

Practical Assignment

Basic Linux Command & File Management

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★ Basic Linux Commands

Display the directory path that you are currently in.

List all the directories in your current working directory with their permissions.

Change your shell's current working directory to the first listed directory in the previous question. Use the appropriate command without argument to change your current working directory to **home**.

```
suwalkchuwan@suwalkchuwan-VirtualBox:~$ sudo adduser gcit_12220076
Adding user `gcit_12220076' ...
Adding new group `gcit_12220076' (1007) ...
Adding new user `gcit_12220076' (1006) with group `gcit_12220076' ...
Creating home directory `/home/gcit_12220076' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for gcit_12220076
Enter the new value, or press ENTER for the default
    Full Name []: sujal k chuwan
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
suwalkchuwan@suwalkchuwan-VirtualBox:~$
```

★ Files and Directories

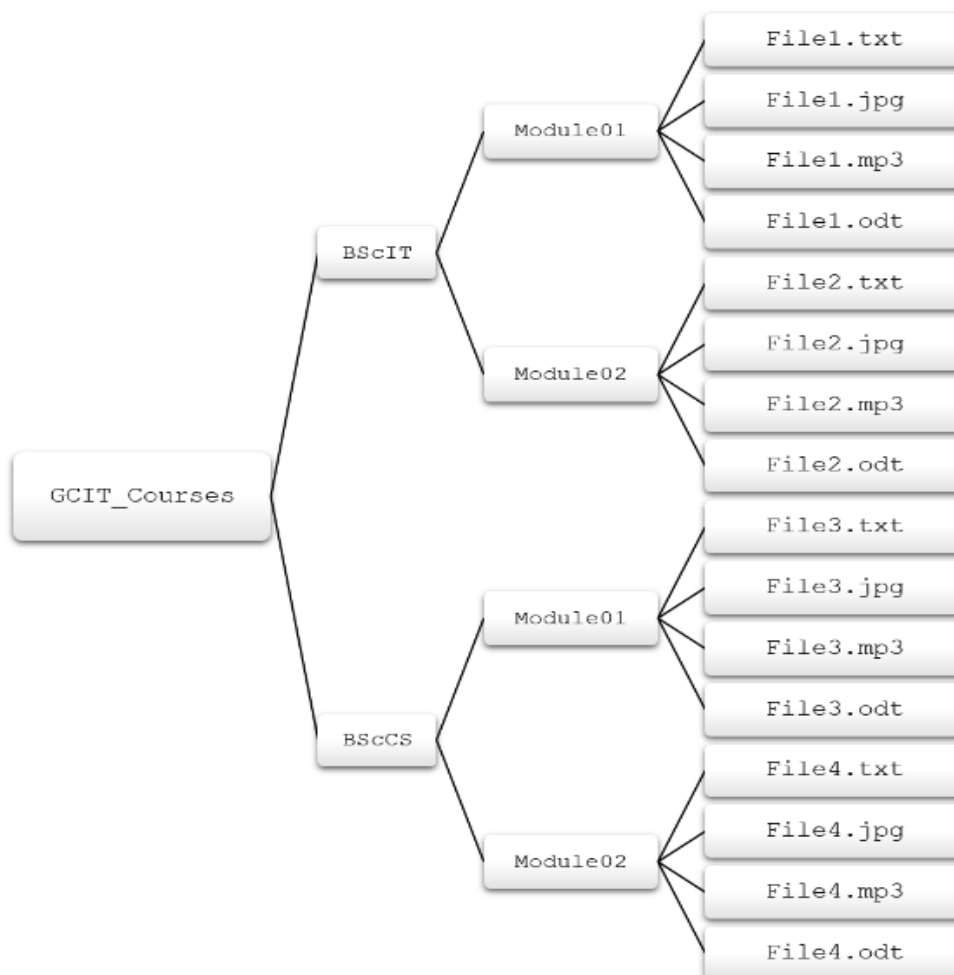
Create files and directories as per the given structure.

