



Operating Systems

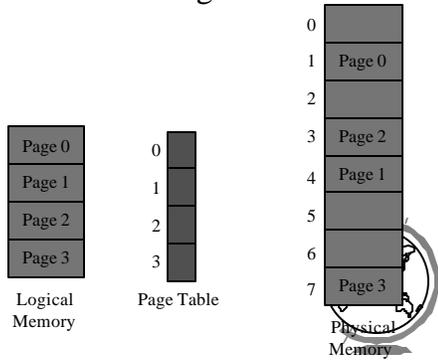
Final Exam Review

Topics

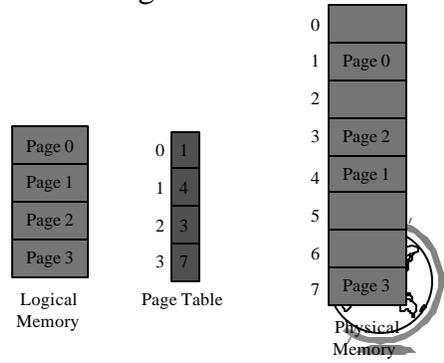
- Paging
- Virtual Memory
- File Systems
- I/O Devices
- Project 3: Macro Shell



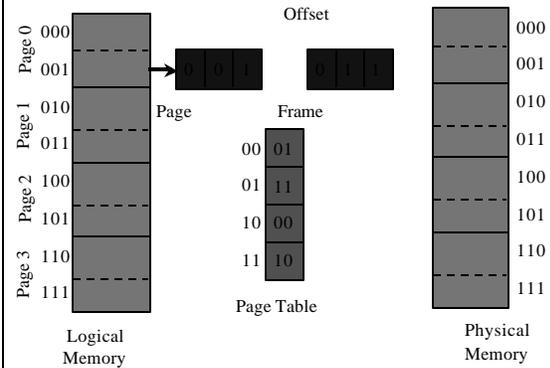
Fill in the Page Table



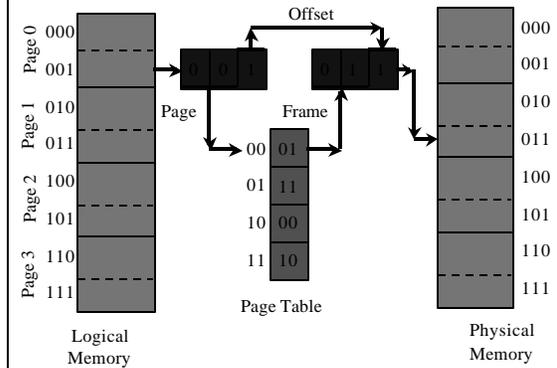
Fill in the Page Table: Answer



Draw Arrows



Draw Arrows: Answer



Virtual Memory

- Page faults
 - What is a page fault?
 - What happens during a page fault?
- Page replacement algorithms
 - What is Belady's anomaly?
 - How does the OPT algorithm work?
 - How does LRU work?
 - What are some LRU approximations?



Virtual Memory

- Thrashing
 - What is thrashing?
 - What is a working set?
- Paging tradeoffs
 - How does the page size affect performance?



File Systems

- Concepts
 - What is the file system abstraction (user view)?
- Implementation
 - Files
 - + What is some of the info required to store a file?
 - + What is an I-node? An linked-list w/index (FAT)?
 - Directories
 - + How are directories stored?
 - + What information does a directory have?



File Systems

- Storing files (aliases)
 - What is a soft-link? A hard-link? Difference?
- Disk management
 - How do you keep track of free blocks?
 - What do you do with bad blocks?
 - What is a partition?



I/O Devices

- Hardware
 - What is DMA?
 - What are some IO device types?
- Software
 - What is an interrupt handler?
 - How does it work?



I/O Devices

- Disks
 - What is the performance based on?
 - What is the "Elevator" algorithm?
- Clocks
 - How does a clock work?



Project 3: Macro Shell

- Sockets
 - What is a socket?
- Connection setup
 - How do you connect?
- Send and receive
 - How do send and receive interact?



Project 3: Macro Shell

- Server
 - What does the socket code look like?
 - What is a concurrent server? (Project 4)
 - What is a non-concurrent server? (Project 3)
 - What possible errors might the server see?
- Client
 - What does the socket code look like?
 - What possible errors might the client see?

