

## UNIX ASSIGNMENT

### COMMANDS

#### tar (tape archive)

- This command is used to compress the directories and files
- Same command with some flag modification can be used to extract the information from a compressed files.

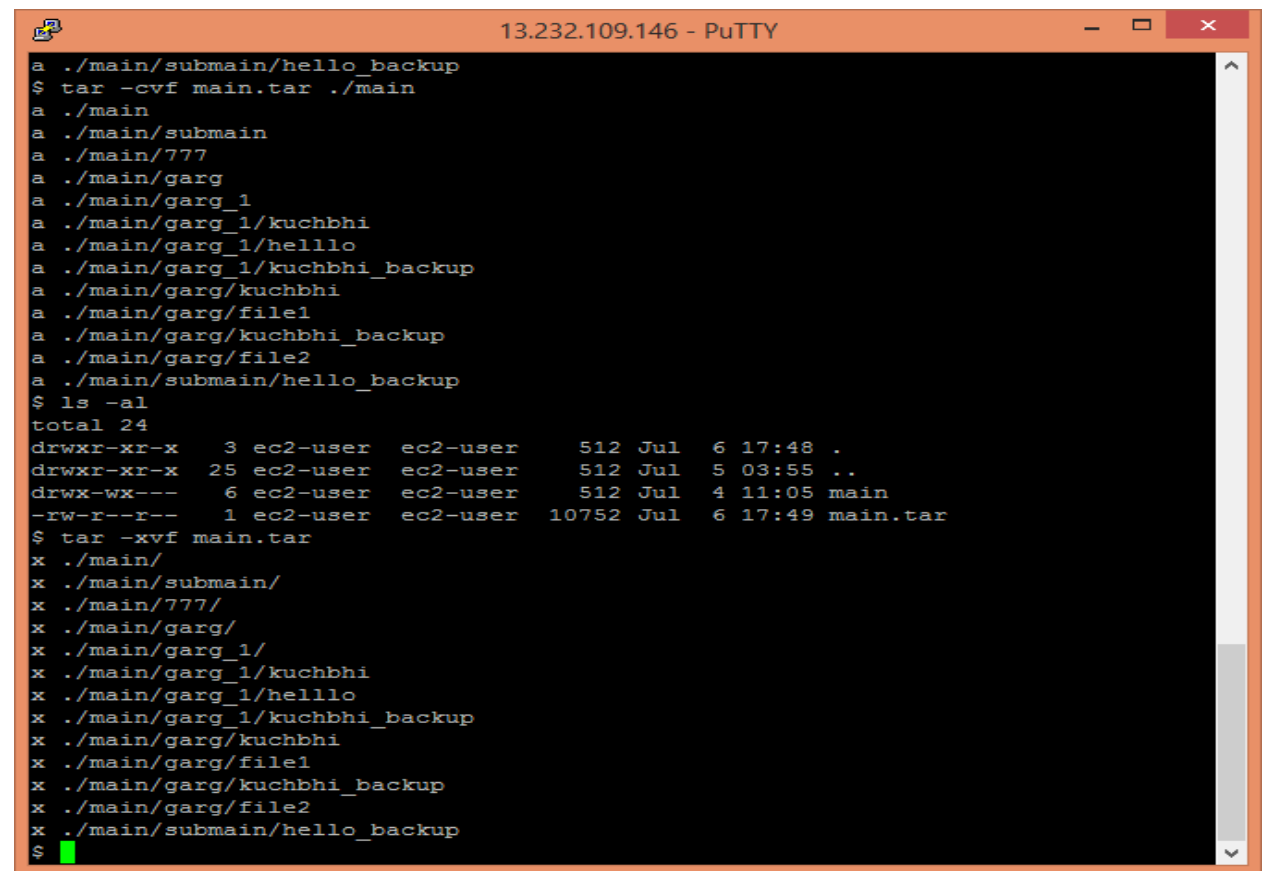
#### **Problem Scenarios**

- 1)When a backup of directory or file is to be made, tar command can be used to compress it as compressed version will take less space.
- 2)When we want to move files from one system to other or share them across network.

#### **Options**

- c :- create a new archive
- v:- verbosely show the .tar file progress
- f:- file name of the type archive.
- x:- extracting the files. (untar)
- r:- like -c but new entries are appended to archive. It only works on uncompressed archives stored in regular file. The -f option is required.

#### **Sample commands**

A screenshot of a PuTTY terminal window titled "13.232.109.146 - PuTTY". The terminal shows a series of commands and their outputs. First, a directory listing is shown for the path ./main/submain/hello\_backup. Then, the command \$ tar -cvf main.tar ./main is executed, resulting in a verbose list of files being added to the archive: ./main, ./main/submain, ./main/777, ./main/garg, ./main/garg\_1, ./main/garg\_1/kuchbhi, ./main/garg\_1/helllo, ./main/garg\_1/kuchbhi\_backup, ./main/garg/kuchbhi, ./main/garg/file1, ./main/garg/kuchbhi\_backup, ./main/garg/file2, and ./main/submain/hello\_backup. Next, the command \$ ls -al is run, displaying a detailed directory listing for the current directory, including permissions, user, group, size, date, and file names. Finally, the command \$ tar -xvf main.tar is executed, which extracts the same list of files and directories back to the current directory, with each item preceded by an 'x'.

