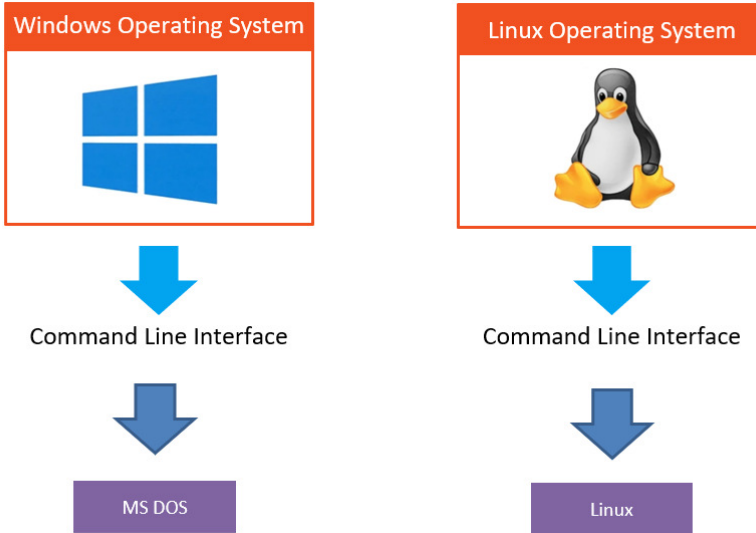




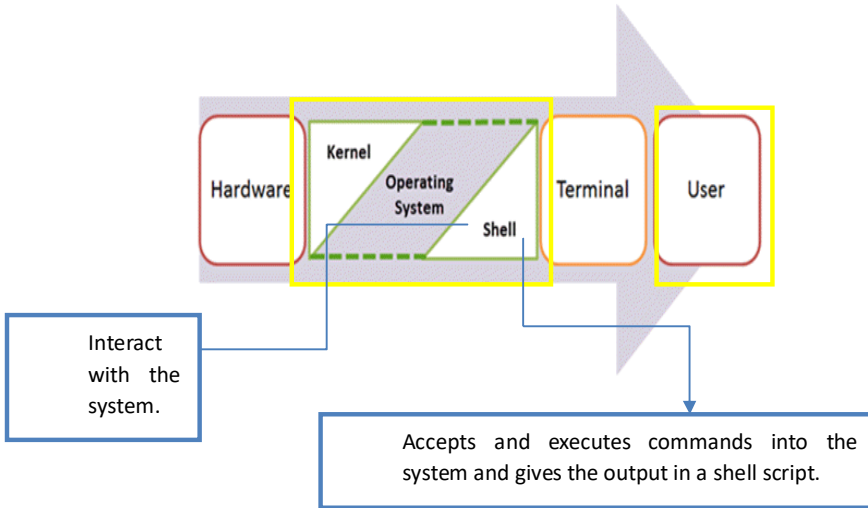
Execute Basic Linux Commands

Session: Manage Graphic Elements

Introduction to Linux OS

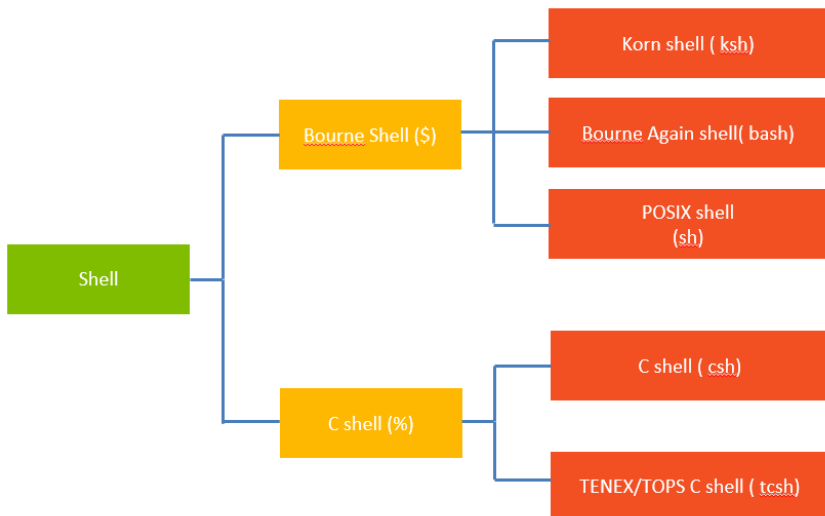


Shell



Comment [SSI1]: Not able to edit in picture. E.g. Korn Shell (ksh) TO Korn Shell (ksh). Similar errors in the contents in the picture.

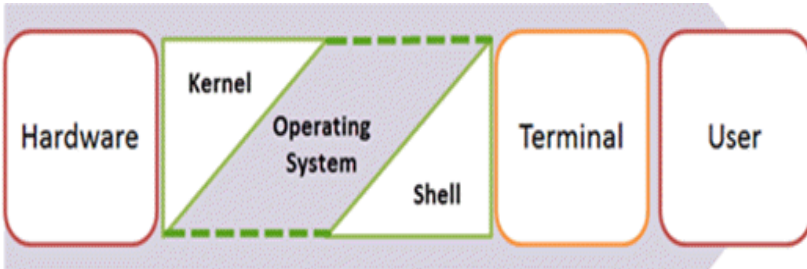
Types of Shell



Advantages and Disadvantages of a Shell

Advantages	Disadvantages
Easy to understand the structure and syntax.	Weakly typed language.
The commands are easy to remember.	Performance is not good.
Easy to sort out syntax errors.	Defined variables can be read but not modified.
Shell is an interpreted language and doesn't require compiling.	

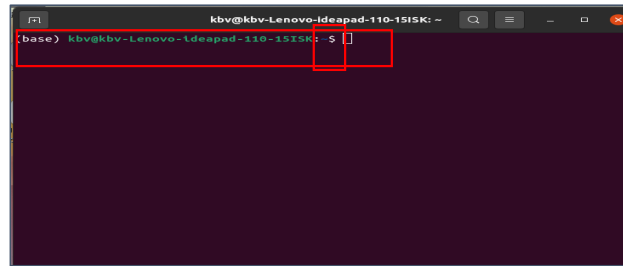
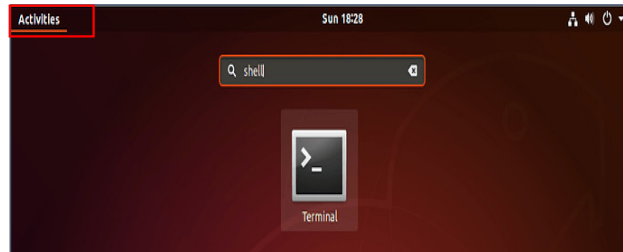
Terminal



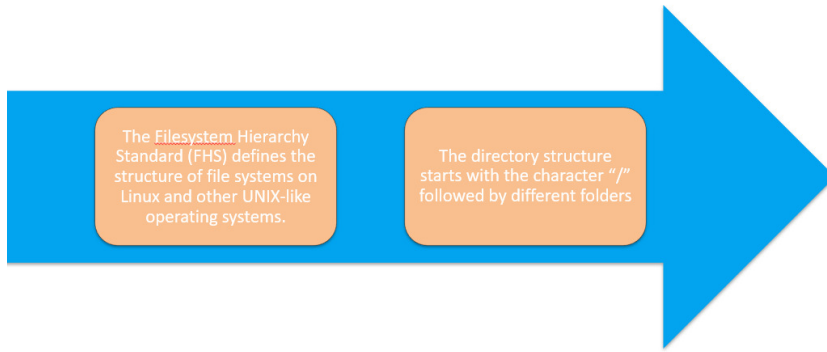
Launching a Terminal or Command prompt

Launching a Terminal or Command prompt

1. Click Activities
2. Type first few letters of "terminal"; or "command"; or "prompt" or "shell" or use shortcut Ctrl-Alt-T keys.
3. Command prompt will appear.
4. The command prompt or terminal starts with "\$" symbol.



