Jerry Laplante
10/04/2021
Jl14c
Assignment 2

# Part 2: The Life of getpid

Within the userspace:

First, getpid() must be call and executed from a user program in the user space.

Following we see that getpid() is declared in user.h

getpid() is defined inn usys.S which goes into a function definition called SYSCALL(getpid)

$SYS_close is define in syscall.h and $T_SYSCALL is defined within traps.h

Within the Kernal space:

The int $T_SYSCALL triggers a software interrupt and the CPU pauses to ask the interrupt handler to take over resources

The interrupt handler is vector 64 within traps.h

vectors.S where the vectors are found sends all jumps to a function called alltraps in trapasm.S and this function creates the trapfram and calls

structure trapfram is located inn x86.h and saves the userspace registers while tf->eax contains the syscall number for SYS_getpid 11

trapframe is saved to the process control block and upon returning trap() returns to alltraps

user registers are then restored, and we return back to user space with iret

sysproc() then reads number within the eax and calls sys_getpid which is defined in sysproc.c

return value is saved in proc->pid and controls comes back to trap

sysgetpid finally returns int value for the pid