Week 4 Topics:
Windows and Linux

Before class read these questions over. Complete them in class as time permits and finish them in the current week. If you don't understand a question, ask for clarification in class. Questions from quizzes will form the bulk of the midterm and final exams.

1. Why is it important that we learn Windows and know how to configure and diagnose problems?
   Windows is still the most widely deployed operating system in North America. Especially in business environments. As computer scientists, it is essential to know more about the systems we will be working with than simply how to power them up and run programs.
2. List three benefits and three drawbacks of Windows.
   - Widely deployed with lots of software options.
   - Uniform throughout with common interface design
   - Easy to use for novices and features a lot of automation.
   - Not fully mature as a networked operating system (yet)
   - High-yield target for attackers due to prevelance
   - Higher system requirements than less automated systems
3. What does a right click of the mouse do in most Windows applications? Opens a context menu for the item being clicked on.
4. Why is it important to use help comfortably? This is the first step in troubleshooting or understanding commands and processes you may not be familiar with.
5. Does Windows supply a graphic utility to format a new hard drive? Yes If so what is it? Disk Management (Start > Control Panel > Administrative Tools > Computer Management > Disk Management)
6. Does Windows supply any form of shell programming? Yes If so what is it? Two options: Windows Power Shell (new) or Command line (cmd) shell scripting.
7. How can I configure my display and desktop in Windows? Right click the desktop anywhere there isn't an icon, menu, or window, and select "Personalize" or "Screen Resolution" ("Display Properties" in 7). Or via clicking "Start > Settings > Control Panel > Appearance and Personalization"
8. What are several things that should be done periodically to ensure the health and safety of a Windows system? Do Windows Updates at least once a month. Remove un-used / outdated software. Run Disk Cleanup utility and defragment drive as needed (mostly automatic now). Update and run your anti-virus / anti-malware applications. Empty ALL "Recycle Bin / Trash" folders in ALL applications. (You'd be surprised how many people miss the application's own recycle bins. - EG: Outlook)
9. What are restore points? Metadata about changes How do you create and use them? to the system allowing you to "roll-back". You access them through "Start > All programs > Accessories > System Tools > System Restore. (Windows 7).
10. List three reasons for learning Linux.
    - Linux is open source, which allows us explore its inner workings
    - It allows us to explore UNIX-like operating systems without needing Special hardware (Apple) or extensive configuration (BSD)
    - Linux is growing and becoming more popular, especially in the server role.

11. List three benefits and three drawbacks of Linux.

It is open source and free (-ish)
It is lightweight and will run on older hardware
It is efficient and "faster" than a lot of it's competitiors

Potentially limited software (slowly changing)
Lack of centralized support (for "free" editions)
Lagged hardware support as compared to proprietary products

12. Why should you not work as “root” (the superuser) when you don't have to? The root account has very few limitations. As such, using root for common tasks, such as surfing the web, has the potential to expose the account, and ultimately your entire system, to malware and other exploits.

13. List 5 Linux commands and what they do.

ls [path]	Lists the current directory contents
cd <path>	Changes the directory to the one specified in 'path'.
man <command>	Shows the manual page for the specified 'command'
less <target file>	Displays the textual contents of the 'target file'
vi [target file]	Launches the VI editor to edit the 'target file' (if any)

14. What is the significance of the '*' character on a Linux command line? This is a "wildcard" character it matches any string of one or more characters

15. What goes in the following Linux directories:

/etc	Configuration files
/home	User home directories
/bin	Binary executable files such as commands and user-available programs
/sbin	Binary executable files such as system commands (root/system programs)
/var	Variable data, such as logs, web server directories, e-mail, and print spooled data.
/proc	Process files - not true "files" but provides a file-like way to access parts of the running kernel.

16. What are two ways I can get help on a Linux system? Man page, info page, or appending special "flags" to a command, such as: "-h" or "--help"

17. What tools are provided on our Linux system that can partition and format a new hard drive? In our lab: gParted and fdisk

18. Are linux commands case sensitive? Yes - mostly because the case of flags can have very different meanings.

19. How do you start the GUI if you booted into the command line? startx

20. What is the purpose of having more than one workspace? To allow grouping of work without having to minimize windows

21. Does the Centos Linux system that we installed have a graphical file browser similar to Windows Explorer? Yes. Its called "Nautilus" and comes as part of the Gnome desktop environment

22. How do you switch between desktops? Using a workspace switcher application, or by using the "Ctrl + Alt + Left (or right) arrow key(s)"

23. Is it possible to change the desktop "wallpaper" on your Linux system? Yes

24. Can you add users via the command line? Yes If so how? useradd <username>

25. What are two reasons for becoming root? To make changes to system configurations or to administer user or security contexts.

26. Can you install new software on a Linux system? Yes How? By using the distribution's package manager tools and suites, or by building (compiling) your own ports.

27. What does TCO (total cost of ownership) mean, and why is it important to consider it?
Total cost of ownership takes into account the cost of the software, as well as the time and resources spent on deploying, maintaining, and configuring it. It is important to consider because, even though a software package may be "free", the amount of cost in time or resources spent on learning, customizing, maintaining, and configuring the program, could push the overall cost of the software beyond that of a paid solution.

28. Why might a large company, like IBM, contribute extensively to the GNU/Linux project?
IBM makes it's money providing information Systems support services to business. By collaborating and contributing to GNU/Linux, their "experts" can gain expertise that it can charge clients for. And by having a hand in the development process of Linux, IBM can also help steer the project in directions that can fill business needs without having to fund a development process.