Amazon - Backend Developer

Interview Process

- Online Assessment
- Phone Screen
- On-site Interview or Personal Interview(PI)

Interview Questions

1. Given an integer array arr of size n, find all magic triplets in it. A magic triplet is a group of three numbers whose sum is zero. Note that magic triplets may or may not be made of consecutive numbers in arr.
2. Given a variety of coin types defining a currency system, find the minimum number of coins required to express a given amount of money. Assume an infinite supply of coins of every type.
3. Given the daily prices of a stock, what's the maximum possible profit one can generate by first buying one share of that stock on a certain day and then selling that share at least one day later?
4. Given an integer, check whether it is a palindrome.
5. Given: A weighted, undirected, and connected graph of V vertices and E edges
   Task: Write a code to find the sum of weights of the edges of the minimum spanning
6. Given: Adjacency list of a bidirectional graph
   Task: Write a code to return the adjacency list for each vertex
7. Given: A directed graph
   Task: Write a code to perform breadth-first traversal of this graph starting from 0
8. Given: A connected undirected graph
   Task: Write a program to perform depth-first traversal of the graph
9. Given: Two arrays a1[0..n-1] of size n and a2[0..m-1] of size m
   Task: Write a code to check whether a2[] is a subset of a1[] or not
10. Given: A set of N nuts of different sizes and N bolts of different sizes — there is a one-one mapping between nuts and bolts
    Task: Write a code to match the nuts and bolts
11. Given: An array A[] of N positive integers, which can contain integers from 1 to P, where elements can be repeated or can be absent from the array
    Task: Write a code to count the frequency of all elements from 1 to N
12. Given: Two arrays A and B of equal size N
    Task: Find if the given arrays are equal or not
13. Design a stack to push, pop, top, and retrieve the minimum element in constant time.
14. Given: n non-negative integers representing an elevation map. The width of each bar is
    Task: Find out how much water rainwater it can trap.
15. Given: An m x n matrix with the following properties: Integers in each row are sorted in ascending order from left to right, and Integers in each column are sorted in ascending order from top to bottom.

Task: Write an algorithm that searches for a value in the matrix.

16. Task: Write a code to print a sequence of numbers starting with N, where A[0] = N, without using a loop, in which A[i+1] = A[i] - 5, until A[i] > 0. After that A[i+1] = A[i] + 5. Repeat it until A[i] = N

17. Given: A round table of n persons
    Task: Write a code to find out in how many ways they can shake hands such that no two handshakes cross each other

18. Given: n number of people in a circle and a number k, such that k-1 persons are skipped, and the kth person is eliminated
    Task: Write a code to figure out the safest place in the circle

19. Given: The first 2 terms A1 and A2 of an arithmetic series
    Task: Find the Nth term of the series

20. Given: The first term and common ratio X and R of a GP series
    Task: Find the nth term of the series

21. Given: Two non-zero integers N and M
    Task: Find the number closest to N and divisible by M. If there are more than one such number, then output the one having a maximum absolute value

22. How would you design a warehouse system for Amazon.com?

23. How would you design Amazon.com so it can handle 10x more traffic than today?

24. How would you design Amazon.com's database (customers, orders, products, etc.)?

25. Design a counters system for online services.

26. Design a game of chess.

27. Design a parking garage.