

# System Design Preparation

1. Prerequisite subjects under MAKAUT include  
Computer Organisation and Architecture , Operating Systems , Object Oriented Programming , Software Engineering , Computer Networks , Database Management , Distributed Database management , Big data .
2. Follow this -> [System Design Roadmap](#)
3. Follow this repo -> [System Design Primer](#)
4. Read [Designing Data-Intensive Applications - Martin Kleppmann](#)
5. Read [System Design Interview by Alex xu](#)
6. Read [Building Microservices](#)
7. Follow this template [to approach System Design problems](#)
8. Follow this page [Leetcode Discuss System Design](#)
9. Follow this youtube playlist for [High Level Design](#)
10. Follow this youtube playlist for [Low Level Design](#)

☒ for topics I have learned

## High Level Design topics

Sno	Status	Topics
1		Learn About Network Protocols (TCP, Websocket, HTTP etc.)
2		Client-Server Vs Peer 2 Peer Architecture
3		C.A.P Theorem
4		Microservices Imp. Design Patterns (SAGA pattern, Strangler Pattern)
5		Scale from 0 to Million Users

Sno	Status	Topics
6		Design Consistent Hashing
7		Design URL Shortening
8		Back of the Envelope Estimation
9		Design Key-Value Store
10		SQL vs NoSQL, When to Use Which DB
11		Design WhatsApp
12		Design Rate Limiter
13		Design Search Autocomplete System / Typeahead System
14		Understand Message Queue , Kafka etc.
15		What is Proxy Servers
16		What is CDN
17		Storage types: ( Block Storage , File Storage , Object Storage (S3) , RAID )
18		File System ( Google File System , HDFS )
19		Bloom Filter
20		Merkle Tree , Gossiping Protocol
21		Caching ( Cache Invalidation , Cache eviction )
22		How to Scale Database Sharding (Horizontal and Vertical) Partitioning Replication , Mirroring Leader Election Indexing etc.
23		Design Notification System
24		Design Pastebin
25		Design Twitter
26		Design Dropbox
27		Design Instagram
28		Design YouTube
29		Design Google Drive
30		Design Web Crawler
31		Design Facebook News Feed / Newsfeed System
32		Design Ticket Master
33		Design NearByFriends or Yelp

## Low Level Design topics

Sno	Status	LLD patterns	Related Questions
1		Strategy pattern	SOLID principles
2		Observer Pattern	Design Notify-Me Button Functionality
3		Decorator Pattern	Design Pizza Billing System
4		Factory Pattern	Design Parking Lot
5		Abstract Factory Pattern	Design Snake n Ladder game
6		Chain of Responsibility Pattern	Design Elevator System
7		Proxy Pattern	Design Car Rental System
8		Null Object Pattern	Design Logging System
9		State Pattern	Design Tic-Tac-Toe game
10		Composite Pattern	Design BookMyShow & Concurrency handling
11		Adapter Pattern	Design Vending Machine
12		Singleton Pattern	Design ATM
13		Builder Pattern	Design Chess game
14		Prototype Pattern	Design File System
15		Bridge Pattern	Design Splitwise
16		Façade Pattern	Splitwise Simplify Algorithm / Optimal Accounting Balancing
17		Flyweight Pattern	Design CricBuzz / CricketInfo
18		Command Pattern	Design True Caller
19		Interpreter Pattern	Design Car Booking Service like Ola, Uber
20		Iterator Pattern	Design Online Hotel Booking System
21		Mediator Pattern	Design Library Management System
22		Memento Pattern	Design Traffic Light System
23		Template Method Pattern	Design Meeting Scheduler
24		Visitor Pattern	Design Online Voting System
25			Design Inventory Management System
26			Design Cache Mechanism

Sno	Status	LLD patterns	Related Questions
27			Design LinkedIn
28			Design Amazon
29			Design Airline Management System
30			Design Stock Exchange System
31			Design Learning Management System
32			Design a Calendar Application
33			Design (LLD) Payment System
34			Design (LLD) Chat based system
35			Design Food delivery app like Swiggy and Zomato
36			Design Community Discussion Platform
37			Design Restaurant Management System
38			Design Bowling Alley Machine
39			Design (LLD) Rate Limiter

[other books of different levels](#)