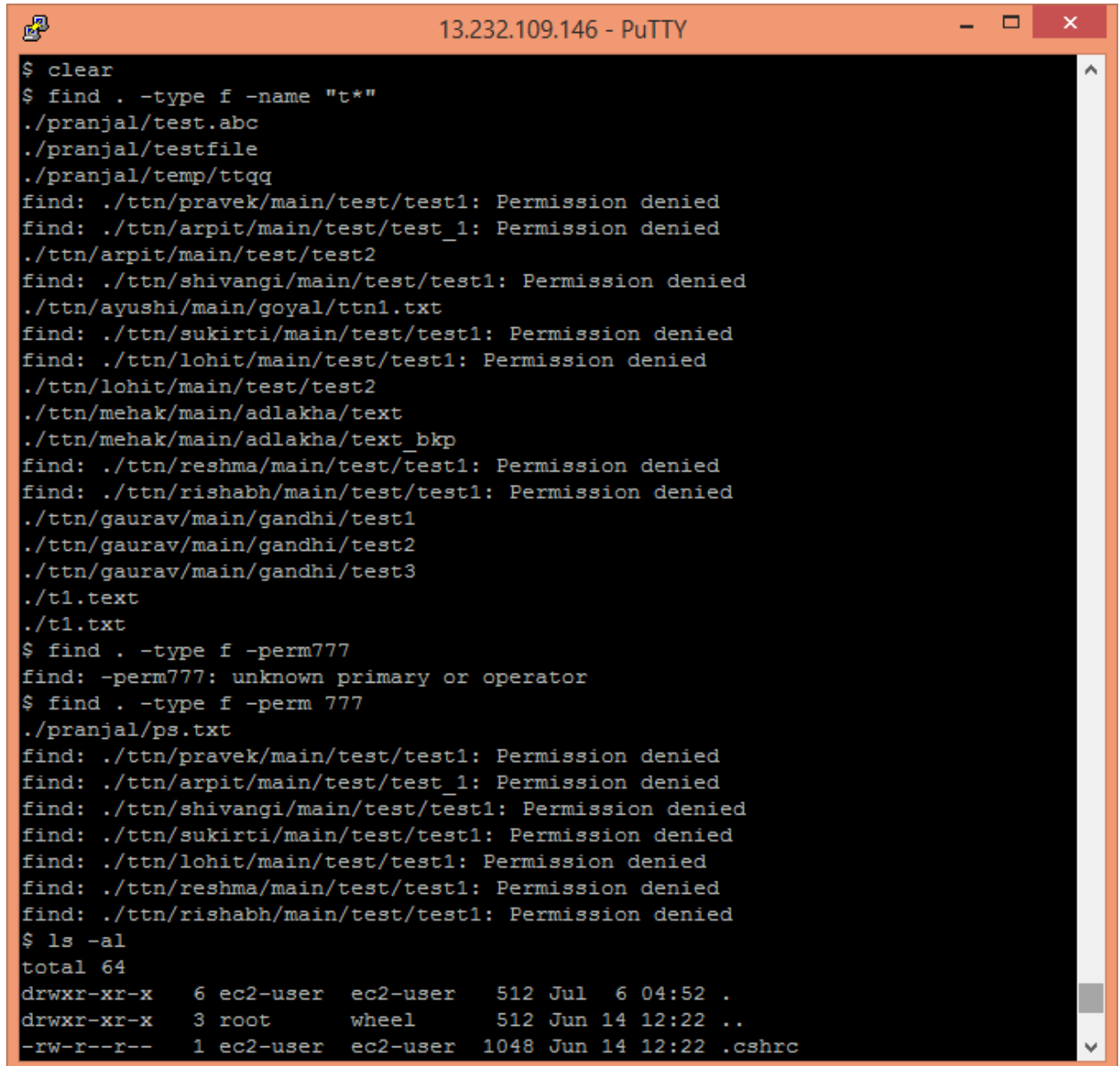
## find

- This command can traverse directories and file hierarchies and can serve as a powerful tool for finding files based on different criteria such as creation date, name, etc.

### **Problem Scenarios**

- 1) Find all files having permission mode 777(rwxrwxrwx).
- 2) Find files whose name matches with certain regular expressions (like starting with a).

