1 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	Outline use cases: List major and focus on some	Show good sense. The questions you asked define your level
2	Estimate scale: **Data** + **Traffic**	Back-of-the-envelope estimation
3	Defining data model	It helps to clarify how data will flow among different components
4	Abstract design	Sketch main components, explain workflow, avoid too deep for details
5	Detailed design + discussion with interviewers	Explain trade-off of your proposal + on-demand deep dive
6	Identify and resolve Bottlenecks	**Key challenges** + **Trade-Offs**. Usuaully no optimal solution(s)
7	Scale your design	Availability, Resiliency, Scalability, Security, Serviceability, etc

1.2 Feature Design

- CheatSheet: Feature Design For Job Interview

1.3 Classic Design Problems - Design A Complex Product

Num	Name	Summary
1	**Design A Technical Feature**	CheatSheet: Feature Design For Job Interview
2	Design: TinyURL - A URL Shorterner Service	
3	Design: Uber Backend	
4	Design twitter news feed	link
5	Design web crawler	
6	Design K/V DB	
7	Design amazon shopping cart	
8	Design: Google Suggestion Service	
9	Design a payment processor	
10	Design slack	
11	Design google doc	
12	Design gmail	
13	Design instagram, a photo sharing app	
14	Design Yelp, a location-based system	
15	Design an API gateway	
16	Design amazon book recommendation system	
17	Google autocomplete	
18	Design Google PageRank	
19	Design messaging/notification system	
20	Design search post system	
21	Design memcache/redis	
22	Design typeahead	
23	Design Google Adsense fraud detection	
24	Design Pastebin.com	
25	Design Mint.com	
26	Design leetcode	
27	Design a voice conference system	
28	Design: An Elevator Service	

1.4 Papers Of Well-Known Products

Name	Summary
Dynamo - HA K/V store	paper
Chubby - Lock service	paper
Cassandra - Decentralized storage	paper
Kafka - distributed messageing system	paper
Bigtable - distributed storage	paper
Zookeeper - Cooridnation	paper
Spanner - Globally-distributed db	paper
Google file system	paper

1.5 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

1.6 Grow Design Expertise In Daily Work

Num	Name	Summary
1	Deep dive into your daily work	Unify and normalize problems from daily work
2	Learn the work of your coleagues	Indirect working experience also help
3	Popular products under the hood	Once you notice an interesting feature, think about how it's supported?
4	Read engineering blogs	Especially for big companies
5	Tools under the hood	Common tools/frameworks
6	Try tools	Use cases; Alternatives; Pros and Cons
7	Read papers	Best practices in papers
8	Try new things	Gain hands-on experience; evaluate alternatives
9	Datastore & OS	Learn how databases and operating systems work
10	Language implementation	Deep dive into one programming language. Java, Python, Golang, etc

1.7 Engineering Blogs/Websites

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

1.8 Typical Trade-Off

Num	Name	Summary
1	Performance vs Scalability	
2	Latency vs Throughput	
3	Availability vs Consistency	Brewer's CAP theorem

1.9 More Resources

`https://github.com/binhnguyennus/awesome-scalability`