

- Prepro programming sheet for beginners
- Top 100 topic based problems for topic wise practice:
 - Operators:
 - Conditional statements:
 - Loops:
 - Pattern problems:
 - Arrays and Lists:
 - 2d arrays:
 - Strings:
 - Functions
 - Recursion and Backtracking:
 - Array List / List:
 - Linked List:
 - Advanced:
 - Hash Set and HashMap / Sets and Dictionaries:
 - Stacks and Queues:
 - Sliding window problems
 - Bit Manipulation:
 - Trees:
 - Heaps:
 - Sorting and Searching Algorithms:
 - Greedy Algorithms:
 - Graphs:
 - Dynamic Programming:

Top 100 topic based problems for topic wise practice:

Operators:

1. Program to calculate area of a triangle
2. Program to calculate area of a circle
3. Program to calculate area of a cylinder
4. Program to calculate area of a rectangle
5. Program to calculate area of a cone

6. Program to calculate perimeter of a triangle
7. Program to calculate perimeter of a circle
8. Swap two variables without using third variable
9. Sum of n natural numbers.

Conditional statements:

10. Check whether the number is even or odd
11. Check whether the number is positive, negative or zero.
12. Check whether the year is leap year or not.
13. Program to find those numbers which are divisible by 7 and multiples of 5, between 1500 and 2700 (both included).

Loops:

14. Factorial of a number
15. Integer palindrome
16. Check whether the number is Prime number or not
17. Fibonacci series
18. Check whether the given number is armstrong
19. Sum of squares of digits of a number.

Pattern problems:

20. Grid pattern
21. Right angled triangle (normal and inverted) both sides
22. Equilateral triangle (normal and inverted)
23. Rhombus pattern
24. Number patterns
25. Alphabetical patterns

Arrays and Lists:

26. Largest element in an array

27. Second largest element in an array
28. Smallest element in an array
29. Sum of elements in an array
30. Frequency of elements in an array
31. Remove duplicates from an array
32. Right rotation of an array
33. Left rotation of an array
34. Sort 1st half in ascending and second half in descending order
35. Moving zeros to the end of an array
36. sorting
37. Sort an array of 0s 1s and 2s
38. Maximum subarray sum

2d arrays:

39. Matrix addition and subtraction
40. Search an element in a matrix
41. Rotate matrix by 90 degrees
42. Row column wise sorting of a matrix
43. Find nth smallest in row column wise sorted matrix

Strings:

44. String palindrome
45. Check if a vowel is present in the string
46. Remove duplicates from a string
47. Frequency of characters in a string
48. Check whether the string is anagram or not
49. Check whether the string is pangram
50. Reverse each word in a given string
51. Remove vowels from a string
52. Balanced parentheses
53. Replace substring in a string
54. Print all permutations of a given string in lexicographic order

Functions

- 55. Inheritance
- 56. Polymorphism
- 57. Encapsulation
- 58. Abstraction

Recursion and Backtracking:

- 1. Print name n times using recursion
- 2. Sum of n natural numbers using recursion
- 3. Factorial using recursion
- 4. Fibonacci series using recursion
- 5. Count good numbers
- 6. Tower of hanoi
- 7. N queens
- 8. Rat in a maze
- 9. Subset Sum
- 10. Permutations of a string

ArrayList / List:

- 1. Right rotation of an array
- 2. Left rotation of an array
- 3. Sort 1st half in ascending and second half in descending order
- 4. Moving zeros to the end of an array
- 5. sorting
- 6. Sort an array of 0s 1s and 2s
- 7. Maximum subarray sum
- 8. Find highest/lowest non-repeated element

Linked List:

- 1. Reverse a linked list

2. Find the middle of linked list
3. Merge two sorted linked lists
4. Remove nth node from end of the list

Advanced:

5. Check if a linked list is a palindrome
6. Intersection of two linked lists
7. Sort a linked list of 0's 1's and 2s by changing links
8. Add two numbers in linked lists

Hash Set and HashMap / Sets and Dictionaries:

1. Find duplicate elements in an array
2. Find unique elements in an array
3. Intersection of two arrays
4. Find frequency of elements in an array
5. Find first duplicate element in an array

Stacks and Queues:

1. valid parentheses
2. Next greater element
3. Min stack
4. First non repeating character in a string
5. Implement queue using stack

Sliding window problems

Bit Manipulation:

1. Check if a number is power of 2 or not
2. Check if a number is odd or even
3. Set the ith bit

4. Count the number of set bits
5. Divide two integers without using multiplication, division and mod operator
6. Swap two numbers(using xor)
7. Find missing number in an array
8. Binary representation of a decimal number

Trees:

1. Binary tree and types implementations
2. Binary search Tree Implementation
3. Tree traversals
4. Height of a binary tree
5. Check if the binary tree is height-balanced or not
6. Check if a tree is binary search tree or not

Heaps:

1. Introduction to Priority Queues using Binary Heaps
2. Min- heap and Max- heap implementation
3. Check if an array represents a min-heap or not
4. Convert min heap to max heap
5. Kth largest element in an array

Sorting and Searching Algorithms:

1. Bubble sort
2. Insertion sort
3. Selection sort
4. Linear search
5. Merge sort
6. Quick sort
7. Binary search

Greedy Algorithms:

1. Assign cookies
2. Lemonaid change
3. Fractional knapsack problem
4. valid parentheses checker

Graphs:

1. Graph representation
2. Bfs and Dfs traversals
3. Shortest path algorithms
4. Minimum spanning tree
5. Connected components
6. Disjoint set data structure

Dynamic Programming:

1. Climbing stairs
2. Number of Islands
3. Coin change
4. Longest common subsequence

Ivanni solve chesthey (total 144 problems) meeku coding vasthundi, consistency is important

there are more problems to practice and some of these problems are from leetcode. so solve them in leetcode to build a strong coding profile.

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