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|  |  | **Information Sciences and Technologies**  **Golisano College of Computing and Information Sciences** |

hw 06a: Working with Unix

Name:Moisés Lora Pérez

# Overview

Unix isn’t the most obvious or intuitive operating system in the world. The *best* way to learn it is by actually using it. This homework's activities use many of the most common Unix commands. At times, the series of exercises will seem tedious. But repetition will works in one's favor, especially at practical exam time. And, points are awarded for the correct response to the repetitive tasks. Fill in the signature above, complete the question set and upload this document to the UNIX dropbox.

# A. Getting Started

1. Open the **Terminal** application. Change the default mode in which Terminal works. The instructor will show you how to do this in class.
2. At the prompt, type the command: **ssh *yourid*@kelvin.rit.edu** then press <enter>. This will connect you as a terminal to Kelvin.
3. When prompted, enter your password followed by <enter>. Unlike a GUI system, *nothing* is displayed while you type the password. The cursor will not move while you are typing. But if successful, you be logged into your home directory.
4. Enter the command that tells you what your current working directory is:  
     
   **What command was used?** *pwd*  
     
   **What was the result?** /home/mal3941

# B. Unix Basics

1. **Step A.3 above places the user in his/her login or home directory. Display a list of the contents in that directory. What command was used?**  ls
2. **In the login directory, create a new directory named *mydir*. What command was used?**  
   mkdir mydir
3. **Change to the directory just created. What command was used?**  
   cd mydir
4. **What are the contents of this directory? What command was used?**

ls

1. **Now, change back to the home (login) directory. What command did was used?**cd ..
2. **Delete the *mydir* directory. What command did you use?**rm mydir

# C. More Unix – Less Prompting!

1. **Create a directory named *temp* in the home directory. Make *temp* the current working directory. What command(s) was/were used?**cd temp
2. **Within *temp*, create a directory named *images*. Make *images* the current working directory. What command(s) was/were used?**

mkdir images 🡪 cd images

1. **Within *images*, create TWO directories: *jpeg* and *gif*. What command(s) was/were used?**mkdir jpeg 🡪 mkdir gif
2. **List the contents of the *images* directory. What command(s) was/were used? What is in the directory?**

ls

1. **What is the full path to the *images* directory (starting at root)? What command(s) was/were used to determine this?**home/mal3941/images ; pwd
2. **Now, “jump” to the home directory using only one command. What command was used?**cd
3. **Create a directory named *png* in the home directory. What command(s) was/were used?**mkdir png
4. **The *png* directory is in the wrong place. It should be in the *images* directory, not the home directory. Correct this problem. There are many ways to do this. Write the command(s) used below.**mv png temp/images
5. **Confirm that the *images* directory now has three (3) directories in it. What command(s) was/were used?**cd temp/images 🡪 ls
6. **Unix is Fun! (highlight one) YES NO MEH I GUESS**
7. **“Jump” back to the home directory. Using a single command, change to the *png* directory just created using absolute reference (pathname). What command was used?**cd temp/images/gif

# D. Creating Simple Files

1. **Change to the home directory, then to the *temp* directory. Type the command: pico (or nano)  
     
   *There may be an error at this point, indicating that pico “can’t recognize the terminal.” To fix this, in Terminal:  
     
   Terminal (menu) > Preferences… > Advanced (tab) > Declare terminal as… > xterm or vt100  
     
   After changing, close the Terminal window and open a new one (Terminal > New > Basic)***

**Pico and Nano are a simple txt editors usually available in Unix. Type in some text and then save the file with the name *example*. (Look at the commands at the bottom of the screen or search the web for help.) What command was used to save the file?**CTRL + X 🡪 Y 🡪 ENTER

1. **Exit pico or nano. The current working directory should still be *temp*. List the contents of this directory in short form. Then list the directory in long form. What commands were used?**ls 🡪 ls -l
2. **When the *temp* directory was listed, there should have been a directory named *images* and a file named *example*. In the long format list, how can a user determine what is a file and what is a directory?**file permissions are different from the ones that directories have.

# E. Backup of the Project’s Directory Structure

This course requires a very specific directory structure on Kelvin. The next series of steps will help ensure the directory structure is correct. If things are already set up ***correctly***, the work does not have to be repeated. But make sure everything is set up properly or it can’t get graded!

1. On the Mac desktop, create a folder named ***140***.
2. Inside that folder, create two additional folders: ***media*** and ***project1***
3. Copy the ***index.html*** file and the ***css*** file for the 140 home page (the one created in class) to the ***140*** directory.
4. Copy the image file for the 140 home page to the ***media*** directory.
5. Try to open the ***index.html*** file in the ***140*** directory in a browser. If the css is not working or the image file does not display, check the href and src attributes (respectively). A path change may be required.