### **Sample Commands**



```
$ clear
$ find . -type f -name "t*"
./pranjal/test.abc
./pranjal/testfile
./pranjal/temp/ttqq
find: ./ttn/pravek/main/test/test1: Permission denied
find: ./ttn/arpit/main/test/test_1: Permission denied
./ttn/arpit/main/test/test2
find: ./ttn/shivangi/main/test/test1: Permission denied
./ttn/ayushi/main/goyal/ttn1.txt
find: ./ttn/sukirti/main/test/test1: Permission denied
find: ./ttn/lohit/main/test/test1: Permission denied
./ttn/lohit/main/test/test2
./ttn/mehak/main/adlakha/text
./ttn/mehak/main/adlakha/text_bkp
find: ./ttn/reshma/main/test/test1: Permission denied
find: ./ttn/rishabh/main/test/test1: Permission denied
./ttn/gaurav/main/gandhi/test1
./ttn/gaurav/main/gandhi/test2
./ttn/gaurav/main/gandhi/test3
./t1.text
./t1.txt
$ find . -type f -perm 777
find: -perm 777: unknown primary or operator
$ find . -type f -perm 777
./pranjal/ps.txt
find: ./ttn/pravek/main/test/test1: Permission denied
find: ./ttn/arpit/main/test/test_1: Permission denied
find: ./ttn/shivangi/main/test/test1: Permission denied
find: ./ttn/sukirti/main/test/test1: Permission denied
find: ./ttn/lohit/main/test/test1: Permission denied
find: ./ttn/reshma/main/test/test1: Permission denied
find: ./ttn/rishabh/main/test/test1: Permission denied
$ ls -al
total 64
drwxr-xr-x  6 ec2-user  ec2-user   512 Jul  6 04:52 .
drwxr-xr-x  3 root      wheel      512 Jun 14 12:22 ..
-rw-r--r--  1 ec2-user  ec2-user 1048 Jun 14 12:22 .cshrc
```

```
13.232.109.146 - PuTTY
./pranjal/ps.txt
find: ./ttn/pravek/main/test/test1: Permission denied
find: ./ttn/arpit/main/test/test_1: Permission denied
find: ./ttn/shivangi/main/test/test1: Permission denied
find: ./ttn/sukirti/main/test/test1: Permission denied
find: ./ttn/lohit/main/test/test1: Permission denied
find: ./ttn/reshma/main/test/test1: Permission denied
find: ./ttn/rishabh/main/test/test1: Permission denied
$ ls -al
total 64
drwxr-xr-x  6 ec2-user  ec2-user  512 Jul  6 04:52 .
drwxr-xr-x  3 root      wheel    512 Jun 14 12:22 ..
-rw-r--r--  1 ec2-user  ec2-user 1048 Jun 14 12:22 .cshrc
-rw-----  1 ec2-user  ec2-user  28 Jul  4 10:32 .lessht
-rw-r--r--  1 ec2-user  ec2-user  385 Jun 14 12:22 .login
-rw-r--r--  1 ec2-user  ec2-user  156 Jun 14 12:22 .login_conf
-rw-----  1 ec2-user  ec2-user  372 Jun 14 12:22 .mail_aliases
-rw-r--r--  1 ec2-user  ec2-user  329 Jun 14 12:22 .mailrc
-rw-r--r--  1 ec2-user  ec2-user 1002 Jul  4 11:52 .profile
-rw-r--r--  1 ec2-user  ec2-user  844 Jun 14 12:22 .shrc
drwx-----  2 ec2-user  ec2-user  512 Jun 14 12:22 .ssh
drwxr-xr-x  2 ec2-user  ec2-user  512 Jul  4 09:31 a
drwxr-xr-x  4 ec2-user  ec2-user  512 Jul  4 03:54 pranjal
-rw-r--r--  1 ec2-user  ec2-user  13 Jul  6 04:57 t1.text
-rw-r--r--  1 ec2-user  ec2-user  39 Jul  6 04:56 t1.txt
drwxr-xr-x 25 ec2-user  ec2-user  512 Jul  5 03:55 ttn
$ chmod 777 t1.text
$ find . -type f -perm 777
./pranjal/ps.txt
find: ./ttn/pravek/main/test/test1: Permission denied
find: ./ttn/arpit/main/test/test_1: Permission denied
find: ./ttn/shivangi/main/test/test1: Permission denied
find: ./ttn/sukirti/main/test/test1: Permission denied
find: ./ttn/lohit/main/test/test1: Permission denied
find: ./ttn/reshma/main/test/test1: Permission denied
find: ./ttn/rishabh/main/test/test1: Permission denied
./t1.text
$
```

