- week 1 day 1
- this class will be based around editing an operating system, freeBSD
- windows sucks
- use VMWARE or Virtual Box, install freeBSD amd64 bit version, will crash a lot so utilize git
- commit regularly for version control
- windows sucks
- use SSH -keygen to get ssh key, plug into git2.soe.ucsc.edu
- projects will need README, makefile
- cheating not tolerated, professor will ruin my life
- windows sucks
- attendance taken, notes due every saturday
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- week 1 day 2
- problems in computer systems involve numbers including memory/architecture computations
- estimate to get upper and lower bounds to check feasibility of a number
- operating system connects user to computer
- creates a UI to communicate
- manages resource and handles efficiency and performance
- technology has evolved, hitting a physical boundary
- goal of advancement = multiprocessing, time sharing currently used, can't use same memory for two things, split memory to handle two tasks
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- week 1 day 3
- PC bus contains different memory components, simple enough to describe to mom
- no such thing as true concurrency, at the smallest level one thing always happens before the other

- cores are introduced to handle the task
- inside are many cores, GPU 1000 cores
- disk technology, spins 17k times a second, hard to spin more because of law of energy
- disks must be very flat, imperfections go wrong because of frequency of spins
- make disks larger, concentric circles
- memory hierarchy scales up, difference in speed 10,000 years between top and bottom, latency inverse
- block contains pages, when page wants to be erased, entire block must be erased, move the pages you want to save onto another block and delete entire block
- modern chip contains GPU, cores, registers
- flash memory is current type of memory, not the future FTL = flash translation layer