

Core System Design

Duration: 2 Days

Introduction to System Design

- What is system design?
- How to approach System Design?
- How to understand that you have built a good system?

Databases

All Things Databases

- Relational databases
- Database Isolation Levels
- Scaling Databases
- Sharding and Partitioning
- Non-relational Databases
- Picking the right database

Caching

All Things Caching

- Understanding Caching
- Populating and Scaling Caches
- Caching at different levels of architecture

Asynchronous Systems

Asynchronous Processing

- Message Queues
- Message Streams and Kafka Essentials
- Real-time PubSub

Resiliency

Designing for Resiliency

- Load Balancers
- Circuit Breakers
- Data Redundancy and Recovery
- Leader Election for auto-recovery

Essentials

Essentials at Scale

- Bloom Filters

- Consistent Hashing
- Client-server and Communication Protocols
- Blob Storage and S3
- Introduction to Big Data

Consumer Facing

Designing Consumer Systems

- Designing e-Commerce Product Listing
- Designing Tinder Feed
- Designing and Scaling Notifications

Common Utilities

Designing Utilities

- Designing URL Shortners
- Designing API Rate Limiter
- Designing Web Crawler

Critical Systems

Designing systems that matter

- Designing GitHub Gists
- Designing Fraud Detection
- Designing Recommendation Engine