

# CheatSheet: System Design For Job Interview

## INTERVIEW

- PDF Link: [cheatsheet-systemdesign-A4.pdf](#), Category: interview
- Blog URL: <https://cheatsheet.dennyzhang.com/cheatsheet-systemdesign-A4>
- Related posts: CheatSheet: Leetcode For Code Interview, [#denny-cheatsheets](#)

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## 1.1 Process Of System Design

Num	Name	Summary
1	List use cases: List major and focus on some	Good sense. The questions you asked define your level
2	Understand scale: <b>Data + Traffic</b>	Estimate the volume of the problem space
3	Abstract design	
4	Bottlenecks: <b>Key challenges + Trade-Offs</b>	Valid reasoning is the key
5	Scale your design	

## 1.2 Engineering Of Well-Known Products

Name	Summary
Google	Link: Google Architecture
Facebook	Link: Facebook Live Streams
Twitter	Link: Twitter Image Service, YouTube: Timelines at Scale
Uber	Link: Lessons Learned From Scaling Uber
Tumblr	Link: Tumblr Architecture
StackOverflow	Link: Stack Overflow Architecture

## 1.3 Classic Design Problems - Design Business Features

Num	Name	Summary
1	Design: TinyURL - A URL Shortener Service	
2	Design news feed	
3	Design web crawler	
4	Google autocomplete	
5	Design: A Parking Lot Service	
6	Design: An Elevator Service	
7	Design: A URL Redirecting Feature	
8	Design Google PageRank	

## 1.4 Classic Design Problems - Design A Complex Product

- Think through the complicated, high-scale systems that you already use every day

Num	Name	Summary
1	Design: Uber Backend	
2	Design K/V DB	
3	Design: Google Suggestion Service	
4	Design twitter	
5	Design a payment processor	
6	Design a voice conference system	
7	Design google doc	
8	Design gmail	
9	Design instagram, a photo sharing app	
10	Design Yelp, a check-in app	
11	Design an API gateway	
12	Design amazon book recommendation system	

## 1.5 Classic Design Problems - Explain workflow: What happens when XXX?

Num	Name	Summary
1	When happens when I search in google?	
2	How loadbalancer works	
3	Explain three phase commit model	
4	Explain HTTP return code	301 vs 302, 401 vs 403, etc
5	Explain mysql DB replication model	
6	Explain Mysql replication mechanism	
7	Explain gossip protocol	
8	Explain CAP	

## 1.6 Classic Design Problems - Explain tools: how XXX supports XXX?

Num	Name	Summary
1	How JDK implement hashmap?	
2	Explain java garbage collection model	
3	Explain raft/etcd	

## 1.7 Classic Design Problems - Big Data

Num	Name	Summary
1	Reservoir sampling	
2	Frequency estimation	
3	Heavy hitters - Find top k frequent items in a data stream	
4	Membership query - whether an element exists in a data stream	bloom filter
5	Get median from an endless data stream	

## 1.8 Typical Tech Areas

Num	Summary
1	Distributed Database
2	Task scheduling
3	LCM - life cycle management
4	Logging & Monitoring
5	Security
6	SDDC - Software defined datacenter

## 1.9 Grow Design Expertise In Daily Work

Num	Name	Summary
1	Products under the hood	Complicated and high-scale systems which you might use every day
2	Read engineering blogs	Especially for big companies
3	Tools under the hood	Common tools/frameworks
4	Try tools	Use cases; Alternatives; Pros and Cons
5	Read papers	
6	Try new things	Keep researching the alternatives to a technology. e.g, rabbitmq vs kafaka, memcached vs red

## 1.10 Engineering Blogs/Websites

Name	Summary
Company Tech Blog	Website: Facebook Engineering, Website: Google Developers
Company Tech Blog	Medium: Netflix Blog, Medium: Airbnb Engineering & Data Science
Individual Tech Blog	Blog: All Things Distributed - Amazon CTO, Blog: highscalability
Website	Website: interviewing.io, Website: interviewbit.com
Website	Website: hiredintech - System Design, Github: system-design-primer
YouTube	YouTube: Intro to Architecture and Systems Design Interviews
YouTube	YouTube Channel: Success in Tech, YouTube: Scalability Harvard Web Development
Reference	Link: Preparing for your Software Engineering Interview at Facebook
Reference	Link: The System Design Process
Cheatsheet	Code problems for #oodeesign, CheatSheet: System Design For Job Interview
Cheatsheet	CheatSheet: Leetcode For Code Interview
Cheatsheet	CheatSheet: Behavior Questions For Coder Interview

## 1.11 More Resources

License: Code is licensed under MIT License.

<https://github.com/binhnguyennus/awesome-scalability>