Chapter Table of Contents

Chapter 1.2

Exploring Linux Flavours and Commands

Aim

To explore various flavours of Linux

Instructional Objectives

After completing this chapter, you should be able to:

- Get acquainted with various flavours of Linux
- Explain Debian and RPM package
- Discuss Debian and RPM distributions provided by the vendor
- Discuss the rise of Ubuntu and its versions
- Explain the prerequisites for installing Ubuntu
- Demonstrate how to install Ubuntu
- Illustrate the Linux commands along with its options

Learning Outcomes

At the end of this chapter, you are expected to:

- List the popular distributions of Linux
- Write the commands used to install and remove Debian and RPM package
- Explain RPM file format
- Install Ubuntu
- Summarise the advantages and versions of Ubuntu
- Demonstrate Linux commands

1.2.1 Introduction to various Linux flavours

(Source-http://www.howtogeek.com/191207/10-of-the-most-popular-linux-distributions-compared/)

Linux is not a complete operating system , it's just a kernel. Linux distributions take the Linux kernel and combine it with other free software to create complete packages. There are many different Linux distributions. To install Linux, you will need to choose a distribution. Most Linux distributions offer a set of programs for generic PCs. These distributions are well-tested and maintained on a regular basis. Examples of popular Linux distributions are Debian, Ubuntu, Fedora, SuSE and Mandriva.

It is advised that beginners should stick to a mainstream distribution, supporting all common hardware and applications by default. The following are popular Linux distros:

Ubuntu:

Ubuntu is one of the most popular Linux distributions. Ubuntu is based on Debian, but it has its own software repositories. It offers releases every six months, with a more stable LTS (long term support) release every two years. Ubuntu is currently working on expanding the Ubuntu distribution to run on smartphones and tablets.

Linux Mint

Linux Mint is 3rd most widely used home operating system after Windows and Apple Mac OS. Linux Mint is based on Debian and Ubuntu. Mint included media codecs and proprietary software that Ubuntu didn't include by default.

Figure 1.2.1

Debian

Debian is an open source software and operating since 1993.This widely respected project is still releasing new versions of Debian. Debian offers three main branches: Stable, Testing and Unstable. The Debian Stable is used as base for other distributions. Packages are first uploaded as Unstable and then they are shifted for Testing. Testing and Unstable branches become the Stable distribution after development and testing.

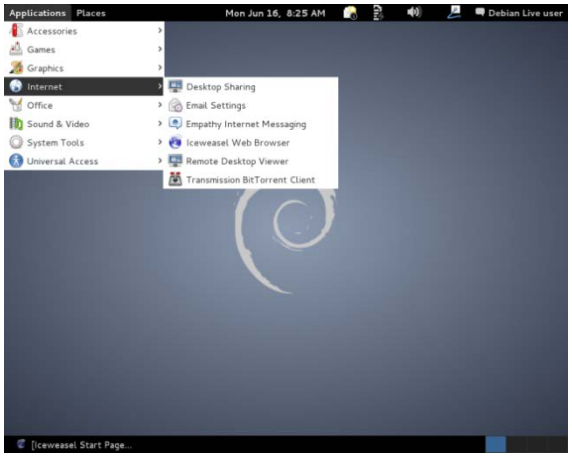

Figure 1.2.2

Fedora

Fedora is popular Linux distribution supported by community project. This distribution is sponsored by Red Hat. Fedora users can upgrade from older version to new version without any need of reinstallation. Fedora is known for integrating upcoming technologies early and for working closely with upstream communities.

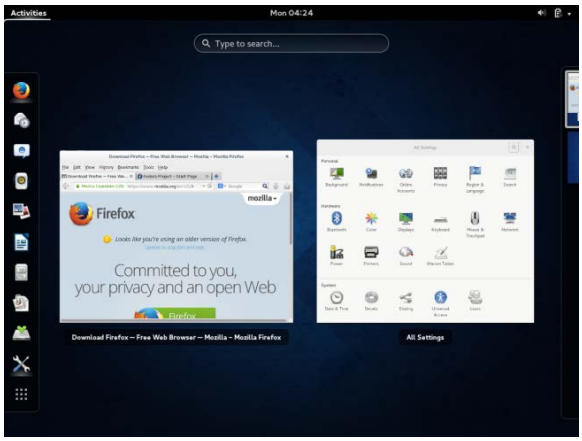

Figure 1.2.3

Cent OS / Red Hat Enterprise Linux

Red Hat Enterprise Linux is based on Fedora. It is a commercial Linux distribution specially designed for servers and workstations. This distribution is also supported by community project the CentOS. The core software of this distribution is free and open-source.

