Lab 02 – Linux
By: Sharaf

1. Create a user account with the following attribute
   - username: islam
   - Fullname/comment: Islam Askar
   - Password: islam

```
sharaf@sharaf:~$ sudo useradd -c "Islam Askar" islam
sharaf@sharaf:~$ sudo passwd islam
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
sharaf@sharaf:~$ tail -n1 /etc/passwd
islam:x:1001:1001:Islam Askar:/home/islam:/bin/sh
sharaf@sharaf:~$
```

2. Create a user account with the following attribute
   - Username: baduser
   - Full name/comment: Bad User
   - Password: baduser

```
sharaf@sharaf:~$ sudo useradd -c "Bad User" baduser
sharaf@sharaf:~$ sudo passwd baduser
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
sharaf@sharaf:~$ tail -n1 /etc/passwd
baduser:x:1002:1002:Bad User:/home/baduser:/bin/sh
sharaf@sharaf:~$
```

3. Create a supplementary (Secondary) group called pgroup with group ID of 30000

```
sharaf@sharaf:~$ sudo groupadd -g 30000 pgroup
sharaf@sharaf:~$ tail -n1 /etc/group
pgroup:x:30000:
sharaf@sharaf:~$
```

4. Create a supplementary group called badgroup

```
sharaf@sharaf:~$ sudo groupadd badgroup
sharaf@sharaf:~$ tail -n1 /etc/group
badgroup:x:30001:
sharaf@sharaf:~$
```

5. Add islam user to the pgroup group as a supplementary group

```
sharaf@sharaf:~$ sudo usermod -aG pgroup islam
sharaf@sharaf:~$ tail -n2 /etc/group
pgroup:x:30000:islam
```

6. Modify the password of islam's account to *password*

```
sharaf@sharaf:~$ sudo passwd islam
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
Retype new password:
passwd: password updated successfully
sharaf@sharaf:~$
```

7. Modify islam's account so the password expires after 30 days

```
sharaf@sharaf:~$ sudo chage -l islam
Last password change                                    : Nov 02, 2025
Password expires                                        : never
Password inactive                                       : never
Account expires                                         : never
Minimum number of days between password change          : 0
Maximum number of days between password change          : 99999
Number of days of warning before password expires       : 7
sharaf@sharaf:~$ sudo chage -M 30 islam
sharaf@sharaf:~$ sudo chage -l islam
Last password change                                    : Nov 02, 2025
Password expires                                        : Dec 02, 2025
Password inactive                                       : never
Account expires                                         : never
Minimum number of days between password change          : 0
Maximum number of days between password change          : 30
Number of days of warning before password expires       : 7
sharaf@sharaf:~$
```

8. Lock bad user account so he can't log in

```
sharaf@sharaf:~$ sudo usermod -L baduser
sharaf@sharaf:~$ sudo tail -n2 /etc/shadow
baduser:!$y$j9T$/0uCpVICE6ubt5KVp5WcU.$FOW.NY.m30WPzPyYROXAXBy.QZk0Z8tebBHWIwhyjA0:20394:
islam:!:20394:0:30:7:::
sharaf@sharaf:~$
```

9. Delete bad user account

```
sharaf@sharaf:~$ sudo userdel -r baduser
userdel:Ibaduser mail spool (/var/mail/baduser) not found
userdel: baduser home directory (/home/baduser) not found
sharaf@sharaf:~$
```

10. Delete the supplementary group called badgroup.

```
sharaf@sharaf:~$ sudo groupdel badgroup
sharaf@sharaf:~$
```

11. Create a folder called myteam in your home directory and change its permissions to read only for the owner.

```
sharaf@sharaf:/home$ sudo mkdir myteam
sharaf@sharaf:/home$ ls -l
total 12
drwxr-xr-x  2 root    root   4096 Nov  3 13:41 ahmed
drwxr-xr-x  2 root    root   4096 Nov  3 13:42 myteam
drwxr-x--- 15 sharaf sharaf 4096 Nov  3 13:37 sharaf
sharaf@sharaf:/home$ sudo chmod 400 myteam
sharaf@sharaf:/home$ ls -l
total 12
drwxr-xr-x  2 root    root   4096 Nov  3 13:41 ahmed
dr--------  2 root    root   4096 Nov  3 13:42 myteam
drwxr-x--- 15 sharaf sharaf 4096 Nov  3 13:37 sharaf
```

12. Log out and log in by another user

```
sharaf@sharaf:/home$ su ahmed
Password:
```

13. Try to access (by cd command) the folder (myteam)

```
bash: cd: myteam: Permission denied
ahmed@sharaf:/home$
```

14. Using the command Line
    a. Change the permissions of oldpasswd file to give owner read and write permissions and for group write and execute and execute only for the others (using chmod in 2 different ways)
        1. First Way

```
sharaf@sharaf:~$ sudo chmod u=rw,g=wx,o=x oldpasswd
sharaf@sharaf:~$ ls -l
total 40
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Desktop
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Documents
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Downloads
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Music
-rw--wx--x 1 root   root   2905 Nov  3 13:49 oldpasswd
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Pictures
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Public
drwx------ 5 sharaf sharaf 4096 Nov  1 12:00 snap
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Templates
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Videos
sharaf@sharaf:~$
```

        2. Second Way

```
sharaf@sharaf:~$ sudo chmod 631 oldpasswd
sharaf@sharaf:~$ ls -l
total 40
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Desktop
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Documents
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Downloads
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Music
-rw--wx--x 1 root   root   2905 Nov  3 13:49 oldpasswd
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Pictures
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Public
drwx------ 5 sharaf sharaf 4096 Nov  1 12:00 snap
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Templates
drwxr-xr-x 2 sharaf sharaf 4096 Oct 31 14:16 Videos
```

b. Change your default permissions to be as above.

`sharaf@sharaf:~$ umask 146`

c. what is the maximum permission a file can have, by default when it is just created? And what is that for directory.

Folder	*rwx rwx rwx*
File	*rw-rw-rw-*

d. Change your default permissions to be no permission to everyone then create a directory and a file to verify.

```
sharaf@sharaf:~$ umask 777
sharaf@sharaf:~$ mkdir testdir; touch testfile
sharaf@sharaf:~$ ls -l
d--------- 2 sharaf sharaf 4096 Nov  3 13:55 testdir
---------- 1 sharaf sharaf    0 Nov  3 13:55 testfile
```

15. What are the minimum permission needed for:
    Copy a directory:
    - o Source
      - ➔ r + x
    - o Target
      - ➔ w + x

    Copy a file:
    - o Source
      - ➔ r
    - o Target
      - ➔ w + x

    Delete a file:
    - ➔ No Permission

    Change to a directory:
    - ➔ X

    List a directory content (ls command):
    - ➔ X

    View a file content (more/cat command):
    - ➔ R

    Modify a file content:
    - ➔ W

16. Create a file with permission 444. Try to edit in it and to remove it? Note what happened.

```
sharaf@sharaf:~$ touch test
sharaf@sharaf:~$ chmod 444 test
sharaf@sharaf:~$ echo "hi linux" >> test
bash: test: Permission denied
sharaf@sharaf:~$ rm test
rm: remove write-protected regular empty file 'test'? y
sharaf@sharaf:~$ ls
Desktop  Documents  Downloads  Music  oldpasswd  Pictures  Public  snap  Templates  testdir  testfile  Videos
sharaf@sharaf:~$ 
```

17. What is the difference between the "x" permission for a file and for a directory?

File	can be executed (run) as a program
Directory	can enter (access) the directory (cd)