## **Create flowchart and pseudocode for the following:**

1. Input a year and find whether it is a leap year or not.
2. Take two numbers and print the sum of both.
3. Take a number as input and print the multiplication table for it.
4. Take 2 numbers as inputs and find their HCF and LCM.
5. Keep taking numbers as inputs till the user enters ‘x’, after that print sum of all.

## **Write Java programs for the following:**

1. Write a program to print whether a number is even or odd, also take input from the user.
2. Take name as input and print a greeting message for that particular name.
3. Write a program to input principal, time, and rate (P, T, R) from the user and find Simple Interest.
4. Take in two numbers and an operator (+, -, \*, /) and calculate the value. (Use if conditions)
5. Take 2 numbers as input and print the largest number.
6. Input currency in rupees and output in USD.
7. To calculate Fibonacci Series up to n numbers.
8. To find out whether the given String is Palindrome or not.
9. To find Armstrong Number between two given number.

**Basic Java Programs**

1. Area Of Circle Java Program
2. Area Of Triangle
3. Area Of Rectangle Program
4. Area Of Isosceles Triangle
5. Area Of Parallelogram
6. Area Of Rhombus
7. Area Of Equilateral Triangle
8. Perimeter Of Circle
9. Perimeter Of Equilateral Triangle
10. Perimeter Of Parallelogram
11. Perimeter Of Rectangle
12. Perimeter Of Square
13. Perimeter Of Rhombus
14. Volume Of Cone Java Program
15. Volume Of Prism
16. Volume Of Cylinder
17. Volume Of Sphere
18. Volume Of Pyramid
19. Curved Surface Area Of Cylinder
20. Total Surface Area Of Cube
21. Fibonacci Series In Java Programs
22. [Subtract the Product and Sum of Digits of an Integer](https://leetcode.com/problems/subtract-the-product-and-sum-of-digits-of-an-integer/)
23. Input a number and print all the factors of that number (use loops).
24. Take integer inputs till the user enters 0 and print the sum of all numbers (HINT: while loop)
25. Take integer inputs till the user enters 0 and print the largest number from all.
26. Addition Of Two Numbers

### **Intermediate Java Programs**

1. Factorial Program In Java
2. Calculate Electricity Bill
3. Calculate Average Of N Numbers
4. Calculate Discount Of Product
5. Calculate Distance Between Two Points
6. Calculate Commission Percentage
7. Power In Java
8. Calculate Depreciation of Value
9. Calculate Batting Average
10. Calculate CGPA Java Program
11. Compound Interest Java Program
12. Calculate Average Marks
13. Sum Of N Numbers
14. Armstrong Number In Java
15. Find Ncr & Npr
16. Reverse A String In Java
17. Find if a number is palindrome or not
18. Future Investment Value
19. HCF Of Two Numbers Program
20. LCM Of Two Numbers
21. Java Program Vowel Or Consonant
22. Perfect Number In Java
23. Check Leap Year Or Not
24. Sum Of A Digits Of Number
25. Kunal is allowed to go out with his friends only on the even days of a given month. Write a program to count the number of days he can go out in the month of August.
26. Write a program to print the sum of negative numbers, sum of positive even numbers and the sum of positive odd numbers from a list of numbers (N) entered by the user. The list terminates when the user enters a zero.
27. [Define two methods to print the maximum and the minimum number respectively among three numbers entered by the user.](https://www.java67.com/2019/05/how-to-find-largest-and-smallest-of-three-numbers-in-java.html)
28. [Define a program to find out whether a given number is even or odd.](https://www.geeksforgeeks.org/java-program-to-check-if-a-given-integer-is-odd-or-even/)
29. [A person is eligible to vote if his/her age is greater than or equal to 18. Define a method to find out if he/she is eligible to vote.](https://www.efaculty.in/java-programs/voting-age-program-in-java/)
30. [Write a program to print the sum of two numbers entered by user by defining your own method.](https://code4coding.com/addition-of-two-numbers-in-java-using-method/)
31. [Define a method that returns the product of two numbers entered by user.](https://code4coding.com/java-program-to-multiply-two-numbers-using-method/)
32. [Write a program to print the circumference and area of a circle of radius entered by user by defining your own method.](https://beginnersbook.com/2014/01/java-program-to-calculate-area-and-circumference-of-circle/)
33. [Define a method to find out if a number is prime or not.](https://www.geeksforgeeks.org/java-program-to-check-if-a-number-is-prime-or-not/)
34. [Write a program that will ask the user to enter his/her marks (out of 100). Define a method that will display grades according to the marks entered as below:](https://www.techcrashcourse.com/2017/02/java-program-to-calculate-grade-of-students.html)
35. Marks Grade
36. 91-100 AA
37. 81-90 AB
38. 71-80 BB
39. 61-70 BC
40. 51-60 CD
41. 41-50 DD
42. <=40 Fail
43. [Write a program to print the factorial of a number by defining a method named 'Factorial'.](https://www.javatpoint.com/factorial-program-in-java) Factorial of any number n is represented by n! and is equal to 1 \* 2 \* 3 \* .... \* (n-1) \*n. E.g.-
44. 4! = 1 \* 2 \* 3 \* 4 = 24
45. 3! = 3 \* 2 \* 1 = 6
46. 2! = 2 \* 1 = 2
47. Also,
48. 1! = 1
49. 0! = 1
50. [Write a function to find if a number is a palindrome or not. Take number as parameter.](https://www.geeksforgeeks.org/check-if-a-number-is-palindrome/)
51. Convert the programs in [flow of program](https://github.com/kunal-kushwaha/DSA-Bootcamp-Java/blob/main/assignments/01-flow-of-program.md), [first java](https://github.com/kunal-kushwaha/DSA-Bootcamp-Java/blob/main/assignments/02-first-java.md), [conditionals & loops](https://github.com/kunal-kushwaha/DSA-Bootcamp-Java/blob/main/assignments/03-conditionals-loops.md) assignments into functions.
52. [Write a function to check if a given triplet is a Pythagorean triplet or not.](https://www.geeksforgeeks.org/find-pythagorean-triplet-in-an-unsorted-array/) (A Pythagorean triplet is when the sum of the square of two numbers is equal to the square of the third number).
53. [Write a function that returns all prime numbers between two given numbers.](https://www.geeksforgeeks.org/program-to-find-prime-numbers-between-given-interval/)
54. [Write a function that returns the sum of first n natural numbers.](https://www.geeksforgeeks.org/program-find-sum-first-n-natural-numbers/)