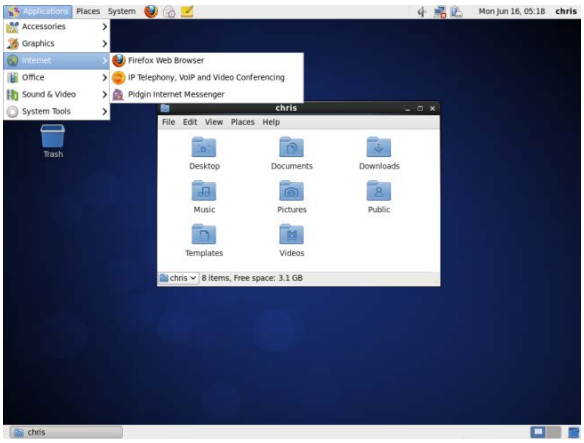

Figure 1.2.4

Puppy Linux

Puppy Linux is another fairly well-known Linux distribution. Puppy is designed to be a small, lightweight operating system that can run well on very old computers.

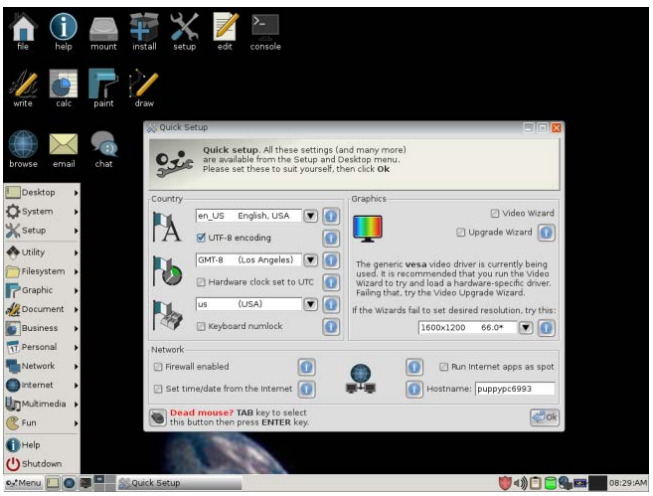

Figure 1.2.5

Self-assessment Questions

1) Linux is not a complete operating system , it's just a kernel
   a) TRUE b) FALSE

2) A package management system helps to _____software for a computer's operating system
   a) Install b) Upgrade
   c) Install, upgrade, configure, and remove d) Remove

3) New version of Ubuntu is released in every _____ months.
   a) Two b) Three
   c) Four d) Six

4) Linux Mint is based on _____.
   a) Debian b) Debian and Ubuntu
   c) Ubuntu d) Fedorai

5) Red Hat Enterprise Linux is based on_____.
   a) Fedora b) Debian
   c) Ubuntu d) All of these

1.2.2 Debian and RPM Packages

http://teaching.idallen.com/cst8207/13w/notes/810_package_management.html

It was mentioned in previous section that a package management system helps to install, upgrade, configure, and remove software for a computer's operating system,

Package management systems take all the various files containing programs and data, documentation, and configuration information, and also have information about upgrades and dependencies. The packet manager will have a pre compiled version of the package. You can then install this compiled package/application through the package manager.

There are two main systems for package management: RPM and APT/DEB.

RPM packages (*.rpm): used by CentOS, Red Hat, Fedora, Mandriva, etc.

APT/DEB packages (*.deb): used by Debian, Ubuntu, Mint, etc.

RPM - Red Hat Package Manager

It is an open packaging system. RPM uses short commands to upgrade, install RPM package. It maintains the database of installed package and their files.The rpm command is a low-level package manager. RPM can access packages on remote servers using URLs. You may need to use RPM to fix a broken system.

RPM – Install/Remove packages:

RPM packages typically have file names like foo-1.0-1.i386.rpm. The file name includes the package name (foo), version (1.0), release (1), and architecture (i386). To install a package, log in as root and type the following command at a shell prompt:

```
rpm -ivh foo-1.0-1.i386.rpm
```

The above command will install the package. To upgrade the package, you can use following command:

```
rpm -Uvh foo-1.0-1.i386.rpm
```

If the installation is successful, the following output is displayed:

```
Preparing...          ########################################### [100%]
   1:foo              ########################################### [100%]
```

As you can see, RPM prints out the name of the package and then prints a succession of hash marks as a progress meter while the package is installed.

Uninstalling a package is very simple as installing one. Type the following command at a shell prompt:

```
rpm -e foo
```

Be careful about erasing a package needed by other packages!

RPM File format

RPM packages are delivered with one file per package. There are four section of basic format of RPM files:

- A lead or file identifier
- A signature
- Header information
- Archive of the payload, the files to install

The file identifier

The identifier is used to check that this file is an RPM file. It contains a magic number that the file command uses to detect RPM files. Identifier also have information about version and architecture.

The signature

This section of format helps you to check the integrity of package. The signature appears after the identifier section.

The header

The header structure contains three parts:

- Header record
- One or more header index record structures
- Data for the index record structures

The header record identifies this as the RPM header. It also contains a count of the number of index records and the size of the index record data.

The payload

The payload, or archive, section contains the actual files used in the package. These are the files that the rpm command installs when you install the package. To save space, data in the archive section is compressed in GNU gzip format.

DEB- Debian Packet Manager

Like RPM package system, the Debian package system allows the installation, upgradation and removing the software packages. In this package, filename ends with .deb extension.

Debian packet management system is based on dpkg tool and apt system. Ubuntu distributions are also derived from Debian systems.