Directory Structure



Directory Structure

Root → Directory → Sub Directory

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: /home$ pwd
/home/kbv
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: /home/kbv$ cd ..
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: /home$ pwd
/home
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: /home$ ls -l
total 4
drwxr-xr-x 42 kbv kbv 4096 Apr 28 16:14 kbv
```

/home -- parent directory
/home/kbv --sub directory,
kbv is subdirectory

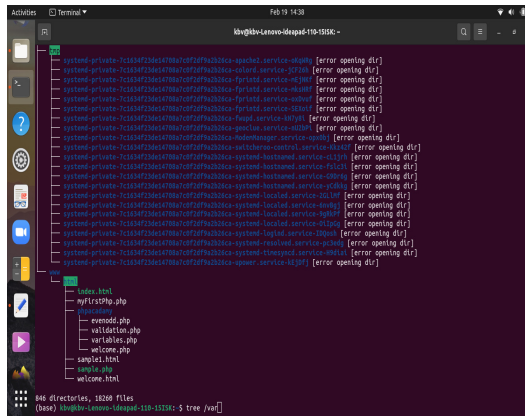
Computer

- bin
- boot
- cdrom
- dev
- etc
- home
- lib
- lib32
- lib64
- libx32
- media
- mnt
- opt
- proc
- root
- run
- sbin
- snap
- srv
- swapfile
- sys
- tmp
- usr
- var

Directory Structure

tree

Syntax	\$ tree / var
Description	Display the list of directories.
Example	\$ tree / var



Activity: Match Directory Against Function

S.No.	Directory	Function	
1	/bin	Which indicates binary file which consists of fundamental utilities like "ls", "cp".	
2	/dev	It indicates devices.	
3	/etc	Contains system-wide configuration files and system databases.	
4	/home	Contains the home directories for the users.	
5	/lib	Contains system libraries, and some critical files such as kernel modules or device drivers.	
6	/media	Mount point for removable devices, such as USB sticks, media players, etc.	
7	/mnt	Stands for "mount" -- various devices like multiple hard disks, multiple partitions...	
8	/root	Who act as a supervisor "root" or the system administrator.	
9	/tmp	A place for storing temporary files.	
10	/usr	Its a directory holding user home directories.	

Character Keys in Linux

<code>\</code>	Escape Character	<code>/</code>	Directory Separator	<code>.</code>	Current directory, hide a file.	<code>..</code>	Parent directory
<code>~</code>	User's home directory	<code>*</code>	Represents 0 and more characters in a file or files	<code>?</code>	Represents a single character in a file	<code>0-9</code>	Can be used to represent range of values between 0-9
<code> </code>	Pipe, separator, redirect the output to another	<code>></code>	Re-directional symbol, moves data to another file.	<code>>></code>	Redirects or append a content at the end of the existing file.	<code>;</code>	Command separator, allows multiple files to execute
		<code><</code>	Redirects as an input to the file				

Recall activity: Write down the command DOS for each listed function

Function	Command
1. Creates an empty directory	
2. Creates a multiple directories	
3. Changes files to another directory	
4. Displays the present working directory	
5. Remove a directory	

Comment [SSI2]: Should it be 'Moves' rather than 'Change'? Please check

Activity: Write down linux command and the syntax

Function	Command	Syntax
1. Creates an empty directory		
2. Creates a multiple directories		
3. Changes files to another directory		
4. Displays the present working directory		
5. Remove a directory		

Comment [SSI3]: Should it be 'Moves' rather than 'Change'? Please check

Use Linux commands for Managing Directories

```

mkdir - Creates new directory
kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$ mkdir project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$

mkdir - Creates multiple directories
Require Screen shot to show creation of multiple directories

cd - Change a directory
kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$ cd project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$
    
```

pwd-Identify the directory

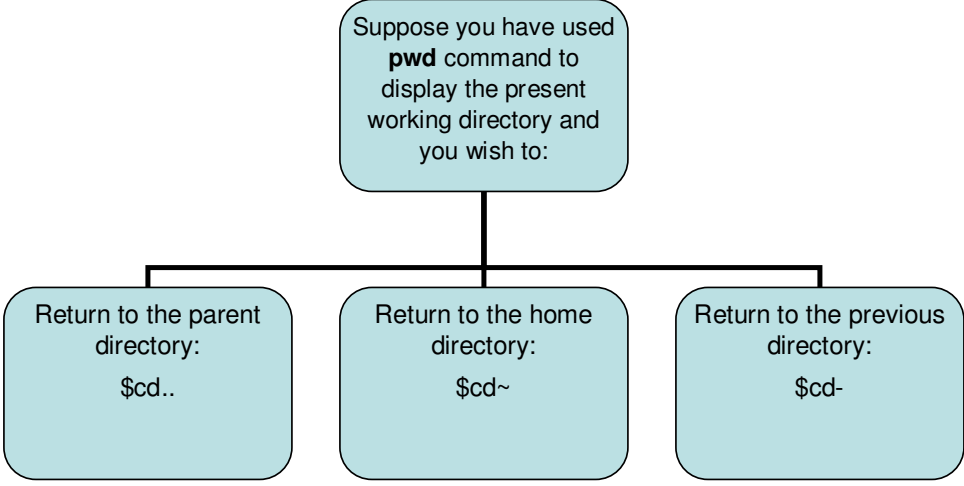
```
kbv@kbv-Lenovo-Ideapad-110-151SK: ~/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-151SK: $ cd Documents
(base) kbv@kbv-Lenovo-Ideapad-110-151SK: ~/Documents $ cd project
(base) kbv@kbv-Lenovo-Ideapad-110-151SK: ~/Documents/project $ pwd
/home/kbv/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-151SK: ~/Documents/project $ user is the path called /home/kbv/Documents/project
```

Rmdir-Remove a directory

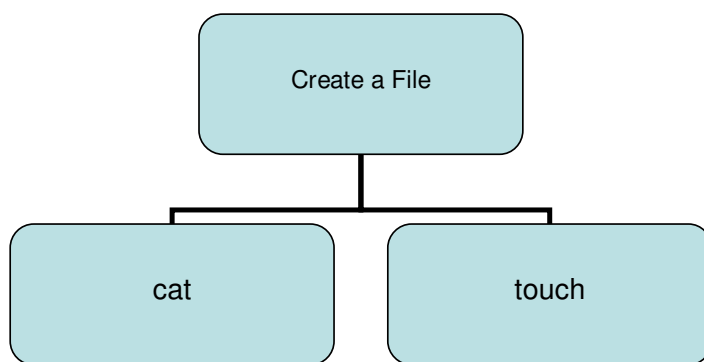
```
(base) kbv@kbv-Lenovo-Ideapad-110-151SK:~/Documents/project $ cd ..
(base) kbv@kbv-Lenovo-Ideapad-110-151SK:~/Documents $ rmdir prj3
(base) kbv@kbv-Lenovo-Ideapad-110-151SK:~/Documents $ cd ..
-rw-r--r-- 1 kbv kbv 0 Feb 19 17:20 prj2
-rw-r--r-- 1 kbv kbv 0 Feb 19 17:20 prj3
-rw-r--r-- 1 kbv kbv 0 Feb 19 17:20 prj4
-rw-r--r-- 1 kbv kbv 134 Feb 19 17:25 project1
(base) kbv@kbv-Lenovo-Ideapad-110-151SK:~/Documents $ cd ..
```

Note: To remove a directory, the directory has to be empty.

Use Linux Commands for Managing Directories



Create a file



Commands are case sensitive.

cat Command

Syntax	cat > <filename>
Example	cat> project
Description	Creates a file

