

PLACEMENT PREPARATION (IMPORTANT QUESTIONS)

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1. Company Interview Corner
2. https://docs.google.com/document/d/1IES8uw9f4w9iCsIoArUioYB8ctVRR-TaA1Qu4YhcQ9U/preview?pru=AAABdLBLDc0*VMvGRhysfFZlr2d5xROpsA
3. Systems That Scale
4. How-to-ace-amazon-behavioral-interview
Amazon Behavioral questions | Leadership Principles | LP
5. Special Numbers
6. Count complete tree nodes
7. Convert a Ternary expression to a Binary tree structure?
GFG's Java solution is wrong. C++ solution is correct.
8. Maximum sum subarray removing at most one element
9. Compare Version Numbers
10. Repeated Substring Pattern
11. Longest Increasing Path in a Matrix
12. Binary Search Tree (BST) - Interview Questions & Practice Problems
13. Check if given keys represents same BSTs or not without building the BST
14. Find distance between two nodes of a Binary Tree
15. Sink nodes containing zero to the bottom of a binary tree
16. Permutations
17. Number of occurrence of maximum grid
18. Minimum Number of Platforms Required for a Railway/Bus Station
19. Next Permutation
20. Longest Common Prefix

- 21. Find size of the largest BST in a Binary Tree
- 22. Consecutive 1's not allowed
- 23. Decode Ways
- 24. Product of Array Except Self
- 25. Search in Rotated Sorted Array
- 26. Minimum sum partition
- 27. Two City Scheduling
- 28. Minimum Insertion Steps to Make a String Palindrome
- 29. Interleaving String
- 30. Triangle
- 31. Fixing Two nodes of a BST
- 32. Applications of Catalan Numbers
- 33. How to check whether the number is an Integer ?
 - a. In Java, we check if a number is an integer by taking the decimal part (using % 1) and checking if it is 0.
 - b. If $\text{floor}(\text{number}) == \text{ceil}(\text{number})$, it is an integer
- 34. Find Peak Element (See binary search solution)
- 35. Valid Sudoku --- See this solution
- 36. Find three closest elements from given three sorted arrays
- 37. Is Subsequence | Leetcode #392 | Binary search + Map | 2 Pointer
- 38. Union find method to detect cycle in graph.
- 39. Check if two Binary Trees are Isomorphic
- 40. Disjoint Sets using union by rank and path compression Graph Algorithm
- 41. Sum of given range | Segment tree construction and update | Simplest explanation
- 42. Rotate Image
- 43. Add Binary Strings (See Java Answer)

- 44. An Interesting Method to Generate Binary Numbers from 1 to n
- 45. Gas Station
- 46. <https://practice.geeksforgeeks.org/tracks/md-tree/?batchId=144>
- 47. Lowest Common Ancestor in a Binary Tree | Set 1
Lowest Common Ancestor in a Binary Tree | Set 2 (Using Parent Pointer)
- 48.** Expression Tree
- 49. Course Schedule
- 50. Word Ladder
- 51.** Reverse a stack using recursion : Interview Question: Reverse Stack
- 52.** Count number of inversions in array
- 53.** <https://practice.geeksforgeeks.org/problems/clone-a-linked-list-with-next-and-random-pointer/1/?track=sp-linked-list&batchId=152>
- 54. Reverse Bits
- 55. Activity Selection
- 56. Egg Dropping Puzzle (Variation 1) : Solution
- 57. Eggs dropping puzzle | Variation 2 : Solution
- 58. Converting Decimal Number into Roman Numerals
- 59.** The Painter's Partition Problem
- 60. <https://practice.geeksforgeeks.org/problems/allocate-minimum-number-of-pages0937/1/?track=dp-divide-and-conquer&batchId=152>
- 61. Exponents of large numbers
- 62. Print all subarrays with 0 sum
- 63. Maximum Path Sum in a Binary Tree
- 64. Populating Next Right Pointers in Each Node --- 1 &&& each-node-2
- 65. N-Queens
- 66. Reverse a Linked List in groups of given size | Set 1

