HOMEWORK 3, REVIEW FOR FINAL EXAM

- If see "Transport endpoint not..." = program crashed
  + use debug: gdb cs5600hw3
    + run -d image direct \{ go to other windows \}
    \{ will see what's going on \}

I/O error on cd: make sure indicate DIR made .S_IFDIR

struct fat entry * fat = malloc()

read block (#, fat + i*1024)

If you add 1 to the pointer: ptr + 1 = value + sizeof (*ptr)

Need to cast: read block (#, (char *)fat + i*1024)

REVIEW FOR FINAL EXAM

- Basic OS concepts
  + Memory maps - memory mapped I/O
  + Interface (sys. calls): privileged mode
  + Interface (sys. calls): non-privileged mode
  + Loading
  + Context switching: switching from threads / processes
    saving states of one process and
    switching to other one

- Synchronization - monitors
  + Synchronisation - mutex

Rules

1) Don't trust global variables across a wait()
\{ 
  count++ \quad \text{this count value could be different this count value.} \\
  wait() \\
  \text{if (count == 1) \{} \\
  \} \\
\}

make a local copy:

\text{mutex lock} \\
\text{total++} \\
\text{my.number = total} \\
\text{mutex unlock}

If don't make local copy, after unlock things can be mix-up.

2) don't busy wait

\text{while (var < 2)} \\
\{ \\
\} \\
\text{this's not the way to synchronise.}

\text{if } val < 2 \\
Val++ \\
\text{if } val > 2 \\
\text{wait(c)} \\
\text{signal c}
3) picture the monitor states

If you have a single method:

\[
\begin{align*}
\text{If } & \text{ busy } \\
& \text{ wait (c)} \\
& \text{ busy = T} \\
& \text{ signal (c)} \\
& \text{ } & \text{ } \\
& \text{ wait } & \text{ wait } & \text{ wait} \\
& \text{ wait } & \text{ wait } & \text{ wait} \\
& \text{ wait } & \text{ wait } & \text{ wait} \\
& \text{ wait } & \text{ wait } & \text{ wait} \\
\end{align*}
\]

Need to be able to picture the combination of states because sometime there may be others states coming in.

If we count:

\[
\begin{align*}
& \text{count ++ } \\
& \text{If count < 3 } \\
& \text{ wait c } \\
& \text{ else } \\
& \text{ broadcast (c)} \\
\end{align*}
\]

Virtual Memory

- mechanism: page tables + TLB
- format, run-time operation
- policy: error, allocate, demand load, copy-on-write

Virtual Machines
Block Devices and I/O
- disk drives
- DMA, drivers, interrupts

RAID:
0: stripe
1: mirror
5: parity

(understand the concepts of RAID, 0→5.)

(what effect behavior in performance of RAID?)

question on Security, permission
file system
block devices
synchronization