CMPSCI 120 Fall 2020
## Lab #1
Professor William T. Verts

The Goal

The ultimate goal of this assignment is to create a Web page on the server and to make sure it is visible to the outside world. If I did the assignment myself, the following screen shot shows the final version; your result will have your name instead of mine in both the "Welcome" heading and the tab (and in the title bar for some browsers).
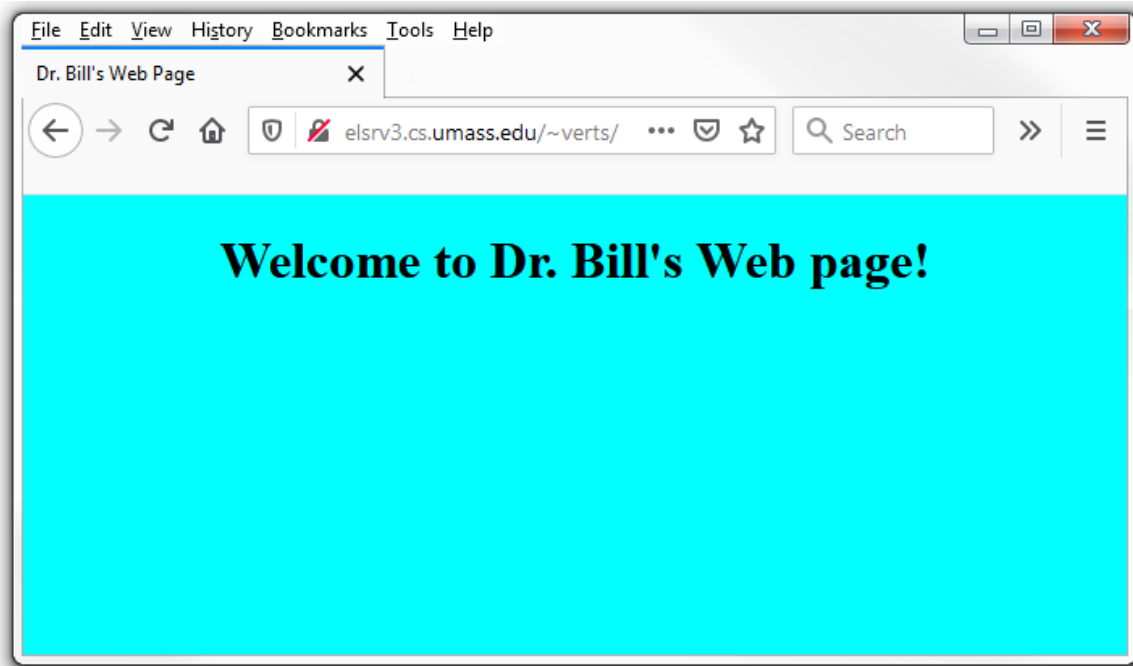
This document is divided into several sections. Your Web page will be visible on the Web at the end. The next assignment will depend on this one, so please make certain to turn in completely working code.

1. Setting Up (with instructions for both Windows and Macs)

2. Logging In (with instructions for both Windows and Macs)

3. Changing Your Password (UNIX)

4. Building a Basic Web Page (Secure telnet and emacs)

5. What to Turn In (Sending a specific email to `literacy@cs.umass.edu`)

Setting Up (Windows PC)

Go to the link for the encrypted telnet program PuTTY (Simon Tatham's site in the UK at **http://www.chiark.greenend.org.uk/~sgtatham/putty/**). Click on his "Download" link, and then click to download `putty.exe` for Windows; either the 64-bit version (preferred) or the 32-bit version. Do NOT download any installation package! Save `putty.exe` to your desktop. There is no installation required; the single `.exe` file that you download is all that is needed. You should scan it for viruses before you run it (although I doubt you will find any problems).

PuTTY is a Windows package that implements a secure (encrypted) version of telnet. If you already have a preferred secure telnet program you may use it instead, but all the instructions in this document will refer specifically to PuTTY.

Setting Up (Mac)

Macintosh users <u>do not</u> need an encrypted telnet program such as PuTTY because it has enough tools already built-in to do this job.

Note for advanced users: If you are a Mac user who <u>also</u> runs Microsoft Windows on your Mac under Bootcamp, Parallels, or VMWARE, you can use PuTTY directly. PuTTY will also run under Crossover Mac.

Host Address

For all tools, whether Windows PC or Mac, the "host name" for the server used by our class will be:

elsrv3.cs.umass.edu

The left part of the name is `elsrv3`, <u>not</u> `elserv3`!