Advanced Packaging Tool (APT)

The command apt-get uses the advanced packaging tool to interact with the operating system's package system. Following are the commands to install/uninstall the package (user need to login as root to execute these commands):

```
apt-get install package_name1, package_name2, ……
```

The above command will install all the packages specified along with any dependencies.

```
apt-get remove package_name1, package_name2, ……
```

The above command remove the package specified in the command but does not remove the dependencies.

Self-assessment Questions

6) There can be multiple kernels and shells running on your UNIX/Linux system.
   a) TRUE b) FALSE

7) UNIX commands must be in lowercase and must not have extensions.
   a) TRUE b) FALSE

8) Ubuntu is based on RPM.
   a) TRUE b) FALSE

9) Red Hat Enterprise Linux is a commercial Linux based on the open-source Fedora project.
   a) TRUE b) FALSE

10) Cent OS is a commercial Linux.
   a) TRUE b) FALSE

11) The rpm command is a high-level package manager.
   a) TRUE b) FALSE

1.2.3 Ubuntu

(Source:http://www.informit.com/articles/article.aspx?p=1186095&seqNum=3
http://www.techotopia.com/index.php/The_History_of_Ubuntu_Linux)

Ubuntu is one of the most popular Linux operating system. Linux Distributions are also known as Linux Distros. Ubuntu is a new operating system as compared to other Linux Distributions, but in the short period of time Ubuntu has gained the respect among Linux users throughout the world.

As discussed, Ubuntu is one of a number of Linux distributions. The source code of Ubuntu originates Debian distribution. Debian is criticised for less frequent updates and less user friendly environment.

A South African internet entrepreneur–Shuttleworth, decided it was time for a more user friendly Linux. He took the Debian distribution and worked to make it a more human friendly distribution which he called Ubuntu.

Shuttleworth was born in 1973 in Welkom. During his college days, he was an enthusiastic computer hobbyist and became involved with the free and Open Source software community. Shuttleworth founded a certificate authority and Internet security company called Thawte in his garage. Thawte's products and services were built and served almost entirely from free and Open Source software. In December 1999, Shuttleworth sold Thawte to Verisign for an undisclosed amount that reached into the hundreds of millions in U.S. dollars.

In 2001, Shuttleworth founded the Shuttleworth Foundation (TSF). During this period, Shuttleworth was busy brainstorming his next big project which resulted into Ubuntu.

During this time, there were many projects attempting to wrap GNU, Linux, and other pieces of free and Open Source software into a neat, workable, and user-friendly package but, none of the offerings were particularly impressive. Shuttleworth saw this as an opportunity. Shuttleworth was a fan of the Debian project but there were many things about Debian that did not fit with Shuttleworth's vision of an ideal OS.

To start this new project, Shuttleworth invited Debian developers in London in April 2004. During this meeting, the team worked on the characteristics of an ideal OS. The list of features that were discussed at that time are:

- Predictable and frequent release cycles
- A strong focus on localization and accessibility
- A strong focus on ease of use and user-friendliness on the desktop
- A strong focus on Python as the single programming language through which the entire system can be built and expanded
- A community-driven approach that worked with existing free software projects and a method by which the groups give back as they go—not just at the time of release
- A new set of tools designed around the process of building distributions that allowed developers to work within an ecosystem of different projects and that allowed users to give back in whatever way they could.

Shuttleworth agreed to finance the work and pay the developers full-time salaries to work on the project. This group was known as Warthogs. He subsequently formed a company called Canonical Ltd to promote and provide support for Ubuntu Linux. In addition Shuttleworth has formed and funded (to the tune of $10 million) a foundation to guarantee the future of Ubuntu.

Ubuntu is becoming stronger day by day. Dell and other hardware vendors now ship computers pre-loaded with Ubuntu Linux and Ubuntu usually tops the chart at DistroWatch.com (a web site which tracks the popularity of the various Linux distributions).

If you are new to Linux or want to try a different Linux distro then Ubuntu is a better option to experiment and learn.

What Does *Ubuntu* Mean?

The word "Ubuntu" is an ancient Zulu and Xhosa word which means "humanity to others". Ubuntu also means "I am what I am because of who we all are". It was chosen because these sentiments precisely describe the spirit of the Ubuntu Linux distribution.

Ubuntu Versions:

The Ubuntu versions are released on a predictable six-month basis. It was decided that Long Term Support (LTS) will be issued on a two-year basis. Generally, LTS releases are used for large-scale deployments.

Ubuntu is committed to provide high quality release. Ubuntu doesn't divide its efforts between a high-quality commercial version and a free 'community' version. Both the release and ongoing updates are freely available to all users.

The first official Ubuntu release was Version 4.10 names 'Warty Warthog', was launched in October 2004. With its launch it attracted a lot of attention and many experts joined the Ubuntu community.

Ubuntu today has nine flavours and dozens of localised and specialised derivatives. There are also special editions for servers, Open Stack clouds, and mobile devices. All editions share common infrastructure and software, making Ubuntu a unique single platform that scales from consumer electronics to the desktop and up into the cloud for enterprise computing.