```

Terminal Feb 19 17:15
kbv@kbv-Lenovo-ideapad-110-151SK: ~/Documents/project

(base) kbv@kbv-Lenovo-ideapad-110-151SK:~/Documents/project$ cat > project1
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
now save the file
type "ctrl" + "z"
^z
[2]+  Stopped                  cat > project1
(base) kbv@kbv-Lenovo-ideapad-110-151SK:~/Documents/project$
  
```

cat Command

cat command

Syntax	\$ cat <filename>
Example	\$ cat project1
Description	View the data / information of the file

```
kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/proj$ cat project1
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
now save the file
type "ctrl" + "z"
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/documents/projects$
```

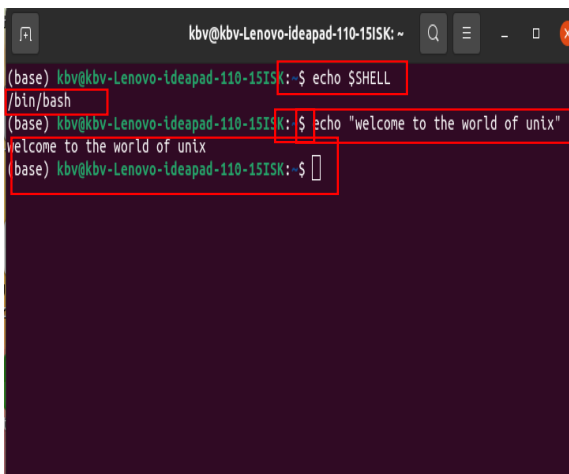
touch Command

Syntax	touch <filename1> <filename2> <filename n>
Example	Touch prj1 prj2 prj3 prj4
Description	Creates multiple files without data.

```
Terminal Feb 19 17:20
kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ touch prj1 prj2 prj3 prj4
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$
```

Echo command

Syntax	\$echo [options] <"string name">
Example	\$ echo "welcome to the world of unix"
Description	Displays the default shell prompt and the message.



```
kbv@kbv-Lenovo-ideapad-110-15ISK: ~  
(base) kbv@kbv-Lenovo-ideapad-110-15ISK: $ echo $SHELL  
/bin/bash  
(base) kbv@kbv-Lenovo-ideapad-110-15ISK: $ echo "welcome to the world of unix"  
welcome to the world of unix  
(base) kbv@kbv-Lenovo-ideapad-110-15ISK: $
```

cp Command

Syntax	<code>cp <sourcefile> <destinationfile></code>
Example	<code>\$cp renproject1 renproject2</code>
Description	Copy the file from one location to another (within the directory)

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ ls -l
total 4
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj1
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 renproject1
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ cp renproject1 renproject2
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ ls -l
total 8
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj1
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 renproject1
-rw-rw-r-- 1 kbv kbv 134 Feb 20 08:11 renproject2
    
```

cp Command

Syntax	<code>cp <sourcefile> <path></code>
Example	<code>\$cp renproject1 /kbv/documents/renproject2</code>
Description	Copy the file outside the directory

```

(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ pwd
/home/kbv/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ cp renproject1 /home/kbv/Documents/renproject2
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ cd ..
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$
-rw-r--r-- 1 kbv kbv 803328 Mar 31 2020 punarnavadosage.doc
-rw-rw-r-- 1 kbv kbv 16962398 Jun 17 2020 ramacertificatesoriginalscanned.rar
-rw-r--r-- 1 kbv kbv 67969 Jan 18 10:09 ramanamurthyhouseelectricitybillpayment_dec2020.pdf
-rw-rw-r-- 1 kbv kbv 10747 Feb 1 11:11 referencepapersynopsis.odt
-rw-rw-r-- 1 kbv kbv 134 Feb 20 08:12 renproject2
-rw-rw-r-- 1 kbv kbv 1611 May 4 2020 researchproposal
drwxrwxr-x 7 kbv kbv 4096 Aug 2 2020 rprog
    
```

Find

Syntax	\$find [options] [path...] [expression]
Example	find -L /home/kbv/Documents /project/ *.pdf
Description	Searches for the files and the directories in a directory hierarchy based on a user given expression.

```
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents$ find -L /home/kbv/Docume
nts/project/ *.pdf
/home/kbv/Documents/project/
/home/kbv/Documents/project/prj4
/home/kbv/Documents/project/Dos_Theory.pdf
/home/kbv/Documents/project/renproject2
/home/kbv/Documents/project/renproject1
/home/kbv/Documents/project/.prj6
/home/kbv/Documents/project/prj3
/home/kbv/Documents/project/DOS_practical.pdf
/home/kbv/Documents/project/abc1.txt
/home/kbv/Documents/project/abc2.txt
/home/kbv/Documents/project/prj2
/home/kbv/Documents/project/abc.txt
1-s2.0-S1877050915025508-main.pdf
anasuyamma_loanpayment.pdf
ramananurthyhouseelectricitybillpaymnt_dec2020.pdf
nit_test1_maths15102020.pdf
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents$
```

Locate

Syntax	\$ locate filename
Example	\$ locate xyz.txt
Description	-Locates the file from the current database.

```

kbv@kbv-Lenovo-ideapad-110-15ISK: ~/Documents
./unixprg/codegnan/xyz.txt
./unixprg/codegnan/abc.txt
./unixprg/codegnan/xyz1.txt
./unixprg/list_of_files.txt
./unixprg/x1
./unixprg/list_of_files
./unixprg/x1,x2,x3,x4
./unixprg/xyz2.txt
./unixprg/x3
./unixprg/abc1.txt
./unixprg/xyz.txt
./unixprg/x4
./unixprg/weeks.txt
./unixprg/names.txt
./unixprg/abc.txt
./unixprg/unixpart1
./unixprg/x2
./unixprg/unixpart2
(base) kbv@kbv-Lenovo-ideapad-110-15ISK: ~/Documents$ locate xyz.txt
/home/kbv/Documents/codegnan/xyz.txt
/home/kbv/Documents/unixprg/xyz.txt
/home/kbv/Documents/unixprg/codegnan/xyz.txt
(base) kbv@kbv-Lenovo-ideapad-110-15ISK: ~/Documents$
    
```

Find & Locate

Find	Locate
1. The find command searches for the files and the directories based on a given expression.	1. The locate command is used to find files by their filename.
2. User can perform specified action on each matched file.	2. User can only locate the file in the current database.
3. Find command is slow but can perform more powerful searches.	3. The locate command is fast but only searches the specified files in the database.

