

INTERACTIVE COURSE



AI Powered



# Grokking Modern System Design Interview for Engineers & Managers



Intermediate



177 Lessons



26h



Certificate of Completion

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## This course includes:



5 Playgrounds



137 Quizzes



830 Illustrations

## Takeaway Skills

- ✓ A modular approach to System Design Interviews to succeed in any technical interview
- ✓ The ability to dive deep into project requirements and constraints for any large-scale complex system
- ✓ An understanding of a highly adaptive framework that can be used by engineers and managers to solve modern system design interview problems
- ✓ Designing complex systems using various building blocks in a microservice architecture
- ✓ Familiarity with the system design interview, possible questions, and how candidates can prepare and perform well on these interviews
- ✓ An understanding of how various popular web-scale services are constructed

- ✓ The ability to solve any novel interview problem with a robust system design approach using this course as a North Star

## Course Overview

System Design interviews are now part of every Engineering and Product Management Interview. Interviewers want candidates to exhibit their technical knowledge of core building blocks and the rationale of their design approach. This course presents carefully selected... [Show More](#)

## Course Content

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- 1


**Introduction**  
2 Lessons


^
- ☐ [Introduction to Modern System Design](#)
  - ☐ [Course Structure for Modern System Design](#)


- 2


**System Design Interviews**  
4 Lessons

^
- educative






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- ☐ [How to Perform Well](#)
  - ☐ [Let AI Evaluate your System Design Interview Preparation](#)

- 3

**Abstractions**  
4 Lessons

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- ☐ [Why Are Abstractions Important?](#)
  - ☐ [Network Abstractions: Remote Procedure Calls](#)
  - ☐ [Spectrum of Consistency Models](#)
  - ☐ [The Spectrum of Failure Models](#)
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## Non-functional System Characteristics



6 Lessons



Reliability



Scalability



Maintainability



Fault Tolerance



Let AI Evaluate your Non-Functional Requirements Skills

[Hide lessons](#)

5

## Back-of-the-envelope Calculations



2 Lessons



Put Back-of-the-envelope Numbers in Perspective



Examples of Resource Estimation

6

## Building Blocks



1 Lesson



Introduction to Building Blocks for Modern System Design

7

## Domain Name System



2 Lessons



Introduction to Domain Name System (DNS).



How the Domain Name System Works

8

## Load Balancers



3 Lessons



Introduction to Load Balancers



☐ [Global and Local Load Balancing](#)

☐ [Advanced Details of Load Balancers](#)

>

## 9 Databases

5 Lessons



☐ [Introduction to Databases](#)

☐ [Types of Databases](#)

☐ [Data Replication](#)

☐ [Data Partitioning](#)

☐ [Trade-offs in Databases](#)

## 10 Key-value Store

5 Lessons



☐ [System Design: The Key-value Store](#)

☐ [Design of a Key-value Store](#)

☐ [Ensure Scalability and Replication](#)

☐ [Versioning Data and Achieving Configurability](#)

☐ [Enable Fault Tolerance and Failure Detection](#)

## 11 Content Delivery Network (CDN)

7 Lessons



☐ [System Design: The Content Delivery Network \(CDN\)](#)

☐ [Introduction to a CDN](#)

☐ [Design of a CDN](#)

☐ [In-depth Investigation of CDN: Part 1](#)

☐ [In-depth Investigation of CDN: Part 2](#)

☐ [Evaluation of CDN's Design](#)



## 12 Sequencer

3 Lessons

- ☐ [System Design: Sequencer](#)
- ☐ [Design of a Unique ID Generator](#)
- ☐ [Unique IDs with Causality](#)

## 13 Distributed Monitoring

3 Lessons

- ☐ [System Design: Distributed Monitoring](#)
- ☐ [Introduction to Distributed Monitoring](#)
- ☐ [Prerequisites of a Monitoring System](#)

## 14 Monitor Server-side Errors

3 Lessons

- ☐ [Design of a Monitoring System](#)
- ☐ [Detailed Design of a Monitoring System](#)
- ☐ [Visualize Data in a Monitoring System](#)