Array

### **Easy**

1. [Build Array from Permutation](https://leetcode.com/problems/build-array-from-permutation/)
2. [Concatenation of Array](https://leetcode.com/problems/concatenation-of-array/)
3. [Running Sum of 1d Array](https://leetcode.com/problems/running-sum-of-1d-array/)
4. [Richest Customer Wealth](https://leetcode.com/problems/richest-customer-wealth/)
5. [Shuffle the Array](https://leetcode.com/problems/shuffle-the-array/)
6. [Kids With the Greatest Number of Candies](https://leetcode.com/problems/kids-with-the-greatest-number-of-candies/)
7. [Number of Good Pairs](https://leetcode.com/problems/number-of-good-pairs/)
8. [How Many Numbers Are Smaller Than the Current Number](https://leetcode.com/problems/how-many-numbers-are-smaller-than-the-current-number/)
9. [Create Target Array in the Given Order](https://leetcode.com/problems/create-target-array-in-the-given-order/)
10. [Check if the Sentence Is Pangram](https://leetcode.com/problems/check-if-the-sentence-is-pangram/)
11. [Count Items Matching a Rule](https://leetcode.com/problems/count-items-matching-a-rule/)
12. [Find the Highest Altitude](https://leetcode.com/problems/find-the-highest-altitude/)
13. [Flipping an Image](https://leetcode.com/problems/flipping-an-image/)
14. [Cells with Odd Values in a Matrix](https://leetcode.com/problems/cells-with-odd-values-in-a-matrix/)
15. [Matrix Diagonal Sum](https://leetcode.com/problems/matrix-diagonal-sum/)
16. [Find Numbers with Even Number of Digits](https://leetcode.com/problems/find-numbers-with-even-number-of-digits/)
17. [Transpose Matrix](https://leetcode.com/problems/transpose-matrix/)
18. [Add to Array-Form of Integer](https://leetcode.com/problems/add-to-array-form-of-integer/)
19. [Maximum Population Year](https://leetcode.com/problems/maximum-population-year/)
20. [Determine Whether Matrix Can Be Obtained By Rotation](https://leetcode.com/problems/determine-whether-matrix-can-be-obtained-by-rotation/)
21. [Two Sum](https://leetcode.com/problems/two-sum/)
22. [Find N Unique Integers Sum up to Zero](https://leetcode.com/problems/find-n-unique-integers-sum-up-to-zero/)
23. [Lucky Number In a Matrix](https://leetcode.com/problems/lucky-numbers-in-a-matrix/)
24. [Maximum Subarray](https://leetcode.com/problems/maximum-subarray/)
25. [Reshape the Matrix](https://leetcode.com/problems/reshape-the-matrix/)
26. [Plus One](https://leetcode.com/problems/plus-one/)
27. [Remove Duplicates from Sorted Array](https://leetcode.com/problems/remove-duplicates-from-sorted-array/)
28. [Minimum Cost to Move Chips to The Same Position](https://leetcode.com/problems/minimum-cost-to-move-chips-to-the-same-position/)

### **Medium**

1. [Spiral Matrix](https://leetcode.com/problems/spiral-matrix/)
2. [Spiral Matrix II](https://leetcode.com/problems/spiral-matrix-ii/)
3. [Spiral Matrix III](https://leetcode.com/problems/spiral-matrix-iii/)
4. [Set Matrix Zeroes](https://leetcode.com/problems/set-matrix-zeroes/)
5. [Product of Array Except Self](https://leetcode.com/problems/product-of-array-except-self/)
6. [Find First and Last Position of Element in Sorted Array](https://leetcode.com/problems/find-first-and-last-position-of-element-in-sorted-array/)
7. [Jump Game](https://leetcode.com/problems/jump-game/)
8. [Rotate Array](https://leetcode.com/problems/rotate-array/)
9. [Sort Colors](https://leetcode.com/problems/sort-colors/)
10. [House Robber](https://leetcode.com/problems/house-robber/)

### **Hard**

1. [Max Value of Equation](https://leetcode.com/problems/max-value-of-equation/)
2. [First Missing Positive](https://leetcode.com/problems/first-missing-positive/)
3. [Good Array](https://leetcode.com/problems/check-if-it-is-a-good-array/)

**searching.**

## **Easy**

1. [Square Root](https://leetcode.com/problems/sqrtx/)
2. [Guess Number Higher or Lower](https://leetcode.com/problems/guess-number-higher-or-lower/)
3. [First Bad Version](https://leetcode.com/problems/first-bad-version/)
4. [Two Sum II - Input array is sorted](https://leetcode.com/problems/two-sum-ii-input-array-is-sorted/)
5. [Valid Perfect Square](https://leetcode.com/problems/valid-perfect-square/)
6. [Arranging Coins(Easy)](https://leetcode.com/problems/arranging-coins/)
7. [Find Smallest Letter Greater Than Target](https://leetcode.com/problems/find-smallest-letter-greater-than-target/)
8. [Kth Missing Positive Number](https://leetcode.com/problems/kth-missing-positive-number/)
9. [Search Insert Position](https://leetcode.com/problems/search-insert-position/)
10. [Peak Index in a Mountain Array](https://leetcode.com/problems/peak-index-in-a-mountain-array/)
11. [Count Negative Numbers in a Sorted Matrix](https://leetcode.com/problems/count-negative-numbers-in-a-sorted-matrix/)
12. [Intersection of Two Arrays](https://leetcode.com/problems/intersection-of-two-arrays/)
13. [Intersection of Two Arrays II](https://leetcode.com/problems/intersection-of-two-arrays-ii/)
14. [Fair Candy Swap](https://leetcode.com/problems/fair-candy-swap/)
15. [Check If N and Its Double Exist](https://leetcode.com/problems/check-if-n-and-its-double-exist/)
16. [Special Array With X Elements Greater Than or Equal X](https://leetcode.com/problems/special-array-with-x-elements-greater-than-or-equal-x/)
17. [Binary Search](https://leetcode.com/problems/binary-search/)

## **Medium**

1. [Find First and Last Position of Element in Sorted Array](https://leetcode.com/problems/find-first-and-last-position-of-element-in-sorted-array/)
2. [Single Element in a Sorted Array](https://leetcode.com/problems/single-element-in-a-sorted-array/)
3. [Search in Rotated Sorted Array](https://leetcode.com/problems/search-in-rotated-sorted-array/)
4. [Search in Rotated Sorted Array II](https://leetcode.com/problems/search-in-rotated-sorted-array-ii/)
5. [Find Minimum in Rotated Sorted Array](https://leetcode.com/problems/find-minimum-in-rotated-sorted-array/)
6. [Find Peak Element](https://leetcode.com/problems/find-peak-element/)
7. [Find Right Interval](https://leetcode.com/problems/find-right-interval/)
8. [Reach a Number](https://leetcode.com/problems/reach-a-number/)
9. [Maximum Value at a Given Index in a Bounded Array](https://leetcode.com/problems/maximum-value-at-a-given-index-in-a-bounded-array/)
10. [Koko Eating Bananas](https://leetcode.com/problems/koko-eating-bananas/)
11. [Minimum Absolute Sum Difference](https://leetcode.com/problems/minimum-absolute-sum-difference/)
12. [Search a 2D Matrix](https://leetcode.com/problems/search-a-2d-matrix/)
13. [Find a Peak Element II](https://leetcode.com/problems/find-a-peak-element-ii/)
14. [Frequency of the Most Frequent Element](https://leetcode.com/problems/frequency-of-the-most-frequent-element/)
15. [Find the Duplicate Number](https://leetcode.com/problems/find-the-duplicate-number/)
16. [Capacity To Ship Packages Within D Days](https://leetcode.com/problems/capacity-to-ship-packages-within-d-days/)
17. [4 Sum](https://leetcode.com/problems/4sum/)