Create three directories using a single command line, namely documents, pictures, and audio in your home directory. **[.odt files must have information about yourself as content]**

```

sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop$ mkdir -p GCIT_Course/{Bscit/(module01,module02),Bscs/(module01,module02)}
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop$ ls
file file1 file2 folder folder1 folder2 GCIT_Course
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop$ cd GCIT_Course
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course$ ls
BscC Bscit
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course$ cd BscC
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC$ ls
module01 module02
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC$ cd ..
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course$ cd Bscit
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit$ ls
module01 module02
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit$ cd module01
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ touch file1.txt
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ touch file1.jpg
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ touch file1.mp3
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ cat >> file1.odt
Name: SUJAL K CHIDAM
Location: unknown ^C
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ cd ..
cd: .: command not found
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module01$ cd ..
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit$ cd module02
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module02$ touch file2.txt
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module02$ touch file2.jpg
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module02$ touch file2.mp3
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module02$ cat >> file2.odt
hobbies: happy
^C
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit/module02$ cd ..
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/Bscit$ cd ..
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course$ cd BscC
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC$ cd module01
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module01$ touch file3.txt
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module01$ touch file3.jpg
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module01$ touch file3.mp3
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module01$ cat >> file3.odt
fav food: rice
^C
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module01$ cd ..
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC$ cd module02
bash: cd: module02: No such file or directory
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC$ cd module02
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module02$ touch file4.txt
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module02$ touch file4.jpg
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module02$ touch file4.mp3
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module02$ cat >> file4.odt
Strength : kindness
^C
sujaikhuang@sujaikhuang-VirtualBox: ~/Desktop/GCIT_Course/BscC/module02$

```



Move the .txt files to the document directory, the image filecd..s to the pictures directory, and the audio files to the audio directory. **[Hint: Continue in your current directory]**

```

^C
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module02$ mv file1.txt ~/Documents
mv: cannot stat 'file1.txt': No such file or directory
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module02$ mv file.txt ~/Documents
mv: cannot stat 'file.txt': No such file or directory
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module02$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course$ cd Bscit
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit$ cd module01
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$ mv file.txt ~/Documents
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$ mv file.jpg ~/Pictures
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$ mv file.mp3 ~/Music
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$

```

```

sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit$ cd module02
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mc file2.txt ~/Documents
Command 'mc' not found, but can be installed with:
sudo apt install mc
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mv file2.txt ~/Documents
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mc file2.jpg ~/Pictures
Command 'mc' not found, but can be installed with:
sudo apt install mc
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mv file2.jpg ~/Pictures
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mv file2.mp3 ~/Music
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$

```

Copy the .odt files to the document directory. Then remove the entire source directories containing the original copy of .odt files in the BScIT directory.

```

sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ mv file2.odt ~/Documents
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module02$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit$ cd module01
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$ mv file.odt ~/Documents
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit/module01$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit$ rm -r module01 module02
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/Bscit$

```

From the BScCS directory, remove all the .odt files without removing their immediate directory.

```

sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course$ cd BScCS
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS$ cd module01
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module01$ rm *.odt
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module01$ cd ..
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS$ cd module02
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module02$ rm *.odt
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop/GCIT_Course/BScCS/module02$

```

Remove the entire “GCIT Course Structure” directory.

```

sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop$ rm -r GCIT_Course
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop$ ls
file file1 file2 folder folder1 folder2
sujalkchuwan@sujaikchuwan-VirtualBox:~/Desktop$

```

★ Files and Permissions

Create a new group **workshop** with a GID of 2022.

```
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# groupadd -g2022 workshop
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan#
```

