

OTS

[\[面试经验\] 大软软 OTS](#)

实在是想要快点完成笔试就没有看地里面经。。。几年前做过觉得特别简单所以感觉这次有点轻敌了。。。event 是 10/12 的 office experience

上题目：

1. Friends Circle 找 bug，基本就是解决环的问题就好；可是不能 copy paste 我废话又太多在这个题上居然花了快半小时。。。。

547. Friend Circles <https://leetcode.com/problems/friend-circles/description/>

2. Implement Iterator Interface，题目写的不是很好，但基本就是说你这个 class 会实现一个 iterator interface，然后有两个 function 叫 Current()和 MoveNext(), 请分别实现之

- 3.GenerateLargestNumber by removing n digits. 这题我就没刷过。。。现场搜了 leetcode 发现原题，但原题是找最小的，只剩十分钟来不及思考随便改了一下就交了。。。现在想想有 bug。。。。

402. Remove K Digits <https://leetcode.com/problems/remove-k-digits/description/> lc 题目是找最小的，规律就是每次都去掉第一个开始递减的数；这道题找最大的那就去掉第一个开始递增的数，比如 321456，去掉一个数，那就去掉 1

```
string removeKdigits(string num, int k) {
    string res = ""; // res 就看做是一个栈
    int keep = num.size() - k;
    for(auto c : num){
        while(k && res.size() != 0 && res.back() < c){
            res.pop_back();
            k--;
        }

        res.push_back(c);
    }
    res.resize(keep);
    int idx = 0;
    while(res.size() != 0 && res[0] == '0') {
        res.erase(res.begin());
    }
    return res == "" ? "0" : res;
}
```

新鲜巨硬 OTS

4. 反向斐波那契数列，写个函数，take in 两个输入，输出一个反向的序列。
 $F(n) = f(n-1) - f(n-2)$
5. debug, str 转 int16 那个题。
6. 在 BST binary search tree 中找下一个比给定 target 大的数。

270. Closest Binary Search Tree Value <https://leetcode.com/problems/closest-binary-search-tree-value/description/>

微软 ots

1. debug 题 大概 mystery function 判断在干什么 其实是在找 a b 是不是 direct/indirect friend 给的
dfs bug 是没有 visited array
2. two sum sorted array
[167. Two Sum II - Input array is sorted](#)
3. 储存文件 给几个 api 用给的 api 写一个怎么存 file 的 function 其中一个是从开头开始存 另一个是从某一点开始存 反正很简单 注意看清楚题目就行 题目很长

巨硬 OTS (C++职位)

帮家属申了巨硬家的 software engineer II, HR 发来 OTS 上写的是 Junior engineer, 有点驴头不对马嘴。可能因为申的 C++ 职位, 题都是和 pointer 相关, 五题共 45 分钟, 时间也是有点紧。。。

Anyways, 题跟地里看到的 OTS 题目都不太一样, 来汇报一下: 1. merge two sorted array, return 一个 sorted array [88. Merge Sorted Array](#)

2. 括号 match, 输入是一个 string, 查大中小括号 match 的对不对 [20. Valid Parentheses](#)

解答: <https://leetcode.com/problems/valid-parentheses/discuss/9222/My-0ms-c++-solution-using-stack>

3. 给了一个错误的 function pointer declaration, 要求修改为正确的
4. 给了一段 constructor 和 destructor 被 call 的顺序错了的代码, 要求修改为正确的并写出 output
5. 没来得及做就到时间了 T.T
题都没做完, 肯定是跪了, 哎。。。

巨硬 OTS 11/30

1. check if string p is in string b, 力叩耳拔, 除了写 function 还要解释假设跟写 testcase
[28. Implement strStr\(\)](#)
2. debug 题, 地理也有, function 是把 str 转成数字
3. 力叩腰溜屋
[165. Compare Version Numbers](#)

解答: <https://leetcode.com/problems/compare-version-numbers/discuss/50767/My-2ms-easy-solution-with-C++>

巨婴奥体爱死

奥体爱死 三道题

1.求所以大于给定数的 2 数组组合(就是找 2 个数的和大于给定的值啊, for for 呗)

