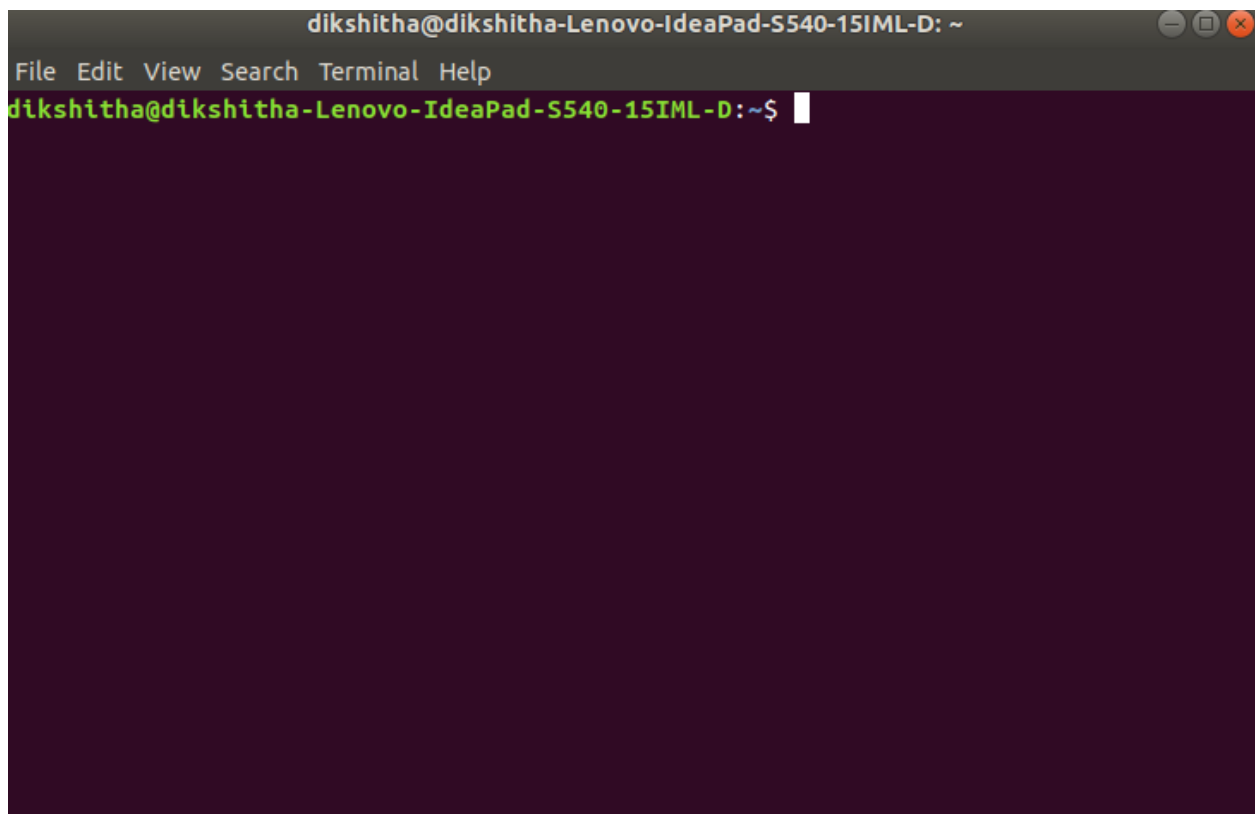


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UNIX ASSIGNMENT -2

Exercise 1

1. Launch a terminal.



2. Create three directories named letters, reports and assignment under your home directory.

Description: mkdir is the command used to create directories. First a directory for the assignment is created which is 'Uassig' (this will be assumed as the home directory)

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~$ mkdir Uassig
```

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~$ cd Uassig
```

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ mkdir  
letters reports assignment
```

3. Move to directory letters.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cd  
letters
```

4. Create two directories named friendly and formal under the letters directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/letters$  
mkdir friendly formal
```

5. Move to directory reports using only one command (directly from letters).

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment$ cd ../reports
```

6. Create three directories called personal, business, and school under the directory reports (use only one command).

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/reports  
$ mkdir personal business school
```

7. Create a directory called UNIX under the assignment directory. The

directories in this step should be created without moving from the reports directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/reports  
$ mkdir ~/Uassig/assignment/UNIX
```

