Unix Lab 1

CS 245

Sept. 20, 2004

1. Login to a Windows workstation and start the SSH Secure Shell Client software. Click the *Quick Connect* button and enter the Host Name (`phoenix.goucher.edu`) and User Name information requested for the dialog box which pops up. Click the *Connect* button and then enter your password into the next dialog box.

   Unix is case sensitive — be careful when entering username and password!

   A brief bit of documentation on SSH Secure Shell is available here (`http://phoenix.goucher.edu/~kelliher/SSH/`). In particular, you can download a copy of the software for educational use.

2. You should now be sitting at a command line prompt on phoenix:

   ```
   >
   ```

   (or something similar). You type a command and then press `Enter` to run it. You can edit a command before you run it by using the arrow keys to navigate the command line.

3. Check to see if you have an emacs initialization file (`.emacs`) in your home directory:

   ```
   ls -l .emacs
   ```

   If not, Copy this file from a directory under my home directory to your home directory:

   ```
   cp ~kelliher/pub/.emacs .
   ```

4. Run the `emacs` editor on your `.cshrc` file in your home directory. First, try it this way:

   ```
   emacs .cshrc
   ```

   If that doesn't work, you'll have to use the full path this first time:

   ```
   /usr/local/bin/emacs .cshrc
   ```

   (You are in your home directory when you first login).
   Find the line which begins

   ```
   set path=
   ```

   and edit it so that it appears like this:

```
set path=(/opt/sfw/bin /usr/local/bin /usr/bin /usr/ccs/bin \
/usr/openwin/bin  /usr/ucb)
```

Make sure you type this *exactly* as you see it here. There should be *nothing* following the \
on the first line, or, for that matter, following the \ on the `set prompt=` line below.

Add these lines to the end of the file:

```
umask 077
set prompt="%m:%~\
%% "
alias .      logout
alias ?      apropos
alias cp cp -i
alias grep  grep -i
alias h      history 25
alias ls ls -F
alias ll ls -l
alias mv mv -i
alias rm rm -i
```

Save the file (type `C-x C-s`) and find your `.login` file (type `C-x C-f .login`). Add these
lines to the end of the file:

```
setenv   BLOCKSIZE 1K
setenv   LESS  "-ceiMswx3"
setenv   PAGER less
setenv PRINTER hs149ps
```

Save the file (type `C-x C-s`) and exit from emacs (type `C-x C-c`).

5. This is important to do now so that the two new environment variables are read properly:
   log out (run the `logout` command) then log back in.

   Did you notice that your command line prompt has changed? It now shows the machine
   name and the directory you're in (`~` is the abbreviation for your home directory).

   After logging back in, you can run `emacs` just by typing `emacs`, if you weren't able to before.

6. If you're using the system for the first time, you should change your password. Before selecting
   a password, read the file `/usr/local/info/password` for advice on choosing a good password:

   ```
   less /usr/local/info/password
   ```

   (The shell you're using has file completion. Type the command above up to `/usr/loc` and
   press the `Tab` key. The rest of the path component — `al` — will be filled in for you. This
   saves typing when you have long filenames)

   Within `less`, use the space bar and `b` key to move down or up, respectively, a page. Type `q`
   to quit `less`.

```

7. Use the `passwd` command to change your password. Assuming that your Goucher network password is a good password, use that one. If it isn't, don't use it. I run a password cracking program every so often, so if you choose a weak password I'll find out and you'll have to change it.

8. Using `emacs`, create a file named `name` containing your name. Print the file:

   ```
   lpr name
   ```

   The file should be printed on the printer in HS 149. If you ever want to print to the printer in the X Lab, you must use the `-P` switch:

   ```
   lpr -Phs123ps <filename>
   ```

   Remove the file you just created:

   ```
   rm name
   ```

   Unlike Windows, once you remove a file in Unix, it is gone for good. So be careful!

9. Change directories to `/etc`:

   ```
   cd /etc
   ```

   You can verify that you're where you think you are by running the print working directory command: `pwd`.

   Using the `ls` command, list the files in `/etc`. Too many to fit on a single screen? Pipe the output to the paging program:

   ```
   ls | less
   ```

   Repeat again using the `-l` option to `ls` What's the difference?

10. Change directories back to your home directory (run `cd` without an argument). List the files in your home directory. Try again using the `-a` option. What's the difference? Read the man page for `ls` to read about these two options and find what other options are available:

    ```
    man ls
    ```

11. Using the `mkdir` command, create a sub-directory within your home directory for this lab: `unix1`. It is a good idea to create a new directory each time you start a new assignment or project, so that you don't clutter up your home directory. Using sub-directories for your assignments also helps keep others out of your files.

12. `cd` to `~kelliher/pub/cs245` and use `cp` to copy `Prog.java` to your `unix1` directory:

    ```
    cp Prog.java ~/unix1
    ```

13. Change directories back to you `unix1` directory and compile the program:

```
javac Prog.java
```

14. Run the program:

```
java Prog
```

15. If there is time, re-write the program so that it prints the first 10 numbers in the Fibonacci sequence. Fib_0 is 0 and Fib_1 is 1. The recurrence equation for succeeding elements of the sequence is $\text{Fib}_i = \text{Fib}_{i-1} + \text{Fib}_{i-2}$.

16. When you're finished, logout from phoenix.