2.一个数组有个数是 0, 问你从指定位置能不能调到这里

leetcode 55 jump game <https://leetcode.com/problems/jump-game/description/>

3.问你前后 intervals 会不会有 conflict

M 家哦踢哎斯

1. 利口伞把尔变形, 变得不多原题会做肯定能做出来

382. Linked List Random Node <https://leetcode.com/problems/linked-list-random-node/description/>

2. 利口伞室, 原题

30. Substring with Concatenation of All Words <https://leetcode.com/problems/substring-with-concatenation-of-all-words/description/>

leetcode 30 解答 <http://www.cnblogs.com/grandyang/p/4521224.html>

3. 便利耳差树, 不让用低轨, 没说什么顺序感觉是开放的吧, 写啥都行。

<https://github.com/Alex1888/My-Code-Library/blob/master/Binary%20Tree%20Operation.md>

新鲜微软 OTS 面筋 10.22

Find all possible problems with the following code (C#) and fix the problems that were found

```
class ItemsChecker
{
    private List<string> _badItems;

    public ItemsChecker(List<string> badItems)
    {
        _badItems = badItems;
    }

    public List<string> GetGoodItems(List<string> items)
    {
        List<string> goodItems = new List<string>();
        foreach (string item in items)
        {
            if (!_badItems.Contains(item))
            {
                goodItems.Add(item);
            }
        }

        return goodItems;
    }
}
```

List 里 copy 的是引用,不是值 copy,要用
for (var item in badItems){
 _badItems.Add(new string(item));
}

<https://social.msdn.microsoft.com/Forums/zh-CN/d118aba8-0fae-45b1-a3f2-7ad5ce13cde4/c252261996820010listtgt361712054032473214781996820010listtgt?forum=visualcsharpzhchs>

You are given a set of points, made up of x and y coordinates. You are also provided with a reference point. Find the K closest points to the reference point.

Implement: public Set<Point> FindClosestPoints (Set<Point> allPoints, Point referencePoint, int k)

Assume that k can be up to several hundred and allPoints is in the order of millions.

What is the runtime complexity of your solution?



第二题

leetcode Add Two Numbers

[2. Add Two Numbers](#) 这个是倒叙的

<http://www.cnblogs.com/grandyang/p/6216480.html> 这个正是序的 [445. Add Two Numbers](#)

II

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     ListNode *next;
 *     ListNode(int x) : val(x), next(NULL) {}
 * };
 */
```

[MS 10/22 CSE hiring event](#)

周日交了 OTS

1. C# Task.Delay vs Thread.sleep

<https://stackoverflow.com/questions/20082221/when-to-use-task-delay-when-to-use-thread-sleep>

The biggest difference between `Task.Delay` and `Thread.Sleep` is that `Task.Delay` is intended to run asynchronous. It does not make sense to use `Task.Delay` in synchronous code. It is a VERY bad idea to use `Thread.Sleep` in asynchronous code.

Use `Thread.Sleep` when you want to block the current thread.

Use `Task.Delay` when you want a logical delay without blocking the current thread.

2. topo sort 拓扑排序

<https://songlee24.github.io/2015/05/07/topological-sorting/>

207. Course Schedule <https://leetcode.com/problems/course-schedule/description/>

3. compare version

[巨婴 ots 十月](#)

1. 简单 array partition

561. Array Partition I <https://leetcode.com/problems/array-partition-i/description/>

2. 拓扑排序

3. 2 个人做游戏，给定一个正整数，每个人轮流减去一个完全平方数（减去的结果要非负），先得到

0 的人赢。

注意这个题就是讲了下规则，并没有定输入输入。

464. Can I Win <https://leetcode.com/problems/can-i-win/description/> 给了我们一堆数字，然后两个人，每人每次选一个数字，看数字总数谁先到给定值

解答: <http://www.cnblogs.com/grandyang/p/6103525.html>

M 家 OTS

一个小时，三道算法题，时间还是有点紧张，code 写的不够 clean，备注感觉也没写好，感觉挂了，发出来为后面的面试攒人品。

1. merge two sorted singly-linked list

21. Merge Two Sorted Lists

2. task 执行顺序(topological sort) 写了无数遍的拓扑排序因为看到第三题有点懵，也没写好。汗

3. 题目真的太长，英语捉急。。感觉是个阅读理解题，题目长度比我当年考托福的写作的都写得长，光读题就花了十几分钟。不知道地里面有没有这道题的面经，我没有看太多面经，没有见过 ==|||

大意有一个 city, 有一排 building, 有两个暴徒 站在这排 building 左右两边要摧毁这一排 building，两边的暴徒，只有在 building 的 height 是暴徒前进的方向上升序排列的时候，才能连续摧毁，也就是说，如果不是升序，只能摧毁当前 building，不能连续摧毁，求最少的需要的 move 次数

input 是所有 building 的 heights

希望能帮到大家。

巨硬 hiring events OA

一共 3 题：第一题是 debug。

说数字 a 和 b，每次 a 和 b 只能增加或者减少 1. 直到 $a = x$ ， $b = y$ 返回，x, y 是 target。

