Task 1 :

User permission and system misconfigurations ⚙ :

```
┌──(kali㉿kali)-[~/Desktop]
└─$ sudo useradd maddy
[sudo] password for kali:
```

▤ First, we create a user named "**adengappa**" using the `sudo useradd <username>` command.

```
┌──(kali㉿kali)-[~/Desktop]
└─$ echo "maddy:12345678" | sudo chpasswd
```

2. We assign the password "
1234" by using the `echo` command to write it into the password file `chpassword`,
with elevated privileges via `sudo`.

```
┌──(kali㉿kali)-[~/Desktop]
└─$ ls -l /etc/shadow
-rw-rw-r-- 1 root shadow 1753 Mar 11 22:51 /etc/shadow
```

▤ We examine the permissions of the password file to identify and exploit any misconfigurations.

```
  ┌──(kali⊛kali)-[~/Desktop]
  └─$ sudo chmod 777 /etc/shadow

  ┌──(kali⊛kali)-[~/Desktop]
  └─$ ls -l /etc/shadow
  -rwxrwxrwx 1 root shadow 1753 Mar 11 22:51 /etc/shadow
```

▣▣ We modify the permissions of the shadow file using the sudo chmod 777 command to grant full access. Then, we verify the updated permissions to confirm the ability to view the file.

```
  ┌──(kali⊛kali)-[~/Desktop]
  └─$ cat /etc/shadow
  root:*:
  daemon:*:
  bin:*:
  sys:*:
  sync:*:
  games:*:
```

▣▣ As observed, we can now view the contents of the /etc/shadow file, which contains hashed passwords, even with normal user privileges.

▣▣ We have successfully configured etc/shadow to be accessible by normal users.

Securing permissions 🔒 :

```
  ┌──(kali⊛kali)-[~/Desktop]
  └─$ sudo chmod 640  /etc/shadow

  ┌──(kali⊛kali)-[~/Desktop]
  └─$ sudo chown root:shadow /etc/shadow
```

1. We secure the password file by setting its permissions to 640 using the chmod command. This ensures that only the root user and members of the shadow group

can access it. The root user's password remains viewable only under superuser pr ivileges.

▤▤ We modify the permissions of the /etc/passwd file using sudo chmod 644 and set its ownership to root:root with sudo chown root:root . This ensures that regular users can read the file but cannot modify it.

▤▤ Finally we use sudo visudo to check permissions.

📌 Summary of Steps

Step Create Users	Command	Pur pose
Set Passwords	sudo useradd user1	Add new users
Break Security	`echo "user1:pass"	sudo chpasswd`
Exploit Fix	sudo chmod 777 /etc/shadow	Make shadow file world-readable ▤BAD▤
Permissions	su user1 && cat /etc/shadow	Access passwords as normal user
Secure	sudo chmod 640 /etc/shadow	Secure shadow file
/etc/passwd Fix	sudo chmod 644 /etc/passwd	Prevent unauthorized edits
sudo Privileges	sudo visudo	Restrict sudo access