## **Hard**

1. [Median of Two Sorted Arrays](https://leetcode.com/problems/median-of-two-sorted-arrays/)
2. [Find Minimum in Rotated Sorted Array II](https://leetcode.com/problems/find-minimum-in-rotated-sorted-array-ii/)
3. [Aggressive cows](https://www.spoj.com/problems/AGGRCOW/)
4. [Book allocation](https://www.geeksforgeeks.org/allocate-minimum-number-pages/)
5. [Split Array Largest Sum](https://leetcode.com/problems/split-array-largest-sum/)
6. [Find in Mountain Array](https://leetcode.com/problems/find-in-mountain-array/)
7. [Count smaller number after Self](https://leetcode.com/problems/count-of-smaller-numbers-after-self/)
8. [Divide Chocolate Problem](https://curiouschild.github.io/leetcode/2019/06/21/divide-chocolate.html)

## 

## **Sorting**

## **Easy**

1. [Merge Sorted Array](https://leetcode.com/problems/merge-sorted-array/)
2. [Majority Element](https://leetcode.com/problems/majority-element/)
3. [Contains Duplicate](https://leetcode.com/problems/contains-duplicate/)
4. [Missing Number](https://leetcode.com/problems/missing-number/)
5. [Intersection of Two Arrays](https://leetcode.com/problems/intersection-of-two-arrays/)
6. [Intersection of Two Arrays II](https://leetcode.com/problems/intersection-of-two-arrays-ii/)
7. [Third Maximum Number](https://leetcode.com/problems/third-maximum-number/)
8. [Assign Cookies](https://leetcode.com/problems/assign-cookies/)
9. [Array Partition I](https://leetcode.com/problems/array-partition-i/)
10. [Maximum Product of Three Numbers](https://leetcode.com/problems/maximum-product-of-three-numbers/)
11. [Sort Array By Parity](https://leetcode.com/problems/sort-array-by-parity/)
12. [Sort Array By Parity II](https://leetcode.com/problems/sort-array-by-parity-ii/)
13. [Largest Perimeter Triangle](https://leetcode.com/problems/largest-perimeter-triangle/)
14. [Squares of a Sorted Array](https://leetcode.com/problems/squares-of-a-sorted-array/)
15. [Matrix Cells in Distance Order](https://leetcode.com/problems/matrix-cells-in-distance-order/)
16. [Height Checker](https://leetcode.com/problems/height-checker/)
17. [Relative Sort Array](https://leetcode.com/problems/relative-sort-array/)
18. [Minimum Absolute Difference](https://leetcode.com/problems/minimum-absolute-difference/)
19. [Rank Transform of an Array](https://leetcode.com/problems/rank-transform-of-an-array/)
20. [Sort Integers by The Number of 1 Bits](https://leetcode.com/problems/sort-integers-by-the-number-of-1-bits/)
21. [How Many Numbers Are Smaller Than the Current Number](https://leetcode.com/problems/how-many-numbers-are-smaller-than-the-current-number/)
22. [Maximum Product of Two Elements in an Array](https://leetcode.com/problems/maximum-product-of-two-elements-in-an-array/)
23. [Average Salary Excluding the Minimum and Maximum Salary](https://leetcode.com/problems/average-salary-excluding-the-minimum-and-maximum-salary/)
24. [Make Two Arrays Equal by Reversing Sub-arrays](https://leetcode.com/problems/make-two-arrays-equal-by-reversing-sub-arrays/)
25. [Can Make Arithmetic Progression From Sequence](https://leetcode.com/problems/can-make-arithmetic-progression-from-sequence/)
26. [Sort Array by Increasing Frequency](https://leetcode.com/problems/sort-array-by-increasing-frequency/)
27. [Special Array With X Elements Greater Than or Equal X](https://leetcode.com/problems/special-array-with-x-elements-greater-than-or-equal-x/)
28. [Find all numbers disappeared in an array](https://leetcode.com/problems/find-all-numbers-disappeared-in-an-array/)
29. [Set Mismatch](https://leetcode.com/problems/set-mismatch/)
30. [2Sum](https://leetcode.com/problems/two-sum/)

## **Medium**

1. [3Sum](https://leetcode.com/problems/3sum/)
2. [3Sum Closest](https://leetcode.com/problems/3sum-closest/)
3. [4Sum](https://leetcode.com/problems/4sum/)
4. [Group Anagrams](https://leetcode.com/problems/group-anagrams/)
5. [Merge Intervals](https://leetcode.com/problems/merge-intervals/)
6. [Sort Colors](https://leetcode.com/problems/sort-colors/)
7. [Insertion Sort List](https://leetcode.com/problems/insertion-sort-list/)
8. [Sort List](https://leetcode.com/problems/sort-list/)
9. [Largest Number](https://leetcode.com/problems/largest-number/)
10. [Kth Largest Element in an Array](https://leetcode.com/problems/kth-largest-element-in-an-array/)
11. [Find the Duplicate Number](https://leetcode.com/problems/find-the-duplicate-number/)
12. [Find all Duplicates in an array](https://leetcode.com/problems/find-all-duplicates-in-an-array/)

## 

## 

## **Hard**

1. [First missing Positive](https://leetcode.com/problems/first-missing-positive/)

## **Strings**

## **Easy**

1. [Defanging an Ip address](https://leetcode.com/problems/defanging-an-ip-address/)
2. [Shuffle String](https://leetcode.com/problems/shuffle-string/)
3. [Goal Parser Interpretation](https://leetcode.com/problems/goal-parser-interpretation/)
4. [Count Items Matching a rule](https://leetcode.com/problems/count-items-matching-a-rule/)
5. [Sorting the Sentence](https://leetcode.com/problems/sorting-the-sentence/)
6. [Check if two strings are equivalent](https://leetcode.com/problems/check-if-two-string-arrays-are-equivalent/)
7. [To Lower Case](https://leetcode.com/problems/to-lower-case/)
8. [Determine if string halves are alike](https://leetcode.com/problems/determine-if-string-halves-are-alike/)
9. [Decrypt String from Alphabet to Integer Mapping](https://leetcode.com/problems/decrypt-string-from-alphabet-to-integer-mapping/)
10. [Number of Strings That Appear as Substrings in Word](https://leetcode.com/problems/number-of-strings-that-appear-as-substrings-in-word/)
11. [Robot Return to Origin](https://leetcode.com/problems/robot-return-to-origin/)
12. [Reverse Words in a String III](https://leetcode.com/problems/reverse-words-in-a-string-iii/)
13. [Excel Sheet Column Title](https://leetcode.com/problems/excel-sheet-column-title/)
14. [Implement strStr()](https://leetcode.com/problems/implement-strstr/)
15. [Long Pressed Name](https://leetcode.com/problems/long-pressed-name/)
16. [Valid Palindrome](https://leetcode.com/problems/valid-palindrome/)
17. [Valid Palindrome II](https://leetcode.com/problems/valid-palindrome-ii/)
18. [Longest Common Prefix](https://leetcode.com/problems/longest-common-prefix/)
19. [Maximum Repeating Substring](https://leetcode.com/problems/maximum-repeating-substring/)
20. [Check if Binary String Has at Most One Segment of Ones](https://leetcode.com/problems/check-if-binary-string-has-at-most-one-segment-of-ones/)
21. [Merge Strings Alternately](https://leetcode.com/problems/merge-strings-alternately/)
22. [Reverse Prefix of Word](https://leetcode.com/problems/reverse-prefix-of-word/)
23. [Roman to Integer](https://leetcode.com/problems/roman-to-integer/)
24. [Valid Parentheses](https://leetcode.com/problems/valid-parentheses/)
25. [Length of last word](https://leetcode.com/problems/length-of-last-word/)

