 * 5 = 15$.

Example 2:

Input: `nums = [5,5,4,5,4,1,1,1]`, `k = 0`

Output: 20

Explanation: The optimal subarray is $(0, 4)$ with a score of $\min(5, 5) * (4 - 0 + 1) = 5 * 5 = 25$.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 2 * 10^4$

• $0 \leq k < \text{nums.length}$

Difficulty:

Hard

Lock:

Normal

Company:

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Welcome to Subscribe On Youtube:

1794. Count Pairs of Equal Substrings With Minimum Difference

You are given two strings `firstString` and `secondString` that are **0-indexed** and consist only of lowercase English letters. Count the number of index quadruples (i, j, a, b) that satisfy the following conditions:

- $0 \leq i \leq j < \text{firstString.length}$
- $0 \leq a \leq b < \text{secondString.length}$
- The substring of `firstString` that starts at the i^{th} character and ends at the j^{th} character (inclusive) is **equal** to the substring of `secondString` that starts at the a^{th} character and ends at the b^{th} character (inclusive).
- $j - a$ is the **minimum** possible value among all quadruples that satisfy the previous conditions.

Return *the number of such quadruples*.

Example 1:

Input: `firstString` = "abcd", `secondString` = "bccda"
Output: 1

Explanation: The quadruple $(0, 0, 4, 4)$ is the only one that satisfies all the conditions.

Example 2:

Input: `firstString` = "ab", `secondString` = "cd"
Output: 0

Explanation: There are no quadruples satisfying all the conditions.

Constraints:

- $1 \leq \text{firstString.length}, \text{secondString.length} \leq 2 * 10^5$
- Both strings consist only of lowercase English letters.

Difficulty:

Medium

Lock:

Prime

Company:

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Welcome to Subscribe On Youtube:

1795. Rearrange Products Table

[SQL Schema](#) >

Table: Products

Column Name	Type
product_id	int
store1	int
store2	int

```

| store3      | int      |
+-----+-----+
product_id is the primary key for this table.
Each row in this table indicates the product's price in 3 different stores.
If the product is not available in a store, the price will be null.

```

Write an SQL query to rearrange the Products table so that each row has (product_id, store, price) . If a product is not available in a store, do **not** include a row with that product_id and store combination in the result table.

Return the result table in **any order** .

The query result format is in the following example:

Products table:

product_id	store1	store2	store3
0	95	100	105
1	70	null	80

Result table:

product_id	store	price
0	store1	95
0	store2	100
0	store3	105
1	store1	70
1	store3	80

Product 0 is available in all three stores with prices 95, 100, 105. Product 1 is available in store1 with price 70 and store3 with price 80.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

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1796. Second Largest Digit in a String

Given an alphanumeric string s , return *the second largest numerical digit that appears in s , or -1 if it does not exist* .

An **alphanumeric** string is a string consisting of lowercase English letters and digits.

Example 1:

Input: $s = \text{"dfa12321afd"}$

Output: 2

Explanation: The digits that appear in s are [1, 2, 3]. The second largest digit is 2.

Example 2:

Input: $s = \text{"abc1111"}$

Output: -1

Explanation: The digits that appear in s are [1]. There is no second largest digit.

Constraints:

- $1 \leq s.length \leq 500$
- s consists of only lowercase English letters and/or digits.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

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1797. Design Authentication Manager

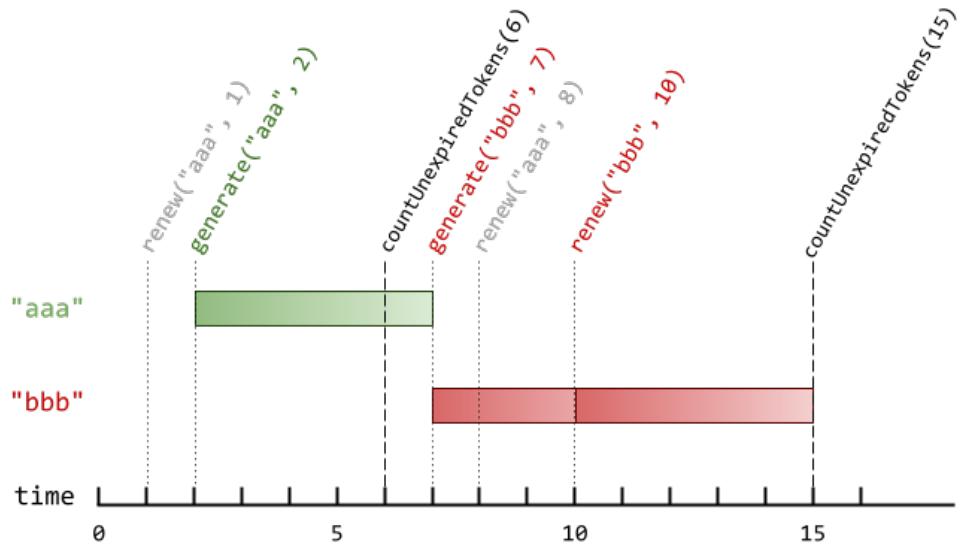
There is an authentication system that works with authentication tokens. For each session, the user will receive a new authentication token that will expire `timeToLive` seconds after the `currentTime`. If the token is renewed, the expiry time will be **extended** to expire `timeToLive` seconds after the (potentially different) `currentTime`.

Implement the `AuthenticationManager` class:

- `AuthenticationManager(int timeToLive)` constructs the `AuthenticationManager` and sets the `timeToLive`.
- `generate(string tokenId, int currentTime)` generates a new token with the given `tokenId` at the given `currentTime` in seconds.
- `renew(string tokenId, int currentTime)` renews the **unexpired** token with the given `tokenId` at the given `currentTime` in seconds. If there are no unexpired tokens with the given `tokenId`, the request is ignored, and nothing happens.
- `countUnexpiredTokens(int currentTime)` returns the number of **unexpired** tokens at the given `currentTime`.

Note that if a token expires at time t , and another action happens on time t (`renew` or `countUnexpiredTokens`), the expiration takes place **before** the other actions.

Example 1:



Input

```
["AuthenticationManager", "renew", "generate", "countUnexpiredTokens"]
[[5], ["aaa", 1], ["aaa", 2], [6], ["bbb", 7], ["aaa", 8], ["bbb", 10]]
```

Output
[null, null, null, 1, null, null, null, 0]

Explanation

```
AuthenticationManager authenticationManager = new AuthenticationManager();
authenticationManager.renew("aaa", 1); // No token exists with tokenId "aaa".
authenticationManager.generate("aaa", 2); // Generates a new token with tokenId "aaa".
authenticationManager.countUnexpiredTokens(6); // The token with tokenId "aaa" has not expired.
authenticationManager.generate("bbb", 7); // Generates a new token with tokenId "bbb".
authenticationManager.renew("aaa", 8); // The token with tokenId "aaa" has not expired.
authenticationManager.renew("bbb", 10); // The token with tokenId "bbb" has not expired.
authenticationManager.countUnexpiredTokens(15); // The token with tokenId "bbb" has expired.
```

Constraints:

- $1 \leq \text{timeToLive} \leq 10^8$
- $1 \leq \text{currentTime} \leq 10^8$
- $1 \leq \text{tokenId.length} \leq 5$
- `tokenId` consists only of lowercase letters.
- All calls to `generate` will contain unique values of `tokenId`.
- The values of `currentTime` across all the function calls will be **strictly increasing**.
- At most 2000 calls will be made to all functions combined.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

[1797-Design-Authentication-Manager](#)

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1798. Maximum Number of Consecutive Values You Can Make

You are given an integer array `coins` of length `n` which represents the `n` coins that you own. The value of the `ith` coin is `coins[i]`. You can **make** some value `x` if you can choose some of your `n` coins such that their values sum up to `x`.

Return the *maximum number of consecutive integer values that you can make* with your coins *starting from and including 0* .

Note that you may have multiple coins of the same value.

Example 1:

Input: coins = [1,3]

Output: 2

Explanation: You can make the following values:

- 0: take []
- 1: take [1]

You can make 2 consecutive integer values starting from 0.

Example 2:

Input: coins = [1,1,1,4]

Output: 8

Explanation: You can make the following values:

- 0: take []
- 1: take [1]
- 2: take [1,1]
- 3: take [1,1,1]
- 4: take [4]
- 5: take [4,1]
- 6: take [4,1,1]
- 7: take [4,1,1,1]

You can make 8 consecutive integer values starting from 0.

Example 3:

Input: nums = [1,4,10,3,1]

Output: 20

Constraints:

- coins.length == n
- $1 \leq n \leq 4 * 10^4$
- $1 \leq \text{coins}[i] \leq 4 * 10^4$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1799. Maximize Score After N Operations

You are given `nums` , an array of positive integers of size $2 * n$. You must perform n operations on this array.

In the i^{th} operation (**1-indexed**) , you will:

- Choose two elements, x and y .
- Receive a score of $i * \text{gcd}(x, y)$.
- Remove x and y from `nums` .

Return *the maximum score you can receive after performing n operations.*

The function $\text{gcd}(x, y)$ is the greatest common divisor of x and y .

Example 1:

Input: `nums = [1, 2]`

Output: 1

Explanation: The optimal choice of operations is:
 $(1 * \text{gcd}(1, 2)) = 1$

Example 2:

Input: `nums = [3, 4, 6, 8]`

Output: 11

Explanation: The optimal choice of operations is:
 $(1 * \text{gcd}(3, 6)) + (2 * \text{gcd}(4, 8)) = 3 + 8 = 11$

Example 3:

Input: `nums = [1, 2, 3, 4, 5, 6]`

Output: 14

Explanation: The optimal choice of operations is:
 $(1 * \text{gcd}(1, 5)) + (2 * \text{gcd}(2, 4)) + (3 * \text{gcd}(3, 6)) = 1 + 4 + 9 = 14$

Constraints:

- $1 \leq n \leq 7$
- $\text{nums.length} == 2 * n$
- $1 \leq \text{nums}[i] \leq 10^6$

Difficulty:

Hard

Lock:

Normal

Company:

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1800. Maximum Ascending Subarray Sum

Given an array of positive integers `nums` , return the *maximum possible sum of an **ascending** subarray in `nums`* .

A subarray is defined as a contiguous sequence of numbers in an array.

A subarray `[numsl , numsl+1 , ... , numsr-1 , numsr]` is **ascending** if for all i where $l \leq i < r$, $\text{nums}_{i+1} > \text{nums}_i$. Note that a subarray of size 1 is **ascending** .

Example 1:

Input: `nums = [10,20,30,5,10,50]`

Output: 65

Explanation: `[5,10,50]` is the ascending subarray with the maximum sum.

Example 2:

Input: nums = [10, 20, 30, 40, 50]

Output: 150

Explanation: [10, 20, 30, 40, 50] is the ascending subarray with the maximum length.

Example 3:

Input: nums = [12, 17, 15, 13, 10, 11, 12]

Output: 33

Explanation: [10, 11, 12] is the ascending subarray with the maximum length.

Example 4:

Input: nums = [100, 10, 1]

Output: 100

Constraints:

- $1 \leq \text{nums.length} \leq 100$
- $1 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

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1801. Number of Orders in the Backlog

You are given a 2D integer array `orders` , where each `orders[i] = [pricei, amounti, orderTypei]` denotes that amount_i orders have been placed of type `orderTypei` at the price `pricei` . The `orderTypei` is:

- 0 if it is a batch of buy orders, or
- 1 if it is a batch of sell orders.

Note that `orders[i]` represents a batch of amount_i independent orders with the same price and order type. All orders represented by `orders[i]` will be placed before all orders represented by `orders[i+1]` for all valid `i` .

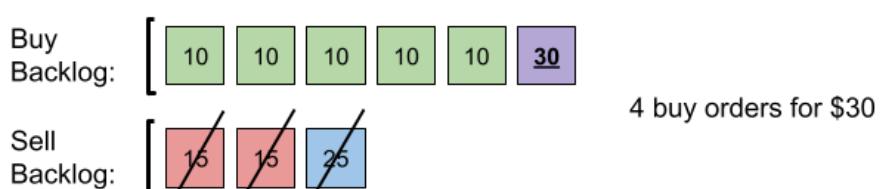
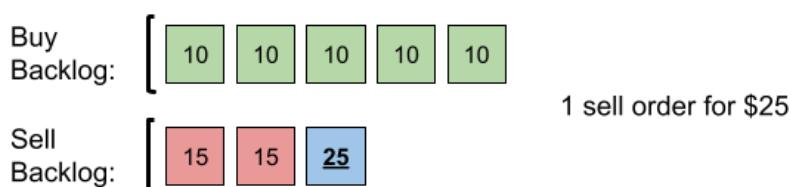
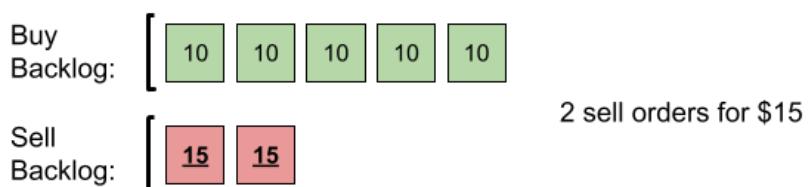
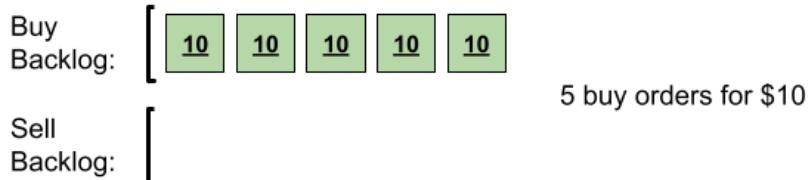
There is a **backlog** that consists of orders that have not been executed. The backlog is initially empty. When an order is placed, the following happens:

- If the order is a buy order, you look at the sell order with the **smallest** price in the backlog. If that sell order's price is **smaller than or equal to** the current buy order's price, they will match and be executed, and that sell order will be removed from the backlog. Else, the buy order is added to the backlog.
- Vice versa, if the order is a sell order, you look at the buy order with the **largest** price in the backlog. If that buy order's price is **larger than or equal to** the current sell order's price, they will match and

be executed, and that buy order will be removed from the backlog. Else, the sell order is added to the backlog.

Return the total **amount** of orders in the backlog after placing all the orders from the input. Since this number can be large, return it **modulo $10^9 + 7$** .

