Major Topics in Operating Systems

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Chap.1

- Computer organization
- Interrupts
- Virtualization
- Open source OS

Chap.2

- System calls
- OS structures: layered, microkernel, modular, hybrid

Chap.3

- Process: state transition, queues, schedulers
- Context switch
- Process creation
- Interprocess communication models

Chap.4

- Thread
- Multithreading models
- User threads vs. kernel threads
- Multiprocessor and multicore systems

Chap.5

- Process scheduling
- Evaluation criteria
- Scheduling algorithms: FCFS, SJF, priority, RR, Multilevel feedback queue

Chap.6

- Critical section problem
- Synchronization hardware
- Software primitives: mutex locks, semaphores, monitors

Chap.7

- Deadlock characteristics
- Deadlock handling methods: deadlock prevention, avoidance, detection, recovery

Chap.8

- Memory address translation
- Swapping
- Memory allocation schemes: contiguous, segmentation, paging

Chap.9

- Virtual address mapping
- Demand paging
- Page replacement algorithms: FIFO, Optimal, LRU
- Thrashing