Assignment # 02

Scenario: Web Development Team Management

Name   **Maheen Abdul Razzaq**

Task 01

mkdir /var/www/ProjectX
➤Creates a new directory for ProjectX at the specified path.

cd /var/www/ProjectX
➤Navigates into the newly created ProjectX directory.

touch index.html app.py README.md
➤Creates empty frontend and backend files for the project.

pwd
➤Displays the current working directory path.

ls -l
➤Lists files with detailed info like permissions, owner, size, and modification time.

df -h
➤Shows disk space usage in human-readable format (e.g., GB, MB).

echo "Welcome to ProjectX" > README.md

➤Writes the welcome message into the README.md file (overwriting any existing content).

cat README.md

➤Displays the contents of the README.md file in the terminal.

```
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ pwd
/var/www/ProjectX
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ ls -l
total 0
-rw-r--r-- 1 root root 0 May  9 20:05 README.md
-rw-r--r-- 1 root root 0 May  9 20:05 app.py
-rw-r--r-- 1 root root 0 May  9 20:05 index.html
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root       7.6G  1.7G  5.9G  23% /
tmpfs           479M     0  479M   0% /dev/shm
tmpfs           192M  872K  191M   1% /run
tmpfs           5.0M     0  5.0M   0% /run/lock
/dev/xvda15     105M  6.1M   99M   6% /boot/efi
tmpfs            96M  4.0K   96M   1% /run/user/1000
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ echo "Welcome to Project X" > README.md
-bash: README.md: Permission denied
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ sudo echo "Welcome to Project X" > README.md
-bash: README.md: Permission denied
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ echo "Welcome to Project X"| sudo tee README.md > /dev/null
ubuntu@ip-172-31-46-70:/var/www/ProjectX$ cat README.md
Welcome to Project X
```

Task 02

User and Group Permission Management

groupadd devteam

➤Creates a new group named devteam.

useradd bhatti and useradd malik

➤Adds new users bhatti and malik to the system.

usermod -aG devteam bhatti **and** **usermod -aG devteam malik**

➤Adds bhatti and malik to the devteam group without removing them from other groups.

chgrp -R devteam /var/www/ProjectX

➤Changes the group ownership of the ProjectX directory and its contents to devteam.

chmod -R 770 /var/www/ProjectX

➤Gives read/write/execute permission to owner and group, and no permission to others.

ls -ld /var/www/ProjectX

➤Lists directory details to verify permissions and group ownership.

groups bhatti

➤Displays the groups the user bhatti belongs to.

```
[ubuntu@ip-172-31-46-70:/var/www/ProjectX$ groupadd devteam
groupadd: Permission denied.
groupadd: cannot lock /etc/group; try again later.
[ubuntu@ip-172-31-46-70:/var/www/ProjectX$ cd /
[ubuntu@ip-172-31-46-70:/$ groupadd devteam
groupadd: Permission denied.
groupadd: cannot lock /etc/group; try again later.
[ubuntu@ip-172-31-46-70:/$ sudo groupadd devteam
[ubuntu@ip-172-31-46-70:/$ useradd maheen
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
[ubuntu@ip-172-31-46-70:/$ sudo useradd maheen
[ubuntu@ip-172-31-46-70:/$ sudo useradd mahad
[ubuntu@ip-172-31-46-70:/$ usermode -aG devteam maheen
Command 'usermode' not found, did you mean:
  command 'usermod' from deb passwd (1:4.8.1-2ubuntu2.2)
Try: sudo apt install <deb name>
[ubuntu@ip-172-31-46-70:/$ usermod -aG devteam maheen
usermod: Permission denied.
usermod: cannot lock /etc/passwd; try again later.
[ubuntu@ip-172-31-46-70:/$ sudo usermod -aG devteam maheen
[ubuntu@ip-172-31-46-70:/$ sudo usermod -aG devteam mahad
[ubuntu@ip-172-31-46-70:/$ sudo chgrp -R devteam /var/www/ProjectX
[ubuntu@ip-172-31-46-70:/$ sudo chmod -R 770 /var/www/ProjectX
[ubuntu@ip-172-31-46-70:/$ ls -ld /var/www/ProjectX
drwxrwx--- 2 root devteam 4096 May  9 20:11 /var/www/ProjectX
[ubuntu@ip-172-31-46-70:/$ groups mahad
mahad : mahad devteam
```

Task 03

Change Ownership

chown -R bhatti:devteam /var/www/ProjectX
➤Makes bhatti the owner and devteam the group of all files and folders in ProjectX.

ls -l /var/www/ProjectX
➤Shows updated ownership and permissions for each file in the directory.

su - bhatti
➤Switches to the user account bhatti (requires password).

cd /var/www/ProjectX
➤Moves into the project directory as user bhatti.

touch config.yaml
➤Creates a new configuration file in the project directory.

ls -l
➤Confirms the file creation and ownership under user bhatti.

```
ubuntu@ip-172-31-46-70:/$ sudo chown -R mahad:devteam /var/www/ProjectX
ubuntu@ip-172-31-46-70:/$ ls -l /var/www/ProjectX
ls: cannot open directory '/var/www/ProjectX': Permission denied
ubuntu@ip-172-31-46-70:/$ sudo ls -l /var/www/ProjectX
total 4
-rwxrwx--- 1 mahad devteam 21 May  9 20:14 README.md
-rwxrwx--- 1 mahad devteam  0 May  9 20:05 app.py
-rwxrwx--- 1 mahad devteam  0 May  9 20:05 index.html
ubuntu@ip-172-31-46-70:/$ su - maheen
Password:
su: Authentication failure
ubuntu@ip-172-31-46-70:/$ su - maheen
Password:
su: Authentication failure
ubuntu@ip-172-31-46-70:/$ sudo passwd maheen
New password:
Retype new password:
passwd: password updated successfully
ubuntu@ip-172-31-46-70:/$ su - maheen
Password:
su: warning: cannot change directory to /home/maheen: No such file or directory
$ cd /var/www/ProjectX
$ touch config.yaml
$ ls -l
total 4
-rwxrwx--- 1 mahad   devteam 21 May  9 20:14 README.md
-rwxrwx--- 1 mahad   devteam  0 May  9 20:05 app.py
-rw-rw-r-- 1 maheen maheen   0 May  9 20:26 config.yaml
-rwxrwx--- 1 mahad   devteam  0 May  9 20:05 index.html
$ top

top - 20:26:35 up  3:31,  3 users,  load average: 0.00, 0.00, 0.00
Tasks: 106 total,   1 running, 105 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.3 sy,  0.0 ni, 81.5 id,  0.0 wa,  0.0 hi,  0.0 si, 18.2 st
MiB Mem :    957.4 total,    303.2 free,    186.9 used,    467.3 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    617.2 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
      1 root      20   0  101912  12668   8316 S   0.0   1.3   0:01.38 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_release
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_p
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-slub_
```

Task 04

System-Level Commands

top
➤Continuously displays real-time system performance including CPU and memory usage.

ps aux | grep ProjectX
➤Searches and lists any running processes related to ProjectX.

tail -n 50 /var/log/syslog
➤Displays the last 50 lines of the system log for troubleshooting purposes.