STSCI 5065 - Spring 2019
ASSIGNMENT 1

This assignment intends to give you an idea about the Linux environment and have some practice using the common commands and techniques.

Logistics

a. This assignment needs to be completed individually and is of a total of 100 marks.
b. The assignment is due by 11:59 PM, 18th February, 2019. Submit it to the course website.
c. You will submit a zip file named as "LastName_FirstName_HW1.zip" containing the below:
    i. The solution file, solutions.pdf - This contains all your Linux commands and your answers with your NetID and Name on the top right corner.
    ii. The output file, outputb5b.txt - See Section B 5(b) for details.
    iii. The zip files – See Section A5 for details.
    iv. Screenshots – Some of the questions require you to provide screenshots. Name each screenshot with question number. For example, for question Section A, 3a, you name screenshot as A_3_a.png. If the same question asks for more than one screenshot, then it would be A_3_a_1.png, A_3_a_2.png and so on.
    v. README.txt (optional) - It consists of anything which you want us to be aware of while grading and name/link of the sources from where you may have referred while solving the assignment.
    vi. Your feedback.txt (optional) - Any feedback you want to provide about the assignment.

d. You should work on the assignment using the CentOS 7 operating system as we will be testing your commands in the same environment. In this homework, you must report all the Linux commands used in all the steps, listed in the order of questions and sub-questions.

Section A

1. (5 pts) In your home directory, create a subdirectory called "**HW1**". Enter the subdirectory. Now execute a command to download the below file from the webpage http://www.gutenberg.org/files/98/98-0.txt and save the file as "**story.txt**" without using the **mv** or **cp** command.

2. (10 pts) Use the **split** command to split story.txt by using a prefix, **sample**_ for names of all the chunks (or files) created by the split command. The size of the chunks is determined by the default setting.

   The split command splits the main file into smaller files and you would see them generated. Each such file starts with "sample_" (some examples are sample_aa, sample_ab, etc.). Create a subdirectory called **subfiles** inside **HW1.** Write a single command to move all the new files to this subdirectory.

3. (26 pts total)

   (3 pts) While in the HW1 directory, create three subdirectories named **"sample1"**and **"sample2"** and **"tmp"** in the directory, **subfiles,** created above. Do the following tasks:

   a. (8 pts) Use a single command to go into the **sample1** directory from HW1, and then with the **echo** command create two hidden files, named with your first name and last name respectively (each file contains the same contents as the file name), in **sample1** such that executing the **ls** command in **sample1** does not show those files. Attach a screenshot. (Hint: a hidden file's name starts with a dot.)

   b. (8 pts) Issue a command so that you can see those hidden files. Attach the screenshot with files present. Issue commands to display the contents of the two hidden files.

   c. (6 pts) Execute the below command while being present in the **sample1** directory.

      mkdir /tmp/hidden

      Then from **sample1** go to the **tmp** directory under the **subfiles** directory. Can you see the directory **hidden** in the **tmp** directory? If yes then why; if not, then why not and where can you find the **hidden** directory?

4. (8 pts) Write commands to first make a tar (to which you should give a name) of all the files directly under the directory **subfiles** and then compress it with gzip. You should not compress any of the subdirectories (sample1, sample2 and tmp). Display a long list to see the file size after compression. Include a screenshot. What percentage of compression you have just achieved?

5. (4 pts) Make a new directory called **tar_zip** within **subfiles**. Move the compressed file to tar_zip and enter tar_zip. Decompress the zip file and then extract the files from the tar. Attach a screenshot.

Section B

1. (8 pts) Create a file named unixIsAwesome1.txt in the HW1directory and write the below text in using the vi editor.

   The Unix system is composed of several components that were originally packaged together. By including the development environment, libraries, documents and the portable, modifiable source code for all of these components, in addition to the kernel of an operating system, Unix was a self-contained software system. This was one of the key reasons it emerged as an important teaching and learning tool and has had such a broad influence. The Unix system had significant impact on other operating systems. It achieved its reputation by its interactivity, hardware, and by being easy to adapt and move to different machines. Unix was written in a high-level programming language rather than assembly language). Although this followed the lead of Multics and Burroughs, it was Unix that popularized the idea. Unix had drastically simplified file model compared to many contemporary operating systems. Many clones of Unix have arisen over the years, of which Linux is the most popular, having displaced SUS-certified Unix on many server platforms since its inception in the early 1990s.

2. (3 pts) Create another file unixIsAwesome2.txt and write the same content in it without using vi or any other text editors. You are also not allowed to use the **cp** or **mv** commands to copy the file unixIsAwesome1.txt or its content or to rename the file. Display that you have successfully created unixIsAwesome2.txt and that unixIsAwesome2.txt and unixIsAwesome2.txt have the same file size. Attach a screenshot.

3. (3 pts) Write a command to see the text of unixIsAwesome2.txt. Attach the screenshot.

4. (3 pts) Write the command to show all the lines of the file unixIsAwesome2.txt except the last 2 lines.

5. (20 pts total) For the following questions, you need to use a file, sample_aa, you created in Section A.
    a. (7 pts) Open sample_aa in vi. Once you are in vi, write the step(s)/command(s)/shortcut(s) you can use to reach the end of the file. Similarly, how can you quickly reach the top of the file if you are somewhere in the middle of the text?
    b. (7 pts) Copy the first 30 lines of sample_aa and write these lines to a file, **outputb5b.txt.** Hint: close vi and create a new file in a new vi session and paste the contents from the buffer.
    c. (6 pts) You opened a file in vi and made multiple changes to it but have not saved the changes. You later realized that none of those changes are required at all, so you need to remove all of them. Since you have forgotten the changes, how would you accomplish this with two different approaches? (Shutting down your Linux system/terminal is not an option).

6. (6 pts) Write the command(s) to grant read permissions to everyone, write permission just to owner and execute permissions to owner and group members to the file sample_aa.

7. (5 pts) You are trying to open amazon.com from your browser but it's not loading up. You are not sure what is happening. Write the command you will use to identify if the Amazon server is up or not. Attach the screenshot of your result as well.