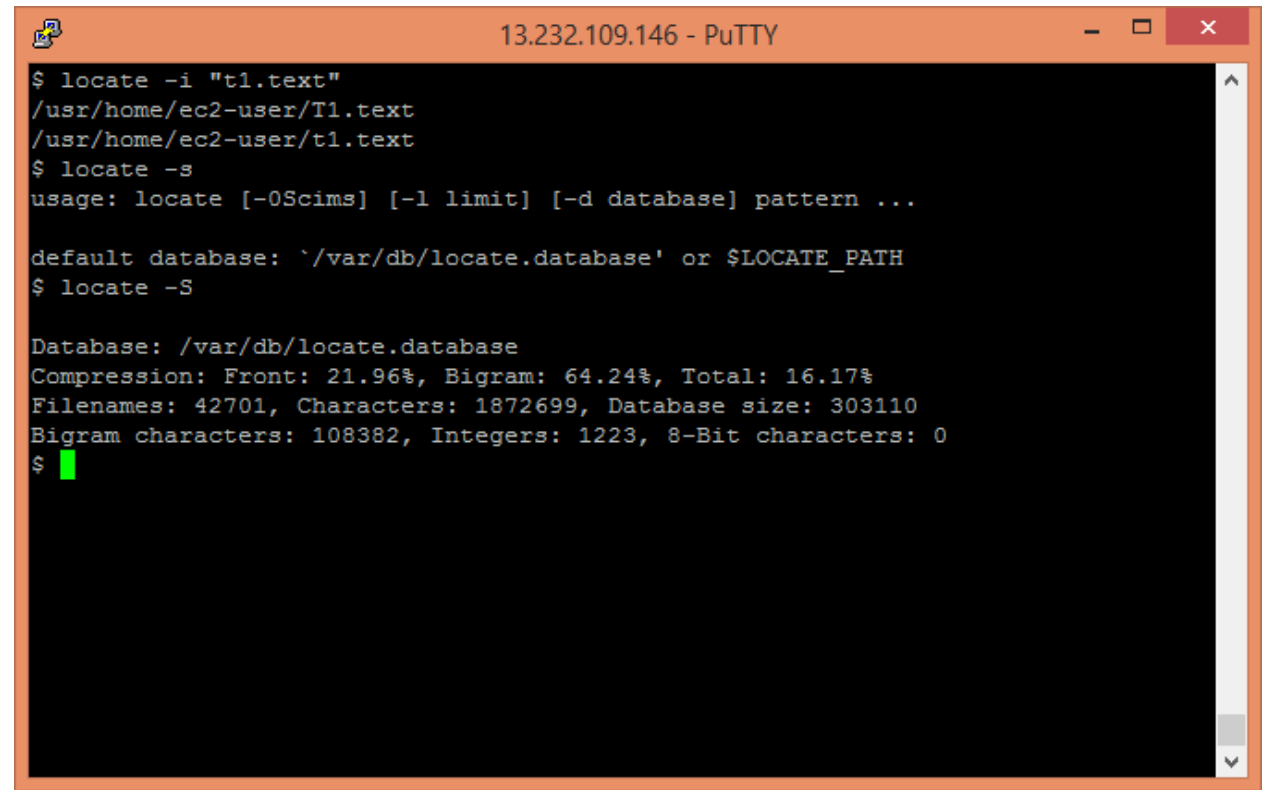
### locate

- Analogous to find it can also serve as a tool for searching files.
- The difference lies in the way of processing. Unlike find(searching file system), locate searches file with the help of a database for all pathnames which matches the specified pattern.
- It is comparatively faster than find.

#### ***Problem Scenarios***

- 1) Case insensitive file searching.
- 2) Check status of mlocate db.

#### ***Sample Commands***



```
13.232.109.146 - PuTTY

$ locate -i "t1.text"
/usr/home/ec2-user/T1.text
/usr/home/ec2-user/t1.text
$ locate -s
usage: locate [-OScims] [-l limit] [-d database] pattern ...

default database: `/var/db/locate.database' or $LOCATE_PATH
$ locate -S

Database: /var/db/locate.database
Compression: Front: 21.96%, Bigram: 64.24%, Total: 16.17%
Filenames: 42701, Characters: 1872699, Database size: 303110
Bigram characters: 108382, Integers: 1223, 8-Bit characters: 0
$
```