Create the trainer1, trainer2, and trainer3 users with a workshop as their supplementary cleargroup. Use “traniner_22” as the default password for all the users.

```
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# groupadd -g2022 workshop
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# usermod -sG workshop trainer1
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# usermod -sG workshop trainer2
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# usermod -sG workshop trainer3
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# usermod -s flag is only allowed with the -c flag
Usage: usermod [options] LOGIN
options:
  -b, --badnames          allow bad names
  -c, --comment COMMENT   new value of the GECOS field
  -d, --home HOME_DIR     new home directory for the user account
  -e, --expiredate EXPIRE_DATE set account expiration date to EXPIRE_DATE
  -f, --inactive INACTIVE set password inactive after expiration
                           to INACTIVE
  -g, --gid GROUP          force use GROUP as new primary group
  -G, --groups GROUPS     new list of supplementary GROUPS
  -a, --append             append the user to the supplemental GROUPS
                           mentioned by the -G option without removing
                           the user from other groups
  -h, --help              display this help message and exit
  -l, --login NEW_LOGIN   new value of the login name
  -L, --lock              lock the user account
  -m, --move-home         move contents of the home directory to the
                           new location (use only with -d)
  -o, --non-unique         allow using duplicate (non-unique) UID
  -p, --password PASSWORD use encrypted password for the new password
  -P, --root CHROOT_DIR   directory to chroot into
  -P, --prefix PREFIX_DIR prefix directory where are located the /etc/* files
  -s, --shell SHELL        new login shell for the user account
  -u, --uid UID            new UID for the user account
  -U, --unlock             unlock the user account
  -v, --add-subuids FIRST-LAST add range of subordinate uids
  -V, --del-subuids FIRST-LAST remove range of subordinate uids
  -w, --add-subgids FIRST-LAST add range of subordinate gids
  -W, --del-subgids FIRST-LAST remove range of subordinate gids
  -Z, --selinux-user SEUSER new SELinux user mapping for the user account
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# -sG workshop trainer3
```

```
sujaikchuwan@sujaikchuwan-VirtualBox:~$ sudo su
[sudo] password for sujaikchuwan:
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer1
adduser: The user 'trainer1' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer2
adduser: The user 'trainer2' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer3
adduser: The user 'trainer3' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan#
```

Create a directory called “Training Materials” in your present working directory.

```
sujaikchuwan@sujaikchuwan-VirtualBox:~$ sudo su
[sudo] password for sujaikchuwan:
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer1
adduser: The user 'trainer1' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer2
adduser: The user 'trainer2' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# sudo adduser trainer3
adduser: The user 'trainer3' already exists.
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# mkdir "Training material"
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# ls
.  ..  Desktop  Downloads  file  Files  fof  folder  Music  Pictures  Public  sample  snap  sujal  sunday  Templates  'Training material'  tuesday  Videos  wednesday
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan#
```

Change the group ownership of the “Training Materials” directory to the workshop group.

Ls

sut

```
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# chgrp workshop "training material"
root@sujaikchuwan-VirtualBox:/home/sujaikchuwan# ls -al
total 136
drwxr-xr-x 14 root      root      4096  23 18:06
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 4096  23 17:18
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 3768  23 17:24
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 220  4 14:48
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 4771  4 14:48
drwxr-xr-x 13 sujaikchuwan sujaikchuwan 4096  4 15:21
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 16:03
drwxr-xr-x 10 sujaikchuwan sujaikchuwan 4096  4 15:38
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  23 18:06
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  23 18:06
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 15:16
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 0  12 14:33
-rwxr-xr-x 1 sujaikchuwan sujaikchuwan 13  11 15:05
-rwxr-xr-x 1 sujaikchuwan sujaikchuwan 0  12 14:34
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 0  12 14:33
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  23 15:59
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  23 15:59
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 14:48
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 15:16
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 11  19 14:28
drwxr-xr-x 3 sujaikchuwan sujaikchuwan 4096  4 15:17
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 11  11 14:26
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 16:03
-rw-r--r-- 1 sujaikchuwan sujaikchuwan 12288  10 12:53
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  12 14:34
drwxr-xr-x 2 sujaikchuwan sujaikchuwan 4096  4 15:16
drwxr-xr-x 2 root      workshop 4096  23 18:06
```


