

SDE Skills

November 18, 2023 session

System Design Classification (November 18, 2023)			
Storage solutions (Upload/Download workflow)	Geolocation		Miscellaneous/Recurring components
Dropbox	Yelp		TinyURL
Google Drive	Uber/Lyft		Rate limiter
KV store	Google Maps		Unique ID generator
S3 like object storage			Web crawler
			search autocomplete
Streaming (Video upload/download)	Real time updates		Distributed notification service
Youtube	Gaming leaderboard		Distributed email service
Netflix			Distributed message queue
	Concurrency		Task scheduler
Social media (Notifications, Trending topics, Newsfeed)	Hotel/Airline Reservation/Airbnb		Distributed monitoring
Facebook/Twitter			Distributed log aggregation
Instagram	API Design		Distributed transactions (Stock Exchange)
Chat (real-time updates; online/offline considerations; 1:1 vs. group chats)			
FB Messenger			
Whatsapp			
Zoom			

Resources

	Alex Xu	AlgoExpert	Leetcode	Educative
Netflix/Youtube				
Facebook news feed/Twitter Timeline				
Google drive/Dropbox				
Facebook messenger/whatsapp				
Search Autocomplete				
Notification System				
Key-value store				
URL shortener (TinyURL)				
Leetcode				
Airbnb				
Quora/Stack overflow				
Yelp/Proximity Service				
API design				
Google maps/Uber				
Zoom				
Stock exchange				
Instagram				
Rate limiter				
Unique ID generator				
Consistent hashing				
Distributed message queue				
Task scheduler				
Distributed cache				
Distributed monitoring				
Distributed locking				
Distributed messaging				
Distributed log aggregation				

System Design - Designing Storage system like Dropbox/Google Drive

Functional requirements: Upload/Download document; View list of files/folders; Generate a unique shareable link and notify users.

Non-functional: operate at large-scale, reliable, highly available.

1. Things you will consider when designing with a single user and server in mind?
2. Things to consider to ensure low-latency?
3. How to manage the design above at large scale? What design changes/enhancements to consider?
4. How to ensure reliability?
5. Availability?

System II: Design Youtube (Upload/View a video)

System III: Make a post on facebook/upload an image on instagram