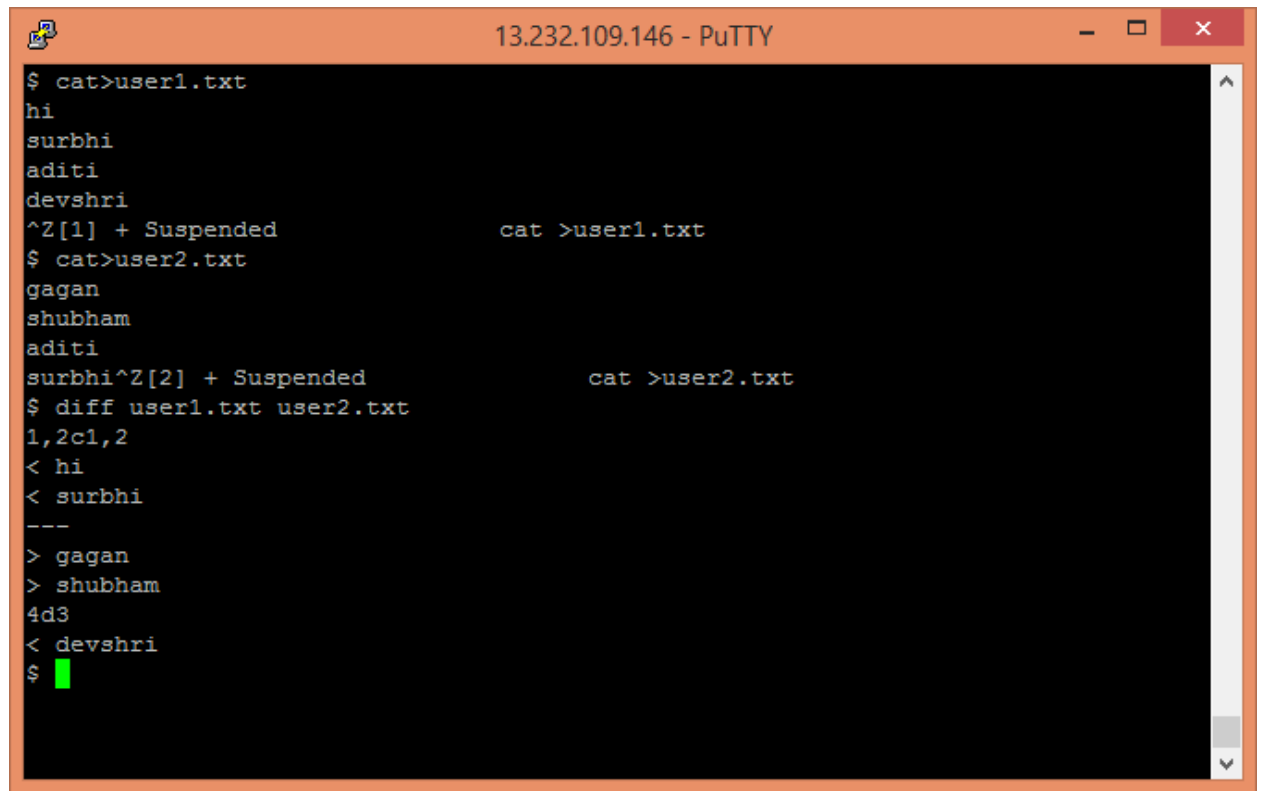
### diff

- It is a command which compares file line by line with an additional advantage, i.e., it tells the line number and instructions that are to be followed to make two files identical
- Symbols used for instructions are (a: add, c: change, d: delete)

#### **Problem Scenarios**

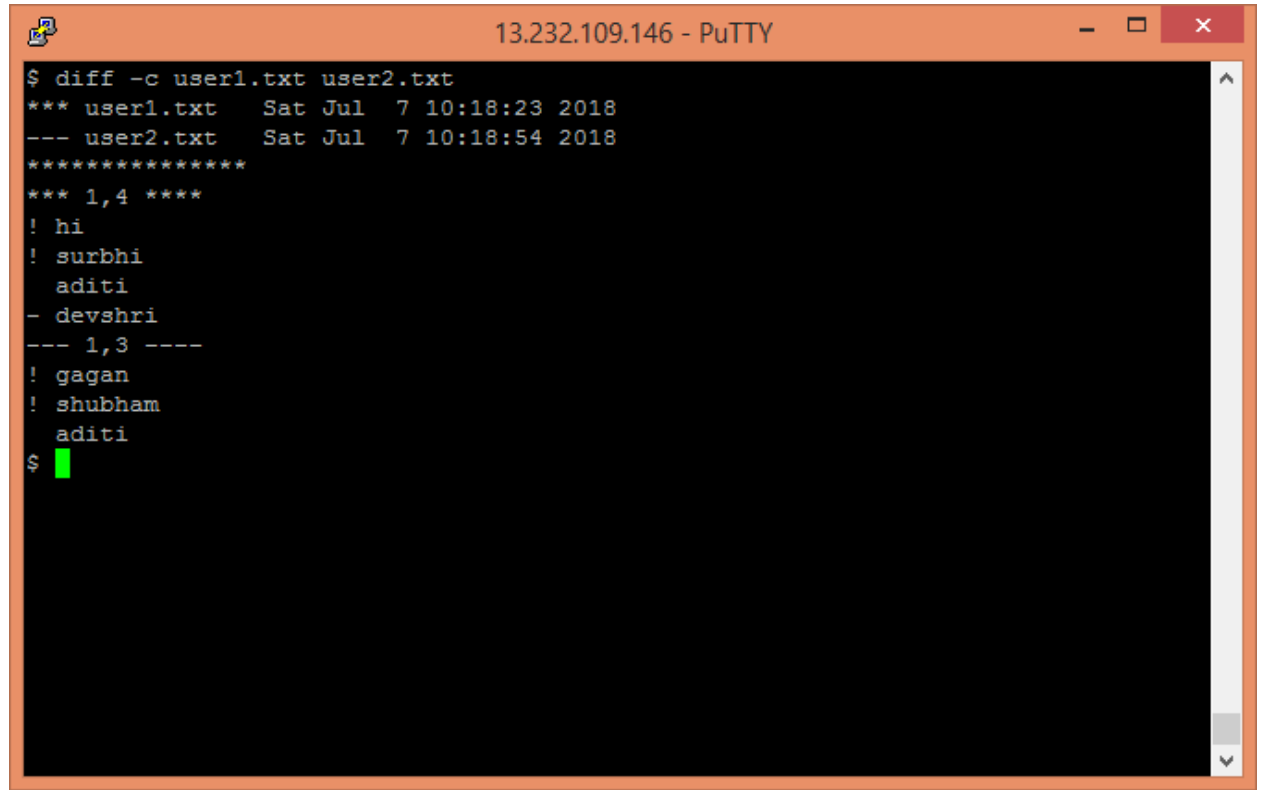
- 1) To find the differences between two files at different location but for same purpose
- 2) To find difference between files in context mode.