1.2.4 List of releases (source - https://wiki.ubuntu.com/Releases)

Current

Version	Code name	Docs	Release date	End of life date
Ubuntu 15.10	Wily Werewolf	Rel	October 22, 2015	July 2016
Ubuntu 14.04.3 LTS	Trusty Tahr	Changes	August 6, 2015	HWE August 2016
Ubuntu 14.04.2 LTS	Trusty Tahr	Changes	February 20, 2015	HWE August 2016
Ubuntu 14.04.1 LTS	Trusty Tahr	Changes	July 24, 2014	April 2019
Ubuntu 14.04 LTS	Trusty Tahr	Rel	April 17, 2014	
Ubuntu 12.04.5 LTS	Precise Pangolin	Rel	August 7, 2014	April 2017
Ubuntu 12.04.4 LTS	Precise Pangolin	Changes	February 6, 2014	HWE August 8, 2014
Ubuntu 12.04.3 LTS	Precise Pangolin	Changes	August 23, 2013	HWE August 8, 2014
Ubuntu 12.04.2 LTS	Precise Pangolin	Changes	February 14, 2013	HWE August 8, 2014
Ubuntu 12.04.1 LTS	Precise Pangolin	Changes	August 24, 2012	
Ubuntu 12.04 LTS	Precise Pangolin	Tech / Rel	April 26, 2012	

Ubuntu Installation:

(**Source**-http://www.linuxtechi.com/ubuntu-15-10-desktop-installation-guide/)

Ubuntu 15.10 Desktop Installation Guide

Ubuntu has released its latest version Ubuntu 15.10 code name as "**Wily Werewolf**" on 22nd Oct 2015. This installation guide will guide to install Ubuntu 15.10 on your laptop or desktop.

Step:1 Download Ubuntu 15.10 ISO file from its Official Site.

To download Ubuntu 15.10 go to its office site “http://www.ubuntu.com/download/desktop” and download as per your system architecture and make a bootable drive either on USB or CD-ROM / DVD

Step: 2 Boot the system with bootable drive.

When we boot the machine with bootable drive, following windows will appear.

Figure 1.2.6

Step:3 Click on “Install Ubuntu”

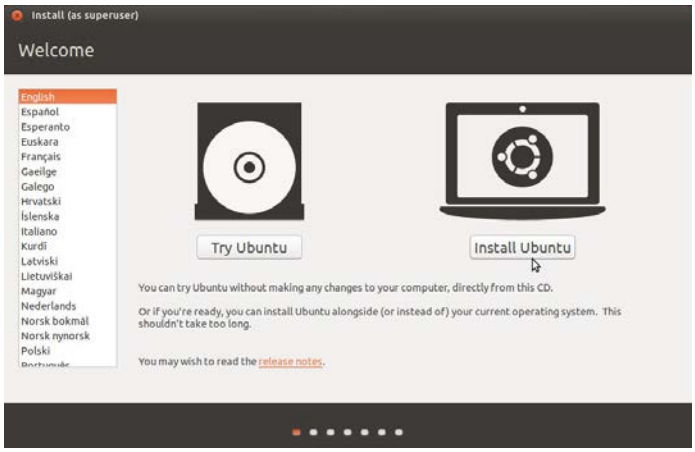

Figure 1.2.7

In the next step it will check whether system has enough free space, connected to Internet & power is plugged in. Click on “Continue”

Step: 4 Now partition your disk, for that there are two ways

(1) Let the Operating System to create the partition – OS will be automatically created partition depending on the disk size.

(2) Create your own partition.

