DesignDoc for Assignment 4

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Changes Documentation:

Makefile:
UPROGS=\
….
_testcow\

EXTRA=\
…
testcow.c\

syscall.c:
Line 106: added “extern int sys_procdump(void);”
Line 130: added “[SYS_procdump]   sys_procdump,“

sysproc.c:
Line 93-99: Implemented sys_prcodump that calls procdump()

syscall.h:
Line 23: added “#define SYS_procdump 22”

usys.S:
Line 32: added “SYSCALL(procdump)”

user.h:
Line 26: added “void procdump(void);”

defs.h:
Line 192: added “pde_t* cow(pde_t*, uint);”
Line 193: added “void pageFault(void);”

trap.c:
Line 49-56: checks to see if we get a page fault trap. Calls pageFault() if true.

mmu.h:
Line 98: added flag for Shared Page *PTE_SH*, set to 0x100

proc.c:
Line 197: Inside *fork()* function, changed copyuvm to the cow method we implemented in vm.c

Line 543-560: Inside the *procdump()* function, added code to print out page mapping by using a for loop to go through all the entries and print out the PTE_W flag with y and n.

vm.c:
Line 15-18: Declared the *count_cow* struct that keeps track of page table counters. A spinlock is also declared.
Line 202-207: In *inituvm()*- Initialized the count_cow.counter array.
Line 293-310: In *deallocuvm()*- Checks the counter and frees the page table if no shared tables. Otherwise, decrements from the counter and checks parent's counter.
Line 425-473: Implemented "*pde_t* cow(pde_t *pgdir, uint sz)*". Given a parent process's page table maps parent's page table to childs and sets flags.
Line 475-544: Implemented "*void pageFault(void)*". Called when a page fault occurs. Creates a separate table for the faulty process and copies it over.