

# Algorithms Review for Job Interview

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December 26, 2014

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### 1 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	Acceptance	Difficulty	No
Heap	1	23	Merge k Sorted Lists	21.0%	Hard	
Graph	1	133	Clone Graph	23.3%	Medium	
Data Structure	3	170	Two Sum III - Data structure design	19.2%	Easy	
		155	Min Stack	14.6%	Easy	
		146	LRU Cache	14.3%	Hard	
Bit Manipulation	4	78	Subsets	27.9%	Medium	
		136	Single Number	46.0%	Medium	
		137	Single Number II	34.0%	Medium	
		169	Majority Element	31.6%	Easy	
Divide and Conquer	4	23	Merge k Sorted Lists	21.0%	Hard	
		4	Median of Two Sorted Arrays	17.6%	Hard	
		53	Maximum Subarray	34.2%	Medium	
		169	Majority Element	31.7%	Easy	
Greedy	6	44	Wildcard Matching	14.6%	Hard	
		55	Jump Game	27.2%	Medium	
		45	Jump Game II	24.6%	Hard	
		134	Gas Station	26.0%	Medium	
		135	Candy	19.5%	Hard	
		122	Best Time to Buy and Sell Stock II	37.0%	Medium	
Sort	6	148	Sort List	20.9%	Medium	
		75	Sort Colors	32.3%	Medium	
		56	Merge Intervals	21.2%	Hard	
		164	Maximum Gap	23.1%	Hard	
		147	Insertion Sort List	25.5%	Medium	
		57	Insert Interval	20.7%	Hard	
Breadth-first Search	7 (32)	127	Word Ladder	18.4%	Medium	
		126	Word Ladder II	11.8%	Hard	
		130	Surrounded Regions	14.3%	Medium	
		133	Clone Graph	23.3%	Medium	
		103	Binary Tree Zigzag Level Order Traversal	26.5%	Medium	
		102	Binary Tree Level Order Traversal	29.9%	Easy	
		107	Binary Tree Level Order Traversal II	30.4%	Easy	
Stack	11	20	Valid Parentheses	27.9%	Easy	
		42	Trapping Rain Water	29.4%	Hard	
		71	Simplify Path	19.8%	Medium	
		155	Min Stack	14.6%	Easy	
		85	Maximal Rectangle	21.4%	Hard	
		84	Largest Rectangle in Histogram	21.8%	Hard	
		150	Evaluate Reverse Polish Notation	20.1%	Medium	
		103	Binary Tree Zigzag Level Order Traversal	26.5%	Medium	
		144	Binary Tree Preorder Traversal	35.8%	Medium	
		145	Binary Tree Postorder Traversal	31.3%	Hard	
		94	Binary Tree Inorder Traversal	35.7%	Medium	
Binary Search	13	167	Two Sum II - Input array is sorted	45.1%	Medium	
		69	Sqrt(x)	22.5%	Medium	
		35	Search Insert Position	35.0%	Medium	
		33	Search in Rotated Sorted Array	28.7%	Hard	
		81	Search in Rotated Sorted Array II	31.2%	Medium	
		34	Search for a Range	27.6%	Medium	
		74	Search a 2D Matrix	31.2%	Medium	
		50	Pow(x, n)	26.2%	Medium	
		4	Median of Two Sorted Arrays	17.6%	Hard	
		162	Find Peak Element	31.7%	Medium	
		153	Find Minimum in Rotated Sorted Array	32.2%	Medium	
		154	Find Minimum in Rotated Sorted Array II	29.9%	Hard	
		29	Divide Two Integers	16.5%	Medium	

