Lecture/Topic Index

Week	Lecture #	Summary
1.1	[[My Vault/3 - Literature Notes/Courses/CS 134/Lecture 1 (9-30-2024)|Lecture 1 (9-30-2024)]]	Distributed System definition, examples, types, anatomy
1.2	[[3 - Literature Notes/Courses/CS 134/Lecture 2 (10-2-2024)|Lecture 2 (10-2-2024)]]	Fallacies, thought experiments, practicality
2.1	[[Lecture 3 (10-7-2024)]]	P2P architectures, Go, Concurrency, Race conditions
2.2	[[Lecture 4 (10-9-2024)]]	RPC, failure-handling schemas, MapReduce
-	[[Project 1]]	MapReduce wc
3.1	[[Lecture 5 (10-14-2024)]]	Time sync, physical vs logical clocks, Lambert vs Vector clocks
3.2	[[Lecture 6 (10-16-2024)]]	
4.1		
4.2		
5.1		
5.2		

Readings

Week	Reading (required)	Reading (reference)
1	Vitillo Ch 1	Steen Ch 1-2
2	MapReduce paper	Kleppmann Ch 10 Steen Ch 3.1, 3.2-3.4 (less important) Steen Chapter 4.1-4.3
3		Steen Ch 5.1, 5.2 Vitillo Ch 8
4	GFS paper	Steen Ch 7 Vitillo Ch 10 (see Raft leader election, Ch 9) Note that replication can be achieved many different ways. We are going to discuss Primary Backup and a couple of others for now. Vitillo requires assumes knowledge of Raft leader election (Chapter 9) which we have not discussed yet (it is in the Consensus lectures). It might give you some additional background but isn't directly related to the method we will discuss.
5		Steen Ch 8.1-8.2.4

Office Hours

	M	T	W	R	F	Email	Office
Prof. Rosario			3:30-5	5:30-6:30		rrosario@cs.ucla.edu	Boelter 3531A
Jack					10:15-12:15	yiyaoyu@cs.ucla.edu	Boelter 3278
Arjun		12:30-2				arjuna5@g.ucla.edu	Boelter 3286

Grading

55% project 1. scratch MapReduce (low-lvl) in Go (intro) 2. primary/backup key-value service (not lose key-vals in nodes) 3. paxos-based key-value service (each node votes stale/new/ multi write version) 4. sharded key-value service (full distributed key-value service) 20% **open-note** midterm (Mon Nov 4 in class) 25% **open-note** final exam (Wed Dec 11, 8-11am) ## Textbooks - course-boring-verbose (AFTER lecture): Distributed Systems v4.02 - high-lvl understanding (BEFORE lecture): [[Roberto Vitillo - Understanding Distributed Systems - 2nd Edition (2022).pdf | Understanding Distributed Systems]] - future research papers (BEFORE lecture) popular, timeless fundamentals not newest cutting edge tech - highly recommend for app-lvl data job: Designing Data-Intensive Applications ## Background Knowledge - learn Go in this class, so python knowledge helps - application lvl - http - transport layer - TCP - DNS - name resolution