

CS 197U: Lab #2

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**NOTE: Submit your question responses to Moodle as a single PDF file.
Include your name, student ID, and your date of submission.**

**If a question asks for command(s), give the complete command with programs, options, arguments, pipes, redirects, etc.
ex: “*vim file.txt*” instead of “*vim*”**

The PDF should be named in the format: *lastname_firstname_lab2.pdf*

Introduction

This Lab will primarily entail working with pipes/redirects, file permissions, and process manipulation. Note that since you’ve now learned about pipes and redirects, when we say ***one command*** in this lab and in future labs, we mean any combination of programs, options, arguments, pipes, and redirects - so long as it is all done in one line.

1 File Systems

Start up your VM and open up a terminal.

You should do the following questions and include your responses in your response sheet. All of this should be done in your home directory (i.e. if you’re asked to create/move/modify/remove files, it should all be done in your home directory):

Question 1

Using **uname**, find the kernel name, the kernel release, the node name, and the hardware platform.

Hint: You can use **man** to find out how to do this.

Q: What did you find for each of the requested parameters?

Question 2

Q: In the form of a percentage, how much space is currently used in the file system mounted on the root directory?

Question 3

Q: How much space in kilobytes (KB) does your home directory take up?

Question 4

Q: How much RAM is free in megabytes (MB)? How much in gigabytes (GB)?

Question 5

Q: What is the absolute path to the **df** program? To **bash**? To **fdisk**?

2 Pipes and Redirects

Question 6

Using one command (so you can use pipes/redirects and multiple programs as long as it is in one line), get the current time in UTC and write the output to a file in your home directory named **curr_time.txt**.

Q: Which command did you use?

Question 7

In your home folder, run the command (note the uppercase O not number 0 for -O)

```
wget http://www.gutenberg.org/cache/epub/345/pg345.txt -O dracula.txt
```

to download the Dracula book as a text file and save it to your system.

Then, using one command, write the first 15 lines of Dracula to a file named **dracula-short.txt** in your home directory.

Q: Which command did you use?

Question 8

Create a **Lab2** folder in your home directory and move your **dracula-short.txt** file into it.

Using one command, extract the text “Dracula” from your **dracula-short.txt** file and write it to a file named **dracula-title.txt** in your **Lab2** directory.

Hint: This is easiest using one pipe and one redirect.

Q: What command did you use?

3 More Working With Files

Question 9

Q: How many words are in your *dracula-short.txt* file? What command did you use to find out?

Question 10

Q: In your home folder, run the command in one line (note the uppercase O not number 0 for -O)

```
wget https://raw.githubusercontent.com/dominictarr/random-name/master/first-names.txt
```

```
-O names.txt
```

to download this list of baby names as a text file and save it to your system.

What are the first 5 names if it is sorted in alphabetical order? What are the last 5 names? What commands did you use?

Question 11

Q: What are the first 5 names starting with “G”? What are the last 3 names starting with “Q”? What commands did you use?

4 File System Permissions

Question 12

Q: In your own words, why do file systems need permissions?

Question 13

Change your *dracula-short.txt* file to be readable and executable by anyone, but only writable by you.

Q: What command did you use?

Question 14

Change your *dracula-title.txt* file to be only readable and writable by you (not executable), and readable by the group - with no other permissions to the group or others.

Q: What command did you use?

Question 15

Q: Which processes are running in your terminal? What are their PIDs?

Question 16

Start the **sleep** program to run in the background for 5 minutes. Then list your processes and their PIDs again.

Q: What are the processes and PIDs? What do you notice that is different? What full command would you use, including argument(s), to stop the running **sleep** process?

When you're all done, use the **exit** command to close your terminal. Then, you can shutdown your VM. Do this from the command line with **shutdown** and then close VirtualBox. You're done!