```
changeToTarget(a, b, x, y) {
```

```
...
```

```
}
```

很简单，主要就是 while 的条件有错。还有几个其他小错。没记太清。但是确实很简单，不用担心，

第二题：利口三儿吧，没有任何变形

328. Odd Even Linked List

第三天：利口一六五。有点不同是是不用 return 1, 0, -1, 只用 return positive, 0, negative 就行。 [165. Compare Version Numbers](#)

微软 oa

1. 一段 c 的代码，好像是删除链表的一个节点，问有没有问题。问题好像是链表删除后 pointer 没有释放，即是和别的 node 没联系了可是还是会影响内存
2. 给出两个用 linked list 表示的数，求两个数的和，用 linkedlist 的形式返回。例如 12345:
1->2->3->4->5
3. 把一个 linked list 分成两个 linked list, 一个包含原链表 index 基数 node, 另一个包含偶数，都得按照原来链表顺序

一点点软 OTS

1. Delete (N-1)th node in a singly linked list of N nodes
2. Rotate a linked list by kth node

Microsoft OA 新鲜出炉

1. Describe what happens underneath the covers when you type bing.com or google.com in a web browser.
2. Determine whether an input string has balanced braces or not. String may include any of the following characters "{}[]()". Examples: "{}[]()" -> valid. "{}[]()" -> invalid.
3. Suppose we could access yesterday's stock prices as a list, where:
 - The indices are the time in minutes past trade opening time, which was 9:30 am local time.
 - The values are the prices in dollars of Microsoft stock at that time.So if the stock cost \$500 at 10:30 am, stock_prices_yesterday[60] = 500.
Write an efficient function that takes stock_prices_yesterday and returns the best profit I could have made from 1 purchase and 1 sale of 1 Microsoft stock yesterday.

[121. Best Time to Buy and Sell Stock](#) 只进行一次交易

巨硬在线鄙视

- 第一个是改错题，其他帖子也有的，就是那个 Int16.Parse() 的那段代码
第二题是给出两个数，返回他们之间的质数

[204. Count Primes](#)

第三题是给出一个整形数组，要求返回每个数字出现的次数

巨硬新鲜 OTS

上周末做了他家三题的 OTS。

总体感觉不是很难，写的话比写代码要用更多的时间哈哈。

题目都是地里 & 利口有的题目，重点说两道算法题。

一道是颜色排序的变种，基本上只是加了一个概念多调用一个不需要自己写的 function

[75. Sort Colors](#)

第二个是子序列的最大乘积

[152. Maximum Product Subarray](#)

巨硬 Hiring Event OA 求米

1. 一个整数转换 string 的函数，让你找错。（我找的是没考虑负数和 0，不知道还有没有其他）
2. linkedlist 让先连 odd 再连 even 俩并一起
3. 两个 linkedlist 整数相加成一个新的 linked list

巨硬 新鲜 OA

<https://stackoverflow.com/questions/2657810/deep-copy-vs-shallow-copy>

Given the following object definition, implement a method that creates a deep copy of the object such that objects it references are copied as well.

```
class Node
{
    Node p1; // For C/C++, consider this as Node *p1, Node *p2
    Node p2;
}
```

The method signature for this method should be:

Node DeepCopy(Node element)

Or for C/C++

Node* DeepCopy(Node* element)

Briefly describe an alternate implementation to your solution, you don't need to implement it. Why did you choose your solution over your alternate one?"

```
Node* DeepCopy(Node* element){
    Node* res = new Node();
    Res->p1 = new Node(element->p1);
    Res->p2 = new Node(element->p2);
    Return res;
}
```


Implement a method that returns the lowest possible number that could be generated after removing n characters from a string of digits. The resulting characters should be kept in the same order and should not be reordered or sorted.

Method signature:

```
string GenerateLowestNumber(string number, int n)
```

The number parameter denotes the input string: "4205123"

The n parameter represents the number of characters to remove.

Example:

If number is "4205123" and n is 4, the lowest possible number that can be generated after removing any 4 characters is "012". If number is "216504" and n is 3, the lowest possible number that can be generated after removing 3 characters is "104".

You're given the root of a binary search tree and a target value. The tree structure does not include parent links. Write a method to search for the value just larger than the target in the tree. For instance, if the tree contains the values 1, 3, 5, 7, 9. And the search target is 5 or 6, the returned value should be 7.

Include a definition of your tree node with your implementation. What is the time complexity of your algorithm?

Briefly describe an alternate implementation to your solution, you don't need to implement it. Why did you choose your solution over your alternate one?"

[巨硬 ots](#)

第一题改错

给了 person 类 包含名字和熟人

错误的函数是是否能从本人根据熟人找到另一个人 LC 上有类似的题

第二题 level order traversal 但是不让用 queue

[102. Binary Tree Level Order Traversal](#)

第三题判断树是不是 balanced 问可不可以 $O(N)$

[微软 oa](#)

一小时三道题

第一道语法改错；第二道是两个数组排序，把小的放进大的里 (LC88)；第三题就是两个链表做加法（左至右）也是 lc 原题

写了很多 comments 和 test case。。

[刚收到 2 题版 OTS 求信息](#)

今天刚刚收到一个 OTS，是 8 月 10 号 Office365 hiring event

Test duration: 55 mins

2 questions: 1 easy/med, 1 hard

The programs need to compile

It's better if all the test cases pass

但是看地里最近都没有 2 题版本的 OTS 了，求信息

巨硬 OTS

三个题

第一个找 bug，C 的，把数组往后移动 N 个位置，memory 没有 allocate，移动顺序不对

第二个 version 比较

第三个 linkedlist 相加

软家 ots 面经

1. debug - remove node from linked list (c#)
2. 乐扣 会议室问题
3. 路径问题变种：如何从源路径到目标路径

Microsoft OTS

1. Friend Circle 的改错题
2. count and say
3. 给一个 string，判断有没有 substring 是 palindrome。长度大于 2 的才算。

巨硬的新鲜 OTS

一共两道题，貌似巨硬的题库蛮大的

一共就给 60 分钟，没办法测试正确性，所以最好建议写大量的 comment 来解释自己的思路，即使代码写的不能运行

第一题 蠡口 柳林刘

第二题 就是硬复制一个 graph，蠢口上有类似的

[Azure OTS](#)

第一题：代码找错 给定一个 Person 类，包含两个 field (name / friendship which is a list of person) 和两个函数 (constructor / foo) 问 foo 函数是做什么的？有什么 bug，如何 fix。
foo 的实现大概用 stack 在 social network 上做 DFS，由于没有保存访问过的点，因此会出现死循环，我的解决方案是用一个 hashset 保存访问过得点，遇到访问过得点时不再 push stack

第二题：LC02

第三题：LC229 若无法写出 $O(1)$ space 解法可以给出次优解

[巨硬 OTS](#)

三道题

1：地里的 class Person, 有一个 constructor, 潜在 bug 是 没有 null checking Acquaintance[] 这个参数

另外一个潜在 bug 是，Mystery() 方法的 do while 循环里边的 foreach 必须去掉，否则死循环，而且每次弹出来都是最后一个 friend。一旦这个 last friend 不是你要找的，直接 stack overflow, outofMemory 了。

2. 第二题，topK 最近的点，考点就是要写最大堆。还要写 class Point, 然后添加对两点距离的逆序排序的 comparator。

3. 第三题，给一颗 binary tree, 要求打印这棵树，从下到上，从右到左。给出几个 test case.

最后 coding 题目都给下时空复杂度，有时间再添加些 comment 啥的。

[微软 OTS](#)

1. 给了一段 C# 代码，delete a Node in a linked list. 让你找茬。

2. count and say

3. sort color

[MS OTS](#)

第一题是 debug, 地里经常见的查这个人是不是在关系网中的题。二三题见附件。第三题搞不清想要实现成什么效果, 挂。

第二题是不是就让写个接口, 不用实现出来吧。只写接口感觉太简单了。

第三题是 leetcode 原题(Leetcode 253. Meeting Rooms II), 而且是面经
[253. Meeting Rooms II](#)

Question

Given a list of meetings, where each meeting contains a start and end time.

1. find the minimal number of conference rooms are necessary to accommodate all the meetings.
2. What is the runtime complexity of your solution?

Assumptions:

A conference room can only hold one meeting at a time.

Meeting only start and end on the hour or half hour boundaries

Example:

Given meeting times { {9am, 10 am}, {9:30am, 10am}, {9am, 9:30 am}, {10am, 11am} }.

Return 2.

Question

Implement an arbitrarily large (signed) integer that math operations can be done upon.

Note: We are looking for a class that can handle numbers larger than "max integer" and can do math operations on them.

[微软 OTS](#)

一小时, 三道题

- 1.找 bug, shift array 往右移 N 位。
2. merge two sorted array, in place
3. 李扣 壹柒壹, input 是 array of string 然后每一个都 convert

[微软 OTS 面经](#)

Given a list of integers, create a new array defined as a list of the array index distance between the current element and the next element which is bigger.

Input: [2, 5, 3, 4, 7, 23, 15, 7, 16, 25]

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

Explanation:

The first element of our output array is a 1 because the second element of the input array is a number larger than the first element (our target); the distance is therefore 1 element. The second element of output is a 3 because the second element of the input is larger than the next two elements, but is smaller than the seven at element index four; the array index distance to that element is 3.

Prepare a similarity score algorithm that calculates the number of characters that are different between two strings. Using this algorithm, write a function that takes as input an array of strings, and re-orders the array so that the sum of similarity scores between each pair of adjacent strings is the lowest.

Example:

["car", "bat", "bar"] (summed similarity of 4) could be reordered to ["car", "bar", "bat"] (summed similarity of 2).

第一题我没理解错的话应该是单调栈，均摊复杂度是 $O(N)$