Example 1:

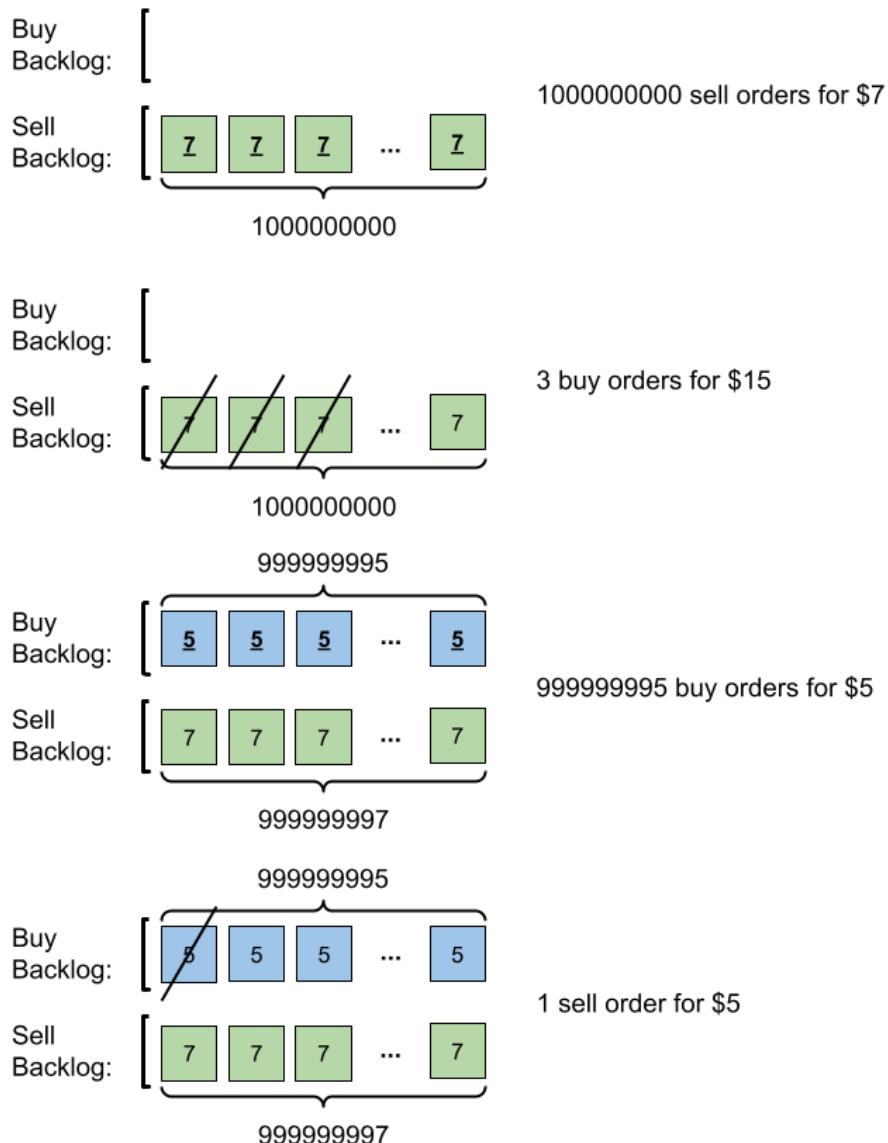


Input: `orders = [[10,5,0],[15,2,1],[25,1,1],[30,4,0]]`
Output: 6

Explanation: Here is what happens with the orders:

- 5 orders of type buy with price 10 are placed. There are no sell orders for price 10, so all 5 orders are added to the backlog.
 - 2 orders of type sell with price 15 are placed. There are no buy orders for price 15, so both orders are added to the backlog.
 - 1 order of type sell with price 25 is placed. There are no buy orders for price 25, so the order is added to the backlog.
 - 4 orders of type buy with price 30 are placed. The first 2 orders are matched with sell orders for price 15 (which are removed from the backlog), and the last 2 orders are added to the backlog.
- Finally, the backlog has 5 buy orders with price 10, and 1 buy order with price 30.

Example 2:



Input: `orders = [[7,1000000000,1],[15,3,0],[5,999999995,0],[5,1,0]]`
Output: 999999984

Explanation: Here is what happens with the orders:

- 10⁹ orders of type sell with price 7 are placed. There are no buy orders for price 7.
 - 3 orders of type buy with price 15 are placed. They are matched with sell orders for price 15.
 - 999,999,995 orders of type buy with price 5 are placed. The least expensive sell order for price 5 is matched with one buy order for price 5.
 - 1 order of type sell with price 5 is placed. It is matched with one buy order for price 5.
- Finally, the backlog has (1000000000 - 3) sell orders with price 7.

Constraints:

- `1 <= orders.length <= 105`
- `orders[i].length == 3`
- `1 <= pricei, amounti <= 109`
- `orderTypei` is either 0 or 1.

Difficulty:

Medium

Lock:

Normal

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1802. Maximum Value at a Given Index in a Bounded Array

You are given three positive integers n , index and maxSum . You want to construct an array nums (**0-indexed**) that satisfies the following conditions:

- $\text{nums.length} == n$
- $\text{nums}[i]$ is a **positive** integer where $0 \leq i < n$.
- $\text{abs}(\text{nums}[i] - \text{nums}[i+1]) \leq 1$ where $0 \leq i < n-1$.
- The sum of all the elements of nums does not exceed maxSum .
- $\text{nums}[\text{index}]$ is **maximized**.

Return $\text{nums}[\text{index}]$ of the constructed array.

Note that $\text{abs}(x)$ equals x if $x \geq 0$, and $-x$ otherwise.

Example 1:

Input: $n = 4$, $\text{index} = 2$, $\text{maxSum} = 6$

Output: 2

Explanation: The arrays $[1,1,2,1]$ and $[1,2,2,1]$ satisfy all the

Example 2:

Input: $n = 6$, $\text{index} = 1$, $\text{maxSum} = 10$

Output: 3

Constraints:

- $1 \leq n \leq \text{maxSum} \leq 10^9$
- $0 \leq \text{index} < n$

Difficulty:

Medium

Lock:

Normal

Company:

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1803. Count Pairs With XOR in a Range

Given a **(0-indexed)** integer array `nums` and two integers `low` and `high`, return *the number of nice pairs*.

A **nice pair** is a pair (i, j) where $0 \leq i < j < \text{nums.length}$ and $\text{low} \leq (\text{nums}[i] \text{ XOR } \text{nums}[j]) \leq \text{high}$.

Example 1:

Input: `nums = [1,4,2,7]`, `low = 2`, `high = 6`

Output: 6

Explanation: All nice pairs (i, j) are as follows:

- $(0, 1)$: $\text{nums}[0] \text{ XOR } \text{nums}[1] = 5$
- $(0, 2)$: $\text{nums}[0] \text{ XOR } \text{nums}[2] = 3$

- (0, 3): $\text{nums}[0] \text{ XOR } \text{nums}[3] = 6$
- (1, 2): $\text{nums}[1] \text{ XOR } \text{nums}[2] = 6$
- (1, 3): $\text{nums}[1] \text{ XOR } \text{nums}[3] = 3$
- (2, 3): $\text{nums}[2] \text{ XOR } \text{nums}[3] = 5$

Example 2:

Input: $\text{nums} = [9, 8, 4, 2, 1]$, $\text{low} = 5$, $\text{high} = 14$

Output: 8

Explanation: All nice pairs (i, j) are as follows:

- (0, 2): $\text{nums}[0] \text{ XOR } \text{nums}[2] = 13$
- (0, 3): $\text{nums}[0] \text{ XOR } \text{nums}[3] = 11$
- (0, 4): $\text{nums}[0] \text{ XOR } \text{nums}[4] = 8$
- (1, 2): $\text{nums}[1] \text{ XOR } \text{nums}[2] = 12$
- (1, 3): $\text{nums}[1] \text{ XOR } \text{nums}[3] = 10$
- (1, 4): $\text{nums}[1] \text{ XOR } \text{nums}[4] = 9$
- (2, 3): $\text{nums}[2] \text{ XOR } \text{nums}[3] = 6$
- (2, 4): $\text{nums}[2] \text{ XOR } \text{nums}[4] = 5$

Constraints:

- $1 \leq \text{nums.length} \leq 2 * 10^4$
- $1 \leq \text{nums}[i] \leq 2 * 10^4$
- $1 \leq \text{low} \leq \text{high} \leq 2 * 10^4$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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1804. Implement Trie II (Prefix Tree)

A [trie](#) (pronounced as "try") or **prefix tree** is a tree data structure used to efficiently store and retrieve keys in a dataset of strings. There are various applications of this data structure, such as autocomplete and spellchecker.

Implement the Trie class:

- `Trie()` Initializes the trie object.
- `void insert(String word)` Inserts the string `word` into the trie.
- `int countWordsEqualTo(String word)` Returns the number of instances of the string `word` in the trie.
- `int countWordsStartingWith(String prefix)` Returns the number of strings in the trie that have the string `prefix` as a prefix.
- `void erase(String word)` Erases the string `word` from the trie.

Example 1:

Input

```
[ "Trie", "insert", "insert", "countWordsEqualTo", "countWordsStartingWith", ["apple"], ["apple"], ["apple"], ["app"], ["apple"], ["apple"] ]
```

Output

```
[ null, null, null, 2, 2, null, 1, 1, null, 0 ]
```

Explanation

```
Trie trie = new Trie();
trie.insert("apple"); // Inserts "apple".
```

```
trie.insert("apple");           // Inserts another "apple".
trie.countWordsEqualTo("apple"); // There are two instances o
trie.countWordsStartingWith("app"); // "app" is a prefix of "app
trie.erase("apple");           // Erases one "apple".
trie.countWordsEqualTo("apple"); // Now there is only one ins
trie.countWordsStartingWith("app"); // return 1
trie.erase("apple");           // Erases "apple". Now the t
trie.countWordsStartingWith("app"); // return 0
```

Constraints:

- $1 \leq \text{word.length}, \text{prefix.length} \leq 2000$
- `word` and `prefix` consist only of lowercase English letters.
- At most $3 * 10^4$ calls **in total** will be made to `insert`, `countWordsEqualTo`, `countWordsStartingWith`, and `erase`.
- It is guaranteed that for any function call to `erase`, the string `word` will exist in the trie.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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1805. Number of Different Integers in a String

You are given a string `word` that consists of digits and lowercase English letters.

You will replace every non-digit character with a space. For example, "a123bc34d8ef34" will become " 123 34 8 34". Notice that you are left with some integers that are separated by at least one space: "123", "34", "8", and "34".

Return *the number of different integers after performing the replacement operations on word*.

Two integers are considered different if their decimal representations **without any leading zeros** are different.

Example 1:

Input: `word = "a123bc34d8ef34"`

Output: 3

Explanation: The three different integers are "123", "34", and "8".

Example 2:

Input: `word = "leet1234code234"`

Output: 2

Example 3:

Input: `word = "a1b01c001"`

Output: 1

Explanation: The three integers "1", "01", and "001" all represent the value 1. The leading zeros are ignored when comparing their decimal values.

Constraints:

- $1 \leq \text{word.length} \leq 1000$
- `word` consists of digits and lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:**Problem Solution**

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1806. Minimum Number of Operations to Reinitialize a Permutation

You are given an **even** integer n . You initially have a permutation perm of size n , where $\text{perm}[i] == i$ (**0-indexed**).
In one operation, you will create a new array arr , and for each i :

- If $i \% 2 == 0$, then $\text{arr}[i] = \text{perm}[i / 2]$.
- If $i \% 2 == 1$, then $\text{arr}[i] = \text{perm}[n / 2 + (i - 1) / 2]$.

You will then assign arr to perm .

Return *the minimum non-zero number of operations you need to perform on perm to return the permutation to its initial value.*

Example 1:

Input: $n = 2$
Output: 1
Explanation: $\text{perm} = [0,1]$ initially.
After the 1st operation, $\text{perm} = [0,1]$
So it takes only 1 operation.

Example 2:

Input: $n = 4$
Output: 2
Explanation: $\text{perm} = [0,1,2,3]$ initially.
After the 1st operation, $\text{perm} = [0,2,1,3]$
After the 2nd operation, $\text{perm} = [0,1,2,3]$
So it takes only 2 operations.

Example 3:

Input: $n = 6$
Output: 4

Constraints:

- $2 \leq n \leq 1000$

- $n \equiv 0 \pmod{2}$ is even.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1807. Evaluate the Bracket Pairs of a String

You are given a string s that contains some bracket pairs, with each pair containing a **non-empty** key.

- For example, in the string " $(name) is (age) yearsold$ ", there are **two** bracket pairs that contain the keys "name" and "age".

You know the values of a wide range of keys. This is represented by a 2D string array knowledge where each $\text{knowledge}[i] = [\text{key}_i, \text{value}_i]$ indicates that key key_i has a value of value_i .

You are tasked to evaluate **all** of the bracket pairs. When you evaluate a bracket pair that contains some key key_i , you will:

- Replace key_i and the bracket pair with the key's corresponding value_i .
- If you do not know the value of the key, you will replace key_i and the bracket pair with a question mark "?" (without the quotation marks).

Each key will appear at most once in your knowledge . There will not be any nested brackets in s .

Return *the resulting string after evaluating all of the bracket pairs*.

Example 1:

Input: $s = "(name) is (age) yearsold"$, $\text{knowledge} = [[\text{name}, \text{bob}], [\text{age}, \text{two}]]$
Output: "bobistwoyearsold"

Explanation:

The key "name" has a value of "bob", so replace "(name)" with "bob".
The key "age" has a value of "two", so replace "(age)" with "two".

Example 2:

Input: $s = "hi(name)"$, $\text{knowledge} = [[\text{a}, \text{b}]]$
Output: "hi?"

Explanation: As you do not know the value of the key "name", rep

Example 3:

Input: s = "(a)(a)(a)aaa", knowledge = [["a","yes"]]
Output: "yesyesyesaaa"
Explanation: The same key can appear multiple times.
The key "a" has a value of "yes", so replace all occurrences of
Notice that the "a"s not in a bracket pair are not evaluated.

Example 4:

Input: s = "(a)(b)", knowledge = [[["a","b"], ["b","a"]]]
Output: "ba"

Constraints:

- $1 \leq s.length \leq 10^5$
- $0 \leq \text{knowledge.length} \leq 10^5$
- $\text{knowledge}[i].length == 2$
- $1 \leq \text{key}_i.length, \text{value}_i.length \leq 10$
- s consists of lowercase English letters and round brackets '(' and ')'.
- Every open bracket '(' in s will have a corresponding close bracket ')'.
- The key in each bracket pair of s will be non-empty.
- There will not be any nested bracket pairs in s .
- key_i and value_i consist of lowercase English letters.
- Each key_i in knowledge is unique.

Difficulty:

Medium

Lock:

Normal

Company:

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1808. Maximize Number of Nice Divisors

You are given a positive integer `primeFactors` . You are asked to construct a positive integer `n` that satisfies the following conditions:

- The number of prime factors of `n` (not necessarily distinct) is **at most** `primeFactors` .
- The number of nice divisors of `n` is maximized.
Note that a divisor of `n` is **nice** if it is divisible by every prime factor of `n` . For example, if `n = 12` , then its prime factors are `[2, 2, 3]` , then 6 and 12 are nice divisors, while 3 and 4 are not.

Return *the number of nice divisors of n* . Since that number can be too large, return it **modulo** $10^9 + 7$.

Note that a prime number is a natural number greater than 1 that is not a product of two smaller natural numbers. The prime factors of a number `n` is a list of prime numbers such that their product equals `n` .

Example 1:

Input: primeFactors = 5
Output: 6
Explanation: 200 is a valid value of n.
It has 5 prime factors: [2,2,2,5,5], and it has 6 nice divisors:
There is not other value of n that has at most 5 prime factors a

Example 2:

Input: primeFactors = 8
Output: 18

Constraints:

- $1 \leq \text{primeFactors} \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

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1809. Ad-Free Sessions

SQL Schema >

Table: Playback

Column Name	Type
session_id	int
customer_id	int
start_time	int
end_time	int

session_id is the primary key for this table.

customer_id is the ID of the customer watching this session.

The session runs during the inclusive interval between start_time and end_time.

It is guaranteed that start_time <= end_time and that two sessions do not overlap.

Table: Ads

Column Name	Type
ad_id	int
customer_id	int
timestamp	int

ad_id is the primary key for this table.

customer_id is the ID of the customer viewing this ad.

timestamp is the moment of time at which the ad was shown.

Write an SQL query to report all the sessions that did not get shown any ads.

Return the result table in **any order**.

The query result format is in the following example:

Playback table:

session_id	customer_id	start_time	end_time
1	1	1	5
2	1	15	23
3	2	10	12
4	2	17	28

5	2	2	8
-----	-----	-----	-----

Ads table:

ad_id	customer_id	timestamp
1	1	5
2	2	15
3	2	20

Result table:

session_id
2
3
5

The ad with ID 1 was shown to user 1 at time 5 while they were in session 2.
The ad with ID 2 was shown to user 2 at time 15 while they were in session 3.
The ad with ID 3 was shown to user 2 at time 20 while they were in session 5.
We can see that sessions 1 and 4 had at least one ad. Sessions 2, 3, and 5 each had exactly one ad.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

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1810. Minimum Path Cost in a Hidden Grid

This is an **interactive problem**.