8. Move to your home directory.

Description:cd command is used to change directories.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/reports  
$ cd ~/Uassig
```

9. Recursively list all of the directories you created

Description:ls -R is used to recursively list all the directories created.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ ls -R
```

```
..:
```

```
assignment letters reports
```

```
./assignment:  
UNIX
```

```
./assignment/UNIX:
```

```
./letters:  
formal friendly
```

```
./letters/formal:
```

```
./letters/friendly:
```

./reports:
business personal school

./reports/business:

./reports/personal:

./reports/school:

Exercise 2

2. Recursively list the directories under your home directory (the ones created in Exercise 1).

[dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\\$ ls -R](#)

./:
assignment letters reports

./assignment:
UNIX

./assignment/UNIX:

./letters:
formal friendly

./letters/formal:

./letters/friendly:

./reports:

business personal school

./reports/business:

./reports/personal:

./reports/school:

3. Move to the UNIX directory

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cd  
assignment/UNIX
```

4. Check your current directory.

Description:pwd which stands for present working directory is used to display the current directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment/UNIX$ pwd
```

/home/dikshitha/Uassig/assignment/UNIX

5. Create a file named hw4 that contains short answers to at least five review questions in this chapter And 6. Save the file (it should be saved under the UNIX directory).

Description:cat command with the > symbol is used to create new files and write the contents of the input given by the user in the shell into the file created. Cat command is also used to print the contents of the file.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assignment/UNIX$ cat>hw4.txt
```

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

why can't we use hardlink for directories? -> because it disrupts the file-system structure

to display all the groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

7. Move to your home directory

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assignment/UNIX$ cd ../../
```

8. Print the content of hw4 from your home directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cat assignment/UNIX/hw4.txt
```

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

why can't we use hardlink for directories? -> because it disrupts the file-system structure

to display all the groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

9. Make a copy of hw4 and call it hw4.bk AND 10. Store it under the same directory where hw4 is stored.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cp assignment/UNIX/hw4.txt assignment/UNIX/hw4.bk.txt
```

11. From your home directory, check to see if both files (hw4 and hw4.bk) exist.

Description: find command with -name is used to find all the items in the system with the name mentioned .

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ find  
-name "hw4*"
```

```
./assignment/UNIX/hw4.txt
```

```
./assignment/UNIX/hw4.bk.txt
```

12. Move to the UNIX directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cd  
assignment/UNIX
```

13. Check your current working directory.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment/UNIX$ pwd
```

```
/home/dikshitha/Uassig/assignment/UNIX
```

14. Make a hard link to the hw4 file. The link should be under the UNIX subdirectory and be called hw4HL.

Description: ln command is used for creating links.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment/UNIX$ ln hw4.txt hw4HL
```

15. Make a soft link to hw4 called hw4SL and store it under the UNIX directory.

Description: ln command is used for creating links. ln -s is used for creating soft links.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment/UNIX$ ln -s hw4.txt hw4SL
```

16. Check the inode of hw4, hw4.bk, hw4HL, and hw4SL. Are all the same? Are all different? Explain how you determined the answer AND
17. Use ls command to find the file types of hw4, hw4.bk, hw4HL and hw4SL. Explain your observation.

Description:ls command is used to display the list of all files and directories in a given location and -li is used to display all the details including the inode number. The inode numbers for the hardlink and the original file is the same while for the softlink a new inode number is created. To find the file type, we see the second column in the output, if it is - ,then it is a regular file, if it is l then it is a link ,if it is d then it is a directory.

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assignment/UNIX\$ ls -li hw4*

6031489 -rw-rw-r-- 1 dikshitha dikshitha 294 Oct 2 12:17

hw4.bk.txt

6031469 -rw-rw-r-- 2 dikshitha dikshitha 294 Oct 2 12:16 hw4HL

6031490 lrwxrwxrwx 1 dikshitha dikshitha 7 Oct 2 12:17 hw4SL

-> hw4.txt

6031469 -rw-rw-r-- 2 dikshitha dikshitha 294 Oct 2 12:16 hw4.txt

Exercise 3

2. Create a backup directory in your home directory called backups

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\$ mkdir backups

3. Use the find command to find the pathnames of all of the files (hw4, hw4.bk,hw4HL, hw4SL) that you created in Exercise 2. All of them

should be found using only one find command. The command must also copy all of them to the backups directory.

Description: find command with -name means to search all the items with the given name and -exec cp {} is used to copy the files with the given name into the path mentioned as the next argument.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ find -name "hw4*" -exec cp {} ~/Uassig/backups \;
```