## 15 Monitor Client-side Errors

2 Lessons

- ☐ [Focus on Client-side Errors in a Monitoring System](#)
- ☐ [Design of a Client-side Monitoring System](#)

## 16 Distributed Cache

6 Lessons



- ☐ [Background of Distributed Cache](#)
- ☐ [High-level Design of a Distributed Cache](#)
- ☐ [Detailed Design of a Distributed Cache](#)
- ☐ [Evaluation of a Distributed Cache's Design](#)
- ☐ [Memcached versus Redis](#)

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## 17 Distributed Messaging Queue

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- ☐ [System Design: The Distributed Messaging Queue](#)
- ☐ [Requirements of a Distributed Messaging Queue's Design](#)
- ☐ [Considerations of a Distributed Messaging Queue's Design](#)
- ☐ [Design of a Distributed Messaging Queue: Part 1](#)
- ☐ [Design of a Distributed Messaging Queue: Part 2](#)
- ☐ [Evaluation of a Distributed Messaging Queue's Design](#)
- ☐ [Quiz on the Distributed Messaging Queue's Design](#)

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## 18 Pub-sub

3 Lessons



- ☐ [System Design: The Pub-sub Abstraction](#)
- ☐ [Introduction to Pub-sub](#)
- ☐ [Design of a Pub-sub System](#)



## 19 Rate Limiter

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- ☐ [Requirements of a Rate Limiter's Design](#)
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- ☐ [Quiz on the Rate Limiter's Design](#)

## 20 Blob Store

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- ☐ [System Design: A Blob Store](#)
- ☐ [Requirements of a Blob Store's Design](#)
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- ☐ [Design Considerations of a Blob Store](#)
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## 21 Distributed Search

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- ☐ [Requirements of a Distributed Search System's Design](#)
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## 22 Distributed Logging



- ☐ [System Design: Distributed Logging](#)
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## 24 Sharded Counters

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- ☐ [System Design: The Sharded Counters](#)
- ☐ [High-level Design of Sharded Counters](#)
- ☐ [Detailed Design of Sharded Counters](#)
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## 25 Concluding the Building Blocks Discussion

2 Lessons



- ☐ [Wrapping Up the Building Blocks Discussion](#)
- ☐ [The RESHADED Approach for System Design](#)



Design YouTube





☐ [System Design: YouTube](#)



☐ [Design of YouTube](#)

☐ [Evaluation of YouTube's Design](#)

☐ [The Reality Is More Complicated](#)

☐ [Quiz on YouTube's Design](#)

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## 27 Design Quora

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☐ [System Design: Quora](#)

☐ [Requirements of Quora's Design](#)

☐ [Initial Design of Quora](#)

☐ [Final Design of Quora](#)

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## 28 Design Google Maps

6 Lessons



☐ [System Design: Google Maps](#)

☐ [Requirements of Google Maps' Design](#)

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## 29 Design a Proximity Service / Yelp

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- ☐ [Requirements of Yelp's Design](#)
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## 30 Design Uber

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- ☐ [System Design: Uber](#)
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## 31 Design Twitter

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- ☐ [System Design: Twitter](#)
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- ☐ [Client-side Load Balancer for Twitter](#)
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- ☐ [Requirements of a Newsfeed System's Design](#)
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### Design Instagram



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- ☐ [Requirements of Instagram's Design](#)
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### Design a URL Shortening Service / TinyURL



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- ☐ [Requirements of TinyURL's Design](#)
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## 35 Design a Web Crawler

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- ☐ [Requirements of a Web Crawler's Design](#)
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- ☐ [System Design: WhatsApp](#)
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## 37 Design Typeahead Suggestion

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- ☐ [Requirements of the Typeahead Suggestion System's Design](#)
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## Spectacular Failures



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- ☐ [Facebook, WhatsApp, Instagram, Oculus Outage](#)
- ☐ [AWS Kinesis Outage Affecting Many Organizations](#)
- ☐ [AWS Wide Spread Outage](#)

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## Concluding Remarks



1 Lesson

- ☐ [Conclusions](#)

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they're asking me to do such a specific task to build such a specific product that if I were to move on to building my own from

>

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