Programming Fundamentals Revisited

Java DS Algo Questions:

Data structures and algorithm questions are an important part of any programming job interview, be it a Java interview, a C++ interview, or any other programming language. Since data structures are core programming concepts, it's mandatory for all programmers, to know basic data structures like the stack, linked list, queue, array, tree and graph.
The linked list and array are favourite topics in any data structure interview, questions like reversing a linked list, traversing a linked list, or deleting nodes from the linked list, which involves algorithm and data structures that are quite common.
Similarly, finding duplicates in an array, finding missing numbers, sorting arrays are very popular. You can also expect questions from the stack, queue, array, linked list, tree, graph, and hash table are most common in any data structure interview.

Preparing for Programming job interviews? Here are 50+ Data Structure and algorithms problems you can practice to revise key concepts for coding interviews…

1. Maximum sum continuous sub array
2. Finding the first node in a loop in a singly linked list
3. Zig zag tree traversal
4. Rotten oranges [medium level Graph]
5. Permutation of first n positive integer that satisfy the given input string
6. Rotate the 2D matrix by 90 degrees (clockwise).
7. Min Steps in Infinite Grid and binary search
8. Time complexity of hashmap
9. Revert a String without changing the position of special characters or Spaces
10. Find the longest Palindrome in a String
11. Given LinkedList is palindrome or not with O(1) space and O(n)time complexity)
12. Given an array's of 0's and 1's of size N. Find the minimum number of swaps so that all the 1's come together
13. Find 3 smallest number from a given array
14. Rotate an Array
15. Smallest possible Integer in unsorted array time complexity should be 0(n) and no extra space
16. Collections - Hash Map
17. Linked List Vs Array List
18. Heap Vs Stack Memory
19. Time & Space Complexity
20. Min number after removing k digits
21. Max length of subarray with equal number of a and b
22. Question based on JPA, prio queues
23. Arrays and Heaps problem in optimal solution
24. Store Binary Tree in such a way retrieval is also optimal solved
25. Optimal LCA Tree Problem, and the arrays Problem
26. Ancestor Tree Problem
27. Trees Question to find max sum path
28. Given a circular integer array, nums return the next greater number for every element in nums

29. Print Left/Right/Bottom View of Binary tree
30. Find an element in strictly increasing and strictly decreasing array
31. Three sum problem
32. Find maximum path sum in a 2d array
33. Count number of inversions
34. Binary search related problem
35. Rainwater trapping
36. Given an array find the quadruplet which when summed up will give the given target
37. Nearest distance to 0 of each element in binary matrix
38. Find the smallest subarray length, whose sum is greater or equal to given target
39. Write the logic to sort 3 elements
40. Find the smallest subarray length, whose sum is greater or equal to the given target.
41. Find a given word in 2d char matrix (4 direction).
42. Remove nth element from last in a Linked List
43. Difference between Process & Thread
44. Questions around checked and unchecked exceptions, Immutable class, Callable and Runnable
45. Inverting a String
46. Sorting a String
47. Difference between String Buffer and String Builder
48. Method Overload Vs. Method OverRide
49. What is X Bar
50. In an array there are different elements; Concatenate and Display the biggest number
51. Difference between checked and non-checked instructions
52. What are invisible classes and how can we create them
53. Solid Principle
54. Factory Design and Abstract Factory
55. Find busiest airport by reading data from csv file
56. Minimum Jump to reach last location/last index
57. Populate next value in binary tree
58. Next higher temperature/number
59. Number of strings which can be generated with keypad phones from a given string which contains numbers from 2 to 9
60. How does garbage collection work in Java?
61. Given 2 sorted arrays, find the median of the combined array
62. Post order traversal using iterative approach and 1 Stack
63. Missing two numbers from 1 to n array
64. Meeting Room DS Problem
65. House Robber DS Problem
66. Remove all duplicates in Linked List
67. Sum of all numbers that are formed from root to leaf paths
68. Given an integer n, return the nth ugly number
69. Zig-Zag Pattern in tree
70. First non-recurring number in a stream of numbers
71. Find the width of a binary tree
72. Given a 2D array. Print it in Spiral Form
73. Upcasting and Downcasting in Java
74. Greedy algorithm job sequencing for 1 worker and then multiworker
75. Bakery DS Problem: Max. Profit, Reject Order, Advance Order, etc.
76. Find a local minima in an array

System Design & Architecture || Experential Questions

In the software engineering interview process system design round has become a standard part of the interview. If you want to get your dream job in some big tech giant companies (especially as a senior engineer) then you need to tell your approach to build a complex large scalable system. There is no standard or accurate answer to the design interview questions. The Hiring manager will evaluate the way you go about solving technical problems.

Below you can find few topics/questions around System design and Architecture.

This is not an exhaustive source, since System Design is a vast topic. But if you're a junior or mid-level developer, this should give you a strong foundation. Few key components to be kept in consideration are:

- Networks & Protocols
- Storage, Latency & Throughput
- Reliability, Scalability & Maintainability
- Availability
- Caching
- Proxies
- Load Balancing
- Consistent Hashing
- Databases
- Endpoint Protection
- Messages & Pub-Sub
- Smaller Essentials

1. Design a Parking Lot Application and it DB Schema (Single Entry/Exit and Multiple Gates)
2. Design a video streaming platform like Netflix/Hotstar (Knowledge about concepts like replication, sharding, caching, transcoding, distributed batch processing, etc.)
3. Design a Fantasy Football/Cricket Game
4. Low Level Design for developer community like Stackflow
5. Design a Browser History
6. Design a global chat service like Messenger/WhatsApp
7. Design a social network and message board service like Quora/Reddit
8. Design a universal file sharing and storage app like Google Drive/Dropbox
9. Design a review and rating system for e-commerce website
10. Design a ride sharing application like Ola/Uber

QA Automation:

1. Jenkins + Framework Integration
2. Git Pull Vs. Git Fetch
3. API Automation Framework
4. Hit Post request
5. What is method chaining?
6. Static Import in Java
7. Json Assert Library
8. Singleton Design Pattern
9. Build Deployment on staging, catalina.out

10. Write a program to reverse the String without changing the position of Special Characters/Spaces
11. Write a program to maintain user session data
12. Write a program to read xl file
13. How to handle alert and PopUp
14. What is retry analyzer
15. Waits in Selenium
16. Automate 1 Get API (Nested Json Response)
17. Program with scenarios to use Regex
18. Code to Regression Automation of large resp payload API
19. Explain all methods used to call post API with Auth and headers.
20. Problem to implement simple FCFS queue prob
21. Non-functional scenarios to test a machine having of depositing cash
22. Write a program to keep the record of logging, user wise
23. Write a code to find out broken images
24. Write a code to take screenshot
25. Parent Child Traverse
26. Xpath
27. Wait and desired capabilities in Selenium
28. Find duplicate in an array using hashmap
29. Lazy Loading
30. API failure debugging
31. Common max prefix
32. Scraping UI Page
33. Fluent Wait Vs. Explicit Wait
34. HTTP Response Codes
35. Web Session and Cookies
36. Maven Commands

SQL:

1. 3 tables Join Query
2. 3rd largest amount in the order table
3. Write a query to find out name and full address from 2 tables (Join and Group by)
4. What are indexes in a database?
5. Write a query to find the student who got the second highest marks
6. Find out the name and country of the employee who has 2nd highest salary from employee table
7. Write a SQL Query to show All Employees that don't have Manager in same department
8. How to find all duplicate records from a table
9. Difference b/w clustered and non-clustered indexes in a database
10. Difference b/w Primary Key and Unique Key