Section 5: Lab 3 Part B

CSE 451 18SP

Announcements

- Lab 2 Graded
- Lab 3 Due May 1st
- Quarter is about half over, start thinking about Lab X goals
  - Lab X proposals due May 18th

Page Faults

- Interrupt Vector 14 (T_PGFLT)
- Processor stores the virtual address that caused the fault in register CR2
- trap() function calls trap_dispatch()
  - In trap_dispatch(), if the trap is a page fault call the page_fault_handler()
- Question: What do we do when a page fault happens in kernel mode?

System Calls

- Being able to handle system calls is a vital part of running user environments
- The application passes the system call number and arguments in registers
  - eax: Syscall number
  - edx, ecx, ebx, edi, esi: Arguments 1-5
- The return value is stored back in eax

Malloc and Free

- To support malloc and free in user mode, you will have to implement some system call functions
  - sys_page_alloc
  - sys_page_map
  - sys_page_unmap
- Pretty much wrappers over functions you have already written, with error checking
  - Read the comments carefully
- Don't forget that you are mapping/unmapping pages in the Environment's page directory, not the kernel's page directory