

Operating Systems

Lab. Class

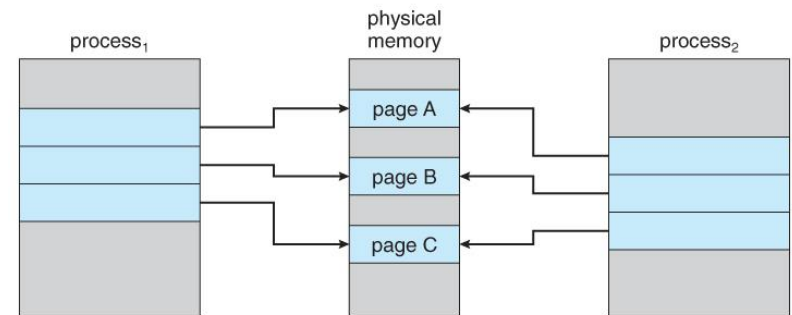
Week 8

Project Plan

- 6 projects
 0. Install xv6
 1. System call
 2. Scheduling
 3. Virtual memory 1
 4. Virtual memory 2
 5. Concurrency
 6. File system
- Individual projects

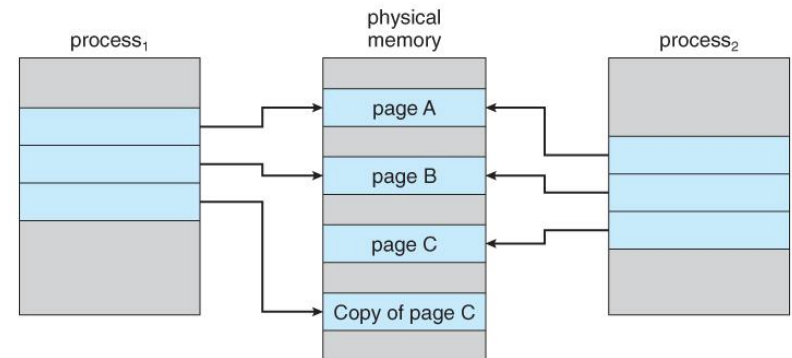
Copy-on-Write

- When a process forks
 - Create shared mappings to the same page frames in physical page
 - Shared pages are protected as **read-only**



Before process 1 modifies page C

- When data is written to shared pages
 - Protection fault is generated
 - OS allocates new space in physical memory and directs the write to it



After process 1 modifies page C

- **Reference counter for physical pages** is needed

https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/9_VirtualMemory.html

Project Assignment #4 - Copy-on-Write

- Implement **copy-on-write** on xv6
- Submission deadline
 - 2016-05-08 23:59

Project Assignment #4 Template Code

- Download from <http://sys.skku.edu>
- Modifications
 - Remove debug messages
 - Do not print any messages on screen
 - halt system call
 - Halt xv6 program
 - make tarball
 - Compress your source codes into one .tar.gz file for submission
 - You should enter your ID & project no. on Makefile

Project Submission Procedure

- <http://sys.skku.edu>
- Since 2nd submission, adds -5% penalty of the project score
- Every one day delay, -25% penalty of the project score
 - You can use up to 5 *slip* days

Project Assignment #4 Test Cases

- Test cases will be uploaded to <http://csl.skku.edu/SWE3004S16/Projects>