Tags	Counts	#	Title	Acceptance	Difficulty	N
Hash Table	16	36	Valid Sudoku	27.3%	Easy	
		1	Two Sum	18.3%	Medium	
		170	Two Sum III - Data structure design	20.1%	Easy	
		37	Sudoku Solver	20.9%	Hard	
		30	Substring with Concatenation of All Words	18.2%	Hard	
		136	Single Number	46.0%	Medium	
		76	Minimum Window Substring	18.1%	Hard	
		85	Maximal Rectangle	21.4%	Hard	
		149	Max Points on a Line	11.5%	Hard	
		3	Longest Substring Without Repeating Characters	22.0%	Medium	
		159	Longest Substring with <= Two Distinct Characters	28.1%	Hard	
		166	Fraction to Recurring Decimal	11.1%	Medium	
		138	Copy List with Random Pointer	23.7%	Hard	
		94	Binary Tree Inorder Traversal	35.7%	Medium	
		49	Anagrams	23.9%	Medium	
		18	4Sum	21.2%	Medium	
Math	17	65	Valid Number	11.1%	Hard	
		8	String to Integer (atoi)	13.8%	Easy	
		69	Sqrt(x)	22.5%	Medium	
		13	Roman to Integer	34.2%	Easy	
		7	Reverse Integer	33.5%	Easy	
		50	Pow(x, n)	26.2%	Medium	
		66	Plus One	31.0%	Easy	
		60	Permutation Sequence	22.3%	Medium	
		9	Palindrome Number	28.9%	Easy	
		43	Multiply Strings	20.6%	Medium	
		149	Max Points on a Line	11.5%	Hard	
		12	Integer to Roman	34.0%	Medium	
		166	Fraction to Recurring Decimal	11.1%	Medium	
		168	Excel Sheet Column Title	15.8%	Easy	
		29	Divide Two Integers	16.5%	Medium	
		2	Add Two Numbers	22.8%	Medium	
		67	Add Binary	25.0%	Easy	
Linked List	19	24	Swap Nodes in Pairs	32.4%	Medium	
		148	Sort List	20.9%	Medium	
		61	Rotate List	21.8%	Medium	
		25	Reverse Nodes in k-Group	25.0%	Hard	
		92	Reverse Linked List II	26.1%	Medium	
		143	Reorder List	20.5%	Medium	
		19	Remove Nth Node From End of List	28.7%	Easy	
		83	Remove Duplicates from Sorted List	34.4%	Easy	
		82	Remove Duplicates from Sorted List II	24.8%	Medium	
		86	Partition List	27.1%	Medium	
		21	Merge Two Sorted Lists	33.1%	Easy	
		23	Merge k Sorted Lists	21.0%	Hard	
		141	Linked List Cycle	36.0%	Medium	
		142	Linked List Cycle II	30.9%	Medium	
		160	Intersection of Two Linked Lists	26.6%	Easy	
		147	Insertion Sort List	25.5%	Medium	
		138	Copy List with Random Pointer	23.7%	Hard	
		109	Convert Sorted List to Binary Search Tree	27.5%	Medium	
		2	Add Two Numbers	22.8%	Medium	

Tags	Counts	#	Title	Acceptance	Difficulty
Depth-first Search	19	98	Validate Binary Search Tree	23.5%	Medium
		101	Symmetric Tree	31.1%	Easy
		129	Sum Root to Leaf Numbers	30.1%	Medium
		100	Same Tree	42.0%	Easy
		99	Recover Binary Search Tree	23.8%	Hard
		116	Populating Next Right Pointers in Each Node	35.5%	Medium
		117	Populating Next Right Pointers in Each Node II	31.0%	Hard
		112	Path Sum	30.1%	Easy
		113	Path Sum II	26.7%	Medium
		111	Minimum Depth of Binary Tree	29.1%	Easy
		104	Maximum Depth of Binary Tree	44.2%	Easy
		114	Flatten Binary Tree to Linked List	28.3%	Medium
		109	Convert Sorted List to Binary Search Tree	27.5%	Medium
		108	Convert Sorted Array to Binary Search Tree	33.2%	Medium
		105	Construct BT from Preorder and Inorder Traversal	26.5%	Medium
		106	Construct BT from Inorder and Postorder Traversal	26.6%	Medium
		133	Clone Graph	23.3%	Medium
		124	Binary Tree Maximum Path Sum	20.5%	Hard
		110	Balanced Binary Tree	32.1%	Easy
Backtracking	21	79	Word Search	19.6%	Medium
		126	Word Ladder II	11.8%	Hard
		140	Word Break II	16.9%	Hard
		44	Wildcard Matching	14.6%	Hard
		37	Sudoku Solver	20.9%	Hard
		78	Subsets	27.9%	Medium
		90	Subsets II	27.2%	Medium
		93	Restore IP Addresses	20.5%	Medium
		10	Regular Expression Matching	20.4%	Hard
		46	Permutations	31.4%	Medium
		47	Permutations II	25.1%	Hard
		60	Permutation Sequence	22.3%	Medium
		131	Palindrome Partitioning	25.9%	Medium
		51	N-Queens	26.0%	Hard
		52	N-Queens II	34.3%	Hard
		17	Letter Combinations of a Phone Number	26.5%	Medium
		89	Gray Code	32.2%	Medium
		22	Generate Parentheses	31.7%	Medium
		77	Combinations	30.1%	Medium
		39	Combination Sum	27.0%	Medium
		40	Combination Sum II	24.7%	Medium
Two Pointers	22	125	Valid Palindrome	21.9%	Easy
		167	Two Sum II - Input array is sorted	45.1%	Medium
		42	Trapping Rain Water	29.4%	Hard
		30	Substring with Concatenation of All Words	18.2%	Hard
		75	Sort Colors	32.3%	Medium
		61	Rotate List	21.8%	Medium
		19	Remove Nth Node From End of List	28.7%	Easy
		27	Remove Element	32.5%	Easy
		26	Remove Duplicates from Sorted Array	31.9%	Easy
		80	Remove Duplicates from Sorted Array II	30.7%	Medium
		86	Partition List	27.1%	Medium
		76	Minimum Window Substring	18.1%	Hard
		88	Merge Sorted Array	31.0%	Easy
		3	Longest Substring Without Repeating Characters	22.0%	Medium
		159	Longest Substring with $\leq$ Two Distinct Characters	28.2%	Hard
		141	Linked List Cycle	36.0%	Medium
		142	Linked List Cycle II	30.9%	Medium