Grep (Global regular expression print) Command

Syntax	\$grep <"string to be searched"> <filename>0
Example	grep "this" renproject2

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ cat renproject2
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
now save the file
type "ctrl" + "z"
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ grep "this" renproject2
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
```

Tar (tape archive) Command

- Used by large number of Linux system administrators to deal with tape drives backup.
- Rips a collection of files and directories into highly compressed archive file commonly called **tarball** or **tar**, **gzip** and **bzip** in Linux.
- Creates compressed archive files and be moves easily from one disk to another disk

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Pictures$ tar -czvf pictures.tar /home/kbv/Pictures
tar: Removing leading '/' from member names
/home/kbv/Pictures/
/home/kbv/Pictures/Screenshot from 2020-10-22 12:36:52.png
/home/kbv/Pictures/Screenshot from 2020-09-23 09:35:24.png
/home/kbv/Pictures/Screenshot from 2020-09-24 08:34:27.png
/home/kbv/Pictures/atalfdp25092020.jpg
/home/kbv/Pictures/Screenshot from 2020-10-17 13:12:32.png
/home/kbv/Pictures/Screenshot from 2020-10-07 12:57:55.png
/home/kbv/Pictures/Screenshot from 2020-09-23 09:25:11.png
/home/kbv/Pictures/202220_20031008009791_144580809_n.jpg
/home/kbv/Pictures/Screenshot from 2020-10-07 13:05:03.png
/home/kbv/Pictures/Screenshot from 2020-09-23 09:30:13.png
/home/kbv/Pictures/Screenshot from 2020-10-03 09:35:48.png
/home/kbv/Pictures/2020-05-31-101426.jpg
/home/kbv/Pictures/Screenshot from 2020-12-10 11:08:50.png
/home/kbv/Pictures/Screenshot from 2020-09-23 09:34:50.png
/home/kbv/Pictures/Screenshot from 2020-10-28 14:02:59.png
/home/kbv/Pictures/Screenshot from 2020-11-06 12:31:44.png
/home/kbv/Pictures/Screenshot from 2021-01-13 16:07:13.png
/home/kbv/Pictures/Screenshot from 2020-10-14 13:55:02.png
/home/kbv/Pictures/Screenshot from 2020-10-26 13:12:56.png
/home/kbv/Pictures/Screenshot from 2020-10-02 09:06:16.png
/home/kbv/Pictures/255751_205482992026134_7409225_n.jpg
/home/kbv/Pictures/Screenshot from 2020-09-23 10:13:45.png
/home/kbv/Pictures/Screenshot from 2020-09-23 09:27:54.png
/home/kbv/Pictures/Screenshot from 2020-10-09 12:59:02.png
/home/kbv/Pictures/Screenshot from 2020-10-07 12:57:18.png
/home/kbv/Pictures/Screenshot from 2020-11-21 14:20:58.png
```

Comment [SSI4]: Not able insert comment within the text box, within 'gzip' and 'bzip' OR 'gzip' or 'bzip'. Please check.

Syntax	\$tar -cvf <tarfilename.tar> <path>/<folder>
Example	\$tar -cvf picture.tar /home/kbv/pictures

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Pictures$ ls pictures.tar
pictures.tar
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Pictures$ cd ..
```

File Commands

File Commands

Comment [SSI5]: Exercise for the learner or study material? Not clear

S.No	Command	Syntax	Match
1	\$rm	\$rm <filename>	
2	\$ ls	ls	
3	\$mv	\$mv <original file name> <to be converted file name>	
4	\$head	\$head <no of lines> <filename>	
5	\$tail	\$tail <no of lines> <filename>	
6	\$diff	\$diff <filename1> <filename2>	
S.No	Command	Syntax	Match
1	\$rm	\$rm <filename>	
2	\$ ls	ls	
3	\$mv	\$mv <original file name> <to be converted file name>	
4	\$head	\$head <no of lines> <filename>	

File Commands

Syntax	\$rm <filename>
Example	\$rm hello
Description	Delete the_a file in a directory

```
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ cd prj5
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project/prj5$ ls
hello
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project/prj5$ rm hello
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project/prj5$ ls
```

ls command

Syntax	ls
Example	ls ls -l ls -a
Description	To view the files and directories

```
kbv@kbv-Lenovo-ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ ls
prj1 prj2 prj3 prj4 project1
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ ls -l
total 4
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj1
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 project1
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ ls -a
. . prj1 prj2 prj3 prj4 project1
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ ls -a -l
total 12
drwxrwxr-x 2 kbv kbv 4096 Feb 19 17:20 .
drwxr-xr-x 42 kbv kbv 4096 Feb 19 16:55 ..
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj1
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 project1
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$
```

mv Command

Syntax	\$mv <original file name> <to be converted file name>
Example	\$mv project renproject
Description	Renames the file

```
kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ ls -l
total 4
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 pr11
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 pr12
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 pr13
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 pr14
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ mv project1 renproject1
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ ls -l
total 4
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj1
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv  0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 renproject1
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
```

head Command

Syntax	\$head <no of lines> <filename>
Example	\$head 2 pri1
Description	Print the first part of the file with number of lines as specified by user

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ head renproject2
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
now save the file
type "ctrl" + "z"
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ head -n 2 renproject2
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
```

tail Command

Syntax	\$tail <no of lines> <filename>
Example	\$tail 2 pr1
Description	Print the last part of the file with number of lines as specified by user

```
D05_practical.pdf Dos_Theory.pdf prj2 prj3 prj4 renproject1 renproject2
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ tail renproject2
hello welcome to this wonderful tutorial
learn this tutorial and get enhance your basic knowledge
now save the file
type "ctrl" + "z"
```

```
type "ctrl" + "z"
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$ tail -n 2 renprojec
t2
now save the file
type "ctrl" + "z"
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/project$
```

diff Command

Syntax	\$diff <filename1> <filename2>
Example	\$diff abc1.txt prj2
Description	Compares two files and its contents.

```
kbv@kbv-Lenovo-ideapad-110-15ISK: ~/Documents/project
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ diff abc1.txt abc2.txt
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ diff abc1.txt abc2.txt
1,5d0
< hello
< welcome to the world of linux
< great to learn the concept
< good going
< now save the file "ctrl" + "z"
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$
```

Specific Commands in Linux

sudo	df	du	chmod	chown
wget	uname	history	man	clear

Sudo Command

- The **sudo command** allows to run programs with the security privileges of another user (by default, as the superuser).
- It prompts you for your personal password and confirms your request to execute a **command** by checking a file, called **sudoers**.

Install applications	<code>\$sudo apt-get install <appname></code>
Remove application	<code>\$sudo apt-get remove <appname></code>

```
kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents
Hit:4 http://in.archive.ubuntu.com/ubuntu groovy InRelease
Hit:5 https://updates.signal.org/desktop/apt xerial InRelease
Get:6 http://in.archive.ubuntu.com/ubuntu groovy-updates InRelease [115 kB]
Hit:7 http://ppa.launchpad.net/libreoffice/ppa/ubuntu groovy InRelease
Get:8 http://repo.mysql.com/apt/ubuntu groovy InRelease [12.2 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu groovy-backports InRelease [101 kB]
Ign:10 http://ppa.launchpad.net/sylvain-pineau/kazan/ubuntu groovy InRelease
Hit:11 https://packages.microsoft.com/repos/ms-teams stable InRelease
Hit:12 http://ppa.launchpad.net/teejee2008/ppa/ubuntu groovy InRelease
Err:8 http://repo.mysql.com/apt/ubuntu groovy InRelease
  The following signatures were invalid: EXPKEYSIG 8C718D3B5072E1F5 MySQL Rel
ease Engineering <mysql-build@oss.oracle.com>
Get:13 http://in.archive.ubuntu.com/ubuntu groovy-updates/main i386 Packages
[155 kB]
Get:14 http://security.ubuntu.com/ubuntu groovy-security/main amd64 DEP-11 Me
tadata [4,676 B]
Hit:15 http://linux.teamviewer.com/deb stable InRelease
Err:16 http://ppa.launchpad.net/kazan-team/unstable-series/ubuntu groovy Rele
ase
  404 Not Found [IP: 91.189.95.85 80]
0% [Connected to in.archive.ubuntu.com (43.255.166.254)] [Waiting for header]
```

df Command

- df command is used to display the disk space used in the file system
- 'df' stands for "**disk filesystem**"

Syntax `df [OPTION]... [FILE]...`

```
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project$ df -h
df: /run/user/1000/doc: Operation not permitted
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           1.2G  1.0M  1.2G   1% /run
/dev/sda2       916G  122G  748G  14% /
tmpfs           5.8G  167M  5.7G   3% /dev/shm
tmpfs           5.0M   4.0K  5.0M   1% /run/lock
tmpfs           4.0M   0  4.0M   0% /sys/fs/cgroup
/dev/sda1       511G  7.9M  504G   2% /boot/efi
tmpfs           1.2G  156K  1.2G   1% /run/user/1000
```

du (disk usage) Command

- Reports the estimated amount of disk space used by files or directories
- Useful for finding files and directories taking up large amounts of disk space
- Has many parameter options used to get the results in many formats.
- Displays the files and directory sizes in a recursively manner.

