

Algorithms Review for Job Interview

deepwaterooo

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1	1/17/2015, Saturday	
1.1	worked on 12 problems, 129/173:	
	<ul style="list-style-type: none"> 120, 128, 96, 95, 70, 53, 91,, 66, 8, 60, 39, 40 Triangle Longest Consecutive Sequence Unique Binary Search Trees Unique Binary Search Trees II Climbing Stairs Maximum Subarray Decode Ways Plus One String to Integer (atoi) Permutation Sequence Combination Sum Combination Sum II 	

1.2 Other things

- 4:00 - 8:58, woke up for 2 min, fall back asleep in 2 mins after surfing internet for 2 mins;
- wake up 11:48, better mind today, tried couple of dp, but how could I efficiently fall asleep before 4 tonight?
1 cup coffee at ard 4pm alrdy after 20 mins nap
- Need try greedy method some other time when mind is clear, all painful & bad memories about TLE...
- Can't believe I am so sleepy, headache around eleven... try fall asleep around two... long way to go...

2 1/16/2015, Friday

2.1 worked on 9 problems, 117/173:

- 49, 81, 51, 52, 22, (39), 82, 108, 109, 149
- Anagrams
- search in rotated sorted array with dup II: wrote $\text{mid} = \text{end} - 1$ in the morning ~;
- N-Queens
- N-Queens II
- Generate Parentheses
- **Combination Sum**: don't know how to make it run faster
- Remove Duplicates from Sorted List II
- Convert Sorted Array to Binary Search Tree
- Convert Sorted List to Binary Search Tree
- Max Points on a Line, **Double** map key, $(\text{double})/(\text{double}) == (\text{double})(\text{int}/\text{int}) ???$

2.2 Other things

- Wanted to **swipe** bottom up from 17?, but apparantly I am **NOT proficient enough** to solve the Difficult ones yet, so take my time to solve them gradually~
- do NOT work in it any more tonight,
- got especially headache this week, go grocery to get my water, have rest earlier & expecting tomorrow to work in DP ~!

3 1/15/2015, Thursday

3.1 worked on 10 problems, 108/173:

- Simplify Path
- Search in Rotated Sorted Array
- Restore IP Addresses
- Populating Next Right Pointers in Each Node
- **Populating Next Right Pointers in Each Node II**: You may only use constant extra space
- Minimum Window Substring, repeats,
- Sum Root to Leaf Numbers
- Binary Tree Inorder Traversal
- Binary Tree Preorder Traversal
- Binary Tree Postorder Traversal
- Merge K sorted List

4 1/14/2015, Wednesday

4.1 worked on 8 problems, 98/173:

- tree series: 102, 103, 104, 107, 110, 111, 112, 113
- binary tree Level order Traversal
- binary tree Level order Traversal II
- binary tree Level Zigzag order Traversal
- Maximum Depth of binary tree
- Minimum Depth of binary tree
- Balanced binary tree
- path sum
- path sum II

4.2 Other things

- a matter get it done as soon as possible, 7-12,
- didn't do anything in the evening, better not behave this way any more~!

5 1/13/2015, Tuesday

5.1 worked on 4 problems, 90/173:

- 98, 99, 100, 101
- Validate binary search tree
- Recover binary search tree
- same tree
- Symmetric tree

5.2 Other things

- got very headache and 3:30-6:00pm food court training

6 1/12/2015, Monday

6.1 worked on 6 problems, 86/173:

- 73, 74, 79, 83, 86, 92
- Set Matrix Zeroes
- Search a 2D matrix
- Word Search
- Remove Duplicates from Sorted Lists
- Partition list
- Reverse Linked List II

6.2 Other things

- wrote quite a few nippets for java-mode, works quite great~!

7 1/11/2015, Sunday

7.1 worked on 7 problems, 80/173:

- Spiral matrix II
- rotate list
- Unique paths
- Unique paths II
- Minimum path sum
- add binary
- Text Justification

8 1/10/2015, Saturday

8.1 worked on 3 problems, 73/173:

- Spiral matrix
- merge Interval
- insert Interval
- udgrade jdk from 1.6 to be 1.8, Emacs 1.6 to be 1.8 as well, don't have wired errors like Arrays.asList(), Collections.sort() any more, nice!

9 1/9/2015, Friday

9.1 worked on 2 problems, 70/173:

- Permutation: Arrays.asList() not working in 1.6, spent hours here, figured it should be the openjde-1 too outdated for being openjde-1.6
- retate Image

10 1/8/2015, Thursday

10.1 worked on 9 problems, 68/173:

- remove element
- search for a range
- search insert position
- valid sudoku
- count and say
- Multiply string
- Length of last word
- Pascal's Triangle
- merge sorted array

11 1/7/2015, Wednesday

11.1 worked on 12 problems, 59/173:

- Integer to roman
- roman to Integer
- Longest Common Prefix
- 3Sum
- 3Sum closest
- letter Combination of a phone number
- 4Sum
- remove nth node from end of list
- Valid Parentheses
- merge two sorted list
- swap nodes in pairs
- reverse nodes in k-Group