Tags	Counts	#	Title	Acceptance	Difficulty
Two Pointers	22Con	28	Implement strStr()	21.7%	Easy
		11	Container With Most Water	31.5%	Medium
		18	4Sum	21.2%	Medium
		15	3Sum	16.7%	Medium
		16	3Sum Closest	26.9%	Medium
Dynamic Programming	23	139	Word Break	21.5%	Medium
		140	Word Break II	16.9%	Hard
		44	Wildcard Matching	14.6%	Hard
		62	Unique Paths	32.1%	Medium
		63	Unique Paths II	28.0%	Medium
		96	Unique Binary Search Trees	36.7%	Medium
		95	Unique Binary Search Trees II	27.2%	Medium
		120	Triangle	26.6%	Medium
		87	Scramble String	23.0%	Hard
		10	Regular Expression Matching	20.4%	Hard
		132	Palindrome Partitioning II	18.6%	Hard
		64	Minimum Path Sum	31.2%	Medium
		53	Maximum Subarray	34.2%	Medium
		152	Maximum Product Subarray	17.1%	Medium
		85	Maximal Rectangle	21.4%	Hard
		32	Longest Valid Parentheses	20.0%	Hard
		97	Interleaving String	19.8%	Hard
		72	Edit Distance	25.6%	Hard
		115	Distinct Subsequences	25.1%	Hard
		91	Decode Ways	16.3%	Medium
		70	Climbing Stairs	34.0%	Easy
		121	Best Time to Buy and Sell Stock	31.5%	Medium
		123	Best Time to Buy and Sell Stock III	22.7%	Hard
Tree	26	98	Validate Binary Search Tree	23.5%	Medium
		96	Unique Binary Search Trees	36.7%	Medium
		95	Unique Binary Search Trees II	27.2%	Medium
		101	Symmetric Tree	31.1%	Easy
		129	Sum Root to Leaf Numbers	30.1%	Medium
		100	Same Tree	42.0%	Easy
		99	Recover Binary Search Tree	23.8%	Hard
		116	Populating Next Right Pointers in Each Node	35.5%	Medium
		117	Populating Next Right Pointers in Each Node II	31.0%	Hard
		112	Path Sum	30.1%	Easy
		113	Path Sum II	26.7%	Medium
		111	Minimum Depth of Binary Tree	29.1%	Easy
		104	Maximum Depth of Binary Tree	44.2%	Easy
		114	Flatten Binary Tree to Linked List	28.3%	Medium
		108	Convert Sorted Array to Binary Search Tree	33.2%	Medium
		105	Construct BT from Preorder and Inorder Traversal	26.5%	Medium
		106	Construct BT from Inorder and Postorder Traversal	26.6%	Medium
		103	Binary Tree Zigzag Level Order Traversal	26.5%	Medium
		156	Binary Tree Upside Down	31.9%	Medium
		144	Binary Tree Preorder Traversal	35.8%	Medium
		145	Binary Tree Postorder Traversal	31.3%	Hard
		124	Binary Tree Maximum Path Sum	20.5%	Hard
		102	Binary Tree Level Order Traversal	29.9%	Easy
		107	Binary Tree Level Order Traversal II	30.4%	Easy
		94	Binary Tree Inorder Traversal	35.7%	Medium
		110	Balanced Binary Tree	32.1%	Easy