## 

## **Medium**

1. [Jump Game VII](https://leetcode.com/problems/jump-game-vii/)
2. [Split Two Strings to Make Palindrome](https://leetcode.com/problems/split-two-strings-to-make-palindrome/)
3. [Number of Ways to Split a String](https://leetcode.com/problems/number-of-ways-to-split-a-string/)
4. [Sentence Similarity III](https://leetcode.com/problems/sentence-similarity-iii/)
5. [Repeated String Match](https://leetcode.com/problems/repeated-string-match/)
6. [Next Greater Element III](https://leetcode.com/problems/next-greater-element-iii/)
7. [Maximum Number of Removable Characters](https://leetcode.com/problems/maximum-number-of-removable-characters/)
8. [Swap Adjacent in LR String](https://leetcode.com/problems/swap-adjacent-in-lr-string/)
9. [Multiply Strings](https://leetcode.com/problems/multiply-strings/)
10. [Basic Calculator II](https://leetcode.com/problems/basic-calculator-ii/)
11. [Minimum Length of String After Deleting Similar Ends](https://leetcode.com/problems/minimum-length-of-string-after-deleting-similar-ends/)
12. [Number of Substrings With Only 1s](https://leetcode.com/problems/number-of-substrings-with-only-1s/)
13. [Count Number of Homogenous Substrings](https://leetcode.com/problems/count-number-of-homogenous-substrings/)
14. [Get Equal Substrings Within Budget](https://leetcode.com/problems/get-equal-substrings-within-budget/)
15. [Shifting Letters](https://leetcode.com/problems/shifting-letters/)
16. [Minimum Time Difference](https://leetcode.com/problems/minimum-time-difference/)
17. [Find Kth Bit in Nth Binary String](https://leetcode.com/problems/find-kth-bit-in-nth-binary-string/)
18. [Camelcase Matching](https://leetcode.com/problems/camelcase-matching/)
19. [Print Words Vertically](https://leetcode.com/problems/print-words-vertically/)

## **Hard**

1. [Valid Number](https://leetcode.com/problems/valid-number/)
2. [Regular Expression Matching](https://leetcode.com/problems/regular-expression-matching/)
3. [Last Substring in Lexicographical Order](https://leetcode.com/problems/last-substring-in-lexicographical-order/)
4. [Basic Calculator](https://leetcode.com/problems/basic-calculator/)
5. [Minimum Number of Operations to Make String Sorted](https://leetcode.com/problems/minimum-number-of-operations-to-make-string-sorted/)
6. [Check If String Is Transformable With Substring Sort Operations](https://leetcode.com/problems/check-if-string-is-transformable-with-substring-sort-operations/)
7. [Orderly Queue](https://leetcode.com/problems/orderly-queue/)
8. [Special Binary String](https://leetcode.com/problems/special-binary-string/)

# 

# **Additionally**

1. [Click "Show problem tags" and do questions that have tags for things we have learnt so far only.](https://leetcode.com/tag/string/)

## **Patterns**

Pattern Questions

Print these patterns using loops:

1. 1. \*\*\*\*\*
2. \*\*\*\*\*
3. \*\*\*\*\*
4. \*\*\*\*\*
5. \*\*\*\*\*
6. 2. \*
7. \*\*
8. \*\*\*
9. \*\*\*\*
10. \*\*\*\*\*
11. 3. \*\*\*\*\*
12. \*\*\*\*
13. \*\*\*
14. \*\*
15. \*
16. 4. 1
17. 1 2
18. 1 2 3
19. 1 2 3 4
20. 1 2 3 4 5
21. 5. \*
22. \*\*
23. \*\*\*
24. \*\*\*\*
25. \*\*\*\*\*
26. \*\*\*\*
27. \*\*\*
28. \*\*
29. \*
30. 6. \*
31. \*\*
32. \*\*\*
33. \*\*\*\*
34. \*\*\*\*\*
35. 7. \*\*\*\*\*
36. \*\*\*\*
37. \*\*\*
38. \*\*
39. \*
40. 8. \*
41. \*\*\*
42. \*\*\*\*\*
43. \*\*\*\*\*\*\*
44. \*\*\*\*\*\*\*\*\*
45. 9. \*\*\*\*\*\*\*\*\*
46. \*\*\*\*\*\*\*
47. \*\*\*\*\*
48. \*\*\*
49. \*
50. 10. \*
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55. 11. \* \* \* \* \*
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60. 12. \* \* \* \* \*
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70. 13. \*
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75. 14. \*\*\*\*\*\*\*\*\*
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80. 15. \*
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86. \* \*
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88. \*
89. 16. 1
90. 1 1
91. 1 2 1
92. 1 3 3 1
93. 1 4 6 4 1
94. 17. 1
95. 212
96. 32123
97. 4321234
98. 32123
99. 212
100. 1
101. 18. \*\*\*\*\*\*\*\*\*\*
102. \*\*\*\* \*\*\*\*
103. \*\*\* \*\*\*
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111. 19. \* \*
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117. \*\*\* \*\*\*
118. \*\* \*\*
119. \* \*
120. 20. \*\*\*\*
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123. \* \*
124. \*\*\*\*
125. 21. 1
126. 2 3
127. 4 5 6
128. 7 8 9 10
129. 11 12 13 14 15
130. 22. 1
131. 0 1
132. 1 0 1
133. 0 1 0 1
134. 1 0 1 0 1
135. 23. \* \*
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138. 24. \* \*
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148. 25. \*\*\*\*\*
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150. \* \*
151. \* \*
152. \*\*\*\*\*
153. 26. 1 1 1 1 1 1
154. 2 2 2 2 2
155. 3 3 3 3
156. 4 4 4
157. 5 5
158. 6
159. 27. 1 2 3 4 17 18 19 20
160. 5 6 7 14 15 16
161. 8 9 12 13
162. 10 11
163. 28. \*
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171. \*
172. 29.
173. \* \*
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178. \*\*\*\* \*\*\*\*
179. \*\*\* \*\*\*
180. \*\* \*\*
181. \* \*
182. 30. 1
183. 2 1 2
184. 3 2 1 2 3
185. 4 3 2 1 2 3 4
186. 5 4 3 2 1 2 3 4 5
187. 31. 4 4 4 4 4 4 4
188. 4 3 3 3 3 3 4
189. 4 3 2 2 2 3 4
190. 4 3 2 1 2 3 4
191. 4 3 2 2 2 3 4
192. 4 3 3 3 3 3 4
193. 4 4 4 4 4 4 4
194. 32. E
195. D E
196. C D E
197. B C D E
198. A B C D E
199. 33. a
200. B c
201. D e F
202. g H i J
203. k L m N o
205. 34. E D C B A
206. D C B A
207. C B A
208. B A
209. A
211. 35. 1 1
212. 12 21
213. 123 321

