## **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:  
     sudo ls -l /etc/shadow
   * Command to set permissions (if needed):  
     chmod -r 644 /etc/shadow
2. Permissions on /etc/gshadow should allow only root read and write access.  
   * Command to inspect permissions:  
     sudo ls -l /etc/gshadow
   * Command to set permissions (if needed):  
     chmod -r 644 /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:  
     sudo ls -l /etc/group
   * Command to set permissions (if needed):  
     chmod -r 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:  
     sudo ls -l /etc/passwd
   * Command to set permissions (if needed):  
     chmod -r 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 joe amy sara 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):

sudo usermod -aG engineers (sam amy joe sara)

1. Create a shared folder for this group at /home/engineers.  
   * Command to create the shared folder:

mkdir 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 root:engineers 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:  
   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:

<https://drive.google.com/drive/folders/17xc3rD2-szjVOB3Jmiazc810AmwKd8zq?usp=sharing>

### **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:

<https://drive.google.com/file/d/1whNQ3S4rXnuw87thCmE7ebZVKtRSDIeF/view?usp=sharing>