There is a robot in a hidden grid, and you are trying to get it from its starting cell to the target cell in this grid. The grid is of size $m \times n$, and each cell in the grid is either empty or blocked. It is **guaranteed** that the starting cell and the target cell are different, and neither of them is blocked.

Each cell has a **cost** that you need to pay each time you **move** to the cell. The starting cell's cost is **not** applied before the robot moves.

You want to find the minimum total cost to move the robot to the target cell. However, you **do not know** the grid's dimensions, the starting cell, nor the target cell. You are only allowed to ask queries to the `GridMaster` object.

The `GridMaster` class has the following functions:

- `boolean canMove(char direction)` Returns `true` if the robot can move in that direction. Otherwise, it returns `false`.
- `int move(char direction)` Moves the robot in that direction and returns the cost of moving to that cell. If this move would move the robot to a blocked cell or off the grid, the move will be **ignored**, the

robot will remain in the same position, and the function will return -1 .

- boolean `isTarget()` Returns true if the robot is currently on the target cell. Otherwise, it returns false .

Note that `direction` in the above functions should be a character from { 'U' , 'D' , 'L' , 'R' } , representing the directions up, down, left, and right, respectively.

Return the **minimum total cost** to get the robot from its initial starting cell to the target cell. If there is no valid path between the cells, return -1 .

Custom testing:

The test input is read as a 2D matrix `grid` of size `m x n` and four integers `r1` , `c1` , `r2` , and `c2` where:

- `grid[i][j] == 0` indicates that the cell (i, j) is blocked.
- `grid[i][j] >= 1` indicates that the cell (i, j) is empty and `grid[i][j]` is the **cost** to move to that cell.
- `(r1, c1)` is the starting cell of the robot.
- `(r2, c2)` is the target cell of the robot.

Remember that you will **not** have this information in your code.

Example 1:

Input: `grid = [[2,3],[1,1]]`, `r1 = 0`, `c1 = 1`, `r2 = 1`, `c2 = 0`
Output: 2

Explanation: One possible interaction is described below:
The robot is initially standing on cell (0, 1), denoted by the 3
- `master.canMove('U')` returns false.
- `master.canMove('D')` returns true.
- `master.canMove('L')` returns true.
- `master.canMove('R')` returns false.
- `master.move('L')` moves the robot to the cell (0, 0) and returns 1.
- `master.isTarget()` returns false.
- `master.canMove('U')` returns false.
- `master.canMove('D')` returns true.
- `master.canMove('L')` returns false.
- `master.canMove('R')` returns true.
- `master.move('D')` moves the robot to the cell (1, 0) and returns 1.
- `master.isTarget()` returns true.
- `master.move('L')` doesn't move the robot and returns -1.

- `master.move('R')` moves the robot to the cell (1, 1) and returns 1
We now know that the target is the cell (0, 1), and the minimum cost path is (2,0) -> (2,1) -> (1,1) -> (0,1).

Example 2:

Input: `grid = [[0,3,1],[3,4,2],[1,2,0]]`, `r1 = 2`, `c1 = 0`, `r2 = 0`, `c2 = 1`
Output: 9

Explanation: The minimum cost path is (2,0) -> (2,1) -> (1,1) -> (0,1).

Example 3:

Input: `grid = [[1,0],[0,1]]`, `r1 = 0`, `c1 = 0`, `r2 = 1`, `c2 = 1`
Output: -1

Explanation: There is no path from the robot to the target cell.

Constraints:

- $1 \leq n, m \leq 100$
- $m == \text{grid.length}$
- $n == \text{grid[i].length}$
- $0 \leq \text{grid[i][j]} \leq 100$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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1811. Find Interview Candidates

SQL Schema >

Table: Contests

Column Name	Type
contest_id	int
gold_medal	int
silver_medal	int
bronze_medal	int

contest_id is the primary key for this table.

This table contains the LeetCode contest ID and the user IDs of the winners of each contest. It is guaranteed that any consecutive contests have consecutive IDs.

Table: Users

Column Name	Type
user_id	int
mail	varchar
name	varchar

user_id is the primary key for this table.

This table contains information about the users.

Write an SQL query to report the name and the mail of all **interview candidates**. A user is an **interview candidate** if at least one of these two conditions is true:

- The user won **any** medal in **three or more consecutive** contests.

- The user won the **gold** medal in **three or more different** contests (not necessarily consecutive).

Return the result table in **any order**.

The query result format is in the following example:

Contests table:

contest_id	gold_medal	silver_medal	bronze_medal
190	1	5	2
191	2	3	5
192	5	2	3
193	1	3	5
194	4	5	2
195	4	2	1
196	1	5	2

Users table:

user_id	mail	name
1	sarah@leetcode.com	Sarah
2	bob@leetcode.com	Bob
3	alice@leetcode.com	Alice
4	hercy@leetcode.com	Hercy
5	quarz@leetcode.com	Quarz

Result table:

name	mail
Sarah	sarah@leetcode.com
Bob	bob@leetcode.com
Alice	alice@leetcode.com
Quarz	quarz@leetcode.com

Sarah won 3 gold medals (190, 193, and 196), so we include her in the result.
 Bob won a medal in 3 consecutive contests (190, 191, and 192), so he is included.
 - Note that he also won a medal in 3 other consecutive contests.
 Alice won a medal in 3 consecutive contests (191, 192, and 193), so she is included.
 Quarz won a medal in 5 consecutive contests (190, 191, 192, 193, and 194), so he is included.

Follow up:

- What if the first condition changed to be "any medal in **n or more** consecutive contests"? How would you change your solution to get the interview?

candidates? Imagine that n is the parameter of a stored procedure.

- Some users may not participate in every contest but still perform well in the ones they do. How would you change your solution to only consider contests where the user **was a participant**? Suppose the registered users for each contest are given in another table.

Difficulty:

Medium

Lock:

Prime

Company:

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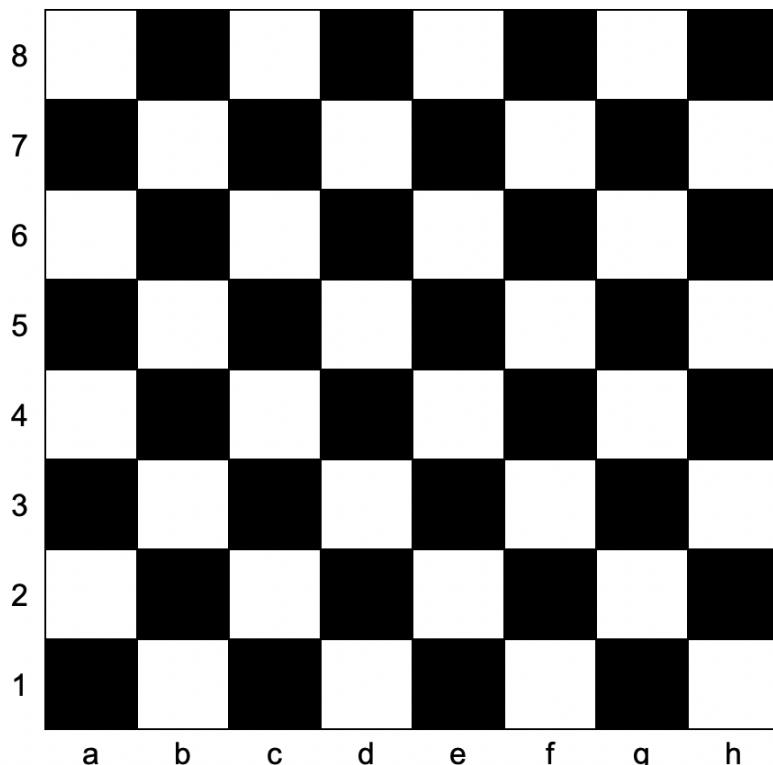
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1812. Determine Color of a Chessboard Square

You are given coordinates , a string that represents the coordinates of a square of the chessboard. Below is a chessboard for your reference.



Return true if the square is white, and false if the square is black .

The coordinate will always represent a valid chessboard square. The coordinate will always have the letter first, and the number second.

Example 1:

Input: coordinates = "a1"

Output: false

Explanation: From the chessboard above, the square with coordina

Example 2:

Input: coordinates = "h3"

Output: true

Explanation: From the chessboard above, the square with coordina

Example 3:

Input: coordinates = "c7"
Output: false

Constraints:

- coordinates.length == 2
- 'a' <= coordinates[0] <= 'h'
- '1' <= coordinates[1] <= '8'

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1813. Sentence Similarity

III

A sentence is a list of words that are separated by a single space with no leading or trailing spaces. For example, "Hello World" , "HELLO" , "hello world hello world" are all sentences. Words consist of **only** uppercase and lowercase English letters.

Two sentences `sentence1` and `sentence2` are **similar** if it is possible to insert an arbitrary sentence (**possibly empty**) inside one of these sentences such that the two sentences become equal. For example, `sentence1 = "Hello my name is Jane"` and `sentence2 = "Hello Jane"` can be made equal by inserting "`my name is`" between "`Hello`" and "`Jane`" in `sentence2` .

Given two sentences `sentence1` and `sentence2` , return `true` if `sentence1` and `sentence2` are similar. Otherwise, return `false` .

Example 1:

Input: `sentence1 = "My name is Haley"`, `sentence2 = "My Haley"`
Output: `true`
Explanation: `sentence2` can be turned to `sentence1` by inserting "name is" between "My" and "Haley".

Example 2:

Input: `sentence1 = "of"`, `sentence2 = "A lot of words"`
Output: `false`
Explanation: No single sentence can be inserted inside one of them.

Example 3:

Input: `sentence1 = "Eating right now"`, `sentence2 = "Eating"`
Output: `true`
Explanation: `sentence2` can be turned to `sentence1` by inserting "right now" between "Eating" and "".

Example 4:

Input: `sentence1 = "Luky"`, `sentence2 = "Lucccky"`
Output: `false`

Constraints:

- `1 <= sentence1.length, sentence2.length <= 100`
- `sentence1` and `sentence2` consist of lowercase and uppercase English letters and spaces.
- The words in `sentence1` and `sentence2` are separated by a single space.

Difficulty:

Medium

Lock:

Normal

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1814. Count Nice Pairs in an Array

You are given an array `nums` that consists of non-negative integers. Let us define $\text{rev}(x)$ as the reverse of the non-negative integer x . For example, $\text{rev}(123) = 321$, and $\text{rev}(120) = 21$. A pair of indices (i, j) is **nice** if it satisfies all of the following conditions:

- $0 \leq i < j < \text{nums.length}$
- $\text{nums}[i] + \text{rev}(\text{nums}[j]) == \text{nums}[j] + \text{rev}(\text{nums}[i])$

Return *the number of nice pairs of indices*. Since that number can be too large, return it **modulo $10^9 + 7$** .

Example 1:

Input: `nums = [42, 11, 1, 97]`

Output: 2

Explanation: The two pairs are:

- $(0, 3) : 42 + \text{rev}(97) = 42 + 79 = 121$, $97 + \text{rev}(42) = 97 + 24 = 121$
- $(1, 2) : 11 + \text{rev}(1) = 11 + 1 = 12$, $1 + \text{rev}(11) = 1 + 11 = 12$

Example 2:

Input: `nums = [13, 10, 35, 24, 76]`

Output: 4

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

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1815. Maximum Number of Groups Getting Fresh Donuts

There is a donuts shop that bakes donuts in batches of `batchSize`. They have a rule where they must serve **all** of the donuts of a batch before serving any donuts of the next batch. You are given an integer `batchSize` and an integer array `groups`, where `groups[i]` denotes that there is a group of `groups[i]` customers that will visit the shop. Each customer will get exactly one donut.

When a group visits the shop, all customers of the group must be served before serving any of the following groups. A group will be happy if they all get fresh donuts. That is, the first customer of the group does not receive a donut that was left over from the previous group.

You can freely rearrange the ordering of the groups.
Return *the maximum possible number of happy groups after rearranging the groups*.

Example 1:

Input: batchSize = 3, groups = [1,2,3,4,5,6]
Output: 4

Explanation: You can arrange the groups as [6,2,4,5,1,3]. Then t

Example 2:

Input: batchSize = 4, groups = [1,3,2,5,2,2,1,6]
Output: 4

Constraints:

- $1 \leq \text{batchSize} \leq 9$
- $1 \leq \text{groups.length} \leq 30$
- $1 \leq \text{groups}[i] \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

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1816. Truncate Sentence

A **sentence** is a list of words that are separated by a single space with no leading or trailing spaces. Each of the words consists of **only** uppercase and lowercase English letters (no punctuation).

- For example, "Hello World" , "HELLO" , and "hello world hello world" are all sentences.

You are given a sentence s and an integer k . You want to **truncate** s such that it contains only the **first** k words. Return s after **truncating** it.

Example 1:

Input: $s = \text{"Hello how are you Contestant"}$, $k = 4$
Output: "Hello how are you"

Explanation:

The words in s are $["\text{Hello}", "\text{how}", "\text{are}", "\text{you}", "\text{Contestant}"]$.
The first 4 words are $["\text{Hello}", "\text{how}", "\text{are}", "\text{you}"]$.
Hence, you should return "Hello how are you".

Example 2:

Input: $s = \text{"What is the solution to this problem"}$, $k = 4$
Output: "What is the solution"
Explanation:
The words in s are $["\text{What}", "\text{is}", "\text{the}", "\text{solution}", "\text{to}", "\text{this}"]$.
The first 4 words are $["\text{What}", "\text{is}", "\text{the}", "\text{solution}"]$.
Hence, you should return "What is the solution".

Example 3:

Input: $s = \text{"chopper is not a tanuki"}$, $k = 5$
Output: "chopper is not a tanuki"

Constraints:

- $1 \leq s.length \leq 500$
- k is in the range [1, the number of words in s].
- s consist of only lowercase and uppercase English letters and spaces.
- The words in s are separated by a single space.
- There are no leading or trailing spaces.

Difficulty:

Easy

Lock:

Normal

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1817. Finding the Users Active Minutes

You are given the logs for users' actions on LeetCode, and an integer k . The logs are represented by a 2D integer array logs where each $\text{logs}[i] = [\text{ID}_i, \text{time}_i]$ indicates that the user with ID_i performed an action at the minute time_i .

Multiple users can perform actions simultaneously, and a single user can perform **multiple actions** in the same minute.

The **user active minutes (UAM)** for a given user is defined as the **number of unique minutes** in which the user performed an action on LeetCode. A minute can only be counted once, even if multiple actions occur during it.

You are to calculate a **1-indexed** array answer of size k such that, for each j ($1 \leq j \leq k$), $\text{answer}[j]$ is the **number of users** whose **UAM** equals j .

Return *the array answer as described above*.

Example 1:

Input: $\text{logs} = [[0,5],[1,2],[0,2],[0,5],[1,3]]$, $k = 5$
Output: $[0,2,0,0,0]$

Explanation:

The user with $\text{ID}=0$ performed actions at minutes 5, 2, and 5 again.
The user with $\text{ID}=1$ performed actions at minutes 2 and 3. Hence,
Since both users have a UAM of 2, $\text{answer}[2]$ is 2, and the remaining

Example 2:

Input: $\text{logs} = [[1,1],[2,2],[2,3]]$, $k = 4$
Output: $[1,1,0,0]$

Explanation:

The user with $\text{ID}=1$ performed a single action at minute 1. Hence,
The user with $\text{ID}=2$ performed actions at minutes 2 and 3. Hence,
There is one user with a UAM of 1 and one with a UAM of 2.
Hence, $\text{answer}[1] = 1$, $\text{answer}[2] = 1$, and the remaining values are 0.

Constraints:

- $1 \leq \text{logs.length} \leq 10^4$
- $0 \leq \text{ID}_i \leq 10^9$
- $1 \leq \text{time}_i \leq 10^5$
- k is in the range [The maximum UAM for a user, 10^5].

Difficulty:

Medium

Lock:

Normal

Company:**Problem Solution**

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1818. Minimum Absolute Sum Difference

You are given two positive integer arrays nums1 and nums2 , both of length n .