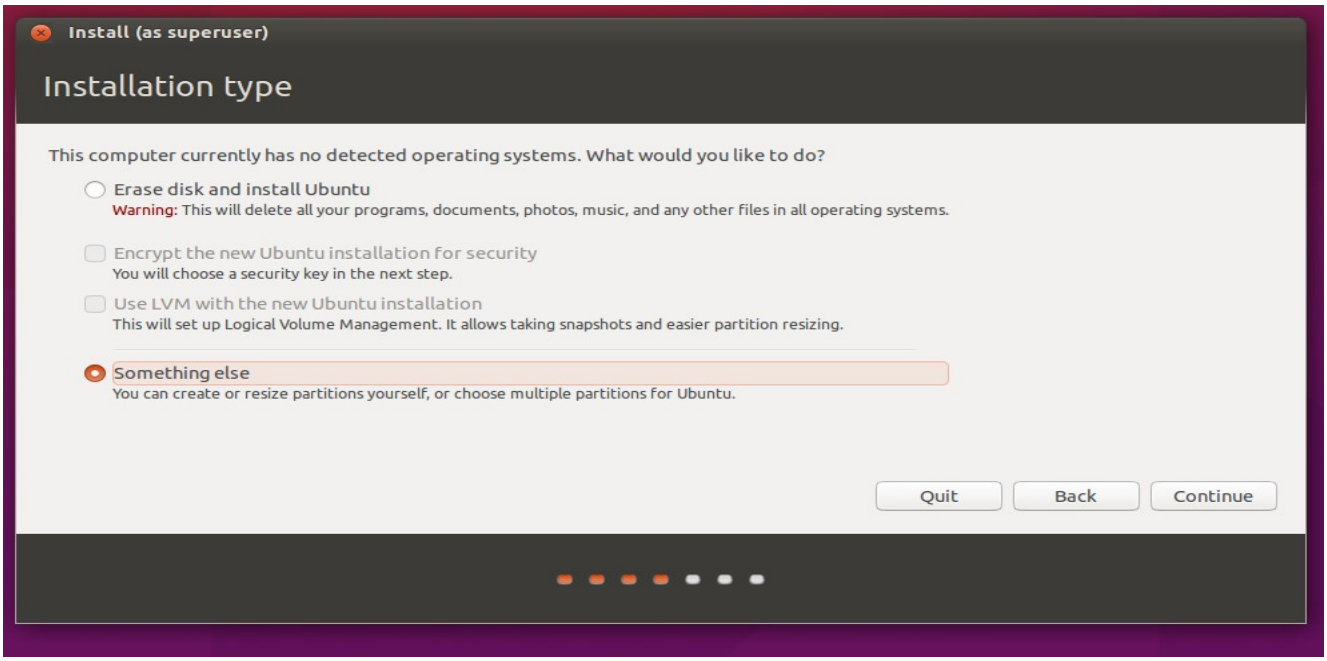

Figure 1.2.8

Step: 5 Set the time zone for the Clock.

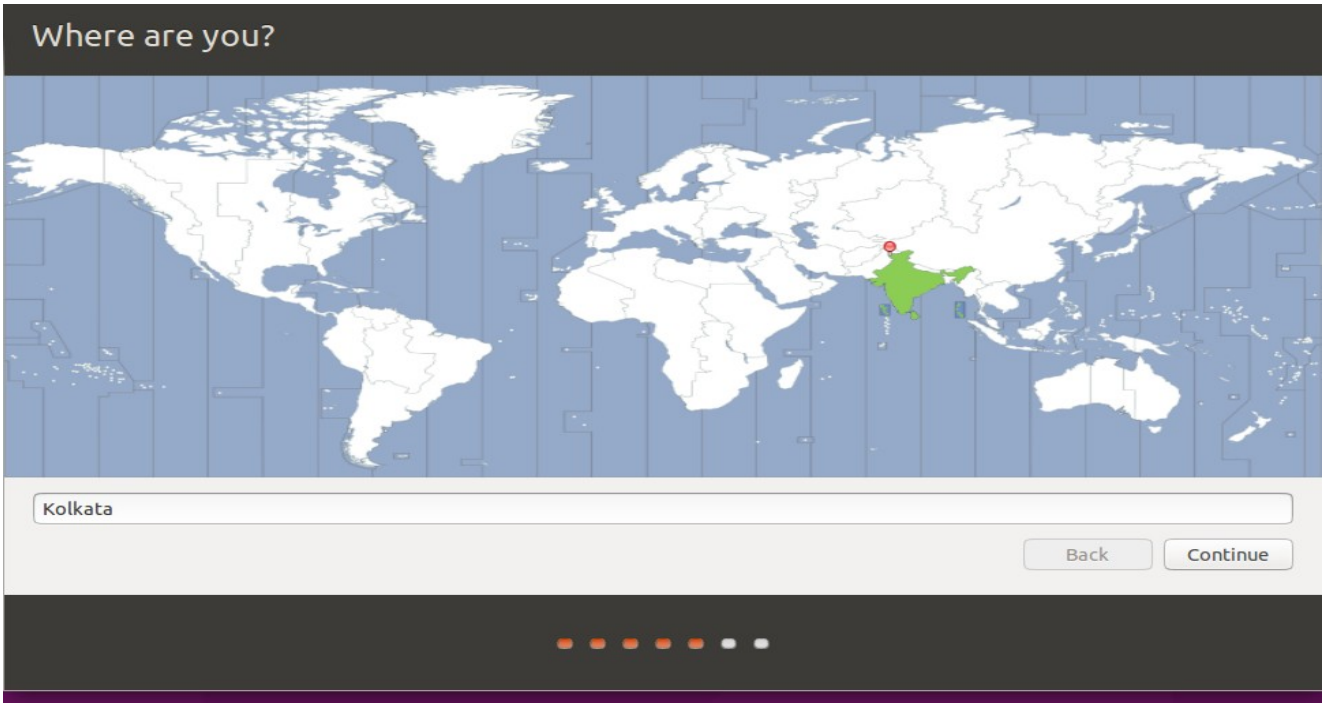

Figure 1.2.9

Click on Continue….

Step: 6 Define the language as per your setup.