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### 

## **Recursion**

## **Easy**

1. [Sum Triangle from Array](https://www.geeksforgeeks.org/sum-triangle-from-array/) GFG
2. [Maximum and Minimum value in an array](https://www.geeksforgeeks.org/recursive-programs-to-find-minimum-and-maximum-elements-of-array/) GFG
3. [Binary Search using recursion](https://leetcode.com/problems/binary-search/) leetcode
4. [First Uppercase Letter in a String](https://www.geeksforgeeks.org/first-uppercase-letter-in-a-string-iterative-and-recursive/) GFG
5. [Reverse String](https://leetcode.com/problems/reverse-string/) leetcode
6. [Print 1 To N Without Loop](https://practice.geeksforgeeks.org/problems/print-1-to-n-without-using-loops-1587115620/1/) GFG
7. [Fibonacci Number](https://leetcode.com/problems/fibonacci-number/) leetcode
8. [Special Fibonacci](https://www.codechef.com/problems/FIBXOR01/) CodeChef
9. [Length of string using Recursion](https://www.geeksforgeeks.org/program-for-length-of-a-string-using-recursion/) GFG
10. [Geek-onacci Number](https://practice.geeksforgeeks.org/problems/geek-onacci-number/0/) GFG
11. [Recursive Bubble Sort](https://www.geeksforgeeks.org/recursive-bubble-sort/) GFG
12. [Recursive Insertion Sort](https://www.geeksforgeeks.org/recursive-insertion-sort/) GFG
13. [Sum of digit of a number using Recursion](https://www.geeksforgeeks.org/sum-digit-number-using-recursion/) GFG
14. [Product of two numbers using Recursion](https://www.geeksforgeeks.org/product-2-numbers-using-recursion/) GFG
15. [Check Prime or not](https://www.geeksforgeeks.org/recursive-program-prime-number/) GFG
16. [Sum of Natural numbers using Recursion](https://www.geeksforgeeks.org/sum-of-natural-numbers-using-recursion/) GFG
17. [Power of Two](https://leetcode.com/problems/power-of-two/) leetcode
18. [Power of Three](https://leetcode.com/problems/power-of-three/) leetcode
19. [Power of Four](https://leetcode.com/problems/power-of-four/) leetcode
20. Write a recursive function for given n and a to determine x:
21. n = a ^ x
22. a = 2, 3, 4
23. (2 ^ -31) <= n <= (2 ^ 31) - 1
24. [Write a recursive function that returns the factorial of a number.](https://www.hackerrank.com/challenges/30-recursion/problem) HackerRank
25. [Write a recursive function to check whether an array is sorted or not.](https://www.geeksforgeeks.org/program-check-array-sorted-not-iterative-recursive) GFG
26. [Number of Steps to Reduce a Number to Zero.](https://leetcode.com/problems/number-of-steps-to-reduce-a-number-to-zero/) leetcode
27. [Check for balanced paranthesis using recursion without stack.](https://www.geeksforgeeks.org/check-for-balanced-parenthesis-without-using-stack/) GFG
28. [Remove consecutive duplicate characters from a string.](https://www.geeksforgeeks.org/remove-consecutive-duplicates-string/) GFG
29. [Print all possible palindromic partitions of a string.](https://www.geeksforgeeks.org/given-a-string-print-all-possible-palindromic-partition/) GFG
30. [Power Set of permutations of a string in Lexicographic order.](https://www.geeksforgeeks.org/powet-set-lexicographic-order/) GFG

## 

## **Medium**

1. [Combination Sum](https://leetcode.com/problems/combination-sum/) leetcode
2. [Word Search](https://leetcode.com/problems/word-search/) leetcode
3. [Target sum](https://leetcode.com/problems/target-sum/) leetcode
4. [Find Kth Bit in Nth Binary String](https://leetcode.com/problems/find-kth-bit-in-nth-binary-string/) leetcode
5. [K-th Symbol in Grammar](https://leetcode.com/problems/k-th-symbol-in-grammar/) leetcode
6. [Count Good Numbers](https://leetcode.com/problems/count-good-numbers/) leetcode
7. [N Digit numbers with digits in increasing order](https://practice.geeksforgeeks.org/problems/n-digit-numbers-with-digits-in-increasing-order5903/1/) GFG
8. [Pow(x, n)](https://leetcode.com/problems/powx-n/) leetcode
9. [Minimum Non-Zero Product of the Array Elements](https://leetcode.com/problems/minimum-non-zero-product-of-the-array-elements/) leetcode
10. [Handshakes](https://practice.geeksforgeeks.org/problems/handshakes1303/1/) GFG
11. [HackerRank](https://www.hackerrank.com/domains/algorithms?filters%5Bsubdomains%5D%5B%5D=recursion&filters%5Bdifficulty%5D%5B%5D=medium)
12. [Divisible Subset](https://www.codechef.com/problems/DIVSUBS) Codechef
13. [Perfect squares](https://leetcode.com/problems/perfect-squares/)leetcode
14. [decode string](https://leetcode.com/problems/decode-string/)leetcode
15. [find the winner of the circular game](https://leetcode.com/problems/find-the-winner-of-the-circular-game/) leetcode
16. [Different ways to add parantheses in the expression](https://leetcode.com/problems/different-ways-to-add-parentheses/) leetcode
17. [Letter Combinations of a Phone Number](https://leetcode.com/problems/letter-combinations-of-a-phone-number/) leetcode
18. [Predict the winner.](https://leetcode.com/problems/predict-the-winner/) leetcode
19. [Gray code](https://practice.geeksforgeeks.org/problems/gray-code-1611215248/1/) GFG Google
20. [Combination Sum II](https://leetcode.com/problems/combination-sum-ii/) leetcode
21. [combination Sum III](https://leetcode.com/problems/combination-sum-iii/) leetcode
22. [Sudoku Solver](https://leetcode.com/problems/sudoku-solver/) leetcode
23. [Letter tile possibilities](https://leetcode.com/problems/letter-tile-possibilities/) leetcode
24. [All Paths From Source to Target](https://leetcode.com/problems/all-paths-from-source-to-target/) leetcode
25. [Sort a stack using recursion](https://www.geeksforgeeks.org/sort-a-stack-using-recursion/) GFG
26. [Reverse a stack using recursion](https://www.geeksforgeeks.org/reverse-a-stack-using-recursion/) GFG
27. [Beautiful Arrangement](https://leetcode.com/problems/beautiful-arrangement/) leetcode
28. [Lowest Common Ancestor of a Binary Tree](https://practice.geeksforgeeks.org/problems/lowest-common-ancestor-in-a-binary-tree/1/) GFG Amex
29. [Prime numbers after prime P with sum S](https://www.geeksforgeeks.org/prime-numbers-after-prime-p-with-sum-s/) GFG
30. [Path with Maximum Gold](https://leetcode.com/problems/path-with-maximum-gold/) leetcode
31. [Longest Possible Route in a Matrix with Hurdles](https://www.geeksforgeeks.org/longest-possible-route-in-a-matrix-with-hurdles/) GFG
32. [Tug of war](https://www.geeksforgeeks.org/tug-of-war/) GFG Adobe
33. [Rat in a maze](https://www.geeksforgeeks.org/rat-in-a-maze-backtracking-2/) GFG
34. [Reorder List](https://leetcode.com/problems/reorder-list/) leetcode