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: $ du /home/kbv/Documents/project
9404 /home/kbv/Documents/project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: $ cd Documents
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$ du project
9404 project
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents$

```

Comment [SSI6]: "Recursively manner" OR 'Recursive manner'? Please check

Syntax	\$du <filename> / <folder>
--------	----------------------------

Chmod

- chmod command is used for granting and revoking of permissions
- Each file is associated with certain groups i.e., either "user" / "owner" / " other" / "all" groups. They can be identified "u"/"g"/"o"/"a".
- Each and every group has certain modes of accessing a file in the form of "r"/"w"/"x", read/write/execute.

Syntax	\$chmod [groupsymbol] = [mode of permission] <filename>
Example	\$chmod g=r filename.txt
Description	Grant and revoke of permissions

Chmod

```
total 9408
-rw-rw-r-- 3 kbv kbv 105 Feb 20 16:15 abc1.txt
-rw-rw-r-- 3 kbv kbv 105 Feb 20 16:15 abc2.txt
-rw-rw-r-- 3 kbv kbv 105 Feb 20 16:15 abc.txt
-rw----- 1 kbv kbv 3021641 Feb 20 11:06 DOS_practical.pdf
-rw----- 1 kbv kbv 6587871 Feb 20 11:09 Dos_Theory.pdf
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 renproject1
-rw-rw-r-- 1 kbv kbv 134 Feb 20 08:11 renproject2
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ chmod g=x abc2.txt
(base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$ ls -l
total 9408
-rw--xrw-- 3 kbv kbv 105 Feb 20 16:15 abc1.txt
-rw--xrw-- 3 kbv kbv 105 Feb 20 16:15 abc2.txt
-rw--xrw-- 3 kbv kbv 105 Feb 20 16:15 abc.txt
-rw----- 1 kbv kbv 3021641 Feb 20 11:06 DOS_practical.pdf
-rw----- 1 kbv kbv 6587871 Feb 20 11:09 Dos_Theory.pdf
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj2
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj3
-rw-rw-r-- 1 kbv kbv 0 Feb 19 17:20 prj4
-rw-rw-r-- 1 kbv kbv 134 Feb 19 17:15 renproject1
```

wget Command

- The **wget command** is a **command line utility** to download files from the Internet. It Supports:
 - Downloading multiple files
 - Downloading in the background
 - Resuming downloads
 - Limiting the bandwidth used for downloads
 - Viewing headers

Syntax	\$wget <url name>
Example	\$get https://cdn.kernel.org/pub/linux/kernel/v4.x/linux-4.17.2.tar.xz

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/unixprg
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents/unixprg$ wget https://cdn.kernel.org/pub/linux/kernel/v4.x/linux-4.17.2.tar.xz
--2021-05-06 19:34:21-- https://cdn.kernel.org/pub/linux/kernel/v4.x/linux-4.17.2.tar.xz
Resolving cdn.kernel.org (cdn.kernel.org)... 151.101.153.176, 2a04:4e42:24::432
Connecting to cdn.kernel.org (cdn.kernel.org)|151.101.153.176|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 102167060 (97M) [application/x-xz]
Saving to: 'linux-4.17.2.tar.xz'

linux-4.17.2.tar.xz          19%[=====>] Progress bar ] 18.91M  915KB/s  eta 60s
    
```

uname Command

Syntax	Uname [option]
Example	\$uname -r/a/s/n/v/m/p/i/o
Description	Displays the name of the Linux

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~$ uname -r
5.8.0-43-generic
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~$ uname -all
uname: invalid option -- 'l'
Try 'uname --help' for more information.
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~$ uname -a
Linux kbv-Lenovo-Ideapad-110-15ISK 5.8.0-43-generic #49-Ubuntu SMP Fri Feb 5 03:01:28 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~$
    
```

- a- prints all the information
- s- prints the kernel name
- n - prints network node hostname
- v - kernel version
- m- prints machine hardware name
- p - prints the processor type
- i - prints the hardware platform
- o - prints the operating system
- help - prints the help
- version - prints the version and exit

History Command

Syntax	\$history
Description	Displays execution of different commands stored in the terminal

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents/project
1667 cd ..
1668 find -L /home/kbv/Documents/project/ "this" renproject2
1669 cat renproject2
1670 find -L /home/kbv/Documents/project/ *.pdf"
1671 find -L /home/kbv/Documents/project/ "*.pdf"
1672 find -L /home/kbv/Documents/project/ *.pdf
1673 locate Dos_Theory.pdf
1674 sudo apt-get update
1675 clear
1676 cd project
1677 ls
1678 ls -ls
1679 diff abc1.txt abc2.txt
1680 diff abc1.txt prj2
1681 clear
1682 diff abc1.txt abc2.txt
1683 diff abc1.txt prj2
1684 clear
1685 history
base) kbv@kbv-Lenovo-ideapad-110-15ISK:~/Documents/project$
    
```

man Command

Syntax	\$man <command name>
Example	\$man ls
Description	Gives help about application i.e., Manual

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents
NAME
  ls - list directory contents

SYNOPSIS
  ls [OPTION]... [FILE]...

DESCRIPTION
  List information about the FILES (the current directory by default).
  Sort entries alphabetically if none of -cftuvSUX nor --sort is spec-
  ified.

  Mandatory arguments to long options are mandatory for short options
  too.

  -a, --all
       do not ignore entries starting with .

  -A, --almost-all
       do not list implied . and ..

  --author
       with -l, print the author of each file

Manual page ls(1) line 2 (press h for help or q to quit)
  
```

clear Command

Syntax	\$clear
Description	Clear the contents on the terminal

Clear command (before clear)

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ date
Saturday 20 February 2021 01:08:16 PM IST
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ cal
February 2021
Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ who
kbv      10      2021-02-20 07:31 (+0)
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ whoami
kbv
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ clear
  
```

Clear command (after clear)

```

kbv@kbv-Lenovo-Ideapad-110-15ISK: ~/Documents
(base) kbv@kbv-Lenovo-Ideapad-110-15ISK:~/Documents$ 
  
```

Use Specific Linux Commands

Commands	Syntax	Function
zip	zip [options] zipfile files_list	Compresses all the files into a single file
unzip	unzip <zipfile>	Extracts all files
hostname	hostname – [option] [file]	Displays the name of the host or the network
top	top	Lists all the running process and the CPU time allocated by the system.
kill	kill <pid>	Kills a process
jobs	Jobs, jobs <jobid>, jobs [options] <jobid>	Displays all jobs and their status.
ping	ping<network ip address>	Check the network connection

Describe the Various Text Editors in Linux

- A text editor plays an important role while coding.
- A text editor should not only be simple, but also functional and good to work with.
- Text editors like Vi Editor, Nano Editor, Gedit and Pico come along with Ubuntu Software.
- Editors like sSublime, nNotepad, eEclipse, and many more are required to be installed.