The **absolute sum difference** of arrays nums1 and nums2 is defined as the **sum** of $|\text{nums1}[i] - \text{nums2}[i]|$ for each $0 \leq i < n$ (**0-indexed**).

You can replace **at most one** element of nums1 with **any** other element in nums1 to **minimize** the absolute sum difference.

Return the *minimum absolute sum difference after replacing at most one element in the array nums1* . Since the answer may be large, return it **modulo $10^9 + 7$** .

$|x|$ is defined as:

- x if $x \geq 0$, or
- $-x$ if $x < 0$.

Example 1:

Input: $\text{nums1} = [1, 7, 5]$, $\text{nums2} = [2, 3, 5]$

Output: 3

Explanation: There are two possible optimal solutions:

- Replace the second element with the first: $[1, \underline{7}, 5] \Rightarrow [1, \underline{1}, 5]$.
 - Replace the second element with the third: $[1, \underline{7}, 5] \Rightarrow [1, \underline{5}, 5]$.
- Both will yield an absolute sum difference of $|1-2| + (|1-3|$ or

Example 2:

Input: $\text{nums1} = [2, 4, 6, 8, 10]$, $\text{nums2} = [2, 4, 6, 8, 10]$

Output: 0

Explanation: nums1 is equal to nums2 so no replacement is needed absolute sum difference of 0.

Example 3:

Input: $\text{nums1} = [1, 10, 4, 4, 2, 7]$, $\text{nums2} = [9, 3, 5, 1, 7, 4]$

Output: 20

Explanation: Replace the first element with the second: $[\underline{1}, 10, 4, 4, 2, 7] \Rightarrow [10, 10, 4, 4, 2, 7]$. This yields an absolute sum difference of $|10-9| + |10-3| + |4-4| + |2-2| + |7-7| = 20$.

Constraints:

- $n == \text{nums1.length}$
- $n == \text{nums2.length}$
- $1 \leq n \leq 10^5$
- $1 \leq \text{nums1}[i], \text{nums2}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Normal

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1819. Number of Different Subsequences GCDs

You are given an array `nums` that consists of positive integers.

The **GCD** of a sequence of numbers is defined as the greatest integer that divides **all** the numbers in the sequence evenly.

- For example, the GCD of the sequence [4, 6, 16] is 2 .

A **subsequence** of an array is a sequence that can be formed by removing some elements (possibly none) of the array.

- For example, [2, 5, 10] is a subsequence of [1, 2, 1, 2, 4, 1, 5, 10] .

Return *the number of different GCDs among all non-empty subsequences of `nums`* .

Example 1:

Subsequence	GCD
[6]	6
[10]	10
[3]	3
[6,10]	2
[6,3]	3
[10,3]	1
[6,10,3]	1

Input: `nums` = [6, 10, 3]

Output: 5

Explanation: The figure shows all the non-empty subsequences and The different GCDs are 6, 10, 3, 2, and 1.

Example 2:

Input: nums = [5,15,40,5,6]
Output: 7

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 2 * 10^5$

Difficulty:

Hard

Lock:

Normal

Company:

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1820. Maximum Number of Accepted Invitations

There are m boys and n girls in a class attending an upcoming party.

You are given an $m \times n$ integer matrix `grid`, where `grid[i][j]` equals 0 or 1. If `grid[i][j] == 1`, then that means the i^{th} boy can invite the j^{th} girl to the party. A boy can invite at most **one girl**, and a girl can accept at most **one invitation** from a boy.

Return *the maximum possible number of accepted invitations*.

Example 1:

Input: `grid = [[1,1,1], [1,0,1], [0,0,1]]`

Output: 3

Explanation: The invitations are sent as follows:

- The 1st boy invites the 2nd girl.
- The 2nd boy invites the 1st girl.
- The 3rd boy invites the 3rd girl.

Example 2:

Input: `grid = [[1,0,1,0], [1,0,0,0], [0,0,1,0], [1,1,1,0]]`

Output: 3

Explanation: The invitations are sent as follows:

- The 1st boy invites the 3rd girl.
- The 2nd boy invites the 1st girl.
- The 3rd boy invites no one.
- The 4th boy invites the 2nd girl.

Constraints:

- `grid.length == m`
- `grid[i].length == n`
- $1 \leq m, n \leq 200$
- `grid[i][j]` is either 0 or 1.

Difficulty:

Medium

Lock:

Prime

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1821. Find Customers With Positive Revenue this Year

SQL Schema ›

Table: Customers

```

+-----+-----+
| Column Name | Type   |
+-----+-----+
| customer_id | int    |
| year        | int    |
| revenue     | int    |
+-----+-----+
(customer_id, year) is the primary key for this table.
This table contains the customer ID and the revenue of customers.
Note that this revenue can be negative.

```

Write an SQL query to report the customers with **positive revenue** in the year 2021.

Return the result table in **any order**.

The query result format is in the following example:

Customers

customer_id	year	revenue
1	2018	50
1	2021	30
1	2020	70
2	2021	-50
3	2018	10
3	2016	50
4	2021	20

Result table:

customer_id
1
4

Customer 1 has revenue equal to 50 in year 2021.

Customer 2 has revenue equal to -50 in year 2021.

Customer 3 has no revenue in year 2021.

Customer 4 has revenue equal to 20 in year 2021.

Thus only customers 1 and 4 have positive revenue in year 2021.

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

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1822. Sign of the Product of an Array

There is a function `signFunc(x)` that returns:

- 1 if x is positive.
- -1 if x is negative.
- 0 if x is equal to 0 .

You are given an integer array `nums` . Let `product` be the product of all values in the array `nums` .

Return `signFunc(product)` .

Example 1:

Input: nums = [-1,-2,-3,-4,3,2,1]
Output: 1
Explanation: The product of all values in the array is 144, and since it is positive, the sign of the result is also positive.

Example 2:

Input: nums = [1,5,0,2,-3]
Output: 0
Explanation: The product of all values in the array is 0, and since it is zero, the sign of the result is also zero.

Example 3:

Input: nums = [-1,1,-1,1,-1]
Output: -1
Explanation: The product of all values in the array is -1, and since it is negative, the sign of the result is also negative.

Constraints:

- $1 \leq \text{nums.length} \leq 1000$
- $-100 \leq \text{nums}[i] \leq 100$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1823. Find the Winner of the Circular Game

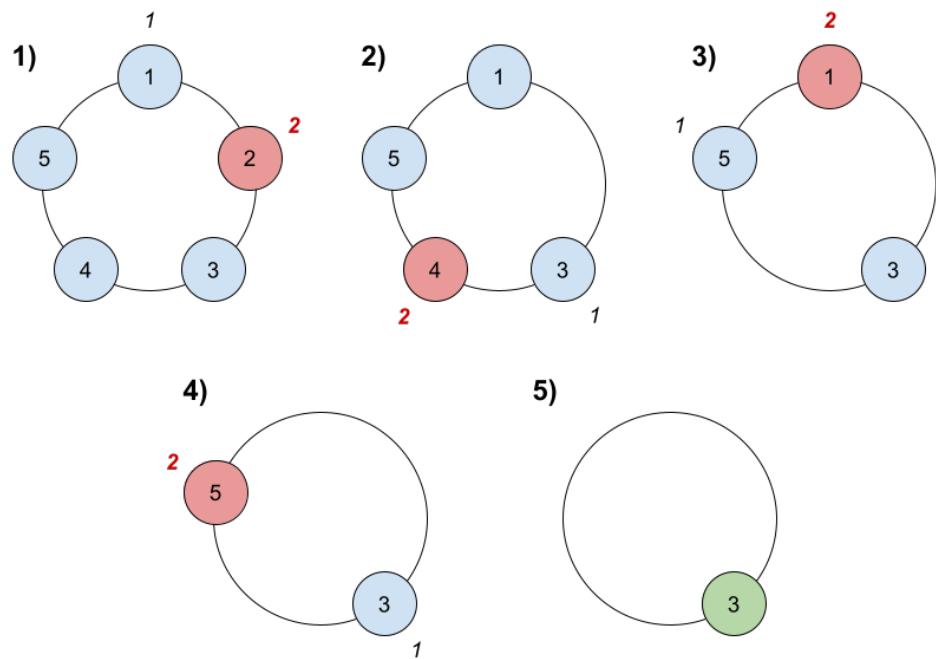
There are n friends that are playing a game. The friends are sitting in a circle and are numbered from 1 to n in **clockwise order**. More formally, moving clockwise from the i^{th} friend brings you to the $(i+1)^{\text{th}}$ friend for $1 \leq i < n$, and moving clockwise from the n^{th} friend brings you to the 1^{st} friend.

The rules of the game are as follows:

1. **Start** at the 1^{st} friend.
2. Count the next k friends in the clockwise direction **including** the friend you started at. The counting wraps around the circle and may count some friends more than once.
3. The last friend you counted leaves the circle and loses the game.
4. If there is still more than one friend in the circle, go back to step 2 **starting** from the friend **immediately clockwise** of the friend who just lost and repeat.
5. Else, the last friend in the circle wins the game.

Given the number of friends, n , and an integer k , return *the winner of the game*.

Example 1:



Input: $n = 5$, $k = 2$

Output: 3

Explanation: Here are the steps of the game:

- 1) Start at friend 1.
- 2) Count 2 friends clockwise, which are friends 1 and 2.
- 3) Friend 2 leaves the circle. Next start is friend 3.
- 4) Count 2 friends clockwise, which are friends 3 and 4.
- 5) Friend 4 leaves the circle. Next start is friend 5.
- 6) Count 2 friends clockwise, which are friends 5 and 1.
- 7) Friend 1 leaves the circle. Next start is friend 3.
- 8) Count 2 friends clockwise, which are friends 3 and 5.
- 9) Friend 5 leaves the circle. Only friend 3 is left, so they are

Example 2:

Input: $n = 6$, $k = 5$

Output: 1

Explanation: The friends leave in this order: 5, 4, 6, 2, 3. The

Constraints:

- $1 \leq k \leq n \leq 500$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1824. Minimum Sideway Jumps

There is a **3 lane road** of length n that consists of $n + 1$ **points** labeled from 0 to n . A frog **starts** at point 0 in the **second** lane and wants to jump to point n . However, there could be obstacles along the way.

You are given an array `obstacles` of length $n + 1$ where each `obstacles[i]` (**ranging from 0 to 3**) describes an obstacle on the lane `obstacles[i]` at point i . If `obstacles[i] == 0`, there are no obstacles at

point i . There will be **at most one** obstacle in the 3 lanes at each point.

- For example, if `obstacles[2] == 1`, then there is an obstacle on lane 1 at point 2.

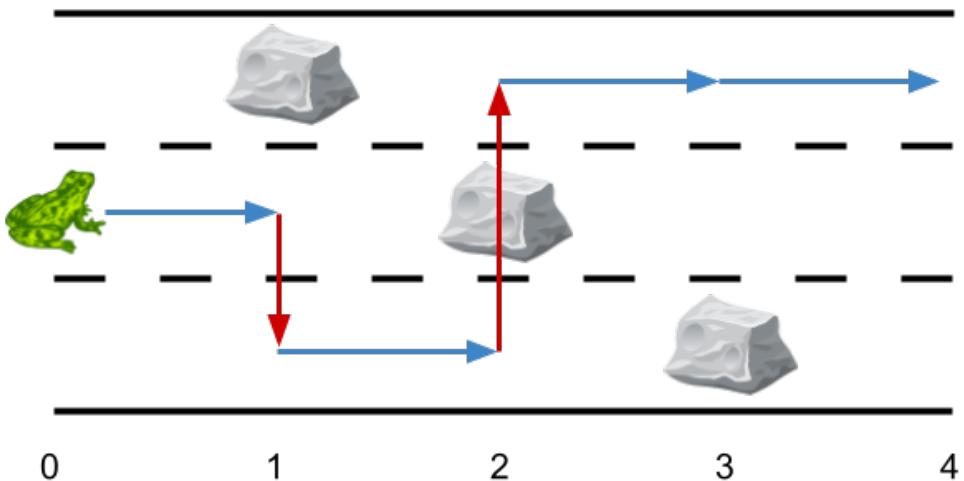
The frog can only travel from point i to point $i + 1$ on the same lane if there is not an obstacle on the lane at point $i + 1$. To avoid obstacles, the frog can also perform a **side jump** to jump to **another** lane (even if they are not adjacent) at the **same** point if there is no obstacle on the new lane.

- For example, the frog can jump from lane 3 at point 3 to lane 1 at point 3.

Return *the minimum number of side jumps the frog needs to reach any lane at point n starting from lane 2 at point 0*.

Note: There will be no obstacles on points 0 and n .

Example 1:

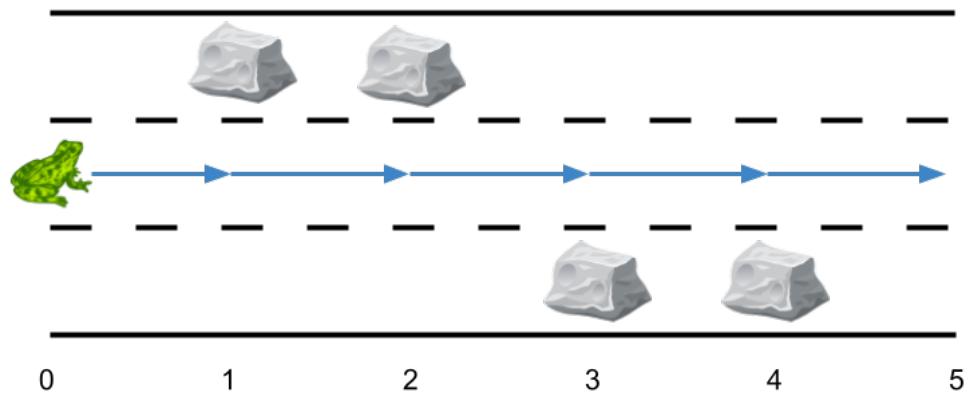


Input: `obstacles = [0, 1, 2, 3, 0]`

Output: 2

Explanation: The optimal solution is shown by the arrows above. Note that the frog can jump over obstacles only when making side

Example 2:

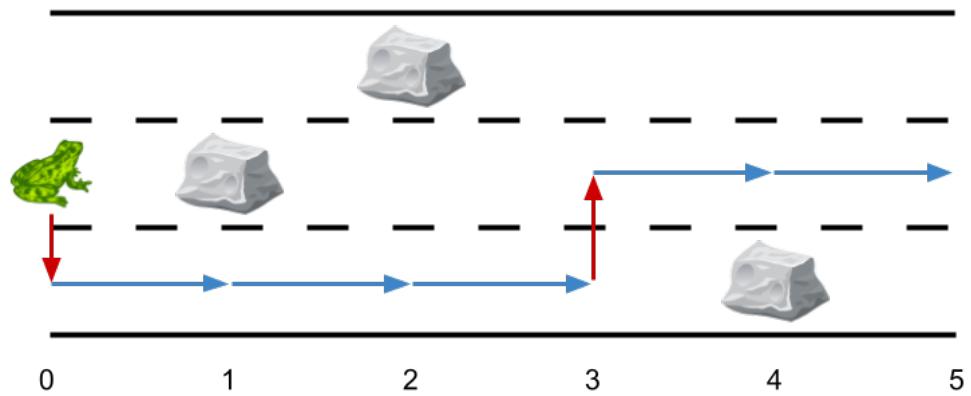


Input: obstacles = [0,1,1,3,3,0]

Output: 0

Explanation: There are no obstacles on lane 2. No side jumps are

Example 3:



Input: obstacles = [0,2,1,0,3,0]

Output: 2

Explanation: The optimal solution is shown by the arrows above.

Constraints:

- `obstacles.length == n + 1`
- $1 \leq n \leq 5 * 10^5$
- $0 \leq \text{obstacles}[i] \leq 3$
- $\text{obstacles}[0] == \text{obstacles}[n] == 0$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1825. Finding MK Average

You are given two integers, m and k , and a stream of integers. You are tasked to implement a data structure that calculates the **MKAverage** for the stream.

