Week 4 Homework Submission File: Linux Systems Administration

Step 1: Ensure/Double Check Permissions on Sensitive Files

1. Permissions on `/etc/shadow` should allow only `root` read and write access.
    - Command to inspect permissions: **ls -l /etc/shadow**
    - Command to set permissions (if needed): **sudo chmod 600 /etc/shadow**
2. Permissions on `/etc/gshadow` should allow only `root` read and write access.
    - Command to inspect permissions: **ls -l /etc/gshadow**
    - Command to set permissions (if needed): **sudo chmod 600 /etc/gshadow**
3. Permissions on `/etc/group` should allow `root` read and write access, and allow everyone else read access only.
    - Command to inspect permissions: **ls -l /etc/group**
    - Command to set permissions (if needed): **sudo chmod 644 /etc/group**
4. Permissions on `/etc/passwd` should allow `root` read and write access, and allow everyone else read access only.
    - Command to inspect permissions: **ls -l /etc/passwd**
    - Command to set permissions (if needed): **sudo chmod 644 /etc/passwd**

Step 2: Create User Accounts

1. Add user accounts for `sam`, `joe`, `amy`, `sara`, and `admin`.
    - Command to add each user account (include all five users): **sudo adduser sam, sudo adduser joe, sudo adduser amy, sudo adduser sara, sudo adduser admin**
2. Ensure that only the `admin` has general sudo access.
    - Command to add `admin` to the `sudo` group: **sudo usermod -aG sudo admin**

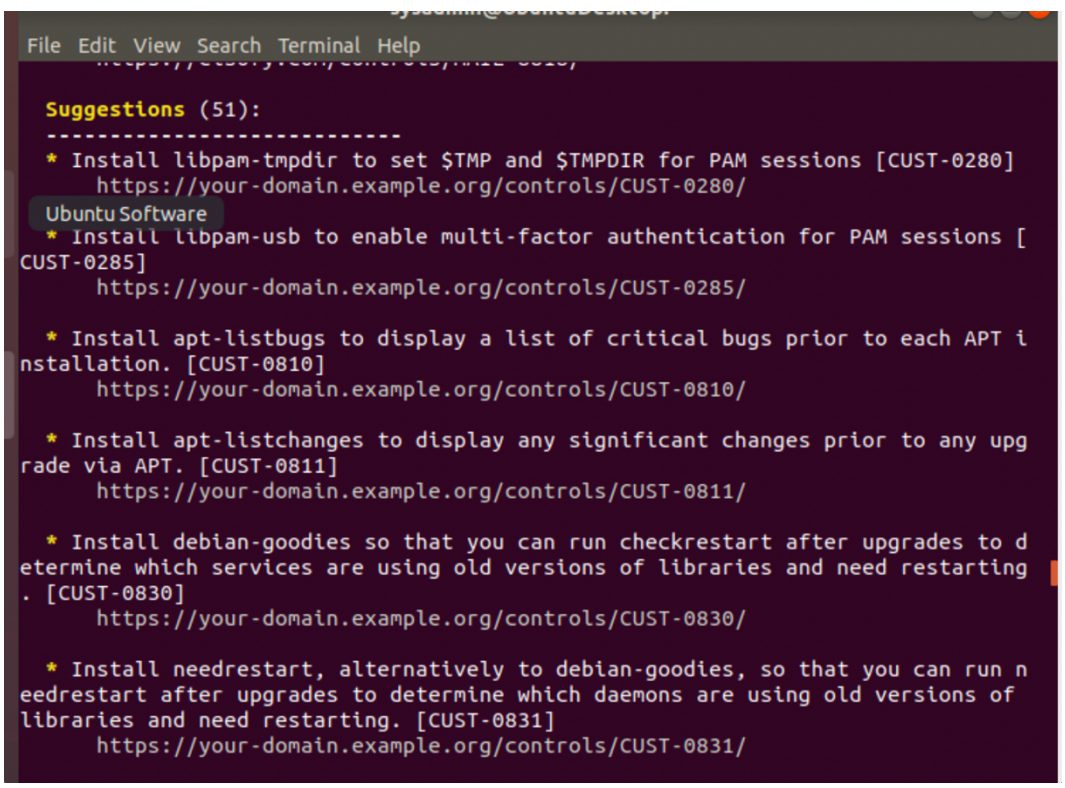
Step 3: Create User Group and Collaborative Folder

1. Add an `engineers` group to the system.
    - Command to add group: **sudo addgroup engineers**

2. Add users sam, joe, amy, and sara to the managed group.
    - Command to add users to engineers group (include all four users): **sudo usermod -aG engineers sam, sudo usermod -aG engineers joe, sudo usermod -aG engineers amy, sudo usermod -aG engineers sara**
3. Create a shared folder for this group at /home/engineers.
    - Command to create the shared folder: **mkdir /home/engineers**
4. Change ownership on the new engineers' shared folder to the engineers group.
    - Command to change ownership of engineer's shared folder to engineer group: **sudo chown :engineers /home/engineers**

Step 4: Lynis Auditing

1. Command to install Lynis: **sudo apt intsall lynis**
2. Command to see documentation and instructions: **sudo lynis --help**
3. Command to run an audit: **sudo lynis audit system**
4. Provide a report from the Lynis output on what can be done to harden the system.
    - Screenshot of report output:



Bonus

1. Command to install chkrootkit: **sudo apt install chkrootkit**
2. Command to see documentation and instructions: **man chkrootkit**
3. Command to run expert mode: **sudo chkrootkit -x**
4. Provide a report from the chrootkit output on what can be done to harden the system.
    - Screenshot of end of sample output:

```
/bin/ls: cannot access '//sbin/rootedoor': No such file or directory
###
### Output of: /bin/ls -l //bin/rootedoor
###
/bin/ls: cannot access '//bin/rootedoor': No such file or directory
###
### Output of: /bin/ls -l //snap/bin/rootedoor
###
/bin/ls: cannot access '//snap/bin/rootedoor': No such file or directory
###
### Output of: /bin/ls -l /etc/.enyeOCULTAR.ko
###
/bin/ls: cannot access '/etc/.enyeOCULTAR.ko': No such file or directory
###
### Output of: cat //var/spool/cron/crontabs | egrep var/tmp
###
cat: //var/spool/cron/crontabs: Is a directory
###
### Output of: /bin/ls -l /tmp/ss0-[0-]9*
###
/bin/ls: cannot access '/tmp/ss0-[0-]9*': No such file or directory
###
### Output of: /bin/ls -l /tmp/kk0-[0-]9*
###
/bin/ls: cannot access '/tmp/kk0-[0-]9*': No such file or directory
###
### Output of: /bin/ls -l /home/
###
total 72
```