## 

## **Hard**

1. [Parsing A Boolean Expression](https://leetcode.com/problems/parsing-a-boolean-expression/) leetcode
2. [Special Binary String](https://leetcode.com/problems/special-binary-string/) leetcode
3. [Permutation Sequence](https://leetcode.com/problems/permutation-sequence/) leetcode
4. [Next Happy Number](https://practice.geeksforgeeks.org/problems/next-happy-number4538/1/) GFG
5. [Basic Calculator](https://leetcode.com/problems/basic-calculator/) leetcode
6. [Integer to English Words](https://leetcode.com/problems/integer-to-english-words/) leetcode
7. [Maximize Number of Nice Divisors](https://leetcode.com/problems/maximize-number-of-nice-divisors/) leetcode
8. [N Queens](https://leetcode.com/problems/n-queens/) leetcode
9. [N Queens II](https://leetcode.com/problems/n-queens-ii/) leetcode
10. [Word break II](https://leetcode.com/problems/word-break-ii/) leetcode Google
11. [Unique paths III](https://leetcode.com/problems/unique-paths-iii/) leetcode
12. [Find shortest safe route in a path with landmines](https://www.geeksforgeeks.org/find-shortest-safe-route-in-a-path-with-landmines/) GFG Google
13. [Minimum steps to destination](https://practice.geeksforgeeks.org/problems/minimum-number-of-steps-to-reach-a-given-number5234/1/) GFG Amex Adobe
14. [Hamiltonian Cycle](https://www.geeksforgeeks.org/hamiltonian-cycle-backtracking-6/) GFG
15. [M colorning problem](https://www.geeksforgeeks.org/m-coloring-problem-backtracking-5/) GFG
16. [The Knight's tour](https://www.geeksforgeeks.org/the-knights-tour-problem-backtracking-1/) GFG
17. [Maximum number possible by doing at-most K swaps](https://www.geeksforgeeks.org/find-maximum-number-possible-by-doing-at-most-k-swaps/) GFG
18. [HackerRank](https://www.hackerrank.com/domains/algorithms?filters%5Bsubdomains%5D%5B%5D=recursion&filters%5Bdifficulty%5D%5B%5D=hard)
19. [Concatenated Words](https://leetcode.com/problems/concatenated-words/)leetcode

## **Bitwise**

## **Easy**

1. [Add Binary](https://leetcode.com/problems/add-binary/)
2. [Single Number](https://leetcode.com/problems/single-number/)
3. [Reverse Bits](https://leetcode.com/problems/reverse-bits/)
4. [Number of 1 Bits](https://leetcode.com/problems/number-of-1-bits/)
5. [Counting Bits](https://leetcode.com/problems/counting-bits/)
6. [Binary Watch](https://leetcode.com/problems/binary-watch/)
7. [Hamming Distance](https://leetcode.com/problems/hamming-distance/)
8. [Number Complement](https://leetcode.com/problems/number-complement/)
9. [Set Mismatch](https://leetcode.com/problems/set-mismatch/)
10. [Binary Number with Alternating Bits](https://leetcode.com/problems/binary-number-with-alternating-bits/)
11. [Prime Number of Set Bits in Binary Representation](https://leetcode.com/problems/prime-number-of-set-bits-in-binary-representation/)
12. [Binary Gap](https://leetcode.com/problems/binary-gap/)
13. [Number of Steps to Reduce a Number to Zero](https://leetcode.com/problems/number-of-steps-to-reduce-a-number-to-zero/)
14. [Sort Integers by The Number of 1 Bits](https://leetcode.com/problems/sort-integers-by-the-number-of-1-bits/)
15. [XOR Operation in an Array](https://leetcode.com/problems/xor-operation-in-an-array/)
16. [Count the Number of Consistent Strings](https://leetcode.com/problems/count-the-number-of-consistent-strings/)
17. [Decode XORed Array](https://leetcode.com/problems/decode-xored-array/)
18. [Sum of All Subset XOR Totals](https://leetcode.com/problems/sum-of-all-subset-xor-totals/)
19. [Longest Nice Substring](https://leetcode.com/problems/longest-nice-substring/)

## **Medium**

1. [Subsets](https://leetcode.com/problems/subsets/)
2. [Subsets II](https://leetcode.com/problems/subsets-ii/)
3. [Single Number II](https://leetcode.com/problems/single-number-ii/)
4. [Divide Two Integers](https://leetcode.com/problems/divide-two-integers/)
5. [Gray Code](https://leetcode.com/problems/gray-code/)
6. [Repeated DNA Sequences](https://leetcode.com/problems/repeated-dna-sequences/)

## **Hard**

1. [Minimum Number of Flips to onvert Binary Matrix to zero matrix](https://leetcode.com/problems/minimum-number-of-flips-to-convert-binary-matrix-to-zero-matrix/)
2. [Minimum cost to connect two group of points](https://leetcode.com/problems/minimum-cost-to-connect-two-groups-of-points/)
3. [Find XOR Sum of All Pairs Bitwise AND](https://leetcode.com/problems/find-xor-sum-of-all-pairs-bitwise-and/)

## **Math**

## **Easy**

1. [Roman to Integer.](https://leetcode.com/problems/roman-to-integer/)
2. [Happy Number.](https://leetcode.com/problems/happy-number/)
3. [Armstrong Numbers](https://practice.geeksforgeeks.org/problems/armstrong-numbers2727/1/?category%5B%5D=Mathematical&category%5B%5D=Mathematical&page=2&query=category%5B%5DMathematicalpage2category%5B%5DMathematical)
4. [Power of Four](https://leetcode.com/problems/power-of-four/)
5. [Factorial](https://practice.geeksforgeeks.org/problems/factorial5739/1/?category%5B%5D=Mathematical&category%5B%5D=Mathematical&page=3&query=category%5B%5DMathematicalpage3category%5B%5DMathematical)
6. [Excel Sheet Column Title](https://leetcode.com/problems/excel-sheet-column-title/)
7. [Maximum Product of Three Numbers](https://leetcode.com/problems/maximum-product-of-three-numbers/)
8. [Climbing Stairs](https://leetcode.com/problems/climbing-stairs/)
9. [Self Dividing Numbers](https://leetcode.com/problems/self-dividing-numbers/)
10. [Add Binary](https://leetcode.com/problems/add-binary/)
11. [Power of Two](https://leetcode.com/problems/power-of-two/)

## **Medium**

1. [Integer to Roman](https://leetcode.com/problems/integer-to-roman/)
2. [Unique Paths](https://leetcode.com/problems/unique-paths/)
3. [Gray Code](https://leetcode.com/problems/gray-code/)
4. [Perfect Squares](https://leetcode.com/problems/perfect-squares/)
5. [Next Greater Element III](https://leetcode.com/problems/next-greater-element-iii/)
6. [Angle Between Hands of a Clock](https://leetcode.com/problems/angle-between-hands-of-a-clock/)
7. [String to Integer (atoi)](https://leetcode.com/problems/string-to-integer-atoi/)
8. [The kth Factor of n](https://leetcode.com/problems/the-kth-factor-of-n/)
9. [Queries on Number of Points Inside a Circle](https://leetcode.com/problems/queries-on-number-of-points-inside-a-circle/)
10. [Product of Array Except Self](https://leetcode.com/problems/product-of-array-except-self/)
11. [Multiply Strings](https://leetcode.com/problems/multiply-strings/)
12. [Encode and Decode TinyURL](https://leetcode.com/problems/encode-and-decode-tinyurl/)
13. [Integer Break](https://leetcode.com/problems/integer-break/)

## **Hard**

1. [Permutation Sequence](https://leetcode.com/problems/permutation-sequence/)
2. [Basic Calculator](https://leetcode.com/problems/basic-calculator/)
3. [Max Points on a Line](https://leetcode.com/problems/max-points-on-a-line/)
4. [Number of Digit One](https://leetcode.com/problems/number-of-digit-one/)

