**Java programming and Data Structures and Algorithms**

1. Find the pair of integers in an array whose sum is x. <https://www.geeksforgeeks.org/given-an-array-a-and-a-number-x-check-for-pair-in-a-with-sum-as-x/>

2. Merge Sort :: https://www.geeksforgeeks.org/merge-sort/

3. https://leetcode.com/problems/n-queens/ || for all the leetcode problems you can find the solution in Discuss section of the problem

4. https://leetcode.com/problems/sudoku-solver/solution/

5. https://leetcode.com/problems/combination-sum/description/

6. https://www.programcreek.com/2014/04/leetcode-surrounded-regions-java/

7. Check a string contain 26 letters :: https://www.geeksforgeeks.org/pangram-checking/

8. Find the length of max object in a list of objects :: http://java2novice.com/java-collections-and-util/collections/max-element-comparator/

10. check the valid parentheses :: https://www.techiedelight.com/check-given-expression-balanced-expression-not/

11. implement Math.pow(x,n) function - backtracking problem :: https://www.geeksforgeeks.org/write-a-c-program-to-calculate-powxn/

12. Reverse the string by words. Like : Hello World, output: World, Hello ::

https://www.geeksforgeeks.org/reverse-words-in-a-given-string/

13. Given a string with only letters, print out the duplicate characters in the string (ignore cases)

14. Check if string is palindrome. :: https://www.baeldung.com/java-palindrome

15. Check if number is palindrome :: https://www.guru99.com/java-palindrome-program.html

16. Remove the duplicates characters from a string :: Use HashSet to store it will remove duplicates

17. Find the second largest number is an array. :: https://www.geeksforgeeks.org/find-second-largest-element-array/

18. Sort an array which contains only 0ís and 1ís without using any inbuilt sorting library. :: count the number of 0's in the array . print the amount of 0 then 1

19. Given an Linked List Reorder linkedlist into even and odd nodes :: https://www.geeksforgeeks.org/segregate-even-and-odd-elements-in-a-linked-list/

20. https://www.geeksforgeeks.org/find-a-triplet-that-sum-to-a-given-value/

21. <https://leetcode.com/problems/validate-binary-search-tree/>

22. Find The Maximum Element in a Binary Search Tree :: https://www.geeksforgeeks.org/find-the-node-with-maximum-value-in-a-binary-search-tree/

23. Reverse linked list :: https://www.geeksforgeeks.org/reverse-a-linked-list/

24. Reverse string, Recursive , Iterative Solutions

25. Find missing number in an array of number from 1-100 || Sum of array - (n(n+1))/2 = Missing Number

26. Calculate y=a0 + a1 x + a2 x^2 + ... + an x^n (\*\*\*\*\*\*)

27. Calculate fibonacci with memoization :: <https://dzone.com/articles/memoized-fibonacci-numbers>.

28. Write a function that takes an array of integers and returns the sum of the integers after adding 1 to each

29. Given a string, your code must find out the first repeated as well as non-repeated character

in that string. For example, if ìJavaConceptOfTheDayî is the given string, then ëJí is a first non-repeated

character and ëaí is a first repeated character. :: https://javaconceptoftheday.com/first-repeated-and-non-repeated-character-in-a-string/

30. Given a string whose last character is a digit (for example, ìString00î, ìabc09î, ìtest99î), increment the last digit character by 1 and return the string:

i.e.

ï ìString00î -> ìString01î

ï ìabc09î -> ìabc010î

ï ìtest99î -> ìtest910î

|| use Character.isDigit() to make the last character into digit then increment it

31. Check if a String is a Pallindrome

32. Dynamic Coin Change Problem DP -1 :: https://www.geeksforgeeks.org/coin-change-dp-7/

33. Remove Duplicates in LinkedList :: https://www.geeksforgeeks.org/remove-duplicates-from-an-unsorted-linked-list/

34. find the sum of each level in BST :: Do Level Order Traversal using Queue then whenever you reach the last element of a level add sum to List of Level Sum

35. Given two linked lists of integers, reverse the two linked lists, add them, reverse the result and store in a linked list.

Linked List 1 : [2,1,3]

Linked List 2 : [1,2,7]

LinkedList1 After Reversal : 312

LinkedList2 After Reversal : 721

Result after adding two linked list :: 1033

After Reverseal : [3,3,0,1]

36. https://leetcode.com/problems/decode-string/

37. https://www.geeksforgeeks.org/sort-array-converting-elements-squares/

38. <https://www.geeksforgeeks.org/a-product-array-puzzle/>

39. Reverse Doubly Linked List :: <https://www.geeksforgeeks.org/reverse-a-doubly-linked-list/>