Describe the Various Text Editors in Linux

Vi Editor

Nano Editor

Pico

- Vi editor is one of the best editor in creating ~~the files~~ and editing ~~the files~~.
- Vi Editor has two modes:
 - Command Mode: The command mode allows to perform actions on files. By default, it starts in command mode
 - Insert Mode: The insert mode allows to insert text on files. To switch from command mode to insert mode, press the Escape key to exit from active mode

Describe the Various Text Editors in Linux

Vi Editor

Nano Editor

Pico

- Nano Editor is an easy to use command line text editor for Unix and Linux operating systems.
- Includes all the basic functionalities of a regular text editor like :
 - **S**yntax highlighting
 - **M**ultiple buffers
 - **S**earch and replace with regular expression support,
 - **S**pell checking
 - UTF-8 (Unicode Transformation Format – 8-bit) encoding

Describe the Various Text Editors in Linux

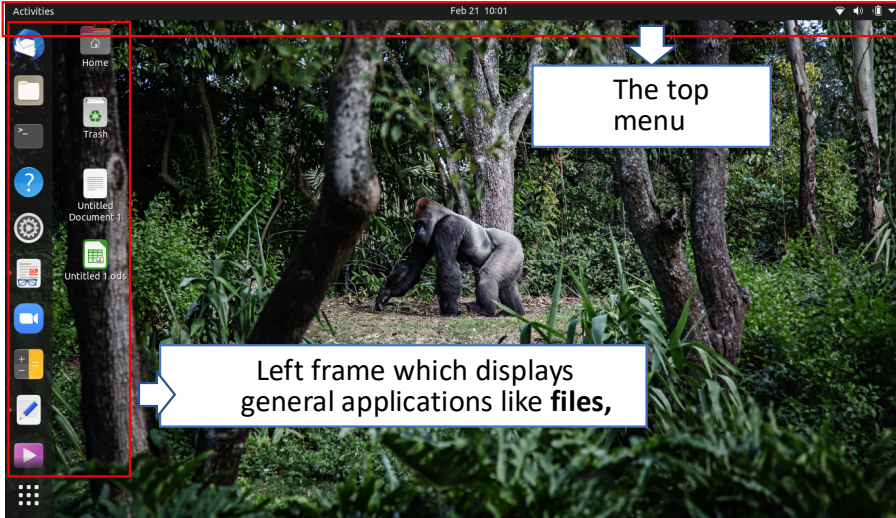
Vi Editor

Nano Editor

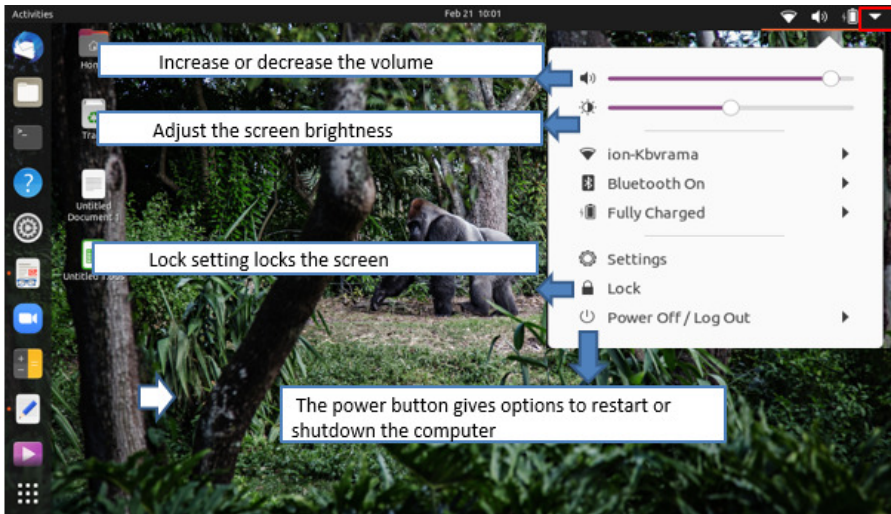
Pico

- The UNIX Pico editor is a full screen editor.
- Pico Editor is very user friendly.
- Programmers prefer to use Vi editor in the initial stage of learning and switch to z either Pico or Nano.