12 1/6/2015, Tuesday

12.1 worked on 5 problems, 47/173:

- sorrounded region
- two sum
- add two numbers
- longest substring without Repeating characters
- ZigZag conversion string

13 1/5/2015, Monday

- worked on 0 succeed problems

13.1 Other things

- Go to a on 1/14/2015, Wednesday

14 1/4/2015, Sunday

14.1 worked on 2 problems, 42/173:

- binary tree Maximum path sum
- Valid Palindrom

14.2 Other things

- want to look into them and got JUnit framework for leetcode ready
- <http://www.vogella.com/tutorials/JUnit/article.html>
- <http://junit.org/>

15 1/3/2015, Saturday

15.1 worked on 5 problems, 40/173:

- copy list with random pointer, failed on tmp to move to next yesterday;
- word break; **word break II** TLE DP not thinking
- best time to buy and sell stock
- best time to buy and sell stock II
- best time to buy and sell stock III

15.2 Other things

- finally got the package working now with the help from online;
- These two days, especially bad sleep. 7(8)~12:30pm last night, feeling can fall asleep now at 1:00am, hope tomorrow will be another day.
- only 5 today, Left all those slightly challenged ones for tomorrow.

16 1/2/2015, Friday

16.1 worked on 7 problems, 35/173:

- LRU Cache, need to rework on it sometime, doubly-linked list to maintain frequency not proficient;
- Insertion sort list, straight forward
- sort list, merge sort, when break it down into pieces, it's not that hard;
- evaluate reverse polish notation
- gas station
- single number
- single number II, half done, most basic, but needs the perfect method, **tomorrow**
- **Now:** I am not afraid of lists, or even trees, but still don't feel comfortable with DP yet. Need some quality time on couple of questions of that type. For Graphics as well. I will not touch them when I am headache, but will work on them when I have a mind.
- **undone:** binary tree Preorder Traversal - iterative method still thinking

16.2 Other things

- When thought about sth, cannot fall asleep, fall asleep at 8:00am, and waked up at 12:00, so today would be filled with tedious things;
- The haircort store was closed during Christmas (I went to the store most probably on 12/26 on the afternoon after I met the two who were leaving for CA on 24th, but I don't really remember. The door was closed and the note on door said they would open today), and I called today and they did, so I spent \$7+\$1 tip and half an hour in store got my hair cut, but still spent 1 hours at home to redo it to thin the hair layers; Cut hair has nothing to do with love life, but rather that I don't want to waste time on the hair at this semester;
- try to organize previous courses contents, get the projects done better, and upload into github, and so far keep them secret until the time I need them in case in war;
- need to work on the appointment with professor web scheduling projects, because it is important, and sure will be beaten if I fail in case in war;
- target for fall asleep at 4:00am, but target for 8-10 easier algorithms problems be done before sleep; Time is so limited. I need change my schedule and use time more efficiently.

17 1/1/2015, Thursday

17.1 worked on 8 problems, 28/173:

- intersection of two linked list
- reverse words in string
- find Minimum in rotated sorted array
- find Minimum in rotated sorted array with Duplicates
- min stack
- linked list cycle
- linked list cycle II find start
- Reorder list
- binary tree Preorder Traversal - iterative method still thinking

18 12/31/2014, Wednesday

- java-mode autofill functions and yasnippets snippets, while keeping tab-indent block are all working now, like the emacs environment;
- worked on ~~9~~**10** problems, **19/173**:
 - Longest substring with at most 2 distinct characters, took my effort to rewrite it, sth can be done;
 - binary search tree iterator, understand theory, feels like just got Java environment ready;
 - excel sheet column number
 - factorial training zeroes
 - find peak element
 - maximum gap **dont like**
 - fraction to recurring decimal
 - excel sheet column title
 - majority element

19 12/30/2014, Tuesday

- get Emacs JDEE environment ready, can compile and run inside emacs now, convenient than using terminal jc j;
- worked on **5** problems, **9/173**:
 - binary tree upside down
 - missing ranges
 - two sum II
 - one edit distance
 - **DONT LIKE:** read n characters given read4 II

20 12/20/2014, Saturday

- Website (github), program highlight, and chinese input environment all good now;
- Will configure Linux Mint Java environment later, prefer emacs;
- 145/168 done before new season review, begin to work on these questions from today.
- Just got 4 easiest done: **149/168**
 - min stack,
 - excel sheet column title,
 - compare version number, and
 - intersection of two linked list,

21 12/21/2014, Sunday

- Only three got done today: **152/169**
 - maximum gap
 - fraction to recurring decimal
 - majority element
- Don't feel my mind is clear today at all, will look into job searing instead, hopefully tomorrow I can solve more problems, and slightly complicated ones;