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## **Complexities**

# **Recurrence Questions**

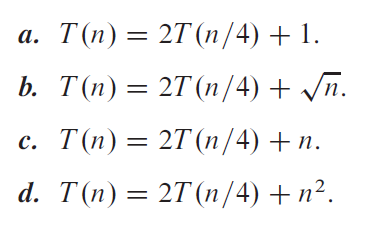
# **hover text** hover text

# 

# 

# 

# **Akra Bazzi:**

1. ****

OOP**Important Topics**

1. [Kunal's notes](https://github.com/kunal-kushwaha/DSA-Bootcamp-Java/tree/main/lectures/17-oop/notes)
2. [Object Oriented Paradigms](https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/) GFG
3. [Constructors in Java](https://www.geeksforgeeks.org/constructors-in-java/) GFG
4. [Constructor chaining in Java](https://www.geeksforgeeks.org/constructor-chaining-java-examples/) GFG
5. [Inheritance in Java](https://www.geeksforgeeks.org/inheritance-in-java/) GFG
6. [Overriding in Java](https://www.geeksforgeeks.org/overriding-in-java/) GFG
7. [Abstraction in Java](https://www.geeksforgeeks.org/abstraction-in-java-2/) GFG
8. [Access modifiers in Java](https://www.geeksforgeeks.org/access-modifiers-java/) GFG
9. [Wrapper Classes in Java](https://www.geeksforgeeks.org/wrapper-classes-java/) GFG
10. [Need of wrapper classes in Java](https://www.geeksforgeeks.org/need-of-wrapper-classes-in-java/) GFG
11. [this keyowrd in Java](https://www.javatpoint.com/this-keyword) Javatpoint
12. [Important keyowrds in Java inheritance - extends,implements,super,instanceof](https://www.tutorialspoint.com/java/java_inheritance.htm) Tutorialspoint
13. [Instance initializer block](https://www.javatpoint.com/instance-initializer-block) Javatpoint
14. [Dynamic Method Dispatch or Runtime Polymorphism in Java](https://www.geeksforgeeks.org/dynamic-method-dispatch-runtime-polymorphism-java/) GFG
15. [Cohesion in Java](https://www.geeksforgeeks.org/cohesion-in-java/) GFG
16. [Coupling in Java](https://www.geeksforgeeks.org/coupling-in-java/) GFG

# **Interview Questions**

1. [Can we declare main() method as private or protected or with no access modifier in java?](https://www.tutorialspoint.com/can-we-declare-main-method-as-private-or-protected-or-with-no-access-modifier-in-java) Tutorialspoint
2. [Difference between Method Overloading and Method Overriding in Java?](https://www.geeksforgeeks.org/difference-between-method-overloading-and-method-overriding-in-java/) GFG
3. [Can we declare interface members as private or protected in java8?](https://www.tutorialspoint.com/can-we-declare-interface-members-as-private-or-protected-in-java8) Tutorialspoint
4. [Can we override a private or static method in Java?](https://www.tutorialspoint.com/can-we-override-a-private-or-static-method-in-java) Tutorialspoint
5. [What is diamond problem in Java?](https://www.javatpoint.com/what-is-diamond-problem-in-java) Javatpoint
6. [Can we pass this keyword as argument in a method call?](https://www.javatpoint.com/this-keyword#:~:text=this%3A%20to%20pass%20as%20an%20argument%20in%20the%20method) Javatpoint
7. [Java constructor returns a value, but what?](https://www.javatpoint.com/java-constructor-returns-a-value-but-what) Javatpoint
8. [What is covariant return type?](https://www.javatpoint.com/covariant-return-type) Javatpoint
9. [Private classes and singleton classes in Java](https://www.geeksforgeeks.org/private-constructors-and-singleton-classes-in-java/) GFG
10. [How to prevent Singleton Pattern from Reflection, Serialization and Cloning?](https://www.geeksforgeeks.org/prevent-singleton-pattern-reflection-serialization-cloning/) GFG
11. [Double-Check Locking For Singleton Class](https://www.geeksforgeeks.org/java-program-to-demonstrate-the-double-check-locking-for-singleton-class/) GFG

# **Practice Problems**

1. [Inheritance I](https://www.hackerrank.com/challenges/java-inheritance-1/problem?isFullScreen=true) HackerRank
2. [Inheritance II](https://www.hackerrank.com/challenges/java-inheritance-2/problem?isFullScreen=true) HackerRank
3. [Java Abstract class](https://www.hackerrank.com/challenges/java-abstract-class/problem?isFullScreen=true) HackerRank
4. [Interface](https://www.hackerrank.com/challenges/java-interface/problem?isFullScreen=true) HackerRank
5. [Method Overriding I](https://www.hackerrank.com/challenges/java-method-overriding/problem?isFullScreen=true) HackerRank
6. [Method Overriding II (Use super keyword)](https://www.hackerrank.com/challenges/java-method-overriding-2-super-keyword/problem?isFullScreen=true) HackerRank
7. [Java instanceof keyword](https://www.hackerrank.com/challenges/java-instanceof-keyword/problem?isFullScreen=true) HackerRank
8. [Java Iterator](https://www.hackerrank.com/challenges/java-iterator/problem?isFullScreen=true) HackerRank

## **Linkedlist**

## **Easy**

1. [Convert Binary Number in a Linked List to Integer](https://leetcode.com/problems/convert-binary-number-in-a-linked-list-to-integer/) leetcode
2. [Reverse Linked List](https://leetcode.com/problems/reverse-linked-list/) leetcode
3. [Middle of the Linked List](https://leetcode.com/problems/middle-of-the-linked-list/) leetcode
4. [Merge Two Sorted Lists](https://leetcode.com/problems/merge-two-sorted-lists/) leetcode
5. [Delete Node in a Linked List](https://leetcode.com/problems/delete-node-in-a-linked-list/) leetcode
6. [Palindrome Linked List](https://leetcode.com/problems/palindrome-linked-list/) leetcode Snapdeal
7. [Intersection of Two Linked Lists](https://leetcode.com/problems/intersection-of-two-linked-lists/) leetcode
8. [Linked List Cycle](https://leetcode.com/problems/linked-list-cycle/) leetcode Samsung
9. [Remove Duplicates from Sorted List](https://leetcode.com/problems/remove-duplicates-from-sorted-list/)leetcode
10. [Find All Numbers Disappeared in an Array](https://leetcode.com/problems/find-all-numbers-disappeared-in-an-array/) leetcode
11. [Remove Linked List Elements](https://leetcode.com/problems/remove-linked-list-elements/) leetcode