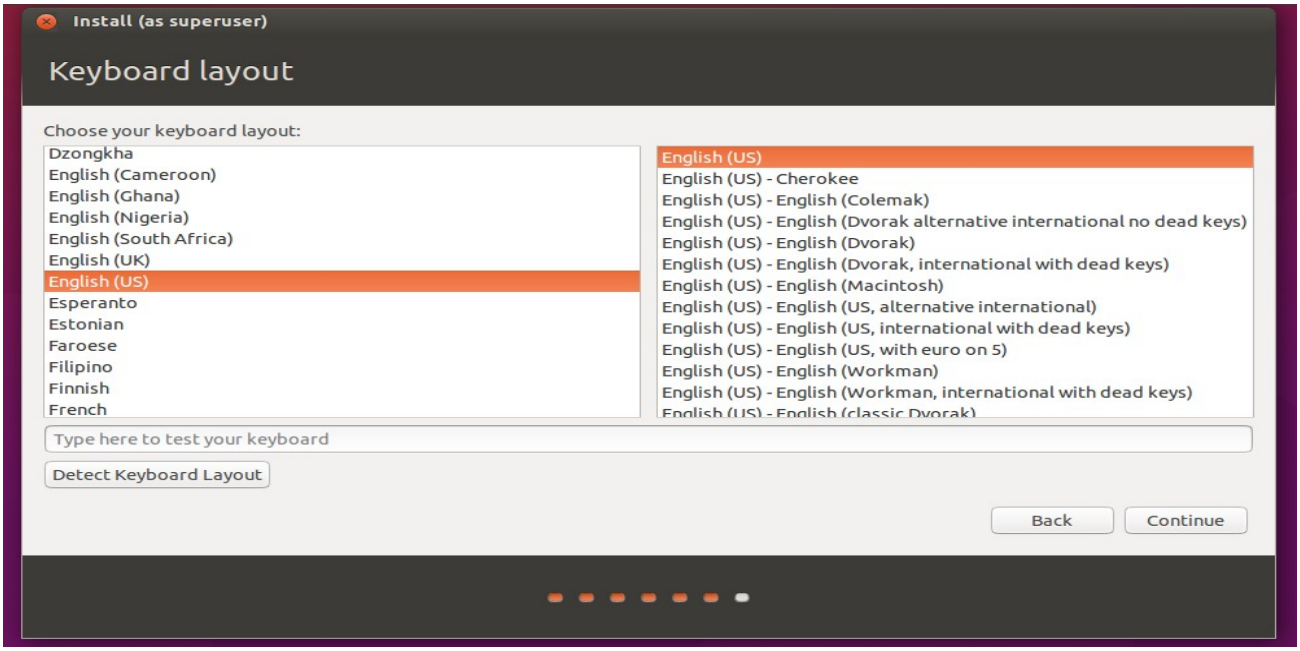

Figure 1.2.10

Click on Continue…

Step: 7 In this step we will define the following:

- Define the System's Hostname
- Define the Name of user that will be used after installation
- Define the password for the user.
- Set the option "Require my password on Log in"

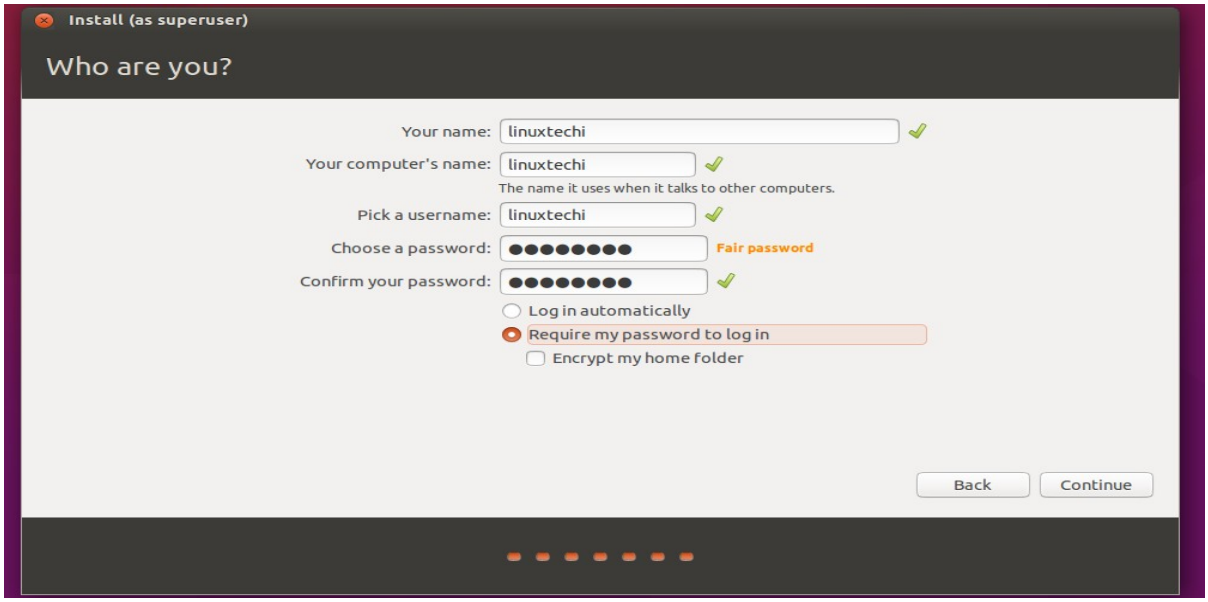

Figure 1.2.11

Click on Continue….

Step: 8 Installation is in Progress as shown below

When we click on Continue in above step then installation will start.

Figure 1.2.12

When the Installation is completed, we need to take reboot.