The **MKAverage** can be calculated using these steps:

1. If the number of the elements in the stream is less than m you should consider the **MKAverage** to be -1 . Otherwise, copy the last m elements of the stream to a separate container.
2. Remove the smallest k elements and the largest k elements from the container.
3. Calculate the average value for the rest of the elements **rounded down to the nearest integer**.

Implement the MKAverage class:

- `MKAverage(int m, int k)` Initializes the **MKAverage** object with an empty stream and the two integers `m` and `k` .
- `void addElement(int num)` Inserts a new element `num` into the stream.
- `int calculateMKAverage()` Calculates and returns the **MKAverage** for the current stream **rounded down to the nearest integer** .

Example 1:

Input

```
["MKAverage", "addElement", "addElement", "calculateMKAverage",
 [[3, 1], [3], [1], [], [10], [], [5], [5], [5], []]]
```

Output

```
[null, null, null, -1, null, 3, null, null, null, 5]
```

Explanation

```
MKAverage obj = new MKAverage(3, 1);
obj.addElement(3);           // current elements are [3]
obj.addElement(1);           // current elements are [3,1]
obj.calculateMKAverage();    // return -1, because m = 3 and only 2
obj.addElement(10);          // current elements are [3,1,10]
obj.calculateMKAverage();    // The last 3 elements are [3,1,10].
                           // After removing smallest and largest
                           // The average of [3] equals 3/1 = 3,
obj.addElement(5);          // current elements are [3,1,10,5]
obj.addElement(5);          // current elements are [3,1,10,5,5]
obj.addElement(5);          // current elements are [3,1,10,5,5,5]
obj.calculateMKAverage();    // The last 3 elements are [5,5,5].
                           // After removing smallest and largest
                           // The average of [5] equals 5/1 = 5,
```

Constraints:

- $3 \leq m \leq 10^5$
- $1 \leq k*2 < m$
- $1 \leq num \leq 10^5$
- At most 10^5 calls will be made to `addElement` and `calculateMKAverage` .

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

[1825-Finding-MK-Average](#)

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1826. Faulty Sensor

An experiment is being conducted in a lab. To ensure accuracy, there are **two** sensors collecting data simultaneously. You are given 2 arrays `sensor1` and `sensor2` , where `sensor1[i]` and `sensor2[i]` are the i^{th} data points collected by the two sensors.

However, this type of sensor has a chance of being defective, which causes **exactly one** data point to be dropped. After the data is dropped, all the data points to the **right** of the dropped data are **shifted** one place to the

left, and the last data point is replaced with some **random value**. It is guaranteed that this random value will **not** be equal to the dropped value.

- For example, if the correct data is [1, 2, 3, 4, 5] and 3 is dropped, the sensor could return [1, 2, 4, 5, 7] (the last position can be **any** value, not just 7).

We know that there is a defect in **at most one** of the sensors. Return *the sensor number (1 or 2) with the defect. If there is no defect in either sensor or if it is impossible to determine the defective sensor, return -1*.

Example 1:

Input: sensor1 = [2,3,4,5], sensor2 = [2,1,3,4]

Output: 1

Explanation: Sensor 2 has the correct values.

The second data point from sensor 2 is dropped, and the last val

Example 2:

Input: sensor1 = [2,2,2,2,2], sensor2 = [2,2,2,2,5]

Output: -1

Explanation: It is impossible to determine which sensor has a de

Dropping the last value for either sensor could produce the output

Example 3:

Input: sensor1 = [2,3,2,2,3,2], sensor2 = [2,3,2,3,2,7]

Output: 2

Explanation: Sensor 1 has the correct values.

The fourth data point from sensor 1 is dropped, and the last val

Constraints:

- sensor1.length == sensor2.length
- 1 <= sensor1.length <= 100
- 1 <= sensor1[i], sensor2[i] <= 100

Difficulty:

Easy

Lock:

Prime

Company:

Problem Solution

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1827. Minimum Operations to Make the Array Increasing

You are given an integer array `nums` (**0-indexed**). In one operation, you can choose an element of the array and increment it by 1 .

- For example, if `nums = [1, 2, 3]` , you can choose to increment `nums[1]` to make `nums = [1, 3, 3]` .

Return *the minimum number of operations needed to make `nums` strictly increasing* .

An array `nums` is **strictly increasing** if `nums[i] < nums[i+1]` for all $0 \leq i < \text{nums.length} - 1$. An array of length 1 is trivially strictly increasing.

Example 1:

Input: `nums = [1,1,1]`

Output: 3

Explanation: You can do the following operations:

- 1) Increment `nums[2]`, so `nums` becomes `[1,1,2]`.
- 2) Increment `nums[1]`, so `nums` becomes `[1,2,2]`.
- 3) Increment `nums[2]`, so `nums` becomes `[1,2,3]`.

Example 2:

Input: `nums = [1,5,2,4,1]`

Output: 14

Example 3:

Input: `nums = [8]`

Output: 0

Constraints:

- $1 \leq \text{nums.length} \leq 5000$
- $1 \leq \text{nums}[i] \leq 10^4$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1828. Queries on Number of Points Inside a Circle

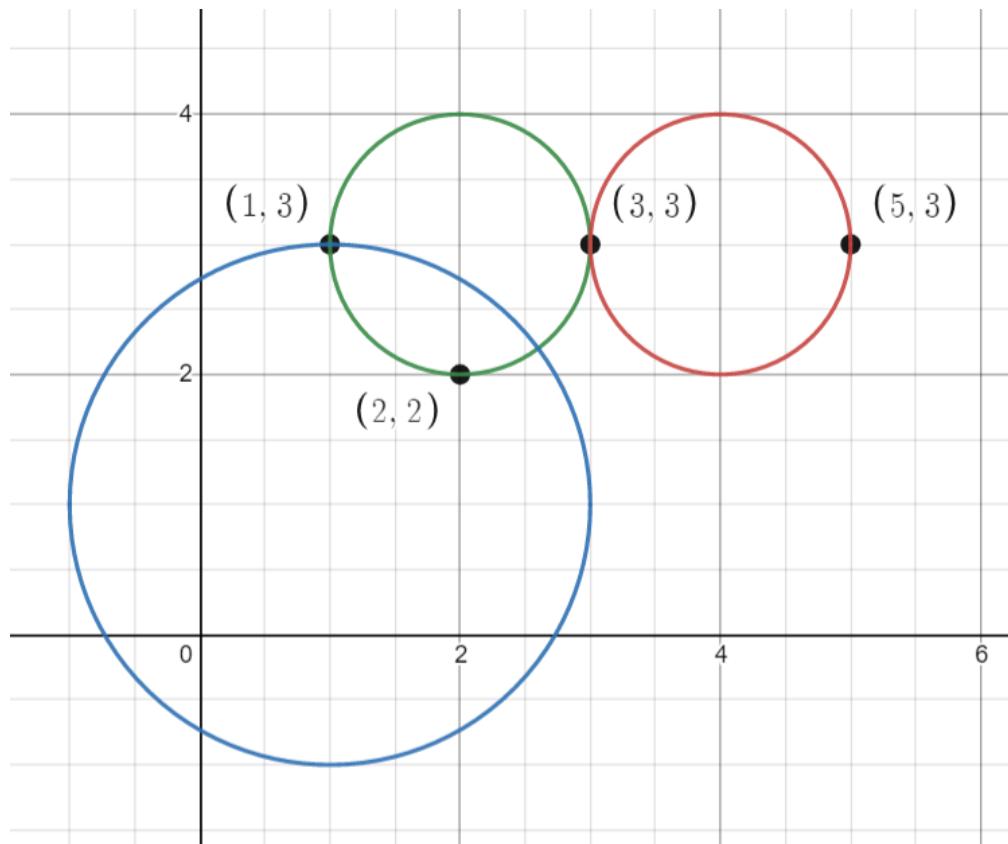
You are given an array `points` where `points[i] = [xi, yi]` is the coordinates of the i^{th} point on a 2D plane. Multiple points can have the **same** coordinates.

You are also given an array `queries` where `queries[j] = [xj, yj, rj]` describes a circle centered at (x_j, y_j) with a radius of r_j .

For each query `queries[j]`, compute the number of points **inside** the j^{th} circle. Points **on the border** of the circle are considered **inside**.

Return *an array answer* , where `answer[j]` is the answer to the j^{th} query .

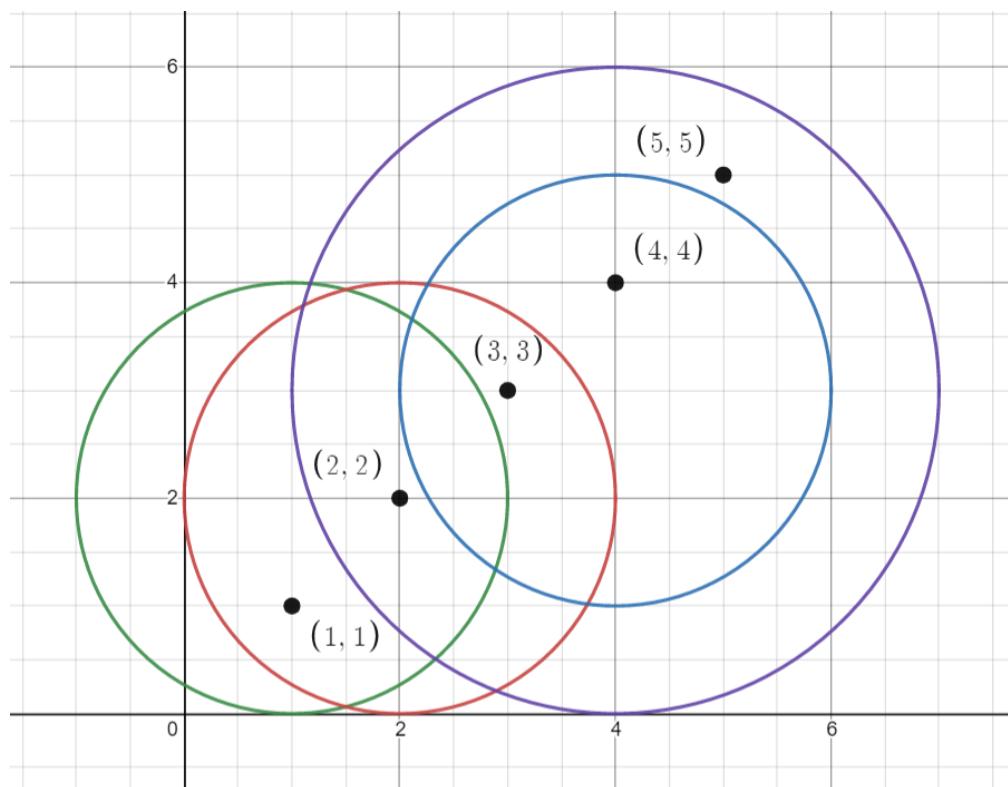
Example 1:



Input: points = [[1,3],[3,3],[5,3],[2,2]], queries = [[2,3,1],[4,4,1]]
 Output: [3,2,2]

Explanation: The points and circles are shown above.
 queries[0] is the green circle, queries[1] is the red circle, and

Example 2:



Input: points = [[1,1],[2,2],[3,3],[4,4],[5,5]], queries = [[1,2,1],[2,3,2],[4,5,4]]
Output: [2,3,2,4]
Explanation: The points and circles are shown above.
queries[0] is green, queries[1] is red, queries[2] is blue, and queries[3] is purple.

Constraints:

- $1 \leq \text{points.length} \leq 500$
- $\text{points[i].length} == 2$
- $0 \leq x_i, y_i \leq 500$
- $1 \leq \text{queries.length} \leq 500$
- $\text{queries[j].length} == 3$
- $0 \leq x_j, y_j \leq 500$
- $1 \leq r_j \leq 500$
- All coordinates are integers.

Follow up: Could you find the answer for each query in better complexity than $O(n)$?

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1829. Maximum XOR for Each Query

You are given a **sorted** array `nums` of n non-negative integers and an integer `maximumBit`. You want to perform the following query n **times**:

1. Find a non-negative integer $k < 2^{\text{maximumBit}}$ such that $\text{nums}[0] \text{ XOR } \text{nums}[1] \text{ XOR } \dots \text{ XOR } \text{nums}[\text{nums.length}-1] \text{ XOR } k$ is **maximized**. k is the answer to the i^{th} query.
2. Remove the **last** element from the current array `nums`.

Return *an array answer*, where $\text{answer}[i]$ is the answer to the i^{th} query.

Example 1:

Input: `nums = [0,1,1,3]`, `maximumBit = 2`

Output: `[0,3,2,3]`

Explanation: The queries are answered as follows:

- 1st query: `nums = [0,1,1,3]`, $k = 0$ since $0 \text{ XOR } 1 \text{ XOR } 1 \text{ XOR } 3 = 3$
- 2nd query: `nums = [0,1,1]`, $k = 3$ since $0 \text{ XOR } 1 \text{ XOR } 1 = 3$
- 3rd query: `nums = [0,1]`, $k = 2$ since $0 \text{ XOR } 1 = 3$
- 4th query: `nums = [0]`, $k = 3$ since $0 = 3$.

Example 2:

Input: `nums = [2,3,4,7]`, `maximumBit = 3`

Output: `[5,2,6,5]`

Explanation: The queries are answered as follows:

- 1st query: `nums = [2,3,4,7]`, $k = 5$ since $2 \text{ XOR } 3 \text{ XOR } 4 \text{ XOR } 7 = 5$
- 2nd query: `nums = [2,3,4]`, $k = 2$ since $2 \text{ XOR } 3 \text{ XOR } 4 = 7$.

3rd query: nums = [2,3], k = 6 since 2 XOR 3 XOR 6 = 7.
4th query: nums = [2], k = 5 since 2 XOR 5 = 7.

Example 3:

Input: nums = [0,1,2,2,5,7], maximumBit = 3
Output: [4,3,6,4,6,7]

Constraints:

- nums.length == n
- 1 <= n <= 10⁵
- 1 <= maximumBit <= 20
- 0 <= nums[i] < 2^{maximumBit}
- nums is sorted in **ascending** order.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1830. Minimum Number of Operations to Make String Sorted

You are given a string s (**0-indexed**). You are asked to perform the following operation on s until you get a sorted string:

1. Find **the largest index** i such that $1 \leq i < s.length$ and $s[i] < s[i - 1]$.
2. Find **the largest index** j such that $i \leq j < s.length$ and $s[k] < s[i - 1]$ for all the possible values of k in the range $[i, j]$ inclusive.
3. Swap the two characters at indices $i - 1$ and j .
4. Reverse the suffix starting at index i .

Return *the number of operations needed to make the string sorted*. Since the answer can be too large, return it **modulo $10^9 + 7$** .

Example 1:

Input: $s = "cba"$

Output: 5

Explanation: The simulation goes as follows:

Operation 1: $i=2, j=2$. Swap $s[1]$ and $s[2]$ to get $s="cab"$, then $s="abc"$.
Operation 2: $i=1, j=2$. Swap $s[0]$ and $s[2]$ to get $s="bac"$, then $s="abc"$.
Operation 3: $i=2, j=2$. Swap $s[1]$ and $s[2]$ to get $s="bac"$, then $s="abc"$.
Operation 4: $i=1, j=1$. Swap $s[0]$ and $s[1]$ to get $s="abc"$, then $s="abc"$.
Operation 5: $i=2, j=2$. Swap $s[1]$ and $s[2]$ to get $s="abc"$, then $s="abc"$.

Example 2:

Input: $s = "aabaa"$

Output: 2

Explanation: The simulation goes as follows:

Operation 1: i=3, j=4. Swap s[2] and s[4] to get s="aaaab", then

Operation 2: i=4, j=4. Swap s[3] and s[4] to get s="aaaab", then

Example 3:

Input: s = "cdbea"

Output: 63

Example 4:

Input: s = "leetcodeleetcodeleetcode"

Output: 982157772

Constraints:

- $1 \leq s.length \leq 3000$
- s consists only of lowercase English letters.

