ECE5725: Homework 1

1. Read the Cornell academic integrity guide and take the Cornell academic integrity quiz. Copy a screen shot of your quiz results and paste as an answer to this question

2. Using the guide on Canvas, format your 16G SD card and load the appropriate Linux Raspbian kernel on the card. Once you have loaded Raspbian onto the SD Card, make a backup image on your laptop using the Backup Guide on Canvas. Bring the SD card to Lab1 and be prepared to show this backup image to your TA.

3. Explain Linux file permissions. What is permission 777 and why might this be dangerous. What is permission 644 and what would it allow users to do with your file? What is permission 700 and what does this allow users to do with your file?

4. Log into the ece5725-f25 server. Using the appropriate commands, display your userid, display the current directory, display the current date and time, create a directory named 'test' in your home directory, and list the files in your home directory. Change the permissions of your /home/netid directory (your home directory) so that:

   - You, as the owner, have full permission
   - All other users can access ('cd into') your directory
   - All other users can read from your directory
   - No one else can write into your directory

   Change your default password to something you can remember! Attach a single screenshot of outputs from all the above commands.

5. Within the test directory (/home/your_net_id/test) you just set up, create a file named HW1.txt containing your netid, First and Last Name on a single line. Change the permissions of this file so that no-one can execute it, and only you can read and write it. Attach a screenshot showing the file in the appropriate directory (including the permissions you have set) and a display of the file contents.

6. Explain the function of the 'df' command. Using the ece5725-f25 server, show the output of this command and explain the size settings for the /home entry. What is unique about the settings for the /home directory on the server? Use the appropriate flags on the df command to show the data in a readable format. Attach a screenshot of your results.

7. Run the' ps' command on the class server and count the total number of running processes. Also, pipe the output into another command to search for the processes you own (processes with your userid=netid). Attach a screenshot of your results.

8. Components of a Raspberry Pi can be viewed as those on a server or a laptop. Identify the Raspberry Pi components that correspond to a laptop disk, laptop memory and the laptop

processor. What are some advantages of the Raspberry Pi over the laptop. What are some disadvantages of the raspberry Pi versus the Laptop?

9. What is the difference between the 'top' and 'htop' command? Which one is preferable and why?

10. Using the links in Canvas, please circle and label each Toy Story character corresponding to their Debian release name. Please include:
    - All Debian releases beginning with release 1.1
    - Identify which releases correspond to Raspberry Pi releases
    - Identify planned future releases
    - Also identify the unstable and experimental releases