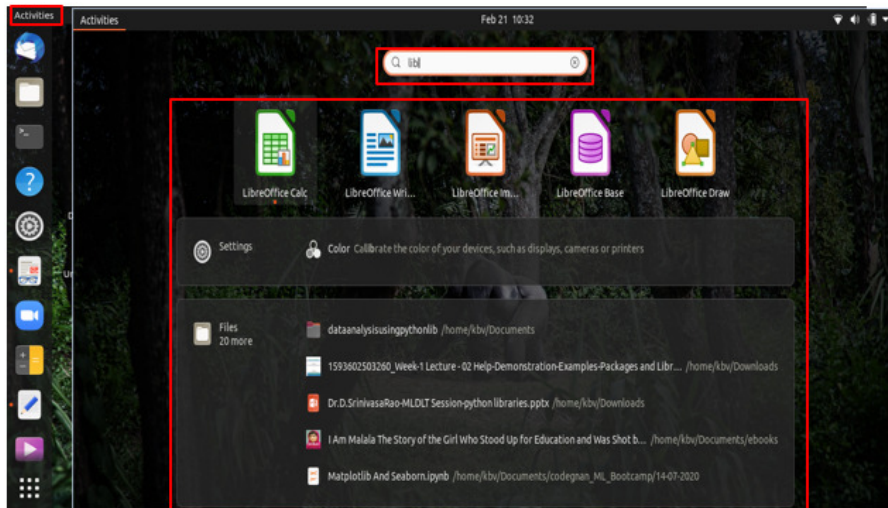
Desktop



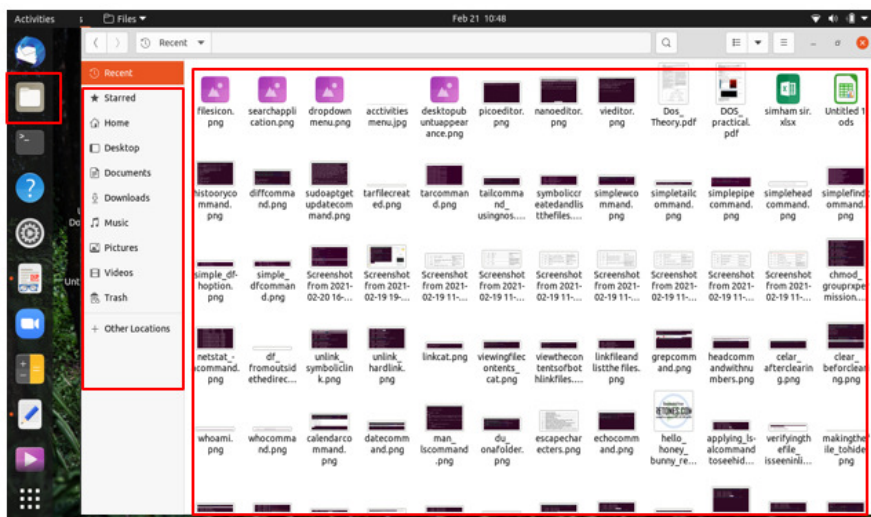
Desktop : Settings



Desktop - Activities

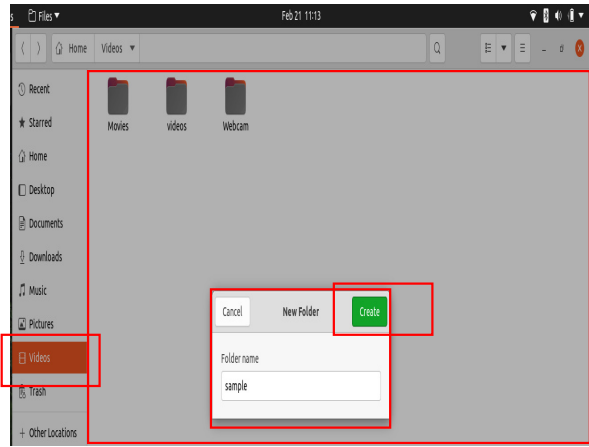


Desktop - Activitites



Create a Folder

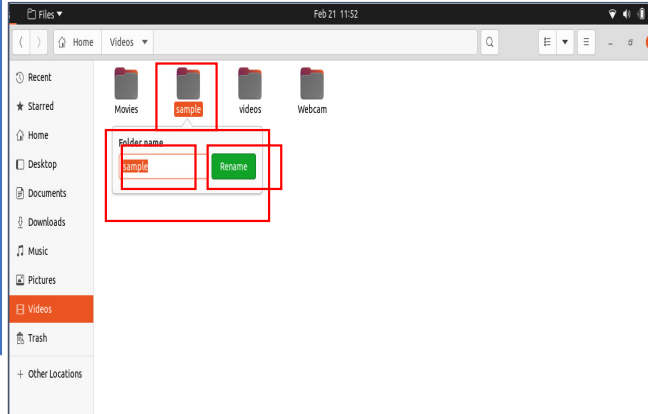
- For example:**
1. Select Videos folder in the left frame.
 2. The right frame displays all the folders and files in the video folder.
 3. Right click the mouse placing on the right frame.
 4. Select new folder
 5. A pop-up box displays.
 6. Enter the folder name and select the create button.



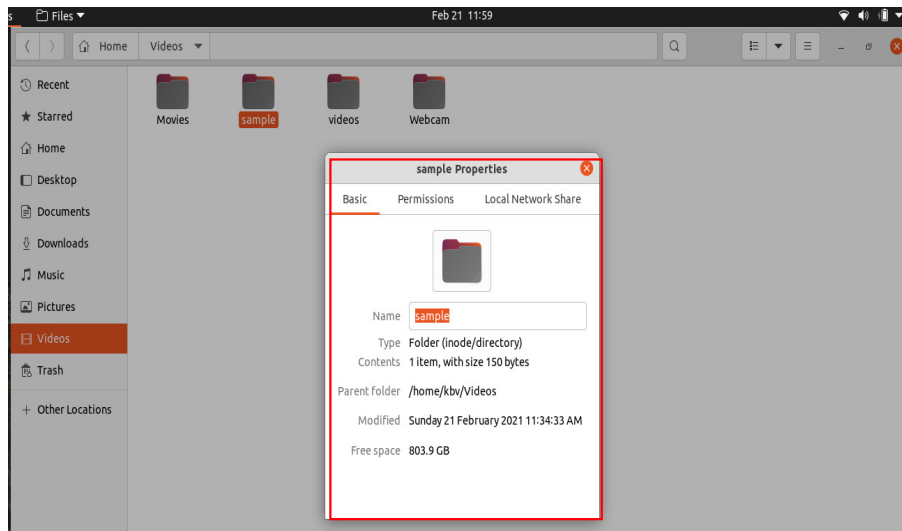
Rename a File

Comment [SSI7]: Consistency in approach. Page 34, 'Create a folder', key words in the instructions in regular font. Here, key words are in bold

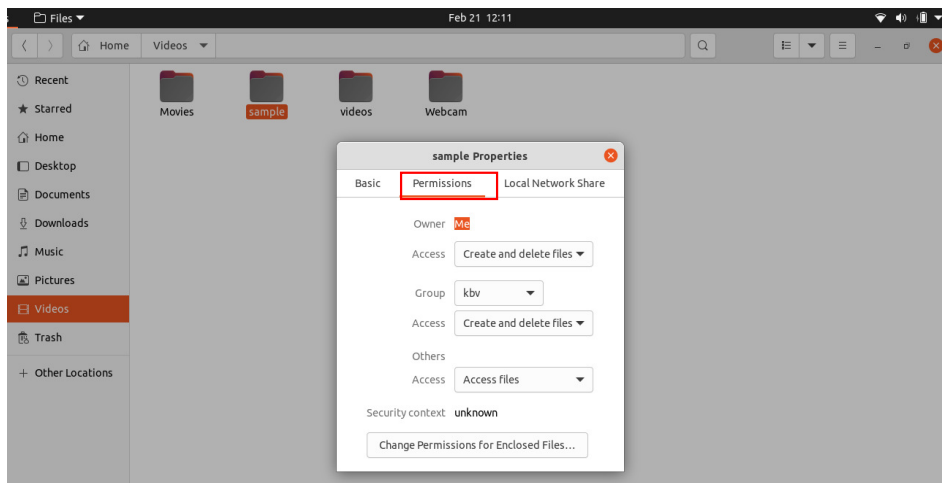
- Select the appropriate folder, **right click the folder**
- A **pop up menu will be displayed**
- Now select **rename option**
- Type the **desired name in the given space**
- Click **Rename button**



Viewing the Properties of a folder/file

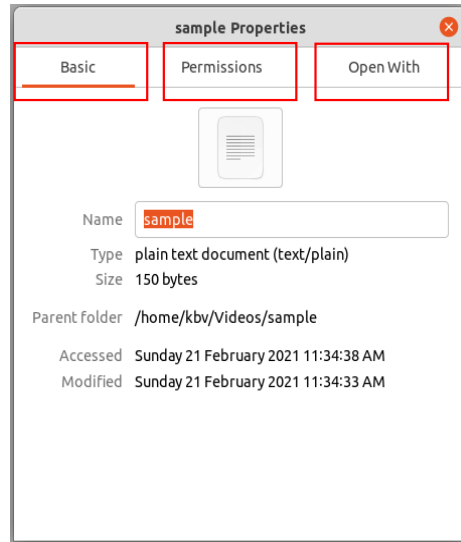


File/Folder - Permissions



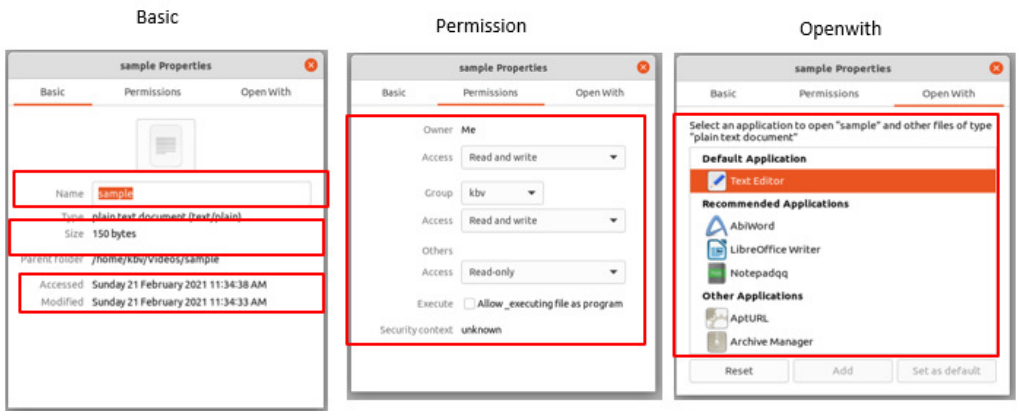
File- permissions

- Select the file, right click the file and select properties option from the pop-up menu.
- It displays a screen with 3 tabs
- **Basic** gives information like
 - Name of the file
 - Date creation
 - Date of modification
 - No of bytes occupied
- **Permissions** shows the various permissions for the user group and other, by default all kinds of permissions available to both user and group, but for the outsiders, it will be given as read only
- **Open with** opens with certain applications mentioned in the given list



Comment [SSI8]: Consistency. Page 36, File/folder – Permissions. "P" in capital. Here 'p' lower case.