Tags	Counts	#	Title	Acceptance	Difficulty	N
String	38	6	ZigZag Conversion	22.9%	Easy	
		126	Word Ladder II	11.8%	Hard	
		44	Wildcard Matching	14.6%	Hard	
		20	Valid Parentheses	27.9%	Easy	
		125	Valid Palindrome	21.9%	Easy	
		65	Valid Number	11.1%	Hard	
		68	Text Justification	14.1%	Hard	
		30	Substring with Concatenation of All Words	18.2%	Hard	
		8	String to Integer (atoi)	13.8%	Easy	
		71	Simplify Path	19.8%	Medium	
		87	Scramble String	23.0%	Hard	
		13	Roman to Integer	34.2%	Easy	
		151	Reverse Words in a String	14.3%	Medium	
		93	Restore IP Addresses	20.5%	Medium	
		10	Regular Expression Matching	20.4%	Hard	
		157	Read N Characters Given Read4	25.2%	Easy	
		158	Read N Characters Given Read4 II - Call multiple times	15.6%	Hard	
		161	One Edit Distance	22.4%	Medium	
		43	Multiply Strings	20.6%	Medium	
		76	Minimum Window Substring	18.1%	Hard	
		32	Longest Valid Parentheses	20.0%	Hard	
		3	Longest Substring Without Repeating Characters	22.0%	Medium	
		159	Longest Substring with At Most Two Distinct Characters	28.2%	Hard	
		5	Longest Palindromic Substring	20.7%	Medium	
		14	Longest Common Prefix	26.5%	Easy	
		17	Letter Combinations of a Phone Number	26.5%	Medium	
		58	Length of Last Word	28.9%	Easy	
		97	Interleaving String	19.8%	Hard	
		12	Integer to Roman	34.0%	Medium	
		28	Implement strStr()	21.7%	Easy	
		22	Generate Parentheses	31.7%	Medium	
		72	Edit Distance	25.6%	Hard	
		115	Distinct Subsequences	25.1%	Hard	
		91	Decode Ways	16.3%	Medium	
		38	Count and Say	25.6%	Easy	
		165	Compare Version Numbers	14.2%	Easy	
		49	Anagrams	23.9%	Medium	
		67	Add Binary	25.0%	Easy	

Tags	Counts	#	Title	Acceptance	Difficulty	Notes
Array	56	79	Word Search	19.6%	Medium	
		126	Word Ladder II	11.8%	Hard	
		62	Unique Paths	32.1%	Medium	
		63	Unique Paths II	28.0%	Medium	
		1	Two Sum	18.3%	Medium	
		167	Two Sum II - Input array is sorted	45.1%	Medium	
		120	Triangle	26.6%	Medium	
		42	Trapping Rain Water	29.4%	Hard	
		78	Subsets	27.9%	Medium	
		90	Subsets II	27.2%	Medium	
		54	Spiral Matrix	20.7%	Medium	
		59	Spiral Matrix II	31.1%	Medium	
		75	Sort Colors	32.3%	Medium	
		73	Set Matrix Zeroes	31.0%	Medium	
		35	Search Insert Position	35.0%	Medium	
		33	Search in Rotated Sorted Array	28.7%	Hard	
		81	Search in Rotated Sorted Array II	31.2%	Medium	
		34	Search for a Range	27.6%	Medium	
		74	Search a 2D Matrix	31.2%	Medium	
		48	Rotate Image	31.5%	Medium	
		27	Remove Element	32.5%	Easy	
		26	Remove Duplicates from Sorted Array	31.9%	Easy	
		80	Remove Duplicates from Sorted Array II	30.7%	Medium	
		66	Plus One	31.0%	Easy	
		118	Pascal's Triangle	30.6%	Easy	
		119	Pascal's Triangle II	29.8%	Easy	
		31	Next Permutation	25.3%	Medium	
		163	Missing Ranges	21.9%	Medium	
		64	Minimum Path Sum	31.2%	Medium	
		88	Merge Sorted Array	31.0%	Easy	
		56	Merge Intervals	21.2%	Hard	
		4	Median of Two Sorted Arrays	17.6%	Hard	
		53	Maximum Subarray	34.2%	Medium	
		152	Maximum Product Subarray	17.1%	Medium	
		85	Maximal Rectangle	21.4%	Hard	
		169	Majority Element	31.7%	Easy	
		128	Longest Consecutive Sequence	28.5%	Hard	
		84	Largest Rectangle in Histogram	21.8%	Hard	
		55	Jump Game	27.2%	Medium	
		45	Jump Game II	24.6%	Hard	
		57	Insert Interval	20.7%	Hard	
		41	First Missing Positive	22.7%	Hard	
		162	Find Peak Element	31.7%	Medium	
		153	Find Minimum in Rotated Sorted Array	32.2%	Medium	
		154	Find Minimum in Rotated Sorted Array II	29.9%	Hard	
		11	Container With Most Water	31.5%	Medium	
		105	Construct BT from Preorder and Inorder Traversal	26.5%	Medium	
		106	Construct BT from Inorder and Postorder Traversal	26.6%	Medium	
		39	Combination Sum	27.0%	Medium	
		40	Combination Sum II	24.7%	Medium	
		121	Best Time to Buy and Sell Stock	31.5%	Medium	
		123	Best Time to Buy and Sell Stock III	22.7%	Hard	
		122	Best Time to Buy and Sell Stock II	37.0%	Medium	
		18	4Sum	21.2%	Medium	
		15	3Sum	16.7%	Medium	
		16	3Sum Closest	26.9%	Medium	

**2 12/25/2014, Thursday**

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