Step: 9 Reboot the System

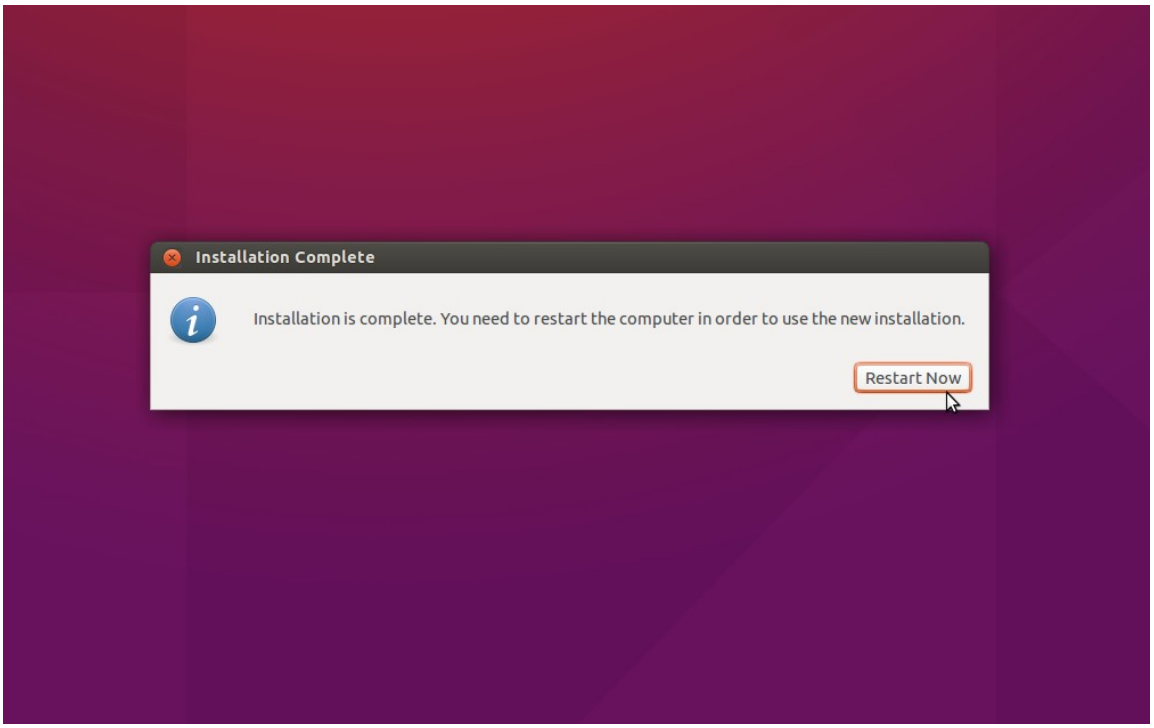

Figure 1.2.13

Step: 10 Now Login to the System using the credentials that we set in above steps.

