Chapter 1 and chapter 2

Understand and Use Essential Tools

1. Access a shell prompt and issue commands with correct syntax (chapter 2)
2. Use input-output redirection (>, >>, |, 2>, etc) (chapter 7)
3. Use grep and regular expressions to analyze text (chapter 7)
4. Access remote systems using ssh (chapters 01 and 19)
5. Log in and switch users in multi-user targets (chapter 6)
6. Archive, compress, unpack, and uncompress files using tar, star, gzip, and bzip2 (chapter 3)
7. Create and edit text files (chapter 3)
8. Create, delete, copy, and move files and directories (chapter 3)
9. Create hard and soft links (chapter 3)
10. List, set, and change standard ugo/rwx permissions (chapter 4
11. Locate, read, and use system documentation including man, info, and files in /usr/share/doc (chapter 2)

Linux Directory Structure and File Systems

- Filesystem Hierarchy Standard (FHS) - Used for file organization, which describers the file permission, names, locations

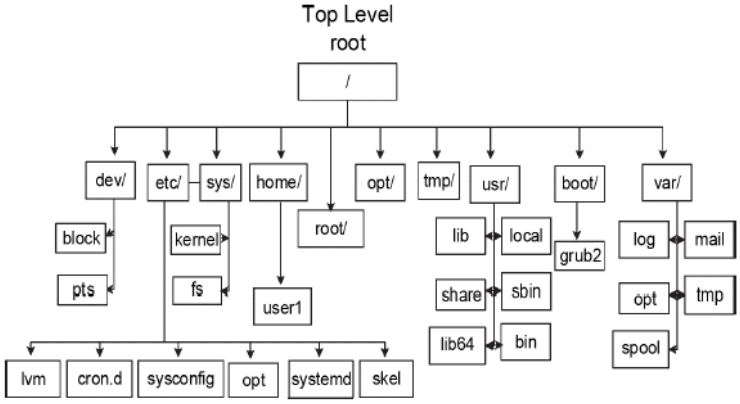


Figure 2-4 Linux Directory Structure

File system categories

1. Disk-based - files system that are created on physical media such as hard drive or a USB
2. Network-based - Shared over a n/w for remote access
3. Memory based - virtual, automatically created at the system startup and destroyed when the system is shutdown

The root file system (/) - Disk based file system

- Highest level of / top-level file system

```
/
abhi@ubuntu:/$ ls
bin  boot  cdrom  d1  dev  etc  home  lib  lib32  lib64  libx32  lost+found  media  mnt  opt  proc  root  run  sbin  snap  srv  swapfile  sys  tmp  usr  var
abhi@ubuntu:/$
```

/etc - where all the configuration files eg: systemd ,sysconfig , lvm, skel

/root - default home directory location for the root user

/mnt - mount a file system temporarily

The boot files system (/boot)- disk based

/boot - file system contains booting files, linux kernel , boot configuration files

/home - assigned for each user where they save directories and other user contents

/opt - can be used to hold software that may need to be installed on the system

/usr - contains the most of the system files , some import sub directories also

```
abhi@ubuntu:/usr$ ls
bin  games  include  lib  lib32  lib64  libexec  libx32  local  sbin  share  src
```

/usr/bin - crucial user executables commands

/usr/sbin - commands that are only can be run with the root level access … also needed for system boot, requires root user privilege.

/usr/local - serve as a system administrator repository for storing commands and tools downloaded from the web or developed

Variable directory (/var)

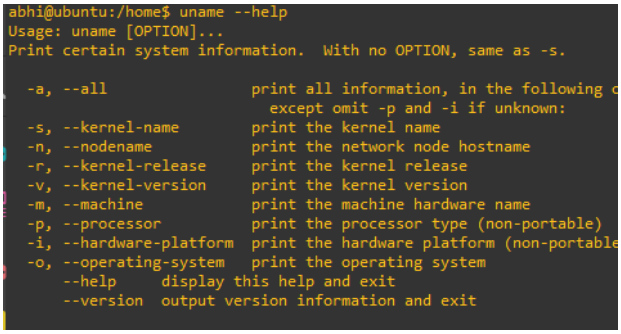
- Contains the data that frequently change when the system is operational
- Eg: logs, status, spool lock,
- /var/log - most of the system log ins / boot logs, user logs , failed usr logins , installation logs

Listing Files and Directories

One of the most rudimentary commands in Linux is the *ls* (*list*) command. It is used to show the list of files and directories. This command supports a multitude of options, some of which are listed in Table 2-2 along with a short explanation.

Option	Description
-a	Includes hidden files and directories in the output. A file or directory name that begins with the period character (.) is considered hidden.
-l	Displays long listing with detailed file information including the file type, permissions, link count, owner, group, size, date and time of last modification, and name of the file
-ld	Displays long listing of the specified directory but hides its contents
-lh	Displays long listing with file sizes shown in human-friendly format
-lt	Lists all files sorted by date and time with the newest file first
-ltr	Lists all files sorted by date and time with the oldest file first (reverse)
-R	Lists contents of the specified directory and all its subdirectorie (recursive listing)

Viewing system info : uname -a



Finding out the uptime : uptime

List cpu information : lscpu

Command to find the docs related to the commands : man / --help

Find a command using keyword / forgot one command , to find it use : apropos

Command to update the manual pages : mandb