**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:
     + sysadmin@UbuntuDesktop:/etc$ ls -l /etc/shadow
     + -rw-r----- 1 root shadow 2888 May 14 16:31 shadow
   * Command to set permissions (if needed):
     + sudo chmod 640 /etc/shadow
2. Permissions on /etc/gshadow should allow only root read and write access.
   * Command to inspect permissions:
     + sysadmin@UbuntuDesktop:/etc$ ls -l /etc/gshadow
     + -rw-r----- 1 root shadow 1076 May 14 16:31 gshadow
   * Command to set permissions (if needed):
     + sudo chmod 640 /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:
     + sysadmin@UbuntuDesktop:/etc$ ls -l /etc/group
     + -rw-r--r-- 1 root root 1303 May 14 16:31 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:
     + sysadmin@UbuntuDesktop:/etc$ ls -l /etc/passwd
     + -rw-r--r-- 1 root root 3214 May 14 16:31 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):
2. sudo mkdir /home/sam

sudo chown -R sam: /home/sam

1. sudo mkdir /home/joe

sudo chown -R joe: /home/joe

1. sudo mkdir /home/amy

sudo chown -R amy: /home/amy

1. sudo mkdir /home/sara

sudo chown -R sara: /home/sara

1. sudo mkdir /home/admin

sudo chown -R admin: /home/admin

1. 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

1. Add users sam, joe, amy, and sara to the managed group.
   * Command to add users to engineers group (include all four users):
     1. sudo usermod -aG engineers sam
     2. sudo usermod -aG engineers joe
     3. sudo usermod -aG engineers amy
     4. sudo usermod -aG engineers sara
2. Create a shared folder for this group at /home/engineers.
   * Command to create the shared folder:

sudo mkdir /home/engineers

1. 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 -R engineers: /home/engineers

**Step 4: Lynis Auditing**

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

Graphical user interface, text, application

Description automatically generated

**Bonus**

1. Command to install chkrootkit:

sudo apt install chkrootkit

1. Command to see documentation and instructions:

man chkrootkit

1. Command to run expert mode:

chkrootkit -x

1. Provide a report from the chrootkit output on what can be done to harden the system.
   * Screenshot of end of sample output:

Text

Description automatically generated