Lab Exercise #1 -- Using the CSE Sun Systems

This exercise familiarizes you with the computing environment that will be used for this course (Sun servers and the UNIX operating system). You are to complete the experiments below and record the requested information.

You will access the CSE UNIX system by logging in under your personal account (see the "Introduction to the CSE Computing System" handout for more information about accounts). If your personal account is not yet available, seek assistance from your Teaching Assistant to use a "guest" account.

The Sun server you will use for this class is named "north". You will remotely access that server and complete the following experiments.

A. The UNIX File System

1. When you are ready to begin the experiments, open a Secure Shell window and connect to the server named "north", then move the mouse into that window so that you can enter commands at the command-line prompt.

The command-line prompt includes three pieces of information: the sequence number of the command, the name of the workstation you are using, and the name of the directory in which you are currently working. Note: the symbol "~" is used to represent the name of your home directory.

Fileservers in the CSE computing system are named after oceans and seas, while workstations are named after objects, such as plants, animals, minerals, people, and things. Fill in the requested information below.

Username: _____ Workstation: _____

2. The UNIX file system is organized as a tree of directories and files, with the directory "/" at the root of the tree. When you access your account, you are initially positioned in your home directory.

Use the command "pwd" ("print working directory") to display the absolute path name of your home directory, then record the requested information.

Absolute path name of home directory: _____

Current command-line prompt: _____

3. Use the command "cd ~cse320" to position yourself in the directory for this class, which is owned by the instructors and is used to store course handouts and other files, then use "pwd" to display the absolute pathname of the current directory and record the requested information.

Absolute path name of class directory: _____

Current command-line prompt: _____

4. The command-line prompt contains three pieces of useful information (as described above). Compare the command-line prompts which you recorded for question #2 and question #3, then answer the question below.

Describe the information displayed in each command-line prompt.

5. The "ls" program displays the names of the files in a given directory. Enter each of the commands shown below and observe the different file listings produced.

Open a second Secure Shell window, then position that second window so that you can view both windows. Move the mouse into the second window and enter the command "man ls".

Use your observations and the information about "ls" displayed by the "man" program (use the command "man ls") to complete the questions below. Note: the symbol "." is used to represent the current directory, and the symbol ".." is used to represent the parent of the current directory.

Give a brief description of each of the following variations on "ls".

"ls":

"ls -o":

"ls -ao":

6. There are several commands available to display the contents of a text file. Use the command "cd ~cse320/General" to move into the "General" subdirectory of the class directory. Then, enter each of the following commands:

```
more coding.standard
cat  coding.standard
```

Use your observations to answer the question below. If necessary, use the "man" program to display further information about "more" and "cat".

Differences between "more" and "cat":

B. Manipulating Files

1. Use the command "cd ~" to return to your home directory. Then, use the command "mkdir 320files" to create a subdirectory in your home directory. Then, use the command "cd 320files" to position yourself in the subdirectory and record the requested information below.

   Absolute path name of "320files" directory: _____

   Current command-line prompt: _____

2. Copy the file "coding.standard" from the class account into your newly created subdirectory using the following command:

   cp ~cse320/General/coding.standard mycopy

The command "ls -lc" displays one line of information about each file in a given directory, including the date and time that an attribute of the file was changed. Use this command to answer the following questions about "mycopy".

   Number of bytes in file: _____

   Date and time some attribute was changed: _____

3. Rename the file you created in question #2 using the following command:

   mv mycopy standard

Then, use "ls -lc" to answer the following questions about "standard".

   Number of bytes in file: _____

   Date and time some attribute was changed: _____

4. The "csh" command-line interpreter recognizes the characters "*" and "?" as wildcards when you specify file names: the character "*" denotes a sequence of zero or more characters, and the character "?" denotes a single character.

Use the command "cd ~cse320/General" to position yourself in the "General" subdirectory of the class account, then answer the questions below.

   List the relative path names (file identifiers) displayed by the following commands (note that the option "-1" contains the character "one"):

   "ls -1":

   _____

   "ls -1 intro*":

   _____

   "ls -1 *y*":

   _____

   "ls -1 *.s*":

   _____

5. Use the command "printers" to display information about the printers available in the CSE computing system, then answer the questions below. Note: when you print a file, a copy of the file is placed in the "queue" of "print jobs" for the specified printer.

What command would you use to print the file "standard" in 3353 EB?

What command would you use to check the queue for the printer in 3353 EB?

6. Disk space is a limited resource, and each user must delete unnecessary files from their account using the "rm" program. Empty directories can be deleted using the "rmdir" program. Delete any unnecessary files and directories in your account, then answer the question below.

What command would you use to remove the directory "320files"?

C. Shell Features

The C Shell "csh" provides a number of features to make it easier for users to be productive in a UNIX environment. For example, it allows users to create and maintain aliases for common commands (or sequences of commands). It also maintains a list of the commands that the user has entered recently, and allows users to easily repeat commands that appear in that history list.

1. When a student account is created, the system managers provide a set of standard aliases in the file named ".aliases". Use the command "alias" to display the list of current aliases, then answer the questions below.

Command(s) equivalent to "cls": _____

Purpose of "cls": _____

Command(s) equivalent to "rm": _____

Purpose of "rm": _____

Command(s) equivalent to "ll": _____

Purpose of "ll": _____

Command(s) equivalent to "h": _____

Purpose of "h": _____

2. The C Shell saves each command that you enter in your history list. It also allows you to re-execute commands that appear in the history list, using "!" and certain options. Use the command "history" (or "h") to display the history list maintained by "csh", then answer the questions below.

Purpose of "!!": _____

Purpose of "!4": _____

Purpose of "!ali": _____