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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Welcome to Subscribe On Youtube:

1831. Maximum Transaction Each Day

SQL Schema >

Table: Transactions

Column Name	Type
transaction_id	int
day	datetime
amount	int

transaction_id is the primary key for this table.
Each row contains information about one transaction.

Write an SQL query to report the IDs of the transactions with the **maximum** amount on their respective day. If in one day there are multiple such transactions, return all of them.

Return the result table **in ascending order by transaction_id**.

The query result format is in the following example:

Transactions table:

transaction_id	day	amount
8	2021-4-3 15:57:28	57
9	2021-4-28 08:47:25	21
1	2021-4-29 13:28:30	58
5	2021-4-28 16:39:59	40
6	2021-4-29 23:39:28	58

Result table:

```

+-----+
| transaction_id |
+-----+
| 1              |
| 5              |
| 6              |
| 8              |
+-----+
"2021-4-3"    --> We have one transaction with ID 8, so we add 8 to the result table
"2021-4-28"   --> We have two transactions with IDs 5 and 9. The transaction with ID 5 is added to the result table
"2021-4-29"   --> We have two transactions with IDs 1 and 6. Both are added to the result table
We order the result table by transaction_id after collecting the transactions

```

Follow up: Could you solve it without using the MAX() function?

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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All Problems:

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1832. Check if the Sentence Is Pangram

A **pangram** is a sentence where every letter of the English alphabet appears at least once.

Given a string `sentence` containing only lowercase English letters, return `true` if `sentence` is a **pangram**, or `false` otherwise.

Example 1:

Input: `sentence = "thequickbrownfoxjumpsoverthelazydog"`

Output: `true`

Explanation: `sentence` contains at least one of every letter of the English alphabet.

Example 2:

Input: `sentence = "leetcode"`

Output: `false`

Constraints:

- `1 <= sentence.length <= 1000`
- `sentence` consists of lowercase English letters.

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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All Problems:

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1833. Maximum Ice Cream Bars

It is a sweltering summer day, and a boy wants to buy some ice cream bars.

At the store, there are n ice cream bars. You are given an array `costs` of length n , where `costs[i]` is the price of the i^{th} ice cream bar in coins. The boy initially has `coins` coins to spend, and he wants to buy as many ice cream bars as possible.

Return *the maximum number of ice cream bars the boy can buy with coins coins*.

Note: The boy can buy the ice cream bars in any order.

Example 1:

Input: `costs = [1,3,2,4,1]`, `coins = 7`

Output: 4

Explanation: The boy can buy ice cream bars at indices 0,1,2,4 for a total cost of 7.

Example 2:

Input: costs = [10,6,8,7,7,8], coins = 5
Output: 0
Explanation: The boy cannot afford any of the ice cream bars.

Example 3:

Input: costs = [1,6,3,1,2,5], coins = 20
Output: 6
Explanation: The boy can buy all the ice cream bars for a total

Constraints:

- costs.length == n
- $1 \leq n \leq 10^5$
- $1 \leq \text{costs}[i] \leq 10^5$
- $1 \leq \text{coins} \leq 10^8$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1834. Single-Threaded CPU

You are given n tasks labeled from 0 to $n - 1$ represented by a 2D integer array tasks , where $\text{tasks}[i] = [\text{enqueueTime}_i, \text{processingTime}_i]$. processingTime_i means that the i^{th} task will be available to process at enqueueTime_i and will take processingTime_i to finish processing.

You have a single-threaded CPU that can process **at most one** task at a time and will act in the following way:

- If the CPU is idle and there are no available tasks to process, the CPU remains idle.
- If the CPU is idle and there are available tasks, the CPU will choose the one with the **shortest processing time**. If multiple tasks have the same shortest processing time, it will choose the task with the smallest index.
- Once a task is started, the CPU will **process the entire task** without stopping.
- The CPU can finish a task then start a new one instantly.

Return *the order in which the CPU will process the tasks*.

Example 1:

Input: $\text{tasks} = [[1, 2], [2, 4], [3, 2], [4, 1]]$

Output: $[0, 2, 3, 1]$

Explanation: The events go as follows:

- At time = 1, task 0 is available to process. Available tasks = $[0]$
- Also at time = 1, the idle CPU starts processing task 0. Available tasks = $[0]$
- At time = 2, task 1 is available to process. Available tasks = $[1]$
- At time = 3, task 2 is available to process. Available tasks = $[2]$
- Also at time = 3, the CPU finishes task 0 and starts processing task 1. Available tasks = $[1, 2]$
- At time = 4, task 3 is available to process. Available tasks = $[3]$
- At time = 5, the CPU finishes task 2 and starts processing task 3. Available tasks = $[3]$

- At time = 6, the CPU finishes task 3 and starts processing task 1.
- At time = 10, the CPU finishes task 1 and becomes idle.

Example 2:

Input: tasks = [[7,10],[7,12],[7,5],[7,4],[7,2]]

Output: [4,3,2,0,1]

Explanation: The events go as follows:

- At time = 7, all the tasks become available. Available tasks = [4,3,2,0,1].
- Also at time = 7, the idle CPU starts processing task 4. Available tasks = [3,2,0,1].
- At time = 9, the CPU finishes task 4 and starts processing task 3. Available tasks = [2,0,1].
- At time = 13, the CPU finishes task 3 and starts processing task 2. Available tasks = [0,1].
- At time = 18, the CPU finishes task 2 and starts processing task 0. Available tasks = [1].
- At time = 28, the CPU finishes task 0 and starts processing task 1. Available tasks = [].
- At time = 40, the CPU finishes task 1 and becomes idle.

Constraints:

- `tasks.length == n`
- `1 <= n <= 105`
- `1 <= enqueueTimei, processingTimei <= 109`

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1835. Find XOR Sum of All Pairs Bitwise AND

The **XOR sum** of a list is the bitwise XOR of all its elements. If the list only contains one element, then its **XOR sum** will be equal to this element.

- For example, the **XOR sum** of [1, 2, 3, 4] is equal to $1 \text{ XOR } 2 \text{ XOR } 3 \text{ XOR } 4 = 4$, and the **XOR sum** of [3] is equal to 3 .

You are given two **0-indexed** arrays arr1 and arr2 that consist only of non-negative integers.

Consider the list containing the result of $\text{arr1}[i] \text{ AND } \text{arr2}[j]$ (bitwise AND) for every (i, j) pair where $0 \leq i < \text{arr1.length}$ and $0 \leq j < \text{arr2.length}$.

Return *the XOR sum of the aforementioned list*.

Example 1:

Input: arr1 = [1, 2, 3], arr2 = [6, 5]

Output: 0

Explanation: The list = [1 AND 6, 1 AND 5, 2 AND 6, 2 AND 5, 3 AND 6].

The XOR sum = 0 XOR 1 XOR 2 XOR 0 XOR 2 XOR 1 = 0.

Example 2:

Input: arr1 = [12], arr2 = [4]

Output: 4

Explanation: The list = [12 AND 4] = [4]. The XOR sum = 4.

Constraints:

- $1 \leq \text{arr1.length}, \text{arr2.length} \leq 10^5$
- $0 \leq \text{arr1[i]}, \text{arr2[j]} \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:**Problem Solution**

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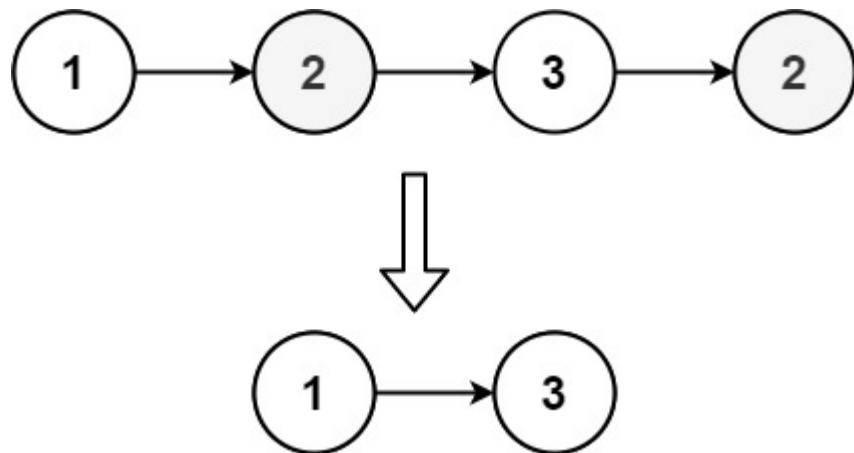
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1836. Remove Duplicates From an Unsorted Linked List

Given the head of a linked list, find all the values that appear **more than once** in the list and delete the nodes that have any of those values.

Return *the linked list after the deletions*.

Example 1:

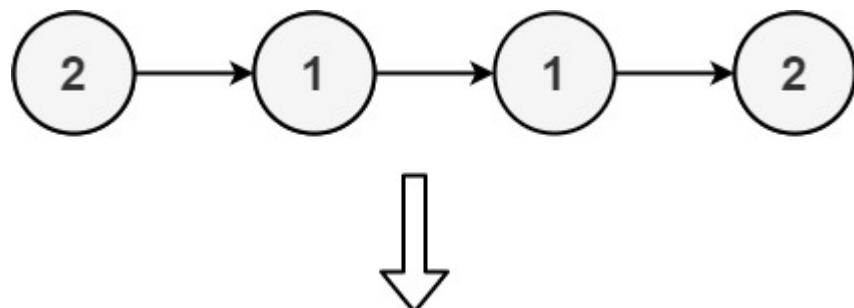


Input: head = [1,2,3,2]

Output: [1,3]

Explanation: 2 appears twice in the linked list, so all 2's should be deleted.

Example 2:

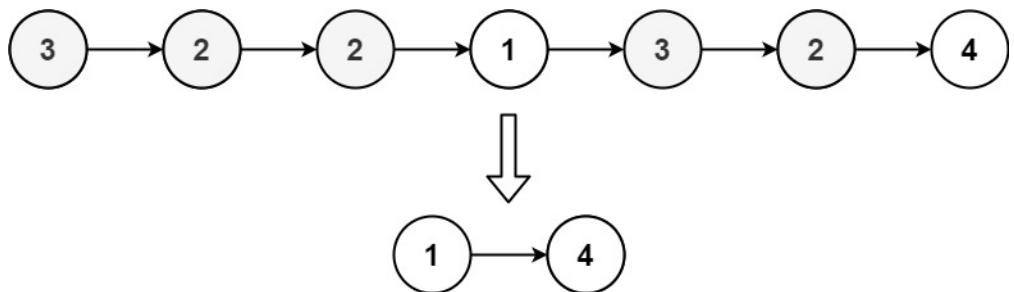


Input: head = [2,1,1,2]

Output: []

Explanation: 2 and 1 both appear twice. All the elements should be deleted.

Example 3:



Input: head = [3,2,2,1,3,2,4]

Output: [1,4]

Explanation: 3 appears twice and 2 appears three times. After de

Constraints:

- The number of nodes in the list is in the range $[1, 10^5]$
- $1 \leq \text{Node.val} \leq 10^5$

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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1837. Sum of Digits in Base K

Given an integer n (in base 10) and a base k , return *the sum of the digits of n after converting n from base 10 to base k* .

After converting, each digit should be interpreted as a base 10 number, and the sum should be returned in base 10.

Example 1:

Input: $n = 34$, $k = 6$

Output: 9

Explanation: 34 (base 10) expressed in base 6 is 54. $5 + 4 = 9$.

Example 2:

Input: $n = 10$, $k = 10$

Output: 1

Explanation: n is already in base 10. $1 + 0 = 1$.

Constraints:

- $1 \leq n \leq 100$
- $2 \leq k \leq 10$

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1838. Frequency of the Most Frequent Element

The **frequency** of an element is the number of times it occurs in an array.

You are given an integer array `nums` and an integer `k`. In one operation, you can choose an index of `nums` and increment the element at that index by 1.

Return *the maximum possible frequency of an element after performing at most k operations*.

Example 1:

Input: `nums = [1, 2, 4]`, `k = 5`
Output: 3

Explanation: Increment the first element three times and the second element four times to make nums = [4,4,8,8] which has a frequency of 3.

Example 2:

Input: nums = [1,4,8,13], k = 5

Output: 2

Explanation: There are multiple optimal solutions:

- Increment the first element three times to make nums = [4,4,8,13]
- Increment the second element four times to make nums = [1,8,8,13]
- Increment the third element five times to make nums = [1,4,13,13]

Example 3:

Input: nums = [3,9,6], k = 2

Output: 1

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^5$
- $1 \leq k \leq 10^5$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1839. Longest Substring Of All Vowels in Order

A string is considered **beautiful** if it satisfies the following conditions:

- Each of the 5 English vowels ('a' , 'e' , 'i' , 'o' , 'u') must appear **at least once** in it.
- The letters must be sorted in **alphabetical order** (i.e. all 'a' s before 'e' s, all 'e' s before 'i' s, etc.).

For example, strings "aeiou" and "aaaaaaeiiioou" are considered **beautiful**, but "uaeio" , "aeiou" , and "aaaeeeooo" are **not beautiful** .

Given a string `word` consisting of English vowels, return *the length of the longest beautiful substring of word* . If no such substring exists, return 0 .

A **substring** is a contiguous sequence of characters in a string.

Example 1:

Input: `word` = "aeiaaioaaaaeiiiiouuuooauuaeiu"
Output: 13

Explanation: The longest beautiful substring in `word` is "aaaaeiii".

Example 2:

```
Input: word = "aeeeiiiioooauuuuaeiou"
Output: 5
Explanation: The longest beautiful substring in word is "aeiou" .
```

Example 3:

```
Input: word = "a"
Output: 0
Explanation: There is no beautiful substring, so return 0.
```

Constraints:

- $1 \leq \text{word.length} \leq 5 * 10^5$
- word consists of characters 'a' , 'e' , 'i' , 'o' , and 'u' .

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1840. Maximum Building Height

You want to build n new buildings in a city. The new buildings will be built in a line and are labeled from 1 to n .

However, there are city restrictions on the heights of the new buildings:

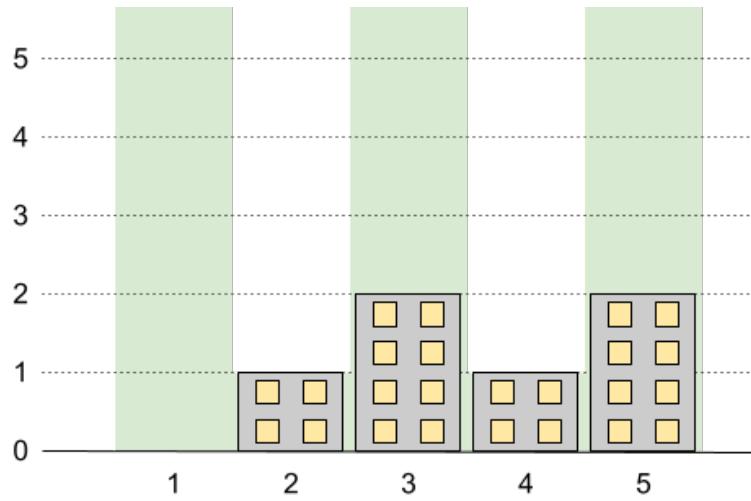
- The height of each building must be a non-negative integer.
- The height of the first building **must** be 0.
- The height difference between any two adjacent buildings **cannot exceed 1**.

Additionally, there are city restrictions on the maximum height of specific buildings. These restrictions are given as a 2D integer array `restrictions` where
`restrictions[i] = [idi, maxHeighti]`
indicates that building `idi` must have a height **less than or equal to** `maxHeighti`.

It is guaranteed that each building will appear **at most once** in `restrictions`, and building 1 will **not** be in `restrictions`.

