1.What is JDK, JRE, JVM ?

2.Difference between overloading and overriding ?

3.Difference between static and non-static methods ?

4.Explain about oops concept ?

5.Inheritance and polymorphism ?

6.What is collections ?

7.Explain about final keyword in java with examples ?

8.what is synchornized keyword in java?

9.Exception handling with real time examples ?

10.Concept of multithreading ?

11.what is access modifiers with real time example ?

12.what is interface ?

13.what is abstract class ?

14.what is stream API ?

15.What is java string pool?

16.what is dot operator in java?

17.difference between stringBuffer and stringBuilder ?

18.On which memory array will created ?

19.why does the java array index start with 0 ?

20.difffernece betwen int array[] and int[] array ?

21.How many types of constructors ?

22.What happen if you don't provide constructor in a class ?

23.Difference between constructor and methods?

24.Difference types of Inheritance ?

25.What do you mean by aggregation & Association?

26.what is an enumeration?

27.Difference between array and arraylist ?

28.Difference between set and map ?

29.what is meant by ArrayIndexOutOfBoundsExceptions?

30.Difference between error and exceptions ?

31.What is runtime exception ?

32.How try, catch, finally works explain with real time ?

33.Difference between this and super keyword ?

34.what is thread ?

35.What is JDBC ?

36.What is JDBC Driver ?

37.list out the steps to connect the database in java ?

38.what is JDBC Connection Interface ?

39.what is garbage collection ?

40.In java, what are the difference between heap and stack memory ?

41.Difference between innerclass and subclass ?

42.What is package in java ?

43 .In java, what is static varaible ?

44.what are wrapper classes in java ?

45.What is difference between instance & local varaible ?

46.What is infinite loop & declare an infinite loop?

47. Is java support pointers ?

**Basic Programs - Control Statements**

01.Simple If Statement - Check if a number is positive.

02.If-Else Statement - Check if a number is positive or negative.

03.If-Else if-Else Statement - Find the largest of three numbers.

04.Nested If-Else Statement - Check whether a year is a leap year or not.

05.Switch Case - Print the name of a day based on input number (1 to 7).

06.Switch Case with String Input - Print corresponding day name using switch case.

07.Ternary Operator - Check whether a number is even or odd.

08.Nested Switch Case - Print day name for weekday/weekend.

09.If with Logical Operators - Check if a number is divisible by both 3 and 5.

10.If with Relational Operators - Compare two numbers.

11.Find Largest of Three Numbers Using If-Else - Simple largest number check.

12.Check Prime Number Using If-Else - Check whether a number is prime.

13.Check Divisibility by 5 and 3 Using If - Number divisible by 5 and 3.

14.Check Positive or Negative Number Using Nested If - Nested condition check for positive or negative.

15.Find Grade Using Switch Case - Find grades based on marks.

**1-20: Basic If-Else Statements :**

1.Check whether a number is positive or negative.

2.Check whether a number is even or odd.

3.Check whether a number is divisible by 3 and 5.

4.Find the largest of three numbers.

5.Check whether a number is a prime number.

6.Check whether a year is a leap year.

7.Find the greatest of four numbers.

8.Check if a number is a palindrome.

9.Check whether a character is a vowel or consonant.

10.Find the smallest of three numbers.

11.Check if a number is prime or not using a simple loop.

12.Check if a number is perfect or not.

13.Find whether a number is Armstrong or not.

14.Calculate the factorial of a number using recursion.

15.Check whether a number is an automorphic number.

16.Find if a number is a Fibonacci number.

17.Determine if a number is a perfect square.

18.Count the number of digits in a number.

19.Check whether a string is a palindrome.

20.Check if a string is an anagram of another string.

21-40: Nested If-Else Statements

21.Check whether a number is a prime number within a range.

22.Find the largest number among n numbers using a nested if-else.

23.Print all prime numbers in a range using nested loops.

24.Find all the divisors of a number.

25.Find the GCD and LCM of two numbers.

26.Check if a number is a perfect number within a range.

27.Check whether an integer is positive, negative, or zero.

28.Determine the type of a triangle based on its angles.

29.Find whether a number is a Fibonacci number within a range.

30.Print all leap years within a given range.

31.Check whether a string is a valid palindrome.

32.Check for a specific pattern in a string using if-else.

33.Check if a given day is a weekend or weekday.

34.Check if a number is divisible by 7 or 11.

35.Print prime numbers within a range using nested conditions.

36.Identify if an alphabet character is uppercase, lowercase, or non-alphabet.