67. Flattening a Linked List

68. The Stock Span Problem

69. Morris Inorder Tree Traversal

70. First Missing Positive

71. Median of Two Sorted Arrays

72. Sort a nearly sorted (or K sorted) array

73. Sliding Window Maximum (Maximum of all subarrays of size k)

74. Find median in a stream

75. Delete Nodes And Return Forest

76. Find the Missing Number

77. Find K Closest Elements : See solution

78. Box Stacking

79. Hamming Distance

80. Word Break

81. Next larger element

82. Rearrange characters in a string such that no two adjacent are same

83. Merge k Sorted Lists

84. Sequences of given length where every element is more than or equal to twice of previous

85. Modular Exponentiation (Power in Modular Arithmetic)

86. Linked List Cycle and detect starting point of the cycle

87. Rectangle Overlap : Check Comments for the solution

88. Sorting elements by frequency

89. Lowest Common Ancestor in a Binary Tree | Set 2 (Using Parent Pointer)

90. Find n-th node of inorder traversal

91. Google | Phone | Find K-th node in inorder traversal

92. Wiggle Sort II

93. Maximal Square $O(n)$

94. Wave Array : Check out $O(n)$ solution

95. Count Primes : How is the time complexity of Sieve of Eratosthenes is $n \cdot \log(\log(n))$?
<https://www.youtube.com/watch?v=pKvGYOnO9Ao>

96. Possible Bipartition : Solution

97. Add Digits : See Solution

98. Edit Distance

99. Longest palindromic substring | Dynamic programming

100. How to calculate Catalan Number | Find Nth catalan number in most efficient ways (3 methods)

101. Two City Scheduling :
<https://leetcode.com/problems/two-city-scheduling/discuss/280173/Java-4-lines-intuitive-solution>

102. All Nodes Distance K in Binary Tree

103. Kth Smallest Element in a BST : See follow up in solution

104. Reverse Words in a String : Solution

105. Check If It Is a Straight Line

106. Find the Duplicate Number : See Solution → (Video Solution)

107. How to solve DP - String? Template and 4 Steps to be followed.
Dynamic Programming Patterns

108. DP for Beginners [Problems | Patterns | Sample Solutions]

109. Graph Problems For Beginners Practice [Problems and Sample Solutions]

110. Sliding Window for Beginners [Problems | Template | Sample Solutions]

111. Important and Useful links from all over the Leetcode

112. K Closest Points to Origin

- 113. Counting Bits
- 114. Longest array with equal number of zeros and ones
- 115.** Rotting Oranges - Solution ($O(n)$) | Solution ($O(n^3)$)
- 116. Number of Islands
- 117. Difference between sums of odd level and even level nodes of a Binary Tree
- 118.** Integer to English Words
- 119. Converting Decimal Number lying between 1 to 3999 to Roman Numerals
- 120. Check Completeness of a Binary Tree
- 121. Deepest Leaves Sum
- 122. Maximum Depth of N-ary Tree
- 123. Stone Game : See its solution (Method 2)
- 124. Coin Change
- 125. Unique Binary Search Trees
- 126. Count of Smaller Numbers After Self
- 127. Majority Element
- 128. Single Number II : Solution
- 129. <https://www.youtube.com/watch?v=BXCEFAzhxGY&t=90s>
- 130. Symmetric Tree
- 131. Remove Duplicates from Sorted List II
- 132.** Largest Rectangular Area in a Histogram | Set 2
- 133. A program to check if a binary tree is BST or not
- 134. Construct BST from given preorder traversal
- 135. Partition Equal Subset Sum
- 136.** Remove K Digits : Keep all edge cases in mind (There are many edge cases)
- 137. Shortest Unsorted Continuous Subarray

- 138. Must do Math for Competitive Programming
- 139. Sort an array of 0s, 1s and 2s (Dutch National Flag Algorithm)
- 140. BigInteger Class in Java
- 141. Print nodes at K distance from root
- 142. Container With Most Water
- 143. Print unique rows in a given boolean matrix
- 144. Search a 2D Matrix
- 145. Odd Even Linked List
- 146. Unique Binary Search Trees
- 147. <https://leetcode.com/problems/insert-delete-getrandom-o1/>
- 148. Word Search 1 & 2 [GRAPH]
- 149. Additive Number [DFS]
- 150. Unique ways to make a change from coins : See Reduced Complexity Solution
- 151. House Robber [Dynamic Programming]
- 152. Taking Modulo $((\text{mod}10^9) + 7)$
- 153. Cutting Binary String (GFG) [Dynamic Programming]

154. Maximum Product Cutting [GFG]

A Tricky Solution:

If we see some examples of these problems, we can easily observe the following pattern.

