1 CheatSheet: Feature Design For Job Interview INTERVIEW

- PDF Link: cheatsheet-featuredesign-A4.pdf, Category: interview
- Blog URL: `https://cheatsheet.dennyzhang.com/cheatsheet-featuredesign-A4`
- Related posts: CheatSheet: Leetcode For Code Interview, #denny-cheatsheets

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1.1 Key Blocks For Feature/System Design

Num	Name	Summary
1	Caching	
2	Message Queue	
3	Load balancer	
4	Networking: DNS	
5	Pessimistic And Optimistic Locking	
6	Consistent Hash	
7	DB replication	
8	CAP: Consistency/Availability/Partition	
9	Concurrency & Communication	
10	Session management	
11	Pull vs Push model	
12	Data Partition & Scaling	Vertical scaling and Horizontal scaling
13	Networking: HTTP	
14	Networking: TCP vs UDP	
15	API Design	
16	Consistency patterns	Weak consistency, Eventual consistency, Strong consistency
17	Availability patterns	Fail-over vs Replication
18	Self Protection	API Rate limit, Circuit breaker, bulkhead
19	Data Replication	
20	CDN	
21	Distributed Systems	
22	Garbage Collection	
23	Memory Management	
24	Concurrency	
25	Networking	
26	Security	

1.2 Additional Blocks For Feature/System Design

Num	Name	Summary
1	Heartbeats	
2	Gossip	
3	Paxos and raft protocol	
4	Vector Clocks/Version Vectors	
5	Split brain	

1.3 Design Technical Modules

Num	Name	Summary
1	Design a distributed UUID generator	
2	Implement a timer	
3	Design An API Rate Limiter	link, link
4	Design online/offline status system	
5	Thread-safe Hashmap	link
6	Top URL hits	
7	Unique url hits	
8	Delayed task scheduling	
9	Design a distributed counter	
10	Design a distributed hashtable	
11	Design a load balancer	
12	Design a client-server API to build a rich document editor	
13	Design a circuit breaker	
14	Design a stack supporting push/pop/getmin/getmostfrequent	
15	Design a credential management system	

1.4 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 gossip protocol	
7	Explain CAP	
8	Explain Hadoop file system	

1.5 Explain tools: how XXX supports XXX?

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

1.6 Misc

Num	Name	Summary
1	Find out the difference between two files. Majority of these two are the same	#lcs - Longest Common Subsequence
2	How to support feature of "diff 1.txt 2. txt"	
3	How to store 2TB data into 3 disks of 1TB. And be tolerant for one disk failure	A, B, C. And C = A XOR B

1.7 Top 20 Object-Oriented Design Problems

Num	Problem	Category/Tag	Example
1	Max Stack	#stack , #oodesign	Leetcode: Max Stack
2	LRU cache	#linkedlist, #oodesign	Leetcode: LRU Cache
3	LFU cache	#linkedlist, #oodesign	Leetcode: LFU Cache
4	Design Hit Counter	#oodesign	Leetcode: Design Hit Counter
5	Logger Rate Limiter	#oodesign	Leetcode: Logger Rate Limiter
6	Design HashMap	#oodesign	Leetcode: Design HashMap
7	Insert Delete GetRandom O(1)	#oodesign, #random	Leetcode: Insert Delete GetRandom O(1)

1.8 More Resources

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