#### **Commands**



```
13.232.109.146 - PuTTY
$ cat >user1.txt
hi
surbhi
aditi
devshri
^Z[1] + Suspended          cat >user1.txt
$ cat >user2.txt
gagan
shubham
aditi
surbhi^Z[2] + Suspended    cat >user2.txt
$ diff user1.txt user2.txt
1,2c1,2
< hi
< surbhi
---
> gagan
> shubham
4d3
< devshri
$
```

Surbhi Garg  
Intern-To The New



A screenshot of a PuTTY terminal window titled "13.232.109.146 - PuTTY". The terminal displays the output of the command `$ diff -c user1.txt user2.txt`. The output shows the differences between two files, including timestamps and line numbers. The terminal has a black background with white text, and a green cursor is visible at the end of the last line.

```
$ diff -c user1.txt user2.txt
*** user1.txt    Sat Jul  7 10:18:23 2018
--- user2.txt    Sat Jul  7 10:18:54 2018
*****
*** 1,4 ****
! hi
! surbhi
  aditi
- devshri
--- 1,3 ----
! gagan
! shubham
  aditi
$
```

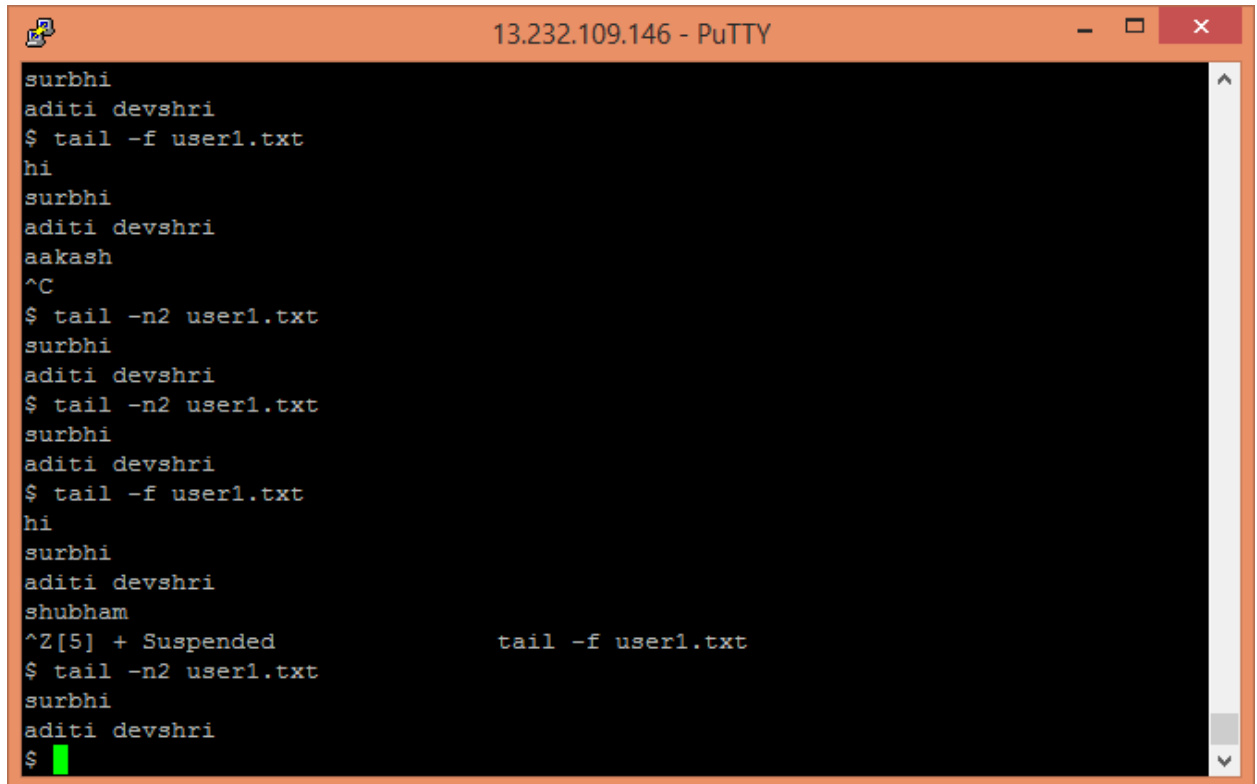
## tail

- It is a utility command to see the last lines added to files through standard input.

### ***Problem Scenarios***

- 1) To find last n modifications in a file
- 2) To track real time changes in a file.