The maximum product can be obtained by repeatedly cutting parts of size 3 while size is greater than 4, keeping the last part as size of 2 or 3 or 4. For example, $n = 10$, the maximum product is obtained by 3, 3, 4. For $n = 11$, the maximum product is obtained by 3, 3, 3, 2.

- 155. Jump Game [Different type of DP]
- 156. Optimal Strategy for a Game | DP-31
- 157. Josephus Problem (Recursion, By Pattern)

- 158. Subsets
- 159. Print all possible words from phone digits
- 160.** Java Binary Search $O(\lg N)$: clear, easy, explained, no tricks
- 161. Sort Characters By Frequency
- 162. Stock buy and sell
- 163. Top K Frequent Words
- 164. Lowest common ancestor in Binary Tree
- 165. Pairwise Swap leaf nodes in a binary tree
- 166. Swap Nodes in Pairs
- 167. Broken Calculator
- 168. Subarray Sum Equals K
- 169. Add Two Numbers II
- 170. Preimage Size of Factorial Zeroes Function
<https://leetcode.com/problems/preimage-size-of-factorial-zeroes-function/discuss/117821/Four-binary-search-solutions-based-on-different-ideas>
- 171. Remove Nth Node From End of List
See the solution and check why the dummy node is used to check corner cases.
- 172. Top K Frequent Elements : <https://leetcode.com/problems/top-k-frequent-elements/>
- 173. Group Anagrams
- 174. Kth Ancestor of a Tree Node
- 175. A program to check if a binary tree is BST or not
- 176. Binary Search Tree | Set 2 (Delete)
- 177.** Maximum Width of Binary Tree
- 178. Extract Leaves of a Binary Tree in a Doubly Linked List
- 179.** <https://practice.geeksforgeeks.org/problems/kth-smallest-element/>
- 180. Merge two sorted arrays with $O(1)$ extra space

- 181. Replace Words
- 182.** Merge Intervals
- 183. Elimination Game
- 184. Search a 2D Matrix II
- 185. Diagonal Traversal of a matrix
- 186. Minimum Number of Platforms Required for a Railway/Bus Station
- 187. Trapping Rain Water Also see space efficient solution :
<https://www.geeksforgeeks.org/trapping-rain-water/>
- 188. Median of Two Sorted Arrays
- 189. Noble Integer (See the use of keyword **continue** in its solution) : Noble Integer
- 190. Maximum Product Subarray
- 191. My Calendar
- 192. Largest Number
- 193. Number of 1 Bits
Read the solution approach. Count set bits using lookup table (GFG)
- 194. Program to find whether a number is power of two
- 195. Minimum number of jumps to reach end
- 196.** Flatten a Multilevel Doubly Linked List
- 197. Count number of bits to be flipped to convert A to B
- 198. Count Number of SubTrees having given Sum
- 199. Minimum XOR Value Pair
- 200. Equal
- 201. Max Distance
- 202. K'th smallest element in BST using O(1) Extra Space
- 203. K'th Smallest/Largest Element in Unsorted Array | Set 2 (Expected Linear Time) K'th
Smallest/Largest Element in Unsorted Array | Set 3 (Worst Case Linear Time)
- 204. Jump Game --- Youtube Video Solution
- 205. Jump Game II

206. Multiply Strings

207. Types of Binary Search Tree traversal :

- a. Zig-Zag traversal of Binary tree
- b. Diagonal Traversal of Binary Tree
- c. Vertical order traversal of binary tree - $O(n)$ time
- d. Level Order Binary Tree & N-ary Tree Traversal (Leetcode wala and GFG wala dono krna coz they both are different)
- e. PreOrder ($\log(n)$, $\log(h)$), PostOrder (1 stack, 2 stacks), InOrder (Recursive and iterative)
- f. Boundary Traversal of binary tree