Important: Only use *relative* paths to reference the css and image files. Do *not* use absolute paths.

1. When your 140 page is working correctly, copy the ***index.html*** and ***css*** files for project1 to the ***project1*** directory (remember to put the css in project1’s ***css*** directory). Copy any image files for project1 to the ***media*** folder in ***project1***
2. Using the ***140*** folder on the client desktop, open the 140 home page in a browser window. Check that the project1 link on the page opens your project1 ***index.html*** file. If not, change the relative path in the anchor tag for project1
3. With the project1 index page open, check to see if everything looks right. Are the images displayed correctly? Are the css rules being applied? Does navigation work from page to page?

Remember: It will probably be necessary to change some of the path information. If so, use *relative* paths to ensure portability.

1. At this point, a successful directory structure for the 140 home page and your project1 pages should be correct. If not, ask the instructor or TA for help.

# F. The Final Step

1. Using SSH in Terminal, logon to Banjo.
2. Use commands to check that the **140** directory structure on Kelvin matches the **140** folder structure on the desktop.
3. If the structures do not match, adjust the structure on Kelvin to match the structure on the desktop. Remember, the ***140*** directory should be in the ***Sites*** directory.
4. Now, move the files from the desktop to the appropriate directories. If relative addresses were used, there should be no problems. Kelvin-based work can be accessed by entering the URL **http://kelvin.ist.rit.edu/*<yourid>*/140** into a browser.
5. If there is a **403 Access Denied** message, check the directory and file permissions.
6. If there is a **404 File Not Found** message, then there is a bad relative address or a file is not in the right place.

#### Backup procedure using Filezilla

If everything working perfectly on the desktop and the directory structure is as described, there is an easy way to update Banjo. Before following these steps, make absolutely sure to have a full backup of all work. If important files are lost accidentally, the capability to replace them must exist.

1. Create a folder on the desktop named ***backup***.
2. Use **Filezilla** to connect to the home directory on Kelvin.
3. In the left (client or local desktop) window, navigate to the empty backup directory.
4. In the right (Kelvin) window, to navigate to the ***Sites*** directory.
5. Select the ***140*** directory.
6. Drag the ***140*** directory from the right window to the left window. This will copy all of the files in the ***140*** directory structure from Kelvin to the backup folder on the desktop.
7. When the copy is completed, on **Kelvin** (the right window), ***delete*** the ***140*** directory and any subfolders below 140 (media, project1, etc.). Delete all content of these folders as well.
8. At this point, your ***Sites*** directory on Kelvin should not have a 140 directory.
9. But the backup exists on the client desktop.
10. Now, drag the ***140*** folder from the desktop into Kelcvin, the ***Sites*** directory.

This results in a copy of the 140 folder on the desktop (and any sub-folders) as well as the directory structure you have there to the ***Sites*** directory on Kelvin. This will guarantee that the structure on the desktop and the structure on Kelvin are exactly the same.

Caution: Before leaving, make sure to copy both the ***140*** folder *and* the ***backup*** folder from the desktop onto some portable storage media!

**When finished, post this file to the Unix homework dropbox.**

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Name: Moisés Lora Pérez

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| **Criteria** | **Weight** | **Score** |
| A4. Cmd to determine current working directory and output | 5 |  |
| B1. Cmd to determine directory contents | 5 |  |
| B2. Cmd to create directory | 5 |  |
| B3. Cmd to change directory location | 5 |  |
| B4. New location's contents described | 5 |  |
| B5. Cmd to return to home (login) directory. | 5 |  |
| B6. Cmd to delete **mydir** | 5 |  |
| C1. Cmd to create **temp** | 5 |  |
| C2. Cmds to create **images** inside **temp** | 5 |  |
| C3. Cmds to create directories **jpeg, gif** | 5 |  |
| C4. Cmds to list contents of **images** | 5 |  |
| C5. Cmds to list full path to **images** from root | 5 |  |
| C6. Cmd to "jump" to home directory | 5 |  |
| C7&8. Cmds to create **png** directory and relocate it inside **images** | 5 |  |
| C9. Confirmation **images** contents are correct | 5 |  |
| C11. Absolute reference directory change cmd | 5 |  |
| D. Successful creation of text file **example** | 5 |  |
| Name given on first and last page of this document. | 15 |  |
| **Total Points** | 100 |  |