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## Lab #5: COMP 3000B (Operating Systems)

February 7th & 9th, 2006

1. (2 pts) From a graphical terminal (e.g. gnome-terminal), use the “ssh desktopX” command to log in to another machine in the lab, where desktopX is the name of another machine in the lab. Is the DISPLAY environment variable set? Can you run graphical programs (such as gnome-system-monitor) from that remote machine and have it display locally?
2. (2 pts) Run “ssh -X desktopX xclock”, where desktopX again is the name of another machine in the lab. Which machine’s clock is xclock checking—the local clock, or that of the remote machine? Explain.
3. (2 pts) Run the command “xterm”. Then, inspect the list of currently running processes using the command “ps axo pid,uid,gid,cmd”. What group is xterm running as, and what group are your other processes running as? (You can convert the numeric IDs to text using the file /etc/group.) Why are they different? Explain.
4. (4 pts) Create five terminal windows. In three of them, run the command “worms”. In the fourth, run top. In the fifth, use the command “renice” to change the priority of the worms processes. Close down any other running programs that you have started.  
Do the three worm processes execute at the same time when they run at full priority? What happens when you lower their priority to 20? (Be sure to lower them one at a time.) How is CPU time being divided between running processes? Experiment and explain your findings.