```
// Given a list of integers, create a new array defined as
// a list of the array index distance between current and next
// element which is bigger.

// E.g. Input: [2,5,3,4,7,23,15,7,16,25]
// Output: [1,3,1,1,1,4,2,1,1,0]

import java.util.*;

class Solution {
    public int[] nextBiggerDistance(int[] arr) {
        int n = arr.length;

        int[] res = new int[n];

        // val will keep track of possible candidates for each iteration:
        // Elements on the right without any larger in the middle. (not
        blocked)
        Stack<Integer> index = new Stack<>();
        Stack<Integer> val = new Stack<>();

        for (int i = n - 1; i >= 0; --i) {
            while (!val.isEmpty() && val.peek() <= arr[i]) {
                index.pop();
                val.pop();
            }
            if (val.isEmpty()) {
                res[i] = 0;
            } else {
                // arr[i] < val.peek()
                res[i] = index.peek() - i;
            }
            val.push(arr[i]);
            index.push(i);
        }

        return res;
    }
}
```

```

    }
}

class Test {

    public static void main(String[] args) {
        Solution s = new Solution();
        System.out.println(Arrays.toString(
            s.nextBiggerDistance(new int[] {
                2, 5, 3, 4, 7, 23, 15, 7, 16, 25
            })
        ));
    }
}

```

[微软 OTS 面经 2018.6.25 hiring event](#)

Find and fix the bugs in the following function that is supposed to shift elements in the array right by N spaces.

```

void ShiftRight(int[] buffer, int bufferLength, int N)
{
    for (int i = 0; i < bufferLength; i++)
    {
        buffer[i + N] = buffer[i];
    }
}

```

You're given an array that contains sorted integers. The array is allocated to have more space available than the current set of integers, so that it can grow without allocating a new array. All of the extra space comes at the end of the array and is filled with garbage values.

Write a function that merges a second sorted integer array into the array. You'll be passed the sizes of both arrays and the number of valid values in the target array. Your algorithm should be $O(n)$ runtime and not use any extra memory beyond some $O(1)$ temporary storage.

e.g.

Target array given: 2, 4, 6, xx, xx, xx

Size: 6, Valid Values: 3

Array to merge: 1, 3, 5

Size: 3

Target array after your function completes: 1, 2, 3, 4, 5, 6

What is the runtime complexity of your solution?

How would you modify your algorithm to satisfy a new requirement that the output should not have any duplicate values?

Excel columns are ordered by letter: A, B, C, ..., Z, AA, AB, ...

Convert a list of these column headers into integers.

Example:

Input: A, B, C, ..., AA, ..., ABB

Output: 1, 2, 3, ..., 27, ..., 730

What is the runtime complexity of your solution?

巨硬 OTS 06-10-2018

1. implement the function `atoi(int base_eight)` that convert a string of base eight digits into its correct integer.

没看错，是 `int base_eight`，可是题目写着 string of base eight digits，function 名字是 `atoi()`，convert string to integer。

愣了很久，写了个 convert base 8 to decimal 的内容。

2. `PrintVertically(int num)`, without using any string/ character conversion. 是 `int`，所以要注意 negative integer

<http://www.1point3acres.com/bbs/thread-279976-1-1.html>

3. 里口溜石。改， return nth lexicographical order of permutations，

0,1,2,3,4,5,6,7,8,9

string `NthPerm(int n)`，这里的 `n` 是原版的 `k`。原版的 `n` 应该是 10.

硬硬 OTS

第一題找錯

題目給了一個 function 是要將一個 string 轉換成 `int`，就是 `stoi()`。

時間太趕沒能記下原 function，不過就找出幾個常見的錯誤（沒有考慮 overflow，判決正負號沒有寫

對, etc...)

第二題 莉蔻-貳伍貳

第三題 莉蔻-參捌 (簡化版)

莉蔻原題是給定一個 int n, 然後要依序計算出每個 stage 的值, 最後返回第 n-stage 的 string.

OTS 比較簡單, 就單純給你一個 input string, 要你返回他的對應 output string (ex. 1113 -> 3113)

巨硬笔试

OA, 三个题, 1 小时

题 1. 实现一个 iterative quick sort

<https://www.geeksforgeeks.org/iterative-quick-sort/>

题 2: 给了一段 code, 大致就是一个 class, 里面存了人名字, 还有所有和这个人是朋友的人的名字。

find friend

code 里面实现的一个 function, 去查找这个人 and function input 的另一个人是不是朋友 (就是从这个人开始做 BFS)。找错误, 错误大致有两个:

1. 如果 friend relationship 有环, 那么这个 function 根本不会结束, 需要一个 visited map
2. 某个地方可能 pop from empty stack

题 3: sort color 原题, 给了三个 priority 的 task, 要求按照 priority high first, medium second, low last 排序。

巨硬 OTS

找出下面的 flaws 和 limitations

