**Week 5 Homework Submission File: Archiving and Logging Data**

* Please edit this file by adding the solution commands on the line below the prompt.
* Save and submit the completed file for your homework submission.

Step 1: Create, Extract, Compress, and Manage tar Backup Archives

1. Command to \*\*extract\*\* the `TarDocs.tar` archive to the current directory: ***tar -xf TarDocs.tar***

2. Command to \*\*create\*\* the `Javaless\_Doc.tar` archive from the `TarDocs/` directory, while excluding the `TarDocs/Documents/Java` directory: ***tar -cvf Javaless\_Docs.tar --exclude-tag-under=Java ~/Projects/TarDocs***

3. Command to ensure `Java/` is not in the new `Javaless\_Docs.tar` archive: ***tar -tf Javaless\_Docs.tar | grep -rw Java\****

**\*\*Bonus\*\***

- Command to create an incremental archive called `logs\_backup\_tar.gz` with only changed files to `snapshot.file` for the `/var/log` directory: ***sudo tar --listed-incremental=snapshot.file -cvzf logs\_backup\_tar.gz /var/log***

**Critical Analysis Question**

- Why wouldn't you use the options `-x` and `-c` at the same time with `tar`? ***With using ‘tar’ only one operation can be used; meaning that either -x (extract) or -c (create) can be used at the same time with tar.***

**Step 2: Create, Manage, and Automate Cron Jobs**

1. Cron job for backing up the `/var/log/auth.log` file:

* ***crontab -e (review cron job line)***
* ***At the bottom, notate the following command:***
* ***0 6 \* \* \* 3 tar -zcf /auth\_backup.tgz /var/log/auth.log***

**Step 3: Write Basic Bash Scripts**

1. Brace expansion command to create the four subdirectories: ***sudo mkdir -p ~backups/{freemem,diskuse,openlist,freedisk}***

2. Paste your `system.sh` script edits below:

***#!/bin/bash***

***sudo nano system.sh***

3. Command to make the `system.sh` script executable:

* Freemem: ***free -h > ~/backups/freemem/free\_mem.txt***
* Disk Use: ***du -h > ~/backups/diskuse/disk\_usage.txt***
* Openlist: ***lsof > ~/backups/openlist/open\_list.txt***
* Freedisk: ***df -h >> ~/backups/freedisk/free\_disk.txt***

\*\*Optional\*\*

- Commands to test the script and confirm its execution: ***sudo chmod +x system.sh***

\*\*Bonus\*\*

- Command to copy `system` to system-wide cron directory:***Bonus - incomplete***

**Step 4. Manage Log File Sizes**

1. Run `sudo nano /etc/logrotate.conf` to edit the `logrotate` configuration file.

Configure a log rotation scheme that backs up authentication messages to the `/var/log/auth.log`.

Add your config file edits below: **Incomplete - I was not familiar with the logrotate scheme edits.**

[Your logrotate scheme edits here]