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Docker & Kubernetes

What is the difference between a VM and a container

How are containers implemented in Linux

How do you monitor pod health?

Database

Explain ACID properties

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How to handle large data sets (Explain sharding)

Explain replication

Explain the behavior of a connection pool when DB is down

<u>Distributed consistency (CAP theorem)</u>

What is a foreign key? Pros & Cons

Explain the differences between index & primary key in MySQL

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Microservices

How to prevent a network or service failure from cascading to other services?

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How to scale out instances and DB (Explain auto scaling)

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Concurrency

Explain the difference between a process and a thread

How to prevent deadlocks

How to prevent race conditions

Explain the difference between Optimistic vs. Pessimistic locking

How to do multithreading in Java

Max number threads that can be set in Java

Explain the volatile keyword in Java

Java Garbage Collection

Garbage Collection

Explain how generational garbage collection works

Explain pros and cons of each GC algorithm

Explain weak reference

Java Data Structures

ArrayList vs LinkedList

What are the differences between HashMap and TreeMap?

Concurrent options for HashMap and TreeMap

How to represent a B-tree in a 2D array

How to implement hashMap

How to write proper hashcode method?

What causes collisions in HashMap?

Explain the differences between BigDecimal and double

Explain annotations

Spring Boot

Explain dependency injection

Explain how Spring Boot handles property files

General Questions

Discuss the architecture of your current system and your role in it

What are the important points in a Payment system

What's your knowledge of Kafka?

Algorithm Problems

- addTwoNumbers
- basicCalculator
- basicCalculator2
- binaryTreeLevelOrderTraversal
- climbingStairs
- closestBinarySearchTreeValue
- countPrimes
- fibonacciNumber
- <u>findFirstAndLastPositionInSortedArray</u>
- findMedianFromDataStream
- kthLargestElementInAnArray
- <u>IruCache</u>
- minimumInsertionStepsToMakeAPalindrome
- singleNumber
- <u>sortArray</u>
- <u>symmetricTree</u>
- validParentheses
- wordSearch

Design Problems

Design a batch for calculating the monthly merchant's commission rate.

- 1. 300,000 payment transactions per day
- 2. How to extend the system for handling transaction canceling operations.
- 3. How to reduce the execution time

Design a system for getting personal information for every person in Japan by age

- 1. How to change the system to get all people with the same first name as well? Design a backend system for QR code service with microservice architecture
- 1. How to do authorization
- 2. How to design API gateway

Design a high-traffic API which calculates total amount paid during given period