Submission File: Linux Systems Administration Homework
Ensure permissions on sensitive files

Permissions on `/etc/shadow` should allow only `root` read and write access:
- **Command to inspect permissions**:
ls -ld /etc/shadow
- **Command to Set Permissions (if needed)**:
sudo chmod 600 /etc/shadow

Permissions on `/etc/gshadow` should allow only `root` read and write access:
- **Command to inspect permissions**:
ls -ld /etc/gshadow
- **Command to Set Permissions (if needed)**:
sudo chmod 600 /etc/gshadow

Permissions on `/etc/group` should allow `root` read and write access, and allow everyone else `read` access only:
- **Command to inspect permissions**:
ls -ld /etc/group
- **Command to Set Permissions (if needed)**:
sudo chmod 644 /etc/group

Permissions on `/etc/passwd` should allow `root` read and write access, and allow everyone else `read` access only:
- **Command to inspect permissions**:
ls -ld /etc/passwd
- **Command to set permissions (if needed)**:
sudo chmod 644 /etc/passwd

Create user accounts

Add user accounts `sam`, `joe`, `amy`, `sara`, and `admin`
- **Command to add each user account (please include all 5)**:
sudo useradd sam
sudo useradd joe
sudo useradd amy
sudo useradd sara
sudo useradd admin

Force users to create 16 character passwords incorporating numbers and symbols
- **Command to edit `pwquality.conf` file**:
sudo vi /etc/security/pwquality.conf

- **Updates to configuration file**:
go to ‘minlen’
change ‘8’ for ‘16’
press the ‘Esc’ key
press ‘:’then ‘x’

Force passwords to expire every 90 days:
- **Command to to set each new user's password to expire in 90 days (please include all 5)**:
sudo chage -M 90 joe
sudo chage -M 90 sam
sudo chage -M 90 amy
sudo chage -M 90 sara
sudo chage -M 90 admin

Ensure that only the `admin` has general sudo access:
- **Command to add `admin` to the `sudo` group**:
sudo usermod -aG sudo admin

Create user group and collaborative folder

Add a `engineers` group to the system.
- **Command**:
sudo groupadd engineers

Add users `sam`, `joe`, `amy`, and `sara` to the managed group
- **Command to add users to `engineers` group (please include all 4)**:
sudo usermod -aG engineers sam
sudo usermod -aG engineers joe
sudo usermod -aG engineers amy
sudo usermod -aG engineers sara

Create a shared folder for this group at `/home/engineers`
- **Command to create the shared folder**:
sudo mkdir -p /home/engineers/wrench

Change the group on the engineers directory to the `engineers` group
- **Command to change ownership of engineer's shared folder to engineer group**:
sudo chown -R sam /home/engineers/wrench
sudo chown -R amy /home/engineers/wrench
sudo chown -R sara /home/engineers/wrench
sudo chown -R joe /home/engineers/wrench

Add the `SGID` bit and the `sticky` bit to allow collaboration between engineers in this directory
- **Command to set SGID and sticky bit to shared folder**:
sudo chmod g+s /home/engineers/wrench
sudo chmod +t /home/engineers/wrench

Lynis auditing

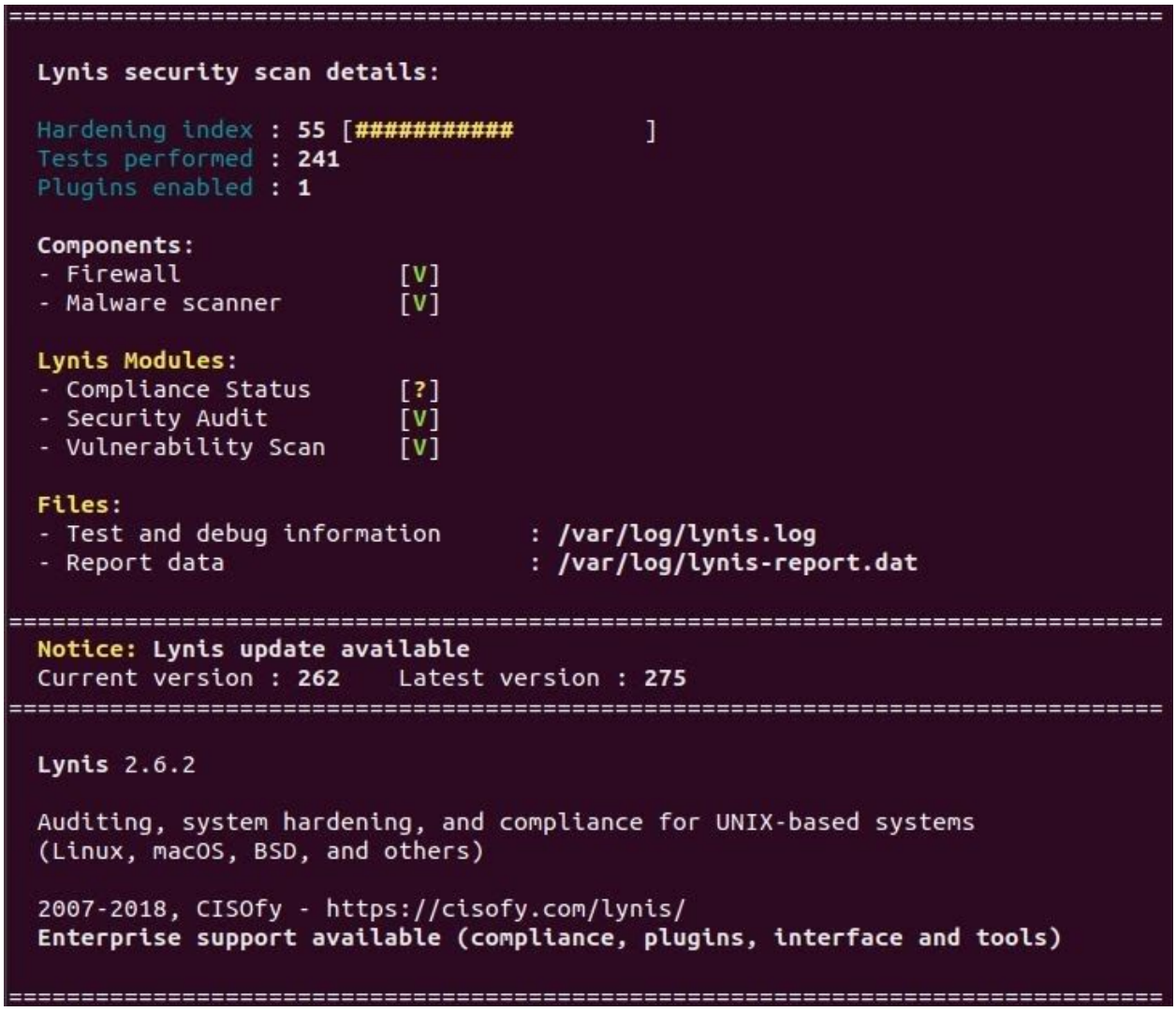
Install and run `lynis`
- **Command to install `lynis`:**

sudo apt install lynis

- **Command to see options:**
sudo lynis

- **Command to run an audit**
sudo lynis audit system

Provide a report from `lynis` output on what more could be done to harden the system.
- **Screenshot of report output**:



Bonus: Check for Root Kits

Install and run `chkrootkit`.
- **Command to install `chkrootkit`**
sudo apt install chkrootkit -y

- **Command to see options:**

```
sudo /usr/sbin/chkrootkit --help
```

- **Command to run expert mode:**

```
sudo /usr/sbin/chkrootkit
```

- **Screenshot of End of Sample Output:**