37.Determine if a given number is a valid credit card number.

38.Check if a given date is valid or invalid.

39.Find the day of the week for a given date.

40.Print multiplication tables for a given number using nested loops.

41-60: Switch Case Statements

41.Implement a simple calculator using switch case.

42.Convert a number to its word equivalent (1 to 10) using switch.

43.Find the day of the week using switch statement.

44.Convert a number to its Roman numeral equivalent using switch.

45.Implement a basic menu-driven program using switch-case.

46.Print all numbers from 1 to n in reverse using switch.

47.Grade student marks using a switch-case statement.

48.Perform simple arithmetic operations using switch.

49.Convert temperature from Celsius to Fahrenheit or vice versa using switch.

50.Find the number of days in a month using switch-case.

51.Implement a simple banking system with switch-case.

52.Determine the month name based on its number using switch-case.

53.Calculate the area of different shapes using switch-case.

54.Implement a basic calculator with multiple operations.

55.Determine if a given character is a vowel or consonant using switch-case.

56.Implement a simple menu system for shopping.

57.Convert a time duration in minutes to hours and minutes.

58.Implement a number to word converter (1-10) using switch.

59.Implement a traffic light system using switch.

60.Solve a quadratic equation using switch-case for the discriminant.

**Common Programs in array concepts :**

1.Sum of elements

2.Find minimum and maximum elements in array

3.Reverse an array

4.Find the duplicate elements in an array

5.Find the Kth largest element in an aray

6.Check if a given number is present in array

7.Rotate an array by K positions

8.Move all the zeros to the end of an array

9.Find the first non-repeating element in an array

10.Check if a given array is subset of another array

11.Find the majority element in an array(Element that appears more than n/2 times )

12.Find the Occurrence of an Integer in the Array

13.Find the Factorial of a Large Number

14.Find the Missing Integer

15.Merge two sorted arrays

16.Find the intersection of two arrays

17.Union of two arrays

18.Find the "Kth" smallest element in an array

19.Find the pair with the given sum

20.Find all pairs in an array that sum up to a specific value

21.Move all negative numbers to one side of the array

22.Find the longest increasing subsequence (LIS) in an array

23.Subarray with given sum

24.Trapping Rain Water (Given an array of heights, calculate the amount of water trapped between the bars)

25.Max Product Subarray

26.Find a peak element in an array

27.Median of Two Sorted Arrays

28.Find the contiguous subarray with the maximum product

29.Find the number of subarrays with a sum equal to K

30.Longest Subarray with Sum K

31.Find the length of the longest consecutive subsequence

32.Find the minimum number of platforms required for a railway station (interval overlapping problem)

33.3-Sum Problem

34.Container With Most Water

35.Trapping Rain Water

36.Find the Pair with a Given Sum in a Sorted Array

37.Merge Sorted Arrays with Two Pointers

38.Find the Triplets that sum up to zero in an array

39.Find the middle element of a linked list (or array) using two pointers

**Dynamic Programming :**

40.0/1 Knapsack Problem

41.Minimum Cost Path

42.Coin Change Problem

43.Rod Cutting Problem

44.Matrix Chain Multiplication

45.Subset Sum Problem

46.Palindrome Partitioning

47.Count of subsets with sum equal to a given sum

**Matrix-based Array Questions**

48.Spiral Matrix Traversal

49.Rotate a Matrix 90 degrees

50.Check if a matrix is a magic square

51.Set matrix elements to zero if any element is zero

52.Search in a 2D matrix

**Bit Manipulation with Arrays**

53.Find the only non-repeating element in an array

54.Count the number of 1's in the binary representation of a number

55.Check if a number is a power of two

56.Find the two non-repeating elements in an array

57.Find the missing number in an array of 1 to N

58.Subsets of an array (Generate all subsets using bitwise operations)