Logging In for the First Time (Windows PC)

Run PuTTY. You will initially see a Configuration screen as shown below. For this class the Host Name will always be `elsrv3.cs.umass.edu` and the Connection Type will always be **SSH** (secure shell):
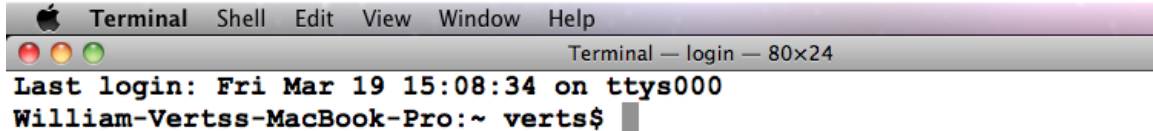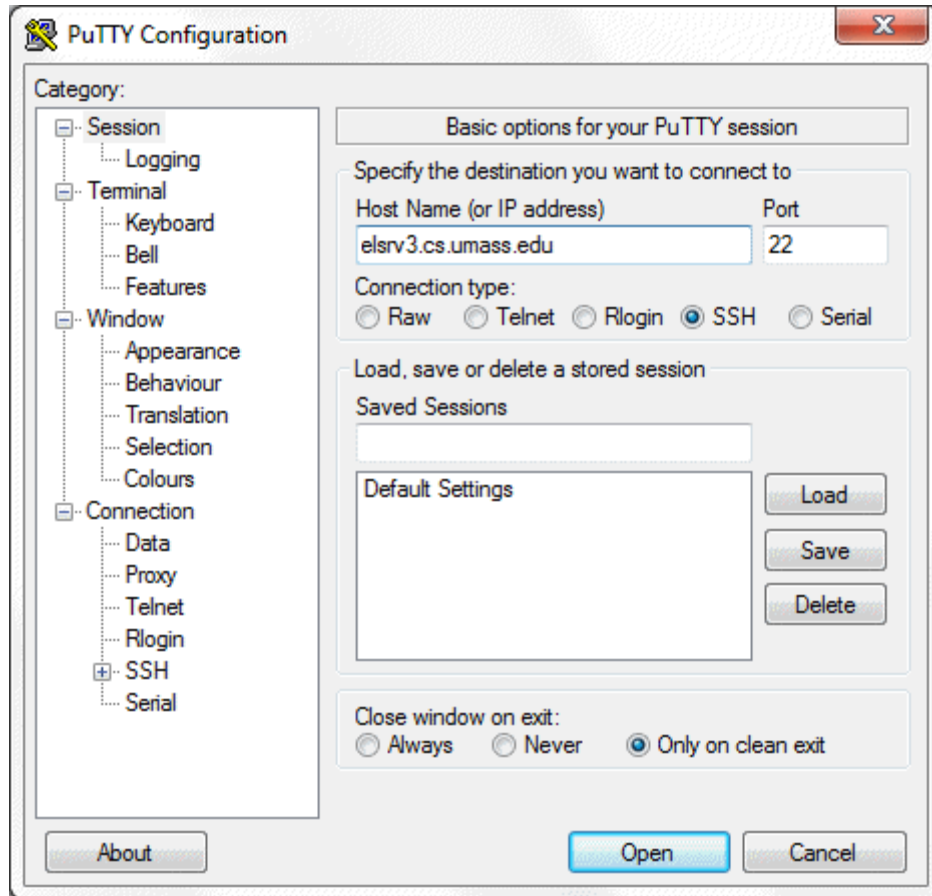

Click the Open button to attempt the connection. **If you get any message about the server's <u>host key not being known</u>, click the button that accepts the key and lets you proceed** (once accepted you should not get this message again). Maximize the window. You will next get a challenge from the remote server. In the challenge, you will be asked for your username. This will be the same as the username you use at UMass. When you hit Enter ⏎, the server will ask for your password, which initially will be of the form `ELxxxaaa`, where `xxx` is the <u>last</u> three digits of your SPIRE ID number and `aaa` is the <u>first</u> three letters of your username. **You will not see the password as you type it in.**
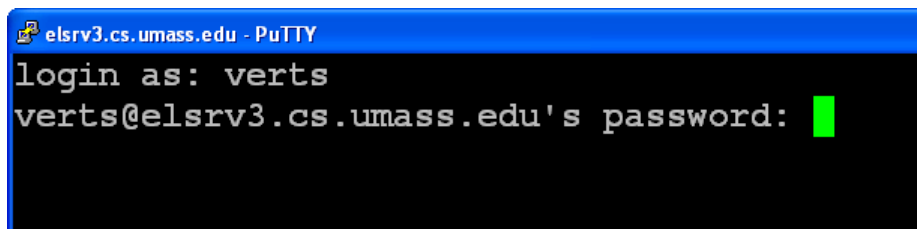
Logging In for the First Time (Mac)

