**Course Content**

* 01

Lecture - 1

* + What exactly is a System Design Interview?
  + Expectations from Interviewee
    1. Breadth Vs Depth
    2. Should you know everything about everything?
  + System Design Process ( Motivating Example: Design UBER.)
    1. Common Mistakes
    2. Chaotic Approach
    3. Systematic Approach
* 02

Lecture-2

* + Trade-offs in a large scale system(Motivating Example: Design TWITTER.)
    1. Performance Vs Scalability
    2. Latency Vs Throughput
    3. Availability Vs Consistency(CAP Theorem)
* 03

Lecture-3

* + Patterns of Enterprise Application Architecture
    1. MicroService Vs Monolith
    2. Service Discovery
    3. API Gateway
* 04

Lecture-4

* + Components of a large scale system
    1. Databases/Storage Layer
       1. SQL vs NoSQL (Lab Session :  RDS and DynamoDb)
       2. Sharding or Data Partitioning
* 05

Lecture-5

* + Components of a large scale system
    - Databases/Storage Layer  
      1. Indexes (Lab Session)
      2. Consistent Hashing
* 06

Lecture 6

* + Components of a large scale system
    - Databases/Storage Laye  
      1. ElasticSearch (Lab Session)
    - Cache
      1. Caching Policies: Write - Through/Around/Back
      2. Elasticache (Lab Session)
* 07

Lecture 7

* + Components of a large scale system
    - Queue
      1. Kinesis (Lab Session)
      2. SQS (Lab Session)
* 08

Lecture 8

* + Components of a large scale system  
    - DNS
    - CDN
* 09

Lecture 9

* + Components of a large scale system
    - Load Balancer
  + System Profiling
    - How to identify bottlenecks?
    - Calculations
    - Lab Session: Splunk, New Relic / DataDog
* 10

Lecture 10

* + Some useful stuff that should be on tips of the interviewee
    - Common numbers to remember for the back of the envelope calculation
  + Applying what you’ve learned: End-to-End System Design Problem Solving(FB messenger, Youtube/Netflix, Dropbox)

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Course Content

01

Lecture 1

Introduction to SD Interviews, SD Process - UBER, Analysis and Data Modelling

02

Lecture 2

Design of Large Scale System, Trade-offs - TWITTER, Analysis and Data Modelling

03

Lecture 3

Load Balancers, SSL Termination and Passthrough, Reverse Proxy and Problem Design

04

Lecture 4

Web Sockets & Fb Messenger Design, Monoliths & Microservices

05

Lecture 5

O Auth 2, JWT Tokens and Problem Design

06

Lecture 6

CDN, Caching and Problem Design

07

Lecture 7

API Gateway, DNS, HTTPS, Zookeeper and Problem Design

08

Lecture 8

Data Distribution in Large-scale System, Hashing and Problem Design

09

Lecture 9

Handling Massive Data, Indexing, Data Partitioning, Sharding, Replication, Mirroring and Problem Design

10

Lecture 10

Push & Pull Mechanism, Tips & Tricks and Event-Driven Design of a Problem

11

Lecture 11

DDoS, Encryption Mechanism

12

Lecture 12

API Designs and Databases and SD