Return *the maximum possible height of the tallest building*.

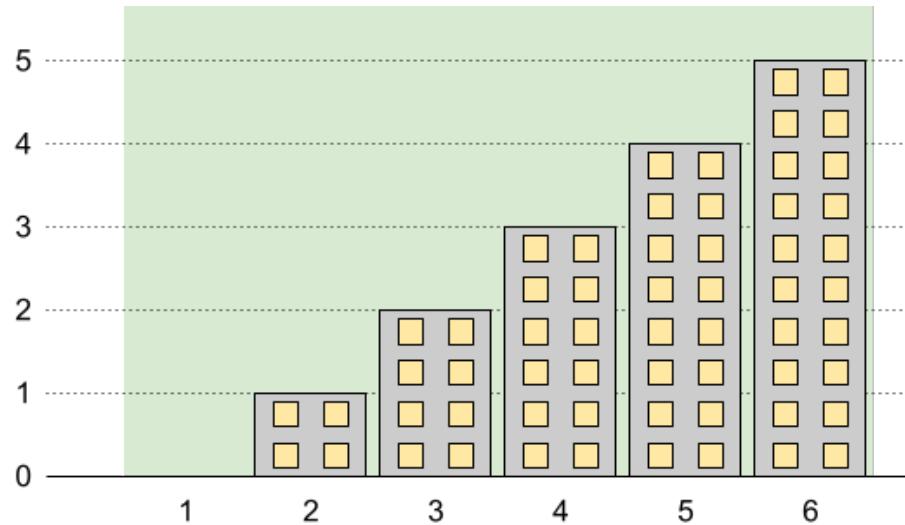
Example 1:



Input: $n = 5$, restrictions = [[2,1],[4,1]]
 Output: 2

Explanation: The green area in the image indicates the maximum area is 2.
 We can build the buildings with heights [0,1,2,1,2], and the tallest building has height 2.

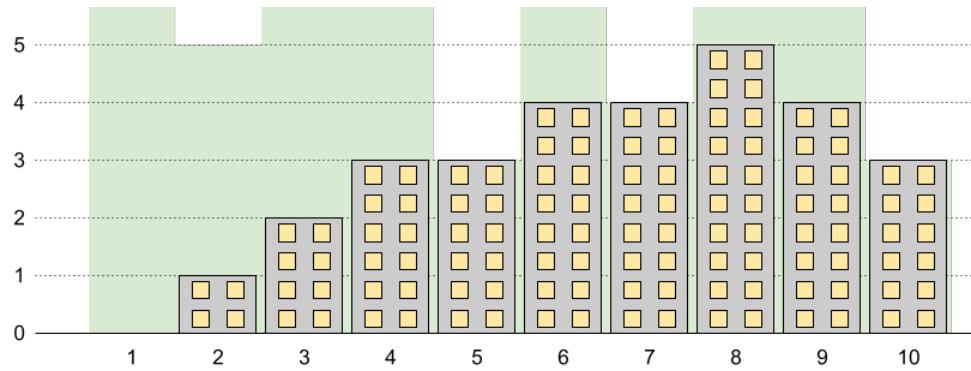
Example 2:



Input: $n = 6$, restrictions = []
 Output: 5

Explanation: The green area in the image indicates the maximum area is 5.
 We can build the buildings with heights [0,1,2,3,4,5], and the tallest building has height 5.

Example 3:



Input: $n = 10$, restrictions = $[[5,3], [2,5], [7,4], [10,3]]$

Output: 5

Explanation: The green area in the image indicates the maximum allowed height at each index. We can build the buildings with heights $[0,1,2,3,3,4,4,5,4,3]$, and the maximum height is 5.

Constraints:

- $2 \leq n \leq 10^9$
- $0 \leq \text{restrictions.length} \leq \min(n - 1, 10^5)$
- $2 \leq \text{id}_i \leq n$
- id_i is unique.
- $0 \leq \text{maxHeight}_i \leq 10^9$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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1841. League Statistics

[SQL Schema](#) >

Table: Teams

Column Name	Type
team_id	int
team_name	varchar

team_id is the primary key for this table.

Each row contains information about one team in the league.

Table: Matches

Column Name	Type
home_team_id	int
away_team_id	int
home_team_goals	int
away_team_goals	int

(home_team_id, away_team_id) is the primary key for this table.

Each row contains information about one match.

home_team_goals is the number of goals scored by the home team.

away_team_goals is the number of goals scored by the away team.

The winner of the match is the team with the higher number of go

Write an SQL query to report the statistics of the league.

The statistics should be built using the played matches

where the **winning** team gets **three points** and the **losing** team gets **no points** . If a match ends with a **draw** , both teams get **one point** .

Each row of the result table should contain:

- `team_name` - The name of the team in the `Teams` table.
- `matches_played` - The number of matches played as either a home or away team.
- `points` - The total points the team has so far.
- `goal_for` - The total number of goals scored by the team across all matches.
- `goal_against` - The total number of goals scored by opponent teams against this team across all matches.
- `goal_diff` - The result of `goal_for` - `goal_against` .

Return the result table **in descending order by points** . If two or more teams have the same `points` , order them **in descending order by goal_diff** . If there is still a tie, order them by `team_name` in **lexicographical order** .

The query result format is in the following example:

`Teams` table:

team_id	team_name
1	Ajax
4	Dortmund
6	Arsenal

`Matches` table:

home_team_id	away_team_id	home_team_goals	away_team_goals
1	4	0	1
1	6	3	3
4	1	5	2
6	1	0	0

`Result` table:

team_name	matches_played	points	goal_for	goal_against	goal_diff
Ajax	2	3	3	1	2
Dortmund	2	3	5	3	2
Arsenal	2	1	0	0	0

team_name	matches_played	points	goal_for	goal_against
Dortmund	2	6	6	2
Arsenal	2	2	3	3
Ajax	4	2	5	9

Ajax (team_id=1) played 4 matches: 2 losses and 2 draws. Total points = 2
Dortmund (team_id=4) played 2 matches: 2 wins. Total points = 3
Arsenal (team_id=6) played 2 matches: 2 draws. Total points = 1
Dortmund is the first team in the table. Ajax and Arsenal have the same points.

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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1842. Next Palindrome Using Same Digits

You are given a numeric string `num` , representing a very large **palindrome** .

Return *the smallest palindrome larger than num that can be created by rearranging its digits. If no such palindrome exists, return an empty string " "* .

A **palindrome** is a number that reads the same backward as forward.

Example 1:

Input: `num = "1221"`

Output: `"2112"`

Explanation: The next palindrome larger than "1221" is "2112".

Example 2:

Input: `num = "32123"`

Output: `" "`

Explanation: No palindromes larger than "32123" can be made by re

Example 3:

Input: `num = "45544554"`

Output: `"54455445"`

Explanation: The next palindrome larger than "45544554" is "54455445".

Constraints:

- $1 \leq \text{num.length} \leq 10^5$
- `num` is a **palindrome** .

Difficulty:

Hard

Lock:

Prime

Company:

Problem Solution

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1843. Suspicious Bank Accounts

SQL Schema >

Table: Accounts

Column Name	Type
account_id	int
max_income	int

account_id is the primary key for this table.

Each row contains information about the maximum monthly income for

Table: Transactions

Column Name	Type
transaction_id	int

```

| account_id      | int      |
| type            | ENUM     |
| amount          | int      |
| day             | datetime|
+-----+-----+

```

transaction_id is the primary key for this table.
Each row contains information about one transaction.

type is ENUM ('Creditor','Debtor') where 'Creditor' means the user deposited money and 'Debtor' means the user withdrew money.
amount is the amount of money deposited/withdrawn during the transaction.

Write an SQL query to report the IDs of all **suspicious** bank accounts.

A bank account is **suspicious** if the **total income** exceeds the **max_income** for this account for **two or more consecutive** months. The **total income** of an account in some month is the sum of all its deposits in that month (i.e., transactions of the type 'Creditor').

Return the result table **in ascending order by transaction_id** .

The query result format is in the following example:

Accounts table:

```

+-----+-----+
| account_id | max_income |
+-----+-----+
| 3          | 21000      |
| 4          | 10400      |
+-----+-----+

```

Transactions table:

```

+-----+-----+-----+-----+
| transaction_id | account_id | type    | amount | day
+-----+-----+-----+-----+
| 2              | 3          | Creditor | 107100 | 2021-06-02 1
| 4              | 4          | Creditor | 10400  | 2021-06-20 1
| 11             | 4          | Debtor   | 58800  | 2021-07-23 1
| 1               | 4          | Creditor | 49300  | 2021-05-03 1
| 15             | 3          | Debtor   | 75500  | 2021-05-23 1
| 10             | 3          | Creditor | 102100 | 2021-06-15 1
| 14             | 4          | Creditor | 56300  | 2021-07-21 1
| 19             | 4          | Debtor   | 101100 | 2021-05-09 1
| 8               | 3          | Creditor | 64900  | 2021-07-26 1
| 7               | 3          | Creditor | 90900  | 2021-06-14 1
+-----+-----+-----+-----+

```

Result table:

```

+-----+
| account_id |
+-----+

```

3
-----+

For account 3:

- In 6-2021, the user had an income of 107100 + 102100 + 90900 =
- In 7-2021, the user had an income of 64900.

We can see that the income exceeded the max income of 21000 for

For account 4:

- In 5-2021, the user had an income of 49300.
- In 6-2021, the user had an income of 10400.
- In 7-2021, the user had an income of 56300.

We can see that the income exceeded the max income in May and Ju

Difficulty:

Medium

Lock:

Prime

Company:

Problem Solution

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1844. Replace All Digits with Characters

You are given a **0-indexed** string s that has lowercase English letters in its **even** indices and digits in its **odd** indices.

There is a function $\text{shift}(c, x)$, where c is a character and x is a digit, that returns the x^{th} character after c .

- For example, $\text{shift}('a', 5) = 'f'$ and $\text{shift}('x', 0) = 'x'$.

For every **odd** index i , you want to replace the digit $s[i]$ with $\text{shift}(s[i-1], s[i])$.

Return s *after replacing all digits. It is guaranteed that $\text{shift}(s[i-1], s[i])$ will never exceed 'z'.*

Example 1:

Input: $s = "a1c1e1"$
Output: "abcdef"
Explanation: The digits are replaced as follows:
- $s[1] \rightarrow \text{shift}('a', 1) = 'b'$
- $s[3] \rightarrow \text{shift}('c', 1) = 'd'$
- $s[5] \rightarrow \text{shift}('e', 1) = 'f'$

Example 2:

Input: $s = "a1b2c3d4e"$
Output: "abbdcfdhe"
Explanation: The digits are replaced as follows:
- $s[1] \rightarrow \text{shift}('a', 1) = 'b'$
- $s[3] \rightarrow \text{shift}('b', 2) = 'd'$
- $s[5] \rightarrow \text{shift}('c', 3) = 'f'$
- $s[7] \rightarrow \text{shift}('d', 4) = 'h'$

Constraints:

- $1 \leq s.length \leq 100$
- s consists only of lowercase English letters and digits.

- `shift(s[i-1], s[i]) <= 'z'` for all **odd** indices
`i` .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1845. Seat Reservation Manager

Design a system that manages the reservation state of n seats that are numbered from 1 to n .

Implement the SeatManager class:

- `SeatManager(int n)` Initializes a SeatManager object that will manage `n` seats numbered from 1 to `n`. All seats are initially available.
- `int reserve()` Fetches the **smallest-numbered** unreserved seat, reserves it, and returns its number.
- `void unreserve(int seatNumber)` Unreserves the seat with the given `seatNumber`.

Example 1:

Input

```
["SeatManager", "reserve", "reserve", "unreserve", "reserve", "re  
[[5], [], [], [2], [], [], [], [5]]
```

Output

```
[null, 1, 2, null, 2, 3, 4, 5, null]
```

Explanation

```
SeatManager seatManager = new SeatManager(5); // Initializes a Se  
seatManager.reserve(); // All seats are available, so return  
seatManager.reserve(); // The available seats are [2,3,4,5],  
seatManager.unreserve(2); // Unreserve seat 2, so now the availa  
seatManager.reserve(); // The available seats are [2,3,4,5],  
seatManager.reserve(); // The available seats are [3,4,5], so  
seatManager.reserve(); // The available seats are [4,5], so re  
seatManager.reserve(); // The only available seat is seat 5,  
seatManager.unreserve(5); // Unreserve seat 5, so now the availa
```

Constraints:

- $1 \leq n \leq 10^5$
- $1 \leq \text{seatNumber} \leq n$
- For each call to `reserve`, it is guaranteed that there will be at least one unreserved seat.
- For each call to `unreserve`, it is guaranteed that `seatNumber` will be reserved.
- At most 10^5 calls **in total** will be made to `reserve` and `unreserve`.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1846. Maximum Element After Decreasing and Rearranging

You are given an array of positive integers `arr` . Perform some operations (possibly none) on `arr` so that it satisfies these conditions:

- The value of the **first** element in `arr` must be 1 .
- The absolute difference between any 2 adjacent elements must be **less than or equal to 1** . In other words, `abs(arr[i] - arr[i - 1]) <= 1` for each `i` where `1 <= i < arr.length` (**0-indexed**). `abs(x)` is the absolute value of `x` .

There are 2 types of operations that you can perform any number of times:

- **Decrease** the value of any element of arr to a **smaller positive integer**.
- **Rearrange** the elements of arr to be in any order.

Return *the maximum possible value of an element in arr after performing the operations to satisfy the conditions*.

Example 1:

Input: arr = [2, 2, 1, 2, 1]

Output: 2

Explanation:

We can satisfy the conditions by rearranging arr so it becomes [2, 2, 1, 2, 1].
The largest element in arr is 2.

Example 2:

Input: arr = [100, 1, 1000]

Output: 3

Explanation:

One possible way to satisfy the conditions is by doing the following:

1. Rearrange arr so it becomes [1, 100, 1000].
2. Decrease the value of the second element to 2.
3. Decrease the value of the third element to 3.

Now arr = [1, 2, 3], which satisfies the conditions.
The largest element in arr is 3.

Example 3:

Input: arr = [1, 2, 3, 4, 5]

Output: 5

Explanation: The array already satisfies the conditions, and the

Constraints:

- $1 \leq \text{arr.length} \leq 10^5$
- $1 \leq \text{arr}[i] \leq 10^9$

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1847. Closest Room

There is a hotel with n rooms. The rooms are represented by a 2D integer array `rooms` where `rooms[i] = [roomIdi, sizei]` denotes that there is a room with room number `roomIdi` and size equal to `sizei`. Each `roomIdi` is guaranteed to be unique .

You are also given k queries in a 2D array `queries` where `queries[j] = [preferredj, minSizej]` . The answer to the j^{th} query is the room number `id` of a room such that:

- The room has a size of at least `minSizej`, and

- $\text{abs}(\text{id}_i - \text{preferred}_{j_i})$ is **minimized**, where $\text{abs}(x)$ is the absolute value of x .

If there is a **tie** in the absolute difference, then use the room with the **smallest** such id_i . If there is **no such room**, the answer is -1.

Return *an array answer of length k where answer[j] contains the answer to the jth query*.

Example 1:

Input: rooms = [[2,2],[1,2],[3,2]], queries = [[3,1],[3,3],[5,2]]
 Output: [3,-1,3]

Explanation: The answers to the queries are as follows:

Query = [3,1]: Room number 3 is the closest as $\text{abs}(3 - 3) = 0$, and it is the smallest.
 Query = [3,3]: There are no rooms with a size of at least 3, so the answer is -1.
 Query = [5,2]: Room number 3 is the closest as $\text{abs}(3 - 5) = 2$, and it is the smallest.

Example 2:

Input: rooms = [[1,4],[2,3],[3,5],[4,1],[5,2]], queries = [[2,3]]
 Output: [2,1,3]

Explanation: The answers to the queries are as follows:

Query = [2,3]: Room number 2 is the closest as $\text{abs}(2 - 2) = 0$, and it is the smallest.
 Query = [2,4]: Room numbers 1 and 3 both have sizes of at least 4, so the answer is 2.
 Query = [2,5]: Room number 3 is the only room with a size of at least 5, so the answer is 3.