```
static bool ConvertToNumber(string s)
{
    bool canConvert = false;
    try
    {
        int n = Int16.Parse(s);
```



```

        if (n != 0)
        {
            canConvert = true;
        }
    }
    catch (Exception ex) {

    }
    bool retval = false;
    if (canConvert == true)
    {
        retval = true;
    }
    return retval;
}

```

巨硬 OTS

三道老题，

第一题，改错，找朋友，老题，stack pop 需要 check 是否为空，可能有环

第二题，sort color

第三题，里的扣 散吧 简化版

微软 OA

OA 一个小时，三道题，一道改错，两道编程，说是人工阅卷没有编译器

1. remove node in linked list. Find bugs

我找到的是 list 只有一个节点时会报错

还有就是 prev, current assignment order is wrong

2. similar to sort color , each task is a string and given an API to get priority of each task, sort tasks by priorities. Only have 3 priorities, high, mid, low
leetcode 其实无

3. Create a string sequence by reading

input -> output:

1 -> one 1 -> 11

11 -> two 1s -> 21

313 -> one 3, one 1, one 3 -> 131113

write function to do this

22231:

Initially 3 个 2 读作 32

之后 1 个 3 读作 13

1 个 1 读作 11

result = 321311

巨硬 OTS 一周后，收到邮件 ApplicationStatus 变成 In Process

OTS 的内容

1. 电话格式

2. A -> X, B -> Y. 就是挑 bug

3. Sort Color

题目很简单。。就写 comment 写的很虚。一行代码三行 comment 吧。。

巨硬 面筋

乐扣 尔霸武

BFS 相似的 debug

Fibonacci sequence

微软 hiring event

1. 李口 clone graph

2. 李口 151 我记得是不让用 stringbuilder

3. 李口 285

还有一个题朋友的 OA 里面有

李口 402

巨硬 OTS 六④ AZURE BIG DATA

1. 里扣的 武叁

2. 找 bug, 给 a b x y, 一个 function 写了如何将 a = x b = y

3. 里扣的 嗣凜貳

[巨硬 5/25 Hire Event OTS](#)

地里经常出现的那道找错题，题目本身是 C#写的，我记不住原本的代码了，我把框架用 Java 描述一下。Mystery 方法就是用 Stack 模拟 DFS 找亲戚。我写的错误有：

- Constructor 没有判断 relatives 是否为空
- Stack pop 方法之前没有判断是否为栈空
- 没有 handle 朋友圈循环问题，应该有 HashSet 去重

