# Assignment 4, Operating Systems

Jay R Bolton

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Ch 4 problems: 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.8, 4.11 (4.7 is a trick question, really just a setup for 4.8)

**4.1** Yes. Any processor state information that needs to be saved and is shared among the threads only needs to be saved once for all the threads.

**4.2** If a ULT does a system call that manipulates the user address space, all threads in that process will rely on that thread's system call.

**4.3**

**a.** Threads might lose some kernel level functionality that processes within sessions had.

**b.** Process level. If processes are replacing sessions, then processes are directly assigned the keyboard, mouse, and screen.

**4.4** Without the mapping, the ULT that does a system call would block all other threads within that process.

**4.5** No.

**4.7**

**a.** Nothing.

**b.** No because the list is all negatives.

**4.8** If r is set in A but assigned to global positives in B, then if A and B are not exactly synchronized, global positives will be incorrect.

**4.11**

**a.** Possibly ULTs don't have to block the other ULTs in the same process if it does a system call. Also we would not need to do a kernel level mode switch, I guess.

**b.** LWP will go immediately to the running state upon wakeup.

**c.** A ULT is created and runs, which maps it to an LP that starts in the running state. LWPs can be preempted and blocked and runs independently of the ULT.