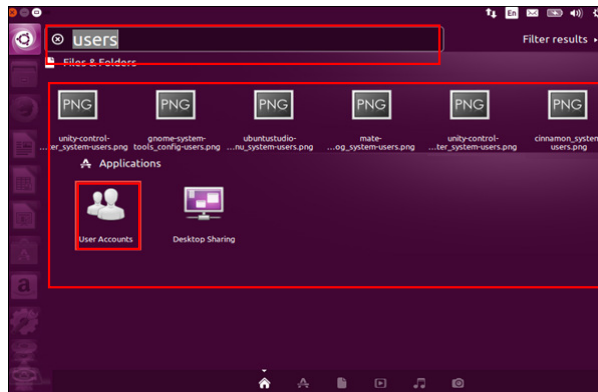
Comment [SSI9]: Consistency. Some bullet points first word in bold, rest regular.



Creating Users



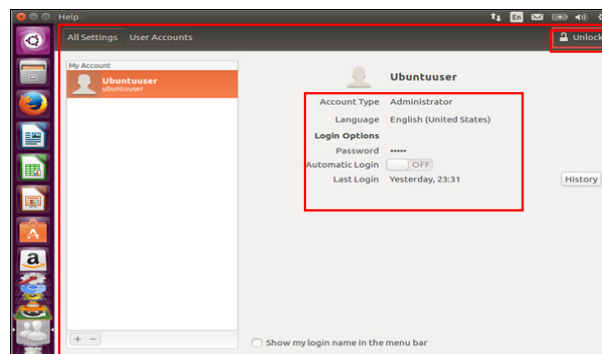
- Launch the user management console from the search menu
- In the search menu, enter the keyword of 'users'
- The User Accounts icon will appear-be displayed
- Double-click on the User Accounts icon



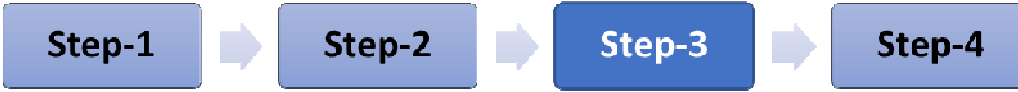
Creating Users



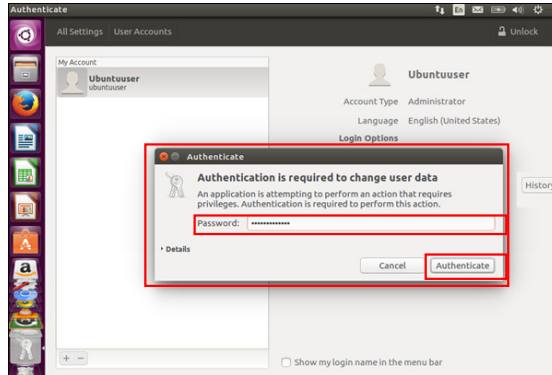
- The User management screen appears is displayed
- Click the Unlock button
- Enter administrator credentials



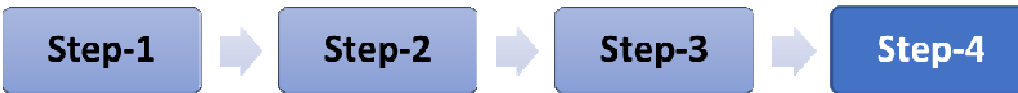
Creating Users



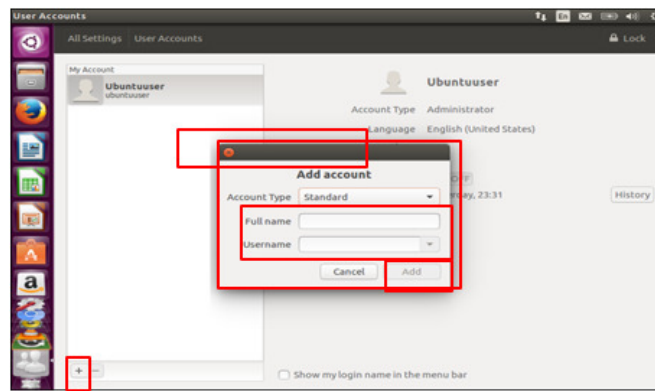
1. A pop-up box appears is displayed
2. Enter Authentication password
3. Click the **Authenticate** button



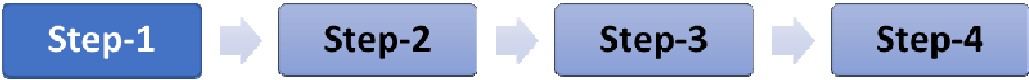
Creating Users



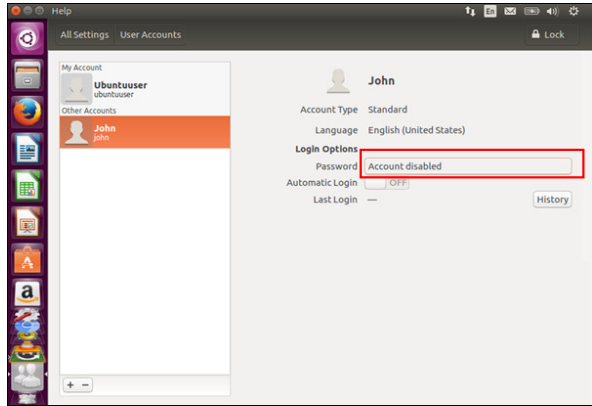
1. Click the plus sign to add an account.
2. A pop-up box- appears is displayed.
3. Enter full name and the username.
4. Click the add button to complete the process.
5. The account gets



Enabling the User



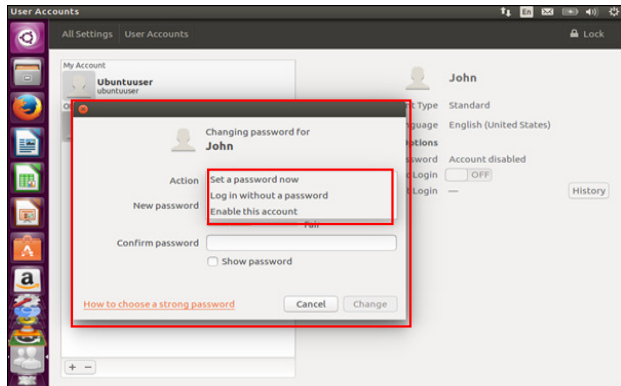
1. When ~~the~~a user is created, the user account is disabled
2. Click the Account disabled option
3. ~~This~~ will prompt for the password dialog box



Enabling the User



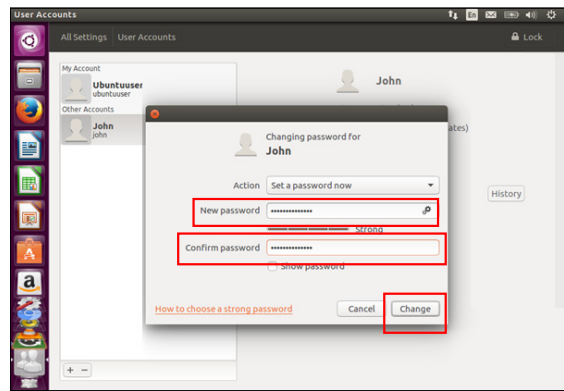
1. A pop-up box ~~appears~~is displayed to change the password.
2. The user gets three options to either
 - Set a password
 - Log in without a password
 - Enable the account
3. Set the password and click the Change button.



Enabling the User



- 1. Type the password in New password field
- 2. Confirm the password
- 3. Select Change



Enabling the User



- 1. The account will now be enabled.
- 2. Log in using the newly created account.