```
1. class Person {
2.     String name;
3.     Person[] relatives;
4.
5.     public Person(String name, Person[] relatives) {
6.         if (name == null) {
7.             throw invalidParameterException("no name");
8.         }
9.         this.name = name;
10.        this.relatives = relatives;
11.    }
12.
13.    public List<Person> mystery() {
14.        List<Person> list = new ArrayList<>();
15.        Stack<Person> stack = new Stack<>();
16.        for (Person r : relatives) {
17.            stack.push(r);
18.        }
19.        Person person = stack.pop();
20.        list.add(person);
21.        for (Person r: person.relatives) {
22.            stack.push(r);
23.        }
24.        return list;
25.    }
26. }
```

2. 一个排列的数组，让找出每一个数字出现的次数，比如[2,2,5,5,5,6,9,9,9]

返回：

2:2

5:3

6:1

9:3

3. 给 2 个 int 组成一个 range , 让输出 range 中的所有 prime numbers , 比如给定 $i = 2, j = 12$
返回 : 2,3,5,7,11

巨硬 UST 组 OA 面经

1. 利特口妖酒妖 , 需要写 comment 自己 clarify 一下 , 按照 example 给的是二进制 8 位 , 自己要考虑正常 32 位 int 的情况
2. 利特口耳污散变种 , 输入给你的是时间格式 , 比如 0900AM , 2330PM。格式不 gurantee 是 4 位 int 表示时间 , 也可能是 900AM。需要自己转化成可以比较的 interval。

微软 OTS

- 第一题以前没见过 , 一个函数是 yin 一个函数是 yang 相互调用 , 需要重新写函数并且解释 yin 是干啥的。就是求一个数转化为多少个 1
- 第二题是修改原来的代码 , 原来的代码是二叉树查找一个节点如果找到就返回 , 找不到就返回空 , 现在需要改如果找不到找到比他大的下一个节点
- 第三题里扣 气流

MS 0514Event OTS

Q2 是里的扣二一,要 dedue

Identify the flaws / limitations in the following ConvertToNumber method:

```
public static bool ConvertToNumber(string str)
{
    bool canConvert = false;
    try
    {
        int n = Int16.Parse(str);

        if (n != 0)
        {
            canConvert = true;
        }
    }
    catch (Exception ex)
    {
    }
    bool retval = false;
    if (canConvert == true)
    {
        retval = true;
    }
    return retval;
}
```

1. Can only handle 16 bit integer. Cannot convert 32bit and 64bit integer
2. Cannot convert string is null. Will throw ArgumentNullException, but didn't handle.

Write the function: void PrintVertically(int i) that does not use any character or string manipulation function to print an integer vertically. What is the runtime complexity of your solution?

Example:

Input :123

Output:

1
2
3

Describe what the Mystery method does and discuss any potential bugs and possible fixes.

```
public class Person
{
    public string Name;
    public Person[] Acquaintances;

    public Person(string name, Person[] acquaintances)
    {
        if ( String.IsNullOrEmpty( name ) )
        {
            throw new ArgumentException( "Name cannot be null or white space.", "name" );
        }

        this.Name = name;
        this.Acquaintances = acquaintances;
    }

    public bool Mystery( string name )
    {
        if ( String.IsNullOrEmpty( name ) )
        {
            throw new ArgumentException( "Name cannot be null or white space.", "name" );
        }

        Stack<Person> myStack = new Stack<Person>();
        foreach ( Person acquaintance in this.Acquaintances )
        {
            myStack.Push( acquaintance );
        }

        do
        {
            var person = myStack.Pop();

            if ( person.Name.Equals( name ) )
            {
                return true;
            }

            foreach ( Person acquaintance in person.Acquaintances )
            {
                myStack.Push( acquaintance );
            }

        } while ( myStack.Count >= 0 );

