INTERVIEW PACKET

SDE - Backend

ROUND 1 (Online Assessment):

1. https://leetcode.com/problems/search-suggestions-system/description/
2. https://practice.geeksforgeeks.org/problems/rod-cutting0840/1

TECHNICAL INTERVIEW 1:

1. https://www.geeksforgeeks.org/count-minimum-right-flips-to-set-all-values-in-an-array/
2. https://www.geeksforgeeks.org/full-and-complete-binary-tree-from-given-preorder-and-postorder-traversals/
3. https://www.geeksforgeeks.org/count-the-number-of-special-permutations/
4. https://leetcode.com/problems/maximum-candies-allocated-to-k-children/
5. https://practice.geeksforgeeks.org/problems/height-of-binary-tree/1?utm_source=gfg&utm_medium=article&utm_campaign=bottom_sticky_on_article
6. https://practice.geeksforgeeks.org/problems/fun-with-expresions2523/1
7. https://www.geeksforgeeks.org/print-all-possible-paths-from-top-left-to-bottom-right-of-a-mxn-matrix/
8. You are tasked with designing a Rule Engine for a banking system, allowing project managers to specify rules for bank accounts. These rules might govern account creation, transactions, or other aspects of account management. Can you outline the architecture, data flow, and components you would use to create such a Rule Engine? Additionally, how would you ensure that the rule engine is flexible and extensible for accommodating various banking scenarios?
9. How can you display real-time data in a system, and what technologies or methods would you use for this purpose?
10. https://leetcode.com/problems/minimum-number-of-taps-to-open-to-water-a-garden/description/
11. https://leetcode.com/problems/search-suggestions-system/description/
12. https://practice.geeksforgeeks.org/problems/rod-cutting0840/1

ROUND 2:

1. You are tasked with designing a live tracking system with a web portal that allows both individuals (Persons) and operators to track vehicles in real-time. The system should also provide the capability to select vehicles from a dropdown menu and view the past history of a car's positions. As part of this project, you need to design both the high-level architecture and the database schema.

   Design a high-level architecture for the live tracking system, considering scalability, reliability, and performance as key factors. Discuss the components and their interactions. Additionally, outline a database schema to efficiently store real-time vehicle tracking data and historical position data. Consider how you would structure the database tables, define relationships, and implement indexing and optimization techniques to ensure fast query performance for both real-time tracking and historical data retrieval.

2. You are building a multi-threaded application, and you suspect the presence of a deadlock. Can you explain what a deadlock is and provide an example scenario where a deadlock might occur in a multi-threaded environment? Additionally, discuss strategies to prevent or resolve deadlocks in such applications.

3. You're designing the architecture for a Zomato-like food delivery platform. Describe the modules, entities, and their relationships for such a system. Discuss how you would implement features like user registration, restaurant listing, order placement, and payment processing in your design.

4. https://www.geeksforgeeks.org/kth-largest-element-in-a-stream/

5. https://practice.geeksforgeeks.org/problems/minimum-platforms-1587115620/1

ROUND 3:

1. **https://www.geeksforgeeks.org/find-frequency-of-each-element-in-a-limited-range-array-in-less-than-on-time/**

2. https://practice.geeksforgeeks.org/problems/evaluate-the-expression0307/1