In Finder, click on Applications-Utilities-Terminal. If this is the first time you've ever used Terminal the text will be tiny – I strongly recommend that you click Terminal-Preferences in the menu to bring up the Settings dialog, and in the Text tab change the Font for the Basic (Default) theme to **`Courier New Bold`**, with a point size somewhere between 12 and 18 points. If you wish, maximize the window (click the green button with the + in the upper left corner). You will see a screen similar to the following, with your name instead of mine in the appropriate places.
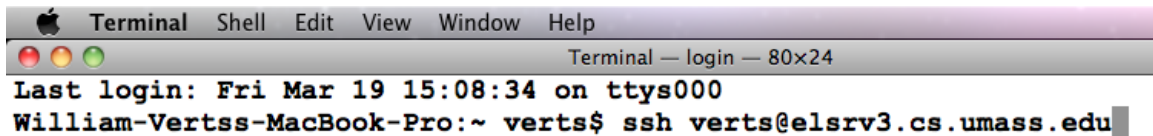
```
  Terminal   Shell   Edit   View   Window   Help
                              Terminal — login — 80×24
Last login: Fri Mar 19 15:08:34 on ttys000
William-Vertss-MacBook-Pro:~ verts$ ▐
```

This is a view of the underlying UNIX operating system of your Mac, but it is <u>not</u> the UNIX server that we will use for our Web pages.

To actually connect to that remote server, type in:

`ssh _____@elsrv3.cs.umass.edu`
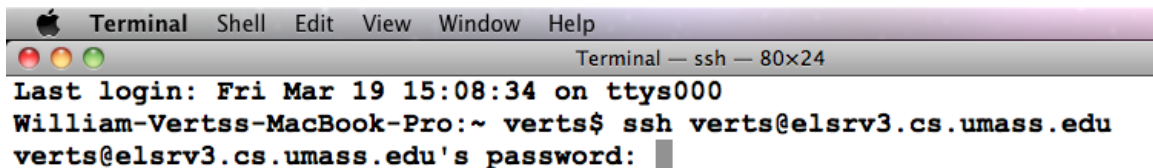
with your UMass username in the slot. This is shown below. Don't use my username, use your own!

```
  Terminal   Shell   Edit   View   Window   Help
                              Terminal — login — 80×24
Last login: Fri Mar 19 15:08:34 on ttys000
William-Vertss-MacBook-Pro:~ verts$ ssh verts@elsrv3.cs.umass.edu▐
```

The remote server will ask for your password, which initially will be of the form `ELxxxaaa`, where `xxx` is the <u>last</u> three digits of your SPIRE ID number and `aaa` is the <u>first</u> three letters of your username.

You will not see the password as you type it in.

```
  Terminal   Shell   Edit   View   Window   Help
                               Terminal — ssh — 80×24
Last login: Fri Mar 19 15:08:34 on ttys000
William-Vertss-MacBook-Pro:~ verts$ ssh verts@elsrv3.cs.umass.edu
verts@elsrv3.cs.umass.edu's password: ▐
```

When you enter your password and hit ⌷Enter↵⌷, you should see the challenge accepted by the server. You will follow this process every time you wish to log in.

Trouble Logging In

If you attempt, unsuccessfully, to log in to the server through PuTTY or ssh more than five or six times, the server will block your IP address for a short time (typical indicators are "**connection reset by peer**" or "**ssh-exchange-identification**" messages). It thinks you are a bad guy attempting to break in.

If that happens you'll need to either wait for a couple of hours, move to another machine (with a different IP address), or move your laptop to another wireless access point (which changes your IP address). However, several unsuccessful attempts are indications that you may be using the wrong username or password – stop and get help! Send me an email: I can check to see if your account is OK.

Changing your UNIX Password

The first time you successfully log in to the UNIX server, from either a PC or a Mac, you will be prompted to change your password. The process first asks you to enter your current password **again** (the one you just used to log in).

Then, pick a new password that contains both uppercase and lowercase letters, digits, is 6 to 8 characters in length, but is not based on any dictionary word or sequence of letters or digits. For example, `frog1234` is a bad password because it contains both a dictionary word (`frog`) and a sequence (`1234`). The system will give you an error message if the new password is not acceptable, and after a few failed attempts it will abort the process and you'll have to start over.