208. Types of views of Binary Tree :

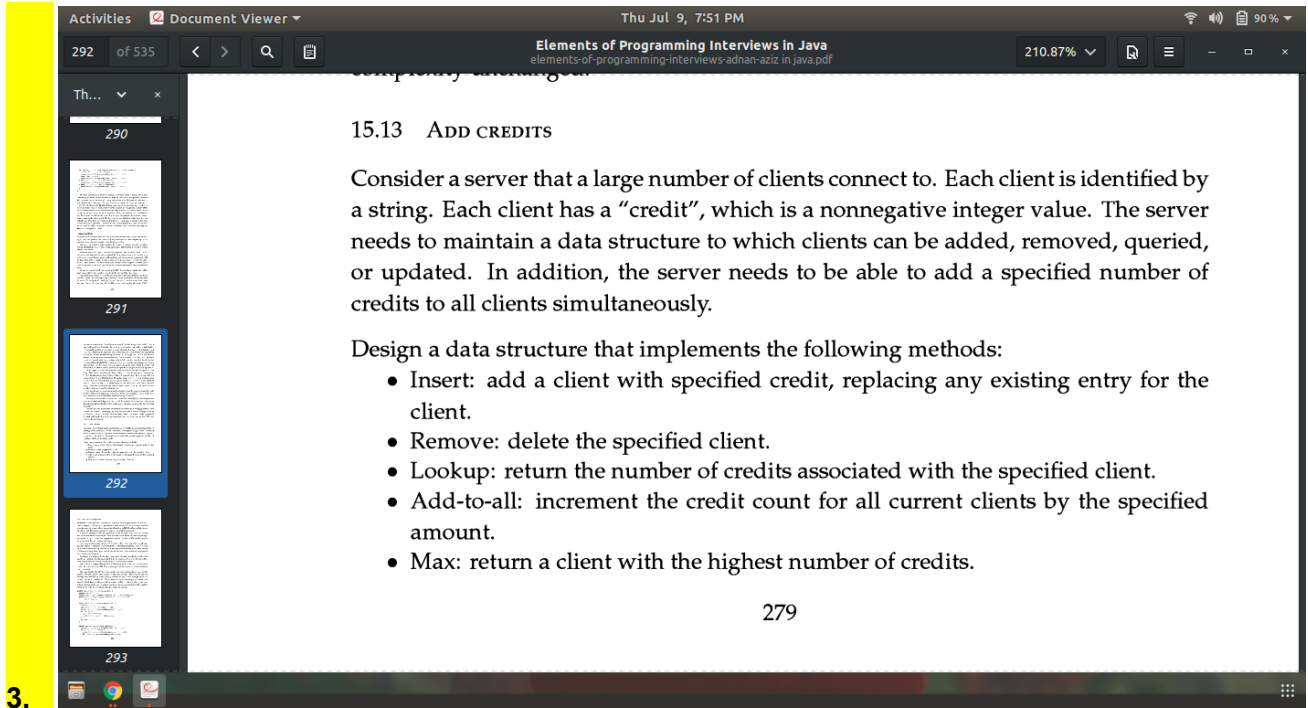
- a. Bottom view of binary tree - $O(n)$ time
- b. Top View of Binary Tree - $O(n)$ time
- c. Left View of Binary Tree - $O(n)$ time {Recursive and Iterative}
- d. Right View of Binary Tree - $O(n)$ time {Recursive and Iterative}

209. Graph :

- a. Detect Cycle in Undirected Graph
- b. Topological sort

Design Questions

- 1. Implement LRU Cache
- 2. Design an efficient data structure for given operations



3.

4. Product of the Last K Numbers
5. Min Stack

These Documents will contain the placement information about all the companies visiting IITs, NITs, IIITs, and BITS.

To View questions from Placement 2020 Doc:

<http://bit.ly/2LZHSp5>

To add questions to Placement 2020 Doc:

<http://bit.ly/2LRQO0T>

Early member edit access (Read details in my 1st comment)

<https://forms.gle/euJdGbuNonbuMEpz9>

Company Grievance Doc:

<http://bit.ly/2YSumvv>

If anyone faces any access issues, please let me know.

Below are the docs from previous placement sessions

Placement 2019: <https://goo.gl/tn7mRx>

Interview exp 2019: <https://goo.gl/vpdNNG>

Placement 2018: <https://goo.gl/FNziKM>

Placement 2017: <https://goo.gl/Xs3LdG>

Placement 2016: <https://goo.gl/NJXvVU>

Placement 2016: <https://goo.gl/yDRnCF>