        return false;
    }
}
```

[Mircrosoft 0511 hiring event ost](#)

1. reverse string iteratively and reversely
2. print an integer vertically
3. 利口要要期，但是要求 $O(n)$ 时间和 $O(1)$ 空间

微软 OA

总共两个题目

第一个 15 分钟，第二个 30 分钟，分开计算时间

1. 找一个无序数组的最大两个数值的和
2. 给一系列朋友之间的关系，让你判断 A 和 B 两个人是否是朋友

微软 OA

微软 OA

三道题目

1. debug，给一个 person。就是注意 stack 为空
2. ADD TWO INTEGER
3. KTH nearest point in a reference system, 用 pq 和 hashmap 就好了

巨硬 OTS

1. Reverse a string recursively and iteratively
2. Given a string of '0's, '1's, and '?'s, return all possible strings that can be created by replacing the '?'s with a '1' or a '0'. For example, "1001?0" would yield ["100110", "100100"]
3. Write the function: void OrderProductsByPriority(string[] productCode) in $O(n)$ time complexity.
 - a. Products are identified by alphanumeric codes. Each code is stored as a string. We have three types of products: high priority, medium priority, and low priority. Given an array of product codes, sort the array so that the highest priority products come at the beginning of the array, the medium priority products come in the middle, and the low priority customers come at the end. Within a priority group, order does not matter. You are given a priority

function which, given a product code, return 1 for high, 2 for medium and 3 for low. This array may contain a large number of product codes, so do your best to minimize additional storage.

b. You are given this function for usage: `private int GetPriority(string productCode)`. You don't need to implement this function.

[巨婴 Online Test](#)

10 分钟前出炉，面的是 5 月 11 号的巨婴 Universal Store Hiring event，三题中有一题 dp1. count 0 and 1 in an integer, 并没有说清楚是否要 count leading zero，给的例子只 count 了 8 位，只

有一个 leading 0, 所以不知道到底怎样才是对的



2. union two sorted list with distinct value

3. 里的扣 wildcard matching 变种，就是少了一个？，巨婴都考 dp 了，是我人品不好吗



还有一个要注意的是你要在 60 分钟内点提交，不然算超时.....我也是醉了，我就看着时间走完，然后点提交说我超时.....内心是崩溃的

估计要跪，无所谓，反正是拿来练练手的，为以后面试攒攒人品也好

[巨硬新版在线测试](#)

最近做了个 office 三六五 组的新版 ots，可以跑 test case，暂时还没见到地里做新 ots 的帖子，贡献一点数据攒攒人品，一共 2 题 45min，一题简单(15min)一题稍难(30min)，注意每题都时间限制，注意做完前一题才能看到后一题。

1. 找一个数组中最大的两个，返回两者之和
2. 判断两者是否是直接或者间接盆友，比如 a b 是盆友，bc 是盆友，那么 ac 就是朋友

他给了几个 test case 你可以跑，但是看不到 case 只能看到 pass 几个 fail 几个，lz 用的 c++，注意这里头文件要自己加，namespace 也是自己加，不然编译报错。然后注释尽量写仔细一点。开始正式做题前会有 sample question，界面允许在文本框里复制粘贴你自己敲的代码，你可以先感受下新的界面和操作，不然第一题 15min 手忙脚乱不熟悉真的挺紧张的。希望各位都有好运。

[MS OTS](#)

1. Debug: given a, b, x, and y, a while loop to make a == x && b == y
2. Reformat phone numbers in a String array, 123-456-7890 => 456-123-7890
3. Reverse first N elements of a singly-linked list.

软家 OA 跪经

第一题找错：

给了段代码，是将数组中从某个元素开始的元素都后移 n 位。

1. 得从后面向前处理数组
2. 数组越界。

第二题：

Leetcode 75, Sort Colors

第三题：

Leetcode 171, Excel Sheet Column Number

巨硬 hire event 4/20

1. node deep coyp.

```
class Node {  
    Node p1;  
    Node p2;  
}
```

2. reverse string 比利口要简单，没要求去空格

3. 不记得了，脑子不好使了。大概是关于树的题目，挺简单的

发个 ots 面经

60 分钟三道题

1. deep copy node,
2. 乐扣伊舞伊
3. BST 找比 target 大的最小的数

[MS OTS](#)

第一题 C# Debug , 然后里扣的 version number 和 linked list 加法

Find all possible problems with the following code (C#)
Fix the problems that were found

```
class ItemsChecker
{
    private List<string> _badItems;

    public ItemsChecker(List<string> badItems)
    {
        _badItems = badItems;
    }

    public List<string> GetGoodItems(List<string> items)
    {
        List<string> goodItems = new List<string>();
        foreach (string item in items)
        {
            if (!_badItems.Contains(item))
            {
                goodItems.Add(item);
            }
        }

        return goodItems;
    }
}
```

Write a method to compare two version numbers (as strings) and return an int describing the relationship between them as follows

* $v1 > v2$ -> return any positive int

* $v1 == v2$ -> return 0

* $v1 < v2$ -> return any negative int

Version numbers consist of a sequence of integers separated by periods ("."). Version numbers may have any number of segments.

Examples: Example version numbers are 1.0.0.1, 10.0.0.12.5, 8.1, etc.

* $2.0 > 1.1$

* $1.0 < 1.1$

* $1.0 < 1.0.1$

* $1.0.0 == 1.0.0$

Assumptions:

* Version segments cannot be empty in a given version string

* Do not assume all version strings have equal segments (e.g. 1.0.1 vs. 1.0)

What is the runtime complexity of your solution?

You are given two integers. Each integer is represented by a linked list where each node in the list represents one digit. Return the sum of these two integers as a linked list.

Example:

Input: 1 -> 2 -> 3 and 4 -> 5 -> 6

Output: 5 -> 7 -> 9

You can assume the existence of a linked list Node data structure:

```
public class Node {  
    public int value;  
    public Node next;  
}
```

What is the runtime complexity of your solution?