Constraints:

- $n == \text{rooms.length}$
- $1 \leq n \leq 10^5$
- $k == \text{queries.length}$
- $1 \leq k \leq 10^4$
- $1 \leq \text{roomId}_i, \text{preferred}_{j_i} \leq 10^7$
- $1 \leq \text{size}_i, \text{minSize}_{j_i} \leq 10^7$
- $1 \leq \text{minSize}_{j_i} \leq \text{size}_i$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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1848. Minimum Distance to the Target Element

Given an integer array `nums` (**0-indexed**) and two integers `target` and `start`, find an index `i` such that `nums[i] == target` and `abs(i - start)` is **minimized**. Note that `abs(x)` is the absolute value of `x`.

Return `abs(i - start)`.

It is **guaranteed** that `target` exists in `nums`.

Example 1:

```
Input: nums = [1,2,3,4,5], target = 5, start = 3
Output: 1
Explanation: nums[4] = 5 is the only value equal to target, so t
```

Example 2:

```
Input: nums = [1], target = 1, start = 0
Output: 0
Explanation: nums[0] = 1 is the only value equal to target, so t
```

Example 3:

```
Input: nums = [1,1,1,1,1,1,1,1,1,1], target = 1, start = 0
Output: 0
Explanation: Every value of nums is 1, but nums[0] minimizes abs
```

Constraints:

- $1 \leq \text{nums.length} \leq 1000$
- $1 \leq \text{nums}[i] \leq 10^4$
- $0 \leq \text{start} < \text{nums.length}$
- target is in nums .

Difficulty:

Easy

Lock:

Normal

Company:

Problem Solution

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1849. Splitting a String Into Descending Consecutive Values

You are given a string s that consists of only digits.

Check if we can split s into **two or more non-empty substrings** such that the **numerical values** of the substrings are in **descending order** and the **difference** between numerical values of every two **adjacent substrings** is equal to 1 .

- For example, the string $s = "0090089"$ can be split into $["0090", "089"]$ with numerical values $[90, 89]$. The values are in descending order and adjacent values differ by 1 , so this way is valid.
- Another example, the string $s = "001"$ can be split into $["0", "01"]$, $["00", "1"]$, or $["0", "0", "1"]$. However all the ways are invalid because they have numerical values $[0, 1]$, $[0, 1]$, and $[0, 0, 1]$ respectively, all of which are not in descending order.

Return `true` if it is possible to split s as described above , or `false` otherwise.

A **substring** is a contiguous sequence of characters in a string.

Example 1:

Input: s = "1234"
Output: false
Explanation: There is no valid way to split s.

Example 2:

Input: s = "050043"
Output: true
Explanation: s can be split into ["05", "004", "3"] with numerical values in descending order.
The values are in descending order with adjacent values differing by 1.

Example 3:

Input: s = "9080701"
Output: false
Explanation: There is no valid way to split s.

Example 4:

Input: s = "10009998"
Output: true
Explanation: s can be split into ["100", "099", "98"] with numerical values in descending order.
The values are in descending order with adjacent values differing by 1.

Constraints:

- $1 \leq s.length \leq 20$
- s only consists of digits.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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1850. Minimum Adjacent Swaps to Reach the Kth Smallest Number

You are given a string `num` , representing a large integer, and an integer `k` .

We call some integer **wonderful** if it is a **permutation** of the digits in `num` and is **greater in value** than `num` . There can be many wonderful integers. However, we only care about the **smallest-valued** ones.

- For example, when `num` = "5489355142" :
 - The 1st smallest wonderful integer is "5489355214" .
 - The 2nd smallest wonderful integer is "5489355241" .
 - The 3rd smallest wonderful integer is "5489355412" .
 - The 4th smallest wonderful integer is "5489355421" .

Return the **minimum number of adjacent digit swaps** that needs to be applied to `num` to reach the k^{th} **smallest wonderful integer** .

The tests are generated in such a way that k^{th} smallest wonderful integer exists.

Example 1:

Input: num = "5489355142", k = 4

Output: 2

Explanation: The 4th smallest wonderful number is "5489355421".

- Swap index 7 with index 8: "5489355142" -> "5489355412"
- Swap index 8 with index 9: "5489355412" -> "5489355421"

Example 2:

Input: num = "11112", k = 4

Output: 4

Explanation: The 4th smallest wonderful number is "21111". To get

- Swap index 3 with index 4: "11112" -> "11121"
- Swap index 2 with index 3: "11121" -> "11211"
- Swap index 1 with index 2: "11211" -> "12111"
- Swap index 0 with index 1: "12111" -> "21111"

Example 3:

Input: num = "00123", k = 1

Output: 1

Explanation: The 1st smallest wonderful number is "00132". To get

- Swap index 3 with index 4: "00123" -> "00132"

Constraints:

- $2 \leq \text{num.length} \leq 1000$
- $1 \leq k \leq 1000$
- num only consists of digits.

Difficulty:

Medium

Lock:

Normal

Company:

Problem Solution

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All Problems:

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1851. Minimum Interval to Include Each Query

You are given a 2D integer array `intervals` , where `intervals[i] = [lefti, righti]` describes the i^{th} interval starting at `lefti` and ending at `righti` (**inclusive**) . The **size** of an interval is defined as the number of integers it contains, or more formally `righti - lefti + 1` .

You are also given an integer array `queries` . The answer to the j^{th} query is the **size of the smallest interval** i such that `lefti <= queries[j] <= righti` . If no such interval exists, the answer is -1 .

Return *an array containing the answers to the queries* .

Example 1:

Input: intervals = [[1,4],[2,4],[3,6],[4,4]], queries = [2,3,4,5]
Output: [3,3,1,4]
Explanation: The queries are processed as follows:
- Query = 2: The interval [2,4] is the smallest interval containing 2.
- Query = 3: The interval [2,4] is the smallest interval containing 3.
- Query = 4: The interval [4,4] is the smallest interval containing 4.
- Query = 5: The interval [3,6] is the smallest interval containing 5.

Example 2:

Input: intervals = [[2,3],[2,5],[1,8],[20,25]], queries = [2,19,-1,5,22]
Output: [2,-1,4,6]
Explanation: The queries are processed as follows:
- Query = 2: The interval [2,3] is the smallest interval containing 2.
- Query = 19: None of the intervals contain 19. The answer is -1.
- Query = 5: The interval [2,5] is the smallest interval containing 5.
- Query = 22: The interval [20,25] is the smallest interval containing 22.

Constraints:

- $1 \leq \text{intervals.length} \leq 10^5$
- $1 \leq \text{queries.length} \leq 10^5$
- $\text{intervals}[i].length == 2$
- $1 \leq \text{left}_i \leq \text{right}_i \leq 10^7$
- $1 \leq \text{queries}[j] \leq 10^7$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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1852. Distinct Numbers in Each Subarray

Given an integer array `nums` and an integer `k` , you are asked to construct the array `ans` of size `n-k+1` where `ans[i]` is the number of **distinct** numbers in the subarray `nums[i:i+k-1] = [nums[i], nums[i+1], ..., nums[i+k-1]]` .

Return *the array ans* .

Example 1:

Input: `nums = [1,2,3,2,2,1,3]`, `k = 3`

Output: `[3,2,2,2,3]`

Explanation: The number of distinct elements in each subarray go

- `nums[0:2] = [1,2,3]` so `ans[0] = 3`
- `nums[1:3] = [2,3,2]` so `ans[1] = 2`
- `nums[2:4] = [3,2,2]` so `ans[2] = 2`
- `nums[3:5] = [2,2,1]` so `ans[3] = 2`
- `nums[4:6] = [2,1,3]` so `ans[4] = 3`

Example 2:

Input: `nums = [1,1,1,1,2,3,4]`, `k = 4`

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

Explanation: The number of distinct elements in each subarray go

- `nums[0:3] = [1,1,1,1]` so `ans[0] = 1`
- `nums[1:4] = [1,1,1,2]` so `ans[1] = 2`
- `nums[2:5] = [1,1,2,3]` so `ans[2] = 3`
- `nums[3:6] = [1,2,3,4]` so `ans[3] = 4`

Constraints:

- $1 \leq k \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^5$

Difficulty:

Medium

Lock:

Prime

Company:**Problem Solution**

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1853. Convert Date Format

SQL Schema >

Table: Days

Column Name	Type
day	date

day is the primary key for this table.

Write an SQL query to convert each date in Days into a string formatted as "day_name, month_name day, year".

Return the result table **in any order**.

The query result format is in the following example:

Days table:

day
2022-04-12
2021-08-09
2020-06-26

Result table:

Tuesday, April 12, 2022
Monday, August 9, 2021
Friday, June 26, 2020

Please note that the output is case-sensitive.

Difficulty:

Easy

Lock:

Prime

Company:

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1854. Maximum Population Year

You are given a 2D integer array `logs` where each `logs[i] = [birth_i, death_i]` indicates the birth and death years of the i^{th} person.

The **population** of some year x is the number of people alive during that year. The i^{th} person is counted in year x 's population if x is in the **inclusive** range `[birth_i, death_i - 1]`. Note that the person is **not** counted in the year that they die.

Return *the earliest year with the maximum population*.

Example 1:

Input: `logs = [[1993, 1999], [2000, 2010]]`

Output: 1993

Explanation: The maximum population is 1, and 1993 is the earlie

Example 2:

Input: logs = [[1950,1961],[1960,1971],[1970,1981]]

Output: 1960

Explanation:

The maximum population is 2, and it had happened in years 1960 a

The earlier year between them is 1960.

Constraints:

- $1 \leq \text{logs.length} \leq 100$
- $1950 \leq \text{birth}_i < \text{death}_i \leq 2050$

Difficulty:

Easy

Lock:

Normal

Company:

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1855. Maximum Distance Between a Pair of Values

You are given two **non-increasing 0-indexed** integer arrays `nums1` and `nums2`.

A pair of indices (i, j) , where $0 \leq i < \text{nums1.length}$ and $0 \leq j < \text{nums2.length}$, is **valid** if both $i \leq j$ and $\text{nums1}[i] \leq \text{nums2}[j]$. The **distance** of the pair is $j - i$.

Return *the maximum distance of any valid pair* (i, j) . If there are no valid pairs, return 0.

An array `arr` is **non-increasing** if $\text{arr}[i-1] \geq \text{arr}[i]$ for every $1 \leq i < \text{arr.length}$.

Example 1:

Input: `nums1 = [55,30,5,4,2]`, `nums2 = [100,20,10,10,5]`
Output: 2

Explanation: The valid pairs are $(0,0)$, $(2,2)$, $(2,3)$, $(2,4)$, $(3,4)$.
The maximum distance is 2 with pair $(2,4)$.

Example 2:

Input: `nums1 = [2,2,2]`, `nums2 = [10,10,1]`
Output: 1

Explanation: The valid pairs are $(0,0)$, $(0,1)$, and $(1,1)$.
The maximum distance is 1 with pair $(0,1)$.

Example 3:

Input: `nums1 = [30,29,19,5]`, `nums2 = [25,25,25,25,25]`
Output: 2

Explanation: The valid pairs are $(2,2)$, $(2,3)$, $(2,4)$, $(3,3)$, and
The maximum distance is 2 with pair $(2,4)$.

Example 4:

Input: `nums1 = [5,4]`, `nums2 = [3,2]`
Output: 0

Explanation: There are no valid pairs, so return 0.

Constraints:

- $1 \leq \text{nums1.length} \leq 10^5$
- $1 \leq \text{nums2.length} \leq 10^5$
- $1 \leq \text{nums1[i]}, \text{nums2[j]} \leq 10^5$
- Both `nums1` and `nums2` are **non-increasing**.

Difficulty:

Medium

Lock:

Normal

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1856. Maximum Subarray Min-Product

The **min-product** of an array is equal to the **minimum value** in the array **multiplied by** the array's **sum**.

- For example, the array [3, 2, 5] (minimum value is 2) has a min-product of $2 * (3+2+5) = 2 * 10 = 20$.

Given an array of integers `nums`, return *the maximum min-product of any non-empty subarray of `nums`*.

Since the answer may be large, return it **modulo $10^9 + 7$** .

Note that the min-product should be maximized **before** performing the modulo operation. Testcases are generated such that the maximum min-product **without** modulo will fit in a **64-bit signed integer**.

A **subarray** is a **contiguous** part of an array.

Example 1:

Input: `nums` = [1, 2, 3, 2]

Output: 14

Explanation: The maximum min-product is achieved with the subarray [2, 3, 2] $2 * (2+3+2) = 2 * 7 = 14$.

Example 2:

Input: `nums` = [2, 3, 3, 1, 2]

Output: 18

Explanation: The maximum min-product is achieved with the subarray [3, 3] $3 * (3+3) = 3 * 6 = 18$.

Example 3:

Input: `nums` = [3, 1, 5, 6, 4, 2]

Output: 60

Explanation: The maximum min-product is achieved with the subarray [4, 5, 6] $4 * (5+6+4) = 4 * 15 = 60$.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $1 \leq \text{nums}[i] \leq 10^7$

Difficulty:

Medium

Lock:

Normal

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1857. Largest Color Value in a Directed Graph

There is a **directed graph** of n colored nodes and m edges. The nodes are numbered from 0 to $n - 1$.

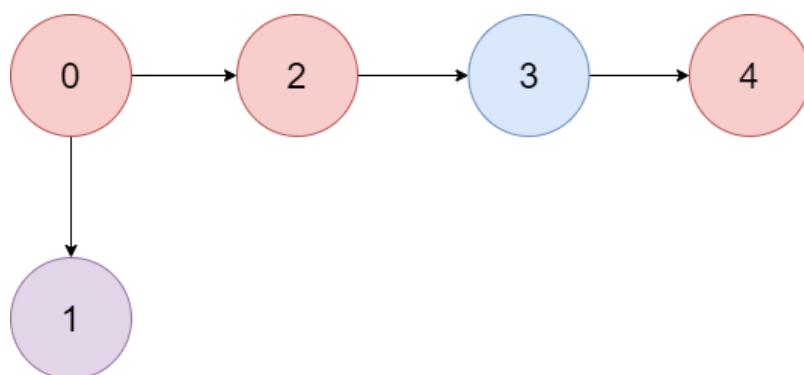
You are given a string `colors` where `colors[i]` is a lowercase English letter representing the **color** of the i

th node in this graph (**0-indexed**). You are also given a 2D array edges where $\text{edges}[j] = [a_j, b_j]$ indicates that there is a **directed edge** from node a_j to node b_j .

A valid **path** in the graph is a sequence of nodes $x_1 \rightarrow x_2 \rightarrow x_3 \rightarrow \dots \rightarrow x_k$ such that there is a directed edge from x_i to x_{i+1} for every $1 \leq i < k$. The **color value** of the path is the number of nodes that are colored the **most frequently** occurring color along that path.

Return the **largest color value** of any valid path in the given graph, or -1 if the graph contains a cycle.

Example 1:

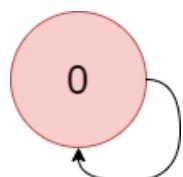


Input: colors = "abaca", edges = [[0,1],[0,2],[2,3],[3,4]]

Output: 3

Explanation: The path $0 \rightarrow 2 \rightarrow 3 \rightarrow 4$ contains 3 nodes that are

Example 2:



Input: colors = "a", edges = [[0,0]]

Output: -1

Explanation: There is a cycle from 0 to 0.

Constraints:

- $n == \text{colors.length}$
- $m == \text{edges.length}$

- $1 \leq n \leq 10^5$
- $0 \leq m \leq 10^5$
- `colors` consists of lowercase English letters.
- $0 \leq a_j, b_j < n$

Difficulty:

Hard

Lock:

Normal

Company:

Problem Solution

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