59.Find the XOR of all elements in the array

**Singly Linked List Programs :**

1.Remove Duplicates from singly Linked List

2.Find the N-th Node from the end of the list

3.Merge two sorted Linked Lists

4.Find the middle of Linked list

5.Detect a loop in singly Linked list

6.Intersection of two linked lists

7.Add two numbers represented by Linked Lists

8.Check if a linked list is palindrome

9.Remove all the occurences of a given elemetn

10.Kth to last element of a linked list

**Doubly Linked List programs :**

1.Reverse a Doubly Linked List

2.Merge two sorted Doubly Linked List

3.Detect a cycle in doubly Linked list

4.Find the middle element of doubly Linked list

5.Delete a node in a doubly Linked list

6.Insert a specific node in doubly Linked list

7.Remove duplicates

8.Rotate a doubly Linked list

9.Check if doubly linked list is palindrome

10.Add two numbers Represented by Doubly Linked List

11.Find the Nth Node from the end of a doubly Linked list

**Circular LinkedList programs :**

1. Find the length of a circular Linked List

2. Delete the last node in circular linked list

3. Reverse a CLL

4. Detect a loop in CLL

5. Insert a Node after given node in CLL

6. Find the node where the circular Linked List begins

7. Merge two circular linked list

8. Check if a circular linked list is palindrome

9. Remove duplicates from CLL

10. Find the middle element of CLL

11. Rotate a CLL by K Nodes

12. Find the Nth Node from the end of CLL

13. Add two CLL Representing Numbers

**Leetcode questions :**

1.Two sum

4.Median of Two Sorted Arrays

11.Container with most water

15.3sum

16.3sum closest

18.4sum

26.Remove Duplicates from sorted array

27.Remove element

31.next Permutation

33.Search in Rotated Sorted Array

34.Find first and last position of element

35.Search Insert Position

36.Valid Sudoku

37.Sudoku Solver

39.Combination Sum

40.Combination Sum II

41.First Missing Poistive

42.Trapping Rain Water

45.Jump Game II

46.Permutations

47.Permutation II

48.Rotate Image

49.Group Anagrams

51.N-Queens

53.Maximum Subarray

54.Sprial Matrix

55.Jump Game

56.Merge Intervals

57.Insert Intervals

59.Sprial Matrix II

63.Unique paths II

64.Minimum path sum

66.Plus one

68.Text Justification

73.set Matrix Zeors

74.Search a 2D matrix

75.Sort colors

78.subsets

79.Word Search

80.Remove Duplicates from sorted array II

81.Search in rotated sorted array II

84.Largest Rectangle in Histogram

85.Maximal Rectangle

88.Merge sorted array

90.Subsets II

121.Best time to Buy and sell stock

122.Best time to buy and sell stock II

123.Best time to Buy and sell stock III

128.Longest Consecutive Sequence

130.Surrounded regions

134.Gas Stations

135.Candy

136.Single Number

137.Single Number II

139.Word Break

140.Word Break II

149.Max Points on a Line

**Basic questions - Leet code**

1. Palindrome Number (LC 9)
2. [Roman to Integer (LC 13)]
3. [FizzBuzz (LC 412)]
4. [Count and Say (LC 38)]
5. [Missing Number (LC 268)]
6. [Add Two Numbers (LC 2)]
7. [Move Zeroes (LC 283)]
8. Best Time to Buy and Sell Stock (LC 121)]
9. [Reverse Integer (LC 7)]
10. [First Missing Positive (LC 41)]
11. [Spiral Matrix (LC 54)]
12. [Jump Game II (LC 45)]
13. Multiply Strings (LC 43)]
14. [Longest Substring Without Repeating Characters (LC 3)]

**Stack : ( Priority for interview )**

1.Reverse a stack

2.Delete middle element from a stack

3.implement two stacks in an array

4.Sort a stack

5.Balanced Paratheses

6. Next Greater Element

7. Next smaller Element

Leetcode questions total -> stack - 167 questions, Easy - 23, Medium - 93, Hard - 51

**Queue : ( Priority for interview )**

1.Implement a queue using stacks

2.Reverse First K Elements of Queue

3.First Non-Repating character in stream of characters

4.Queue reversal

5.Interleaving two queues

6.Check for balanced paratheses using queue

Leetcode questions total -> Queue - 47 Questions , Easy - 7, Medium - 20, Hard – 20

1. Find the Maximum and Minimum element in array
2. Reverse an array
3. Reverse an string
4. Reverse an linked list in singly, doubly,circular
5. Move zeros to the end of the array
6. Find the duplicates elements
7. Armstrong number
8. Merge two sorted arrays
9. Intersection of Two arrays
10. Find the majority element
11. kth smallest element
12. Check whether a string is a valid palindrome
13. Print multiplication tables for a given number using nested loops
14. Left array rotation
15. Reverse a number using do-while loop
16. Find the largest prime number in a given range using do-while.
17. Find the greatest common divisor (GCD) using while loop.
18. Find the factorial of a number using while loop.
19. Count the occurrence of each character in a string
20. Print an alphabet pattern using nested loops.
21. Print a hollow square pattern using nested loops
22. Convert a time duration in minutes to hours and minutes.
23. Solve a quadratic equation using switch-case for the discriminant