

Basic Programming Questions

Print Patterns

Easy

1. Square
2. Rectangle
3. Parallelogram
4. Mirrored Parallelogram
5. Right Triangle
6. Mirrored Right Triangle
7. Isosceles Triangle (aka star pyramid)
8. Inverted Isosceles Triangle.
9. Diamond

Medium

10. Heart

Numbers

Easy

1. Largest number
2. Second largest number
3. Even or Odd
4. Find sum of digits of a given number
5. Reverse the digits of a number
6. Print alternate digits in a number
7. Check if a given number is prime or composite
8. Check if a given number is a perfect square
9. Check if a given number is a Fibonacci number
10. Calculate discount and show the net amount.
11. Calculate % increase/decrease.

Medium

12. Find age from a given DOB
13. Find the number of years/days between 2 dates
14. Kth largest number
15. Find if a number exists with a frequency strictly more than the size/2 of an array

16. Maximum sum subarray
17. Maximum sum submatrix
18. Missing number from the array containing n distinct numbers in the range [0, n]
19. Nth number that is divisible by both number a and b.
20. Nth number that is divisible by number a or b.
21. LCM and GCD of 2 given numbers
22. Prime factorization

Strings

Easy

1. Print alternate characters in a given string with a space between them.
2. Count number of vowels and consonants in a given string/sentence.
3. Remove vowels from a given string.
4. Eliminate more than 1 consecutive vowel.
5. Reverse string [Without using [::-1] or built-in method]
6. Divide a string into sets of substrings with 3 characters each.
7. Palindrome
8. Check if 2 strings are anagrams
9. Find the first occurrence of a palindrome substring present in a string.
10. Frequency of each character in a given string/sentence.
11. Frequency of a substring in a given string/sentence
12. Check if a given word is present in a given sentence.
13. Reverse each word in a given sentence
14. Prepend 0s to a sum to make it a particular length
15. Add 2 inputs and add leading 0s to the sum to make the output specified size

Medium

16. Kth frequently occurring substring in a string/sentence
17. Top 10 most frequently occurring words along with their frequencies from a text file.
(Ignore punctuations and case while counting words.)
18. Group anagrams from a list of strings
19. Given a string and a regular expression (with *), print the substring that matches the expression.
Input: Bombay om*
Output: ombay
20. Given 2 strings, if one of them is a substring of another, print the substring followed by remainder of the string.
21. Print all scatter palindrome of a given string.
22. Generate all combinations of well-formed parentheses for n pairs.

n=3: "((()))", "(()())", "()(())", "())()", "())()"

23. Print stars (*) under the characters of string

Input: GOOGLE

output:

GOLE

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DSA

Easy

1. Stack implementation
2. Queue implementation
3. Circular Queue implementation
4. Search a given element in a list
5. Binary search
6. Merge 2 sorted lists/arrays
7. Sort without in-built function
 - a. Insertion/ Bubble sort
 - b. Merge sort
 - c. Quick sort
8. Reverse a linked list
9. Detect a cycle in a Linked List

Medium

10. Merge K sorted linked lists
11. Remove nth element from the end in a linked list
12. Reorder linked list
13. Rotate an array k steps to the right/left
14. Given a list of numbers, print the unique numbers based on their highest frequencies. If numbers have same frequency, print them in descending order of their values.
15. Count of distinct graphs that can be formed for a given n number of vertices.
16. Saddle point in a matrix