Once you've figured out a good password, you'll need to enter it twice.

Successfully changing your password will result in the server **logging you out**; you must then log back in with your username and new password.

If you forget or lose this password I cannot retrieve it for you, but if you send me an email I can reset your password back to the default. To change your password yourself, use the **passwd** command in UNIX.

Building the "Nest" for Your Web Page

At the UNIX prompt type in the following commands, in order. When done correctly, these steps need be performed only **once**. Pay attention to case: all UNIX commands are entered in lower case. If you do everything correctly, you will get no praise from UNIX, but if you make a mistake it will give you an error message.

1. **`mkdir public_html`**   This creates the "nest" for your Web pages. Notice that the name contains an underscore character.

2. **`chmod 755 .`**   This sets the permissions on your home account to allow folks from outside to get in. DO NOT MESS THIS UP; it is possible to lock yourself out of your own account! If you do, you must send me an email to asking me to fix your permissions.

3. **`chmod 755 public_html`**   This sets the permissions on `public_html` to allow outside Web requests.

4. **`cd public_html`**   This opens the `public_html` folder.

5. **`pwd`**   This prints the current working directory. Don't proceed unless the response you get here ends as follows (with your username in the blank):

    … … …/_____/`public_html`/

If everything looks OK at this point, you may go on to the instructions on the next page.

Building a Basic Web Page

6. **emacs index.html**   This starts the emacs text editor with a new file called `index.html` (it is new because there are no files at all in this folder). Type in the following simple Web page, **putting your name in the blank**. Follow my indentation and capitalization pattern as closely as possible (4 spaces per indentation level).

```
<!DOCTYPE html>

<HTML>
    <HEAD>
        <TITLE>_____'s Web Page</TITLE>

        <STYLE TYPE="text/css">
            BODY {background-color:#00FFFF}

            H1 {text-align:center}
        </STYLE>
    </HEAD>

    <BODY>
        <H1>
            Welcome to _____
            Web page!
        </H1>
    </BODY>
</HTML>
```

When complete, hit Ctrl X Ctrl C to exit emacs and save your page.

7. **chmod 644 index.html**   This sets the permissions on the `index.html` file so that it is visible on the Web.

8. **ls –al**   This shows the files in the current directory. You should see `index.html` with the permissions:

        `rw-r--r--`

Do not proceed unless this is correct.

9. **logout**   This terminates the connection and closes the PuTTY or `ssh` connection. If using PuTTY on Windows, the PuTTY program window will automatically close. On a Mac, you will also need to type **logout** a <u>second time</u> to close the local Terminal session, and then you can quit the Terminal program.

Linking to Your Page

At this point your page should be visible on the Web, at either of the following addresses (with your username in the blank:

```
http://elsrv3.cs.umass.edu/~_____/
http://elsrv3.cs.umass.edu/~_____/index.html
```

Verify that your Web page works and is visible in a browser.

Editing Your Page (As Needed)

If everything works you will <u>not</u> need to perform this section at this time, but you will need to do this in the future. You *may* need to follow this procedure if you need to fix something for this assignment.

1. Log back in.

Use PuTTY (Windows) or `ssh` from within Terminal (Mac) to connect back to `elsrv3`. Use your regular username and your <u>new</u> password.

2. **cd public_html**

Open the `public_html` folder.

3. **emacs index.html**

Use the emacs text editor to edit your Web page. Exit emacs with Ctrl X Ctrl C. If you get a blank screen then you did not change into the correct folder first! This is a very common problem at this stage.

4. Load the page in the browser.

Point your browser at your Web page and test it. If there are any problems go back to step 3.

5. **logout**

Close everything down.

If You Get Stuck

If you miss any of the instructions, you may need to go back and fix certain things. Possible problems include misspelling or miss-capitalizing folder names, setting or omitting certain file permissions, or creating the `index.html` file in the wrong place. Please email me or the TA(s) if you need help.

What To Turn In

When your page is correct and visible on the Web, send an email message to:

`literacy@cs.umass.edu`

The subject line must be set to the exact phrase:

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The body of the message must contain:

> your **name**,
> your **username**, and
> the **URL** of your page.

For example, I would send as the message body:

```
William T. Verts
Username: verts
URL: http://elsrv3.cs.umass.edu/~verts
```

The next assignment will depend on you successfully completing this one.