### ***Commands***



The screenshot shows a PuTTY terminal window titled "13.232.109.146 - PuTTY". The terminal displays a series of commands and their outputs. The user enters "surbhi" and "aditi devshri". Then, they run "\$ tail -f user1.txt", which outputs "hi", "surbhi", "aditi devshri", and "aakash". After pressing Ctrl-C (^C), they run "\$ tail -n2 user1.txt", which outputs "surbhi" and "aditi devshri". They then run "\$ tail -n2 user1.txt" again, which outputs "surbhi" and "aditi devshri". Next, they run "\$ tail -f user1.txt", which outputs "hi", "surbhi", "aditi devshri", and "shubham". When they press Ctrl-Z (^Z), the terminal shows "^Z[5] + Suspended" and "tail -f user1.txt" in the background. Finally, they run "\$ tail -n2 user1.txt", which outputs "surbhi" and "aditi devshri". The prompt "\$" is followed by a green cursor.

```
surbhi
aditi devshri
$ tail -f user1.txt
hi
surbhi
aditi devshri
aakash
^C
$ tail -n2 user1.txt
surbhi
aditi devshri
$ tail -n2 user1.txt
surbhi
aditi devshri
$ tail -f user1.txt
hi
surbhi
aditi devshri
shubham
^Z[5] + Suspended      tail -f user1.txt
$ tail -n2 user1.txt
surbhi
aditi devshri
$
```

tail -F user1.txt :- to track the real time changes in a file.

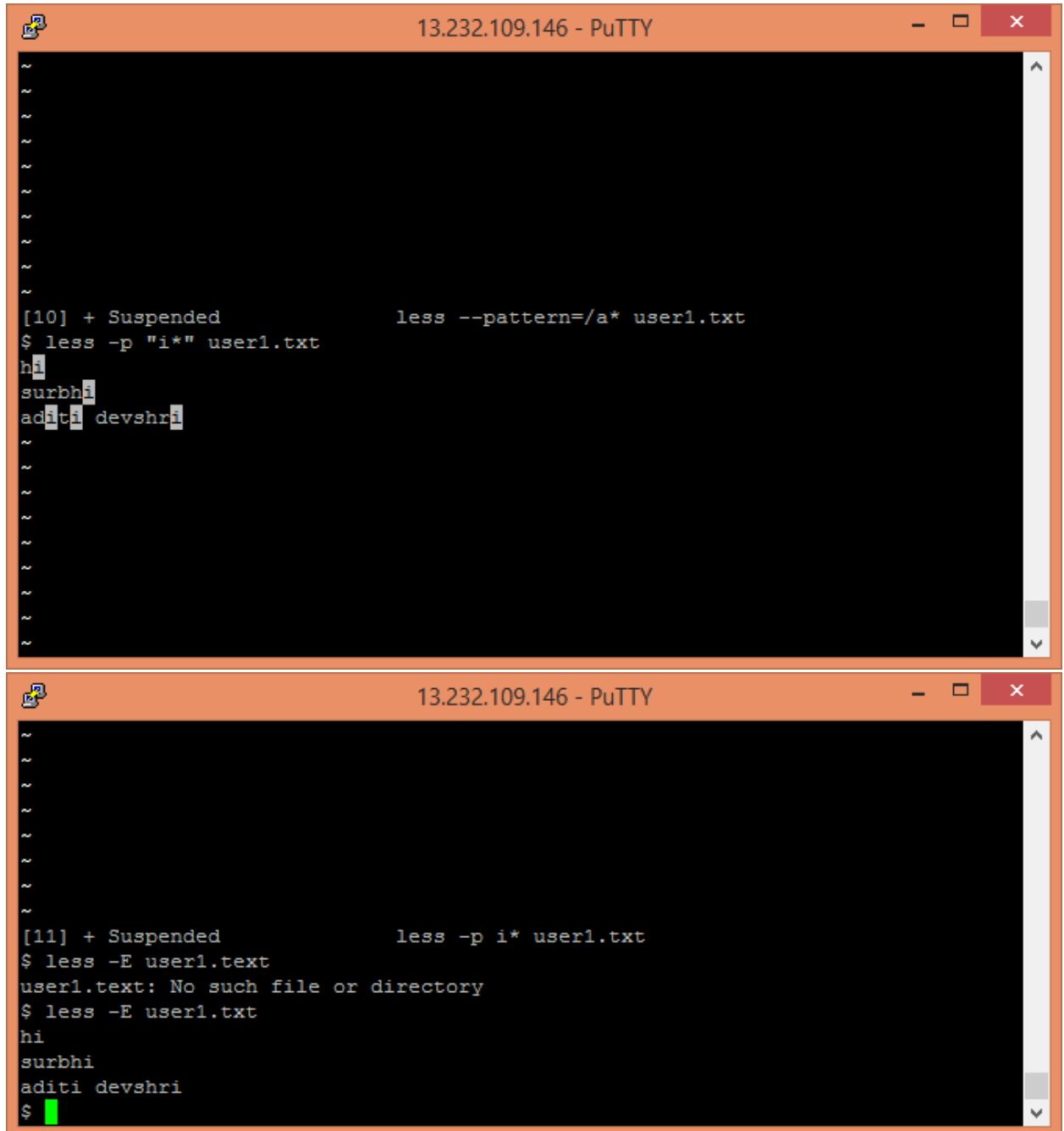
### less

- less command is generally used with large files to view the contents of file page by page.
- it is fast because it loads the content page wise rather than complete file at a time.