cp: './backups/hw4HL' and

'/home/dikshitha/Uassig/backups/hw4HL' are the same file

cp: './backups/hw4.txt' and

'/home/dikshitha/Uassig/backups/hw4.txt' are the same file

cp: './backups/hw4.bk.txt' and

'/home/dikshitha/Uassig/backups/hw4.bk.txt' are the same file

cp: './backups/hw4SL' and

'/home/dikshitha/Uassig/backups/hw4SL' are the same file

4. Check the number of links and inode number of (hw4, hw4.bk, hw4HL, hw4SL). Make note of the results

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ ls -li backups
```

total 16

6031499 -rw-rw-r-- 1 dikshitha dikshitha 294 Oct 2 12:21

hw4.bk.txt

6031491 -rw-rw-r-- 1 dikshitha dikshitha 294 Oct 2 12:21 hw4HL

6031500 -rw-rw-r-- 1 dikshitha dikshitha 294 Oct 2 12:21 hw4SL

6031498 -rw-rw-r-- 1 dikshitha dikshitha 294 Oct 2 12:21 hw4.txt

5. Delete the original hw4 file without moving from your home directory.

Description:rm is used to remove directories and files.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ rm  
assignment/UNIX/hw4.txt
```

6. Check the existence of hw4, hw4.bk, hw4HL, hw4SL.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ find  
-name "hw4*"
```

```
./assignment/UNIX/hw4HL  
./assignment/UNIX/hw4.bk.txt  
./assignment/UNIX/hw4SL  
./backups/hw4HL  
./backups/hw4.txt  
./backups/hw4.bk.txt  
./backups/hw4SL
```

7. Check the contents of hw4, hw4.bk, hw4HL, hw4SL.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cat  
backups/hw4.txt
```

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

**why can't we use hardlinks for directories?-> because it disrupts
the file-system structure**

to display all groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\$ cat backups/hw4HL.txt

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

why can't we use hardlinks for directories?-> because it disrupts the file-system structure

to display all groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\$ cat backups/hw4SL.txt

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

why can't we use hardlinks for directories?-> because it disrupts the file-system structure

to display all groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\$ cat backups/hw4.bk.txt

to create softlink-> ln -s filename.txt softlink

to create hardlink-> ln filename.txt hardlink

why can't we use hardlinks for directories?-> because it disrupts the file-system structure

to display all groups in the current session-> groups

to assign absolute permission-> chmod u=rwx filename

8. Restore hw4 by making a copy of hw4.bk

Description: cp is used to copy files.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cp  
assignment/UNIX/hw4.bk.txt assignment/UNIX/hw4.txt
```

9. You may have noticed that your soft link (hw4SL) contains garbage.
Delete this file AND 10. Make a soft link to hw4 and save it as hw4SL
under the same directory as it was.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ rm  
assignment/UNIX/hw4SL.txt
```

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ cd  
assignment/UNIX
```

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig/assign  
ment/UNIX$ ln -s hw4.txt hw4SL
```

11. List recursively all of your files and directories to confirm all
operations.

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ ls -R  
..  
assignment backups letters reports
```

```
./assignment:  
UNIX
```

```
./assignment/UNIX:  
hw4.bk.txt hw4HL hw4SL hw4.txt
```

```
./backups:  
hw4.bk.txt hw4HL hw4SL hw4.txt
```

./letters:
formal friendly

./letters/formal:

./letters/friendly:

./reports:
business personal school

./reports/business:

./reports/personal:

./reports/school:

12. Print the number files created given the date

Description: find command here displays the number of files modified on the given date.

dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig\$ find .
-type f -newermt '10/01/2021 0:00:00'|wc -l

7

13. Print the number of files created given the type

Description: find command here prints the number of files which have permission in octal code as 664

```
dikshitha@dikshitha-Lenovo-IdeaPad-S540-15IML-D:~/Uassig$ find .  
-perm 664 |wc -l
```

7