Check whether users in the workshop group can create and edit files in the “Training Materials” directory.

```

trainer1@suwalkchuwan-VirtualBox: /home/suwalkchuwan/tra...
suwalkchuwan@suwalkchuwan-VirtualBox:~$ cd training material
bash: cd: too many arguments
suwalkchuwan@suwalkchuwan-VirtualBox:~$ ls
chuwan      file      Music     snap      'training material'  Videos
Desktop     file1     Pictures  sujal     'Training material'  wednesday
Documents   foc       Public    sunday    'Training Material~'
Downloads   folder    sample    Templates tuesday
suwalkchuwan@suwalkchuwan-VirtualBox:~$ cd 'training material'
suwalkchuwan@suwalkchuwan-VirtualBox:~/training material$ touch file1
touch: cannot touch 'file1': Permission denied
suwalkchuwan@suwalkchuwan-VirtualBox:~/training material$ sudo su trainer1
[sudo] password for suwalkchuwan:
trainer1@suwalkchuwan-VirtualBox:/home/suwalkchuwan/training material$ touchfile
1
touchfile1: command not found
trainer1@suwalkchuwan-VirtualBox:/home/suwalkchuwan/training material$ touch fil
e1
touch: cannot touch 'file1': Permission denied
trainer1@suwalkchuwan-VirtualBox:/home/suwalkchuwan/training material$

```

Set permissions on the “Training Materials” directory. On the “Training Materials” directory, configure read, write, and execute permissions for the owner and group, and no permissions for other users. Verify that the permissions are correctly set.