22 12/22/2014, Monday

- So far got four done: **156/169**
 - sort list
 - merge k sorted list
 - trapping rain water
 - recovery binary search tree
- am going to work on the rest 6 tonight, so that hopefully tomorrow I would be able to work on the new 10 questions;
 - **word ladder II**: spent hours on this one, but got really sick with it! I should have solved my problems gradually, like solve the clone graph to understand graph first before touch this one, but I will get this one done later when I have clear mind.
 - regular expression matching
 - divide two integers
 - clone graph
 - find peak element

23 12/23/2014, Tuesday

- Meet IPO staff this morning got coming semester plans clear at 8:30am in the morning;
- Will most probably meet some friend and have dinner together; changed to be **tomorrow noon**
- Hopefully by this morning's dirruption meeting staff, I could change back my regular schedule instead of 5am-13:30 day time sleeping, target for tonight fall asleep before 12:00am; fall asleep from 10:00-15:30, seems I will change my schedule back as expected tonight~!
- Will not work on Algorithms for today, but work on it hard tomorrow. I have my confidence that I can figure them out, and do great job summarize the questions during my Java round. no worries!

- so far Got 2 done: **158/169**

- find peak element
- maximal rectangle

24 12/24/2014, Wednesday

- 2:00(3:00am?)-11:00am, expect 2:00-9:00am schedule tonight;
- Don't know why old account doesn't work any more, use new account; from **158/169** to **0/169** using **Java**
- Worked on the following questions: **1/169**
 - divide two integers, just got the Java environment ready
 - regular expression matching: **working on it!**, require understanding and summarizing

Tags	Counts	
Heap	1	Merge k Sorted Lists
Graph	1	Clone Graph
Data Structure	3	
Bit Manipulation	4	
Divide and Conquer	4	
Greedy	6	
Sort	6	
Breadth-first Search	7 (32)	
Stack	11	
Binary Search	13	
Hash Table	16	
Math	17	
Linked List	19	
Depth-first Search	19	
Backtracking	21	
Two Pointers	22	
Dynamic Programming	23	
Tree	26	
String	38	
Array	56	

- Detailed Questions:

Tags	Counts	#	Title	Accepted
Heap	1	23	Merge k Sorted Lists	21.0%
Graph	1	133	Clone Graph	23.3%
Data Structure	3	170	Two Sum III - Data structure design	19.2%
		155	Min Stack	14.6%
		146	LRU Cache	14.3%
Bit Manipulation	4	78	Subsets	27.9%
		136	Single Number	46.0%
		137	Single Number II	34.0%
		169	Majority Element	31.6%
Divide and Conquer	4	23	Merge k Sorted Lists	21.0%
		4	Median of Two Sorted Arrays	17.6%
		53	Maximum Subarray	34.2%
		169	Majority Element	31.7%
Greedy	6	44	Wildcard Matching	14.6%
		55	Jump Game	27.2%
		45	Jump Game II	24.6%
		134	Gas Station	26.0%
		135	Candy	19.5%
		122	Best Time to Buy and Sell Stock II	37.0%
Sort	6	148	Sort List	20.9%
		75	Sort Colors	32.3%
		56	Merge Intervals	21.2%
		164	Maximum Gap	23.1%
		147	Insertion Sort List	25.5%
		57	Insert Interval	20.7%
Breadth-first Search	7 (32)	127	Word Ladder	18.4%
		126	Word Ladder II	11.8%
		130	Surrounded Regions	14.3%
		133	Clone Graph	23.3%
		103	Binary Tree Zigzag Level Order Traversal	26.5%
		102	Binary Tree Level Order Traversal	29.9%
		107	Binary Tree Level Order Traversal II	30.4%
Stack	11	20	Valid Parentheses	27.9%
		42	Trapping Rain Water	29.4%
		71	Simplify Path	19.8%
		155	Min Stack	14.6%
		85	Maximal Rectangle	21.4%
		84	Largest Rectangle in Histogram	21.8%
		150	Evaluate Reverse Polish Notation	20.1%
		103	Binary Tree Zigzag Level Order Traversal	26.5%
		144	Binary Tree Preorder Traversal	35.8%
		145	Binary Tree Postorder Traversal	31.3%
		94	Binary Tree Inorder Traversal	35.7%
Binary Search	13	167	Two Sum II - Input array is sorted	45.1%
		69	Sqrt(x)	22.5%
		35	Search Insert Position	35.0%
		33	Search in Rotated Sorted Array	28.7%
		81	Search in Rotated Sorted Array II	31.2%
		34	Search for a Range	27.6%
		74	Search a 2D Matrix	31.2%
		50	Pow(x, n)	26.2%
		4	Median of Two Sorted Arrays	17.6%
		162	Find Peak Element	31.7%
		153	Find Minimum in Rotated Sorted Array	32.2%
		154	Find Minimum in Rotated Sorted Array II	29.9%
		29	Divide Two Integers	16.5%
Hash Table	16	36	Valid Sudoku	27.3%
		1	Two Sum	18.3%

25 12/25/2014, Thursday

- List a detailed plan of working on the algorithms; **Question Tags** according to the Website:
- Sent about 10 applications/interns;

26 12/26/2014, Friday

- two sum III

27 12/29/2014, Monday

- read N characters given read4