File Operations

Lab 1: Mounted Filesystems

Explore what filesystems your Linux system has mounted.

Type `cat /etc/fstab`.

Now type `mount`.

How do the two compare? Why do you think there is a difference if there is?

What is another way to see a list of the mounted filesystems on your system?

(Hint: Consider information available in **/proc**.)

Lab 2: Archive/Back-up your login directory

Archiving or backing-up your files from time to time is a very good idea. Sometimes you type a command and accidentally write over a file or two that you didn't mean to alter. Furthermore, while the computer hardware is fairly reliable, it does fail. Getting into the habit of periodically backing-up your files is good.

Let's use the `tar` command, first. What would be a way to back-up all of your files and subdirectories found in your login directory and put them into a **tarball** file out in **/tmp** called **backup.tar**? Please do this.

Next, let's try the same thing with additional compression using the `-z` option to the `tar` command. How would you do this saving the resulting archive to **/tmp/backup.tgz**? Please do this.

Use `ls -l` to see the size of the two archives in **/tmp**. Is one smaller than the other? If yes, then which one?

Lab 3: diff and patching

The **Linux** and Open Source Community uses the `patch` command extensively to communicate updates and modifications. This Lab will serve as an introduction to using the `diff` and `patch` commands. Students who continue to work in the community are strongly encouraged to read both the **patch** and **diff** manual pages to learn advanced options and techniques to effectively work with the `patch` command and the community.

For this Lab, follow these steps:

1. Change to the **/tmp** directory to do this Lab.

2. Copy a text file to **/tmp**. For example, copy the file **/etc/group** to **/tmp**.

3. The `dd` command can not only copy disk devices, but regular files, too. Remember, in Linux, everything is pretty much treated as a file. The `dd` command can also perform various conversions; the `conv=ucase` option will convert all of the characters to upper-case characters. Let's use the `dd` command to copy the text file in **/tmp** to another file in **/tmp** with all of the characters converted to upper-case. If we copied the **/etc/group** file to **/tmp**, the command we would use is similar to:
   `dd if=/tmp/group of=/tmp/GROUP conv=ucase`

4. According to the **patch** manual page, the preferred options for `diff` are "**-Naur old new**" between two directories. Since we are just comparing two files, we don't need to use the `N` or `r` options to `diff`. Run `diff -au` on the two files - the old (**/tmp/group**) and new (the output of the `dd` command such as **/tmp/GROUP**). Save the output of diff in a file (such as **/tmp/group.diff**).

5. Use the `patch` command to patch your original file (**/tmp/group**) to be the same as the new file (the file after using `dd` to make it all upper-case - **/tmp/GROUP**).

6. Finally, to prove that your original file is now patched to be the same as your converted to all upper-case file, use the `diff` command between

those two files. The files should be the same and you won't get any output from the `diff` command.