#### **Problem Scenarios**

- 1) Read a file page by page and exit when it reaches to end of file
- 2) find pattern in a file

#### **Commands**



```
13.232.109.146 - PuTTY
~
~
~
~
~
~
~
~
~
~
[10] + Suspended          less --pattern=/a* user1.txt
$ less -p "i*" user1.txt
hi
surbhi
aditi devshri
~
~
~
~
~
~
~
~
~
~

13.232.109.146 - PuTTY
~
~
~
~
~
~
~
~
~
~
[11] + Suspended          less -p i* user1.txt
$ less -E user1.txt
user1.txt: No such file or directory
$ less -E user1.txt
hi
surbhi
aditi devshri
$
```



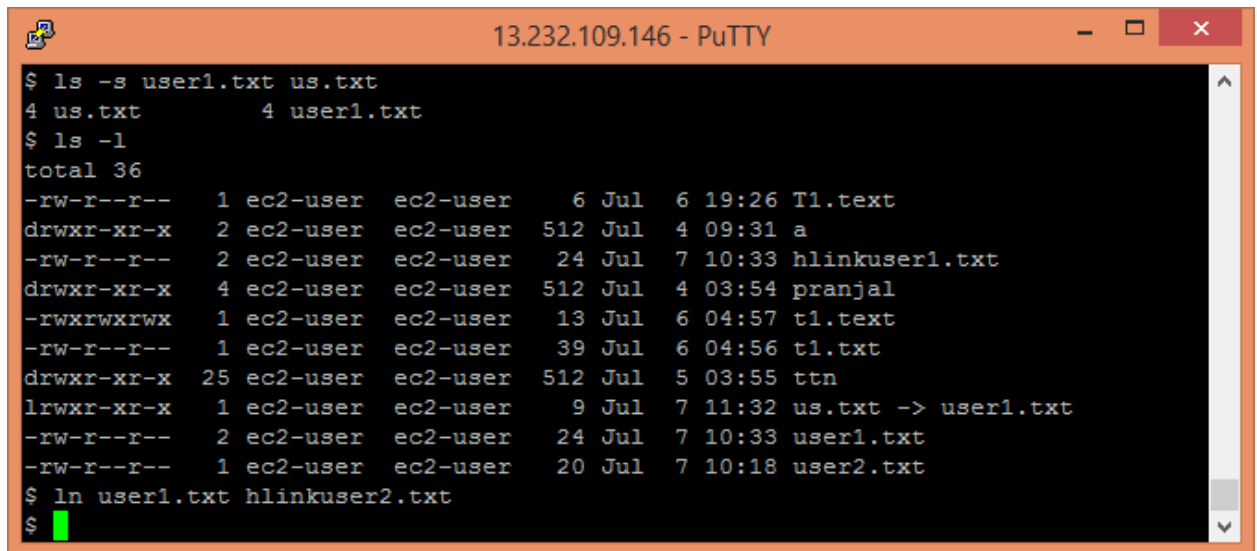
## ln

- This command is used to create links between files.
- Links help many files to refer to or point to a single file in case of hard link and soft link respectively.

### **Problem Scenarios**

- 1) Create hard link between two files.
- 2) Create soft link between two files. (ln -s)

### **Commands**



```
13.232.109.146 - PuTTY
$ ls -s user1.txt us.txt
4 us.txt          4 user1.txt
$ ls -l
total 36
-rw-r--r--  1 ec2-user  ec2-user    6 Jul  6 19:26 T1.text
drwxr-xr-x  2 ec2-user  ec2-user  512 Jul  4 09:31 a
-rw-r--r--  2 ec2-user  ec2-user   24 Jul  7 10:33 hlinkuser1.txt
drwxr-xr-x  4 ec2-user  ec2-user  512 Jul  4 03:54 pranjal
-rwxrwxrwx  1 ec2-user  ec2-user   13 Jul  6 04:57 t1.text
-rw-r--r--  1 ec2-user  ec2-user   39 Jul  6 04:56 t1.txt
drwxr-xr-x 25 ec2-user  ec2-user  512 Jul  5 03:55 ttn
lrwxr-xr-x  1 ec2-user  ec2-user    9 Jul  7 11:32 us.txt -> user1.txt
-rw-r--r--  2 ec2-user  ec2-user   24 Jul  7 10:33 user1.txt
-rw-r--r--  1 ec2-user  ec2-user   20 Jul  7 10:18 user2.txt
$ ln user1.txt hlinkuser2.txt
$
```