Lab Report

ECPE 170 – Computer Systems and Networks – Fall 2012

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Lab Topic: Linux Basics   (Lab # 1)

Lab

Question #1:
What command would I type to go to the following directory?
`/home/jshafer/ecpe170/project1/src`
Answer:
cd src or cd ~?

Question #2:
In the following file pathname, what is the top-level directory (i.e. highest in the hierarchy) and what is the lowest-level directory? `/home/jshafer/ecpe170/project2/src/main.c`
Answer:
Top-level directory: home
Lowest-level directory: src

Question #3:
Copy the first page of the manual for the GCC compiler. *This program is run with the gcc command at the command line.*
Answer:
LS(1)   User Commands   LS(1)

NAME
     ls - list directory contents

SYNOPSIS
     ls [OPTION]... [FILE]...

DESCRIPTION
     List information about the FILEs (the current directory by default).
     Sort entries alphabetically if none of -cftuvSUX nor --sort is speci⁆⁊
     fied.

     Mandatory arguments to long options are mandatory for short options
     too.

     -a, --all
          do not ignore entries starting with .

     -A, --almost-all
          do not list implied . and ..

     --author
Manual page ls(1) line 1 (press h for help or q to quit)

Quesion #4:
What does this command do? sudo rm -rf /. *If you type this at the command line to find out, **you will regret it!***
Answer:

The command "sudo rm -rf" will delete all the files in all you directories.

Question #5:
What do the first three numbers in the output of the wc utility mean?
Answer:
1 - Number of newlines in text file.
21 - Number of words in text file.
109 - Number of characters in text file.

Post-Lab

Task #1:

Display information non how to use the ls program, such as what optional arguments the program accepts.

(Also, what key do you press to advance to the next page? What do you press to exit?)

Answer:

The command "man ls" will display the manual of everything to know for the ls program.

The commands "f" and "b" will advance to the next page, while the command "q" will exit.

Task #2:

Count the number of characters in myfile.txt and save the result in my file myfile_char_count.txt (if that filename is also saved in the output file, that's OK)

Answer:

The command "wc myfile.txt" will list three numbers; the third number is the number of characters in the text file. Then, the command "gedit myfile.txt" will open the text editor for myfile.txt, in which case the user can enter the number of characters and save the file.

Task #3:

List all the files contained in your home directory, including hidden files where the filename starts with a period.

(This command should work for any user, so don't put an explicit path that hardwires it to a specific username.)

Answer:

The command "ls -a" will list all files in the home directory, including hidden files.

Task #4:

Move the file "data.txt" from the current directory to inside the directory "experiment1". The destination directory is located directly under (i.e. inside) the user's home directory.

Note: The current directory is left unspecified in this problem.

Answer:

The command "mv data.txt experiment1" will move the text file to the new directory.

Task #5:

Sort the directory listing of the /etc directory by file size.

Answer:

The command "ls -alS" will list all the files according to largest to smallest size.

Task #6:

Download the file http://www.google.com/logos/2012/earhart-hp.jpg from the web to your current directory.

Answer:

The command "wget http://www.google.com/logos/2012/earhart-hp.jpg" will retrieve the JPEG file from the internet.

Task #7:

Print the current directory that you are in.

Answer:

The command "pwd" will print the current directory.

Task #8:

Do a long listing for files stored in the /boot directory, and include the size of each file in human-friendly units like megabytes or kilobytes.

Answer:

The command "ls -l -h /boot" displays a list of all files and includes a human-friendly format for file sizes.

Task #9:

Report the total amount of disk space consumed by the /bin directory.

(This report of total space should be printed in human friendly units. Further, it should only show the summary (total), not the size of each individual file).

Answer:

The command "df -h /bin" will display the total amount of disk space consumed by the /bin directory.

Task #10:

Report the free space available on the disk in human-friendly units like megabytes or kilobytes.

Answer:

The command "df -h /bin" will display the free space available on the disk as well as the total amount of disk spaced consumed. Also, the command will display the size of the disk, as well as the usage percentage.

Post-Lab Report

Question #11:

What is the Linux kernel?

Answer:

The Linux kernel is the operating system kernel used by Linux.

Question #12:

How is Ubuntu Linux different from the Linux kernel?

Answer:

The Ubuntu Linux is different from the Linux kernel by having a different set of instructions on how the CPU is used.

Question #13:

What is a Virtual Machine?

Answer:

A virtual machine is an operating system that runs within an operating system.

Question #14:

How is dual booting different from a virtual machine?

Answer:

Dual booting is choosing which operating system to run initially, whereas a virtual machine is an operating system running within an operating system.

Question #15:

What is a directory tree, and why is it called a tree?

Answer:

A directory tree is the organization method for storing files. This method is called a tree because the file system resembles a tree, as folders can contain folders which can contain folders, and so on. This structure resembles a tree, or pyramid, if you will.

Question #16:

What is the best text editor: vi or emacs?

Answer:

Emacs is the best text editor, because of its GUI.

Question #17:

Beyond inflicting pain and suffering on newbies, what are 3 advantages of using the command line to control a computer?

Answer:

1. Control.

2. No GUI needed.

3. Much less navigation.

Question #18:

What does one dot (.) mean in a file path? What do two dots (..) mean in a path?

Answer:

A "." in a file path is a link to a folder, whereas ".." is a link to the respective parent folder.

Question #19:

What does cat /proc/cpuinfo do? (Specifically, what does cat do, and what is in /proc/cpuinfo?)

Answer:

The command "cat /proc/cpuinfo" stitches all the files pertaining to the info regarding the CPU together, and displays them in the terminal. The cat command concatenates files by connecting the end of one file to the beginning of the next file.

Question #20:

What does this massive image represent? Explain it in your own words.

Answer:

This massive image represents Linux and all the tweaks developers have created.

Post-Lab Report - Wrapup

Question #1:

What was the best aspect of this lab?

Answer:

The best aspect of this lab was the smooth set of directions. They were incredibly easy to follow and made Linux easy to navigate for a beginner.

Question #2:

What was the worst aspect of this lab?

Answer:

Because I am running Xubuntu, I could not user the command CTRL + ALT + T. This means I have to manually click on the terminal editor to open it.

Question #3:

How would you suggest improving this lab in future semesters?

Answer:

To improve this lab for future semesters, I would suggest to watch a preliminary "how-to-Ubuntu" video to familiarize newbies with the OS's layout and functionality.