## **Medium**

1. [Design Twitter](https://leetcode.com/problems/design-twitter/) leetcode
2. [Design Linked List](https://leetcode.com/problems/design-linked-list/) leetcode
3. [Reverse Linked List II](https://leetcode.com/problems/reverse-linked-list-ii/) leetcode
4. [Reorder List](https://leetcode.com/problems/reorder-list/) leetcode
5. [Remove Nth Node From End of List](https://leetcode.com/problems/remove-nth-node-from-end-of-list/) leetcode HSBC
6. [Swapping Nodes in a Linked List](https://leetcode.com/problems/swapping-nodes-in-a-linked-list/) leetcode
7. [Add Two Numbers](https://leetcode.com/problems/add-two-numbers/) leetcode TCS Amazon Microsoft Facebook Qualcomm
8. [Add Two Numbers II](https://leetcode.com/problems/add-two-numbers-ii/) leetcode
9. [Linked List Cycle II](https://leetcode.com/problems/linked-list-cycle-ii/) leetcode
10. [Flatten a Multilevel Doubly Linked List](https://leetcode.com/problems/flatten-a-multilevel-doubly-linked-list/) leetcode Amazon
11. [Rotate List](https://leetcode.com/problems/rotate-list/) leetcode Microsoft
12. [Copy List with Random Pointer](https://leetcode.com/problems/copy-list-with-random-pointer/) leetcode
13. [LRU Cache](https://leetcode.com/problems/lru-cache/) leetcode
14. [Remove Duplicates from Sorted List II](https://leetcode.com/problems/remove-duplicates-from-sorted-list-ii/) leetcode Amex
15. [Design Browser History](https://leetcode.com/problems/design-browser-history/) leetcode
16. [Partition list](https://leetcode.com/problems/partition-list/) leetcode
17. [Find first node of loop in a linked list](https://www.geeksforgeeks.org/find-first-node-of-loop-in-a-linked-list/) GFG
18. [Swap Nodes in Pairs](https://leetcode.com/problems/swap-nodes-in-pairs/)leetcode
19. [Remove Zero Sum Consecutive Nodes from Linked List](https://leetcode.com/problems/remove-zero-sum-consecutive-nodes-from-linked-list/) leetcode
20. [Insertion Sort List](https://leetcode.com/problems/insertion-sort-list/)leetcode
21. [Reverse Nodes in Even Length Groups](https://leetcode.com/problems/reverse-nodes-in-even-length-groups/)leetcode
22. [Linked List Random Node](https://leetcode.com/problems/linked-list-random-node/)leetcode
23. [Sort List](https://leetcode.com/problems/sort-list/)leetcode
24. [Merge In Between Linked Lists](https://leetcode.com/problems/merge-in-between-linked-lists/)leetcode
25. [Design Browser History](https://leetcode.com/problems/design-browser-history/)leetcode
26. [Delete the Middle Node of a Linked List](https://leetcode.com/problems/delete-the-middle-node-of-a-linked-list/)leetcode
27. [Next Greater Node In Linked List](https://leetcode.com/problems/next-greater-node-in-linked-list/)leetcode
28. [Odd Even Linked List](https://leetcode.com/problems/odd-even-linked-list/)leetcode
29. [Linked List Random Node](https://leetcode.com/problems/linked-list-random-node/)leetcode
30. [Split Linked List in Parts](https://leetcode.com/problems/split-linked-list-in-parts/)leetcode
31. [Find the Minimum and Maximum Number of Nodes Between Critical Points](https://leetcode.com/problems/find-the-minimum-and-maximum-number-of-nodes-between-critical-points/)leetcode

## **Hard**

1. [Reverse Nodes in k-Group](https://leetcode.com/problems/reverse-nodes-in-k-group/) leetcode
2. [LFU Cache](https://leetcode.com/problems/lfu-cache/) leetcode Google
3. [Merge k Sorted Lists](https://leetcode.com/problems/merge-k-sorted-lists/) leetcode
4. [Clone a linked list with next and random pointer](https://www.geeksforgeeks.org/clone-linked-list-next-random-pointer-o1-space/) GFG Google Flipkart
5. [All O'one Data Structure](https://leetcode.com/problems/all-oone-data-structure/) leetcode
6. [Design Skiplist](https://leetcode.com/problems/design-skiplist/) leetcode

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## **Stack-Queue**

## **Easy**

1. [Next greater element I](https://leetcode.com/problems/next-greater-element-i/) leetcode
2. [Valid Parentheses](https://leetcode.com/problems/valid-parentheses/) leetcode
3. [Min Stack](https://leetcode.com/problems/min-stack/) leetcode
4. [Remove Outermost Parentheses](https://leetcode.com/problems/remove-outermost-parentheses/) leetcode
5. [Remove All Adjacent Duplicates In String](https://leetcode.com/problems/remove-all-adjacent-duplicates-in-string/) leetcode
6. [Number of Recent Calls](https://leetcode.com/problems/number-of-recent-calls/) leetcode
7. [Reverse First K elements of Queue](https://practice.geeksforgeeks.org/problems/reverse-first-k-elements-of-queue/1/) GFG
8. [Delete middle element of a stack](https://practice.geeksforgeeks.org/problems/delete-middle-element-of-a-stack/1/) GFG
9. [Inorder Traversal (Iterative)](https://practice.geeksforgeeks.org/problems/inorder-traversal-iterative/1/) GFG
10. [Preorder traversal (Iterative)](https://practice.geeksforgeeks.org/problems/preorder-traversal-iterative/1/) GFG
11. [Flood fill](https://leetcode.com/problems/flood-fill/) leetcode
12. [Implement Queue using Stacks](https://leetcode.com/problems/implement-queue-using-stacks/) leetcode

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## **Medium**

1. [Design a Stack With Increment Operation](https://leetcode.com/problems/design-a-stack-with-increment-operation/) leetcode
2. [Minimum Add to Make Parentheses Valid](https://leetcode.com/problems/minimum-add-to-make-parentheses-valid/) leetcode
3. [Decode String](https://leetcode.com/problems/decode-string/) leetcode
4. [Asteroid Collision](https://leetcode.com/problems/asteroid-collision/) leetcode
5. [132 Pattern](https://leetcode.com/problems/132-pattern/) leetcode
6. [Design circular Queue](https://leetcode.com/problems/design-circular-queue/) leetcode
7. [Find the Most Competitive Subsequence](https://leetcode.com/problems/find-the-most-competitive-subsequence/) leetcode
8. [Design Front Middle Back Queue](https://leetcode.com/problems/design-front-middle-back-queue/) leetcode
9. [Circular tour](https://practice.geeksforgeeks.org/problems/circular-tour/1) GFG Amex Amazon
10. [Task Scheduler](https://leetcode.com/problems/task-scheduler/) leetcode
11. [Stock span problem](https://practice.geeksforgeeks.org/problems/stock-span-problem-1587115621/1/) GFG
12. [Max Rectangle](https://practice.geeksforgeeks.org/problems/max-rectangle/1/) GFG
13. [The Celebrity Problem](https://practice.geeksforgeeks.org/problems/the-celebrity-problem/1/) Google GFG
14. [Maximum Rectangular Area in a Histogram](https://practice.geeksforgeeks.org/problems/maximum-rectangular-area-in-a-histogram-1587115620/1/) GFG
15. [Binary Tree Right Side View](https://leetcode.com/problems/binary-tree-right-side-view/) leetcode
16. [Snake and Ladders](https://leetcode.com/problems/snakes-and-ladders/) leetcode

## **Hard**

1. [Longest Valid Parantheses](https://leetcode.com/problems/longest-valid-parentheses/) leetcode
2. [Sliding window maximum](https://leetcode.com/problems/sliding-window-maximum/) leetcode
3. [Brace Expansion II](https://leetcode.com/problems/brace-expansion-ii/) leetcode
4. [Card Rotation](https://practice.geeksforgeeks.org/problems/card-rotation5834/1/) GFG
5. [Minimum steps to reach target by a Knight](https://www.geeksforgeeks.org/minimum-steps-reach-target-knight/) GFG
6. [Count number of islands](https://leetcode.com/problems/number-of-islands/) leetcode