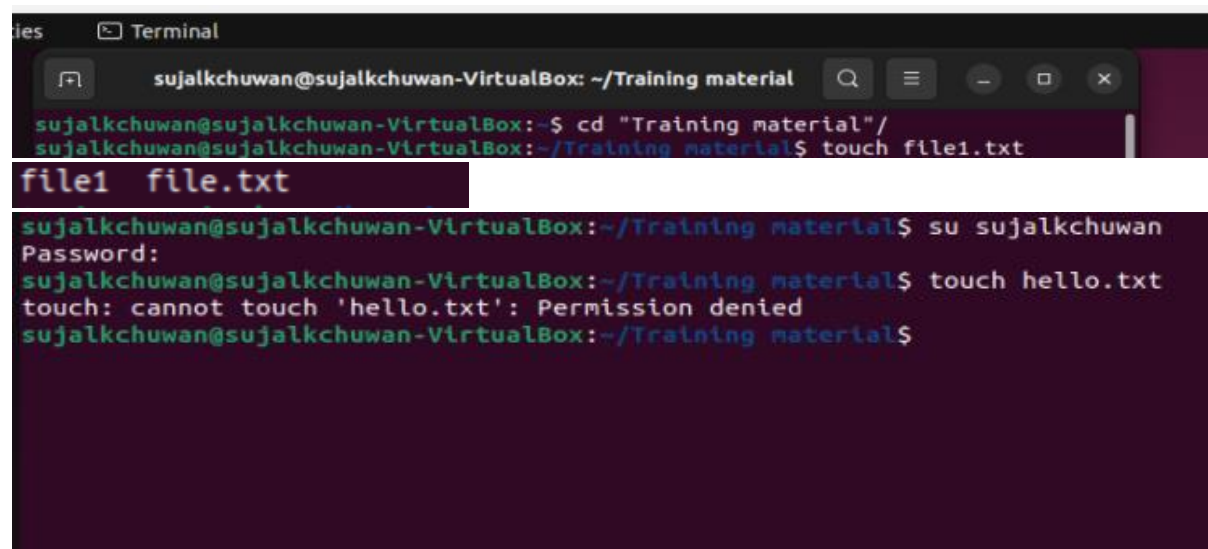
Clear

```

es Terminal
suwalkchuwan@suwalkchuwan-VirtualBox: ~
suwalkchuwan@suwalkchuwan-VirtualBox:~$ sudo chmod o-rwx "training material"
[sudo] password for suwalkchuwan:
suwalkchuwan@suwalkchuwan-VirtualBox:~$ ls -al
total 136
drwxr-x--- 22 suwalkchuwan suwalkchuwan 4096  23 18:06 .
drwxr-xr-x 14 root          root      4096  23 17:18 ..
-rw----- 1 suwalkchuwan suwalkchuwan 12288  10 13:06 .baby.swp
-rw----- 1 suwalkchuwan suwalkchuwan 3887   23 18:19 .bash_history
-rw-r--r-- 1 suwalkchuwan suwalkchuwan 220    4 14:48 .bash_logout
-rw-r--r-- 1 suwalkchuwan suwalkchuwan 3771   4 14:48 .bashrc
drwx----- 11 suwalkchuwan suwalkchuwan 4096   4 15:21 .cache
drwxrwxr-x 2 suwalkchuwan suwalkchuwan 4096   4 16:03 chuwan
drwx----- 10 suwalkchuwan suwalkchuwan 4096   4 15:38 .config
drwxr-xr-x 5 suwalkchuwan suwalkchuwan 4096  23 16:10 Desktop
drwxr-xr-x 2 suwalkchuwan suwalkchuwan 4096  23 16:06 Documents
drwxr-xr-x 2 suwalkchuwan suwalkchuwan 4096   4 15:16 Downloads
-rw-rw-r-- 1 suwalkchuwan suwalkchuwan 0      12 14:33 file
-rwxrwxr-x 1 suwalkchuwan suwalkchuwan 13     11 15:05 file1
-rwxrwxr-x 1 suwalkchuwan suwalkchuwan 0      12 14:34 foc
-rw-rw-r-- 1 suwalkchuwan suwalkchuwan 0      12 14:33 folder
drwx----- 3 suwalkchuwan suwalkchuwan 4096   4 15:16 .local
drwxr-xr-x 2 suwalkchuwan suwalkchuwan 4096  23 15:59 Music
drwxr-xr-x 2 suwalkchuwan suwalkchuwan 4096  23 15:59 Pictures
-rw-r--r-- 1 suwalkchuwan suwalkchuwan 807   4 14:48 .profile

```

Confirm that users in the workshop group can now create and edit files in the “Training Materials” directory. Users not in the workshop group cannot edit or create files in the “Training Materials” directory.



A terminal window titled "Terminal" with a search bar and window controls. The prompt is `suwalkchuwan@suwalkchuwan-VirtualBox: ~/Training material`. The user enters `cd "Training material"/` and then `touch file1.txt`. A redacted box shows `file1 file.txt`. The user then enters `su suwalkchuwan`, followed by a password prompt. After the password is entered, the user enters `touch hello.txt`, which results in the error message: `touch: cannot touch 'hello.txt': Permission denied`. The prompt returns to `suwalkchuwan@suwalkchuwan-VirtualBox:~/Training material$`.

```
suwalkchuwan@suwalkchuwan-VirtualBox: ~/Training material
suwalkchuwan@suwalkchuwan-VirtualBox:~$ cd "Training material"/
suwalkchuwan@suwalkchuwan-VirtualBox:~/Training material$ touch file1.txt
file1 file.txt
suwalkchuwan@suwalkchuwan-VirtualBox:~/Training material$ su suwalkchuwan
Password:
suwalkchuwan@suwalkchuwan-VirtualBox:~/Training material$ touch hello.txt
touch: cannot touch 'hello.txt': Permission denied
suwalkchuwan@suwalkchuwan-VirtualBox:~/Training material$
```