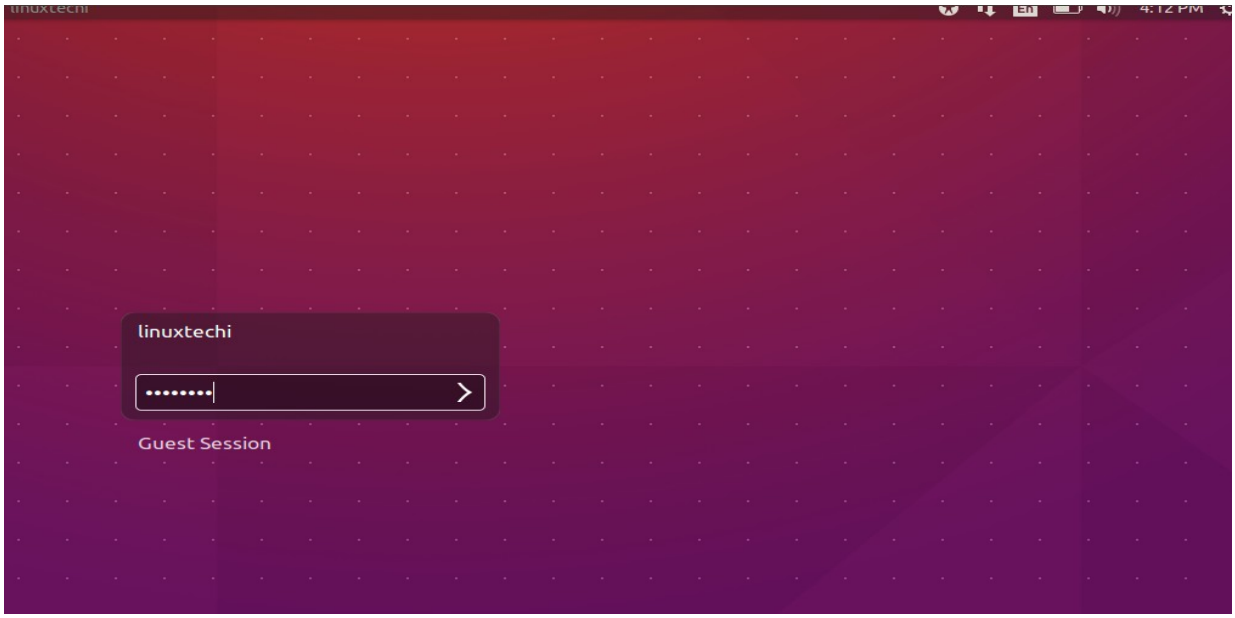

Figure 1.2.14

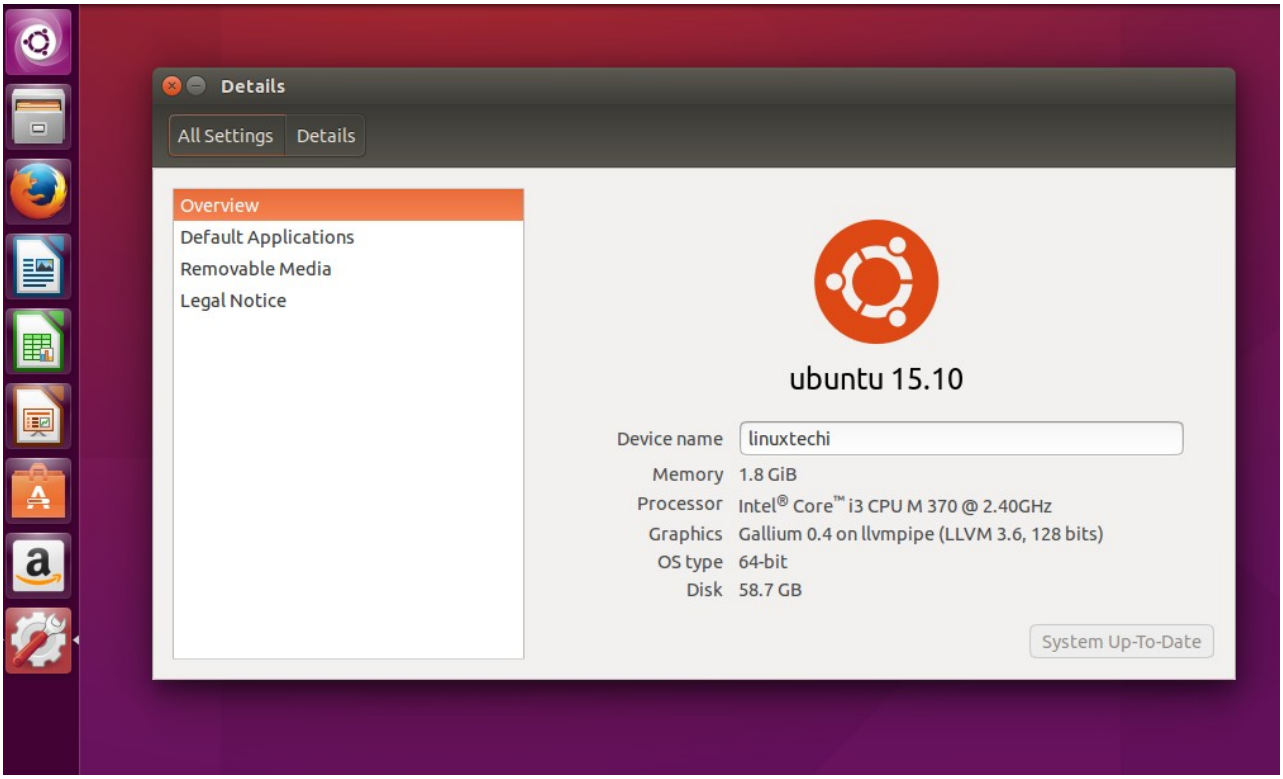

Figure 1.2.15

Installation of Ubuntu 15.10 is completed, enjoy and explore it.

Ubuntu features

- A default installation of Ubuntu contains a wide range of software that includes Libre Office, Firefox, Thunderbird, Transmission, and several lightweight games such as Sudokuand chess.
- Many additional software packages, including titles no longer in the default installation such as Evolution, GIMP, Pidgin, and Synaptic, are accessible from the built in Ubuntu Software Center as well as any other APT-based package management tool.
- Ubuntu operates under the GNU General Public License (GPL) and all of the application software installed by default is free software.
- In addition, Ubuntu installs some hardware drivers that are available only in binary format, but such packages are clearly marked in the restricted component

1.2.5 UNIX Commands

Following is a very brief introduction to some useful UNIX commands, including examples of how to use each command.

(who, pwd, cd, mkdir, rm, rmdir, ls, mv, ln, chmod, cp, grep, sed, awk ,tr, yacc)

Who: Who are the Users?

UNIX system can be used concurrently by multiple users. Output of who command gives you the list of people logged in to the system.

Use of who command:

```
$ who

Akshay          console   April     9 08:31   (:0)
vipul           console   April     9 08:31   (:0)
sanjay          console   April     9 08:31   (:0)
```

****It would be better if all commands come in text box

Details:

There are three users akshay, vipul and sanjay. These are the usernames they used for login. The second column shows the name of the terminal the user is working on. The date and time of login is also displayed in output.

pwd : present working directory

```
$ pwd
```

This command reports the current directory path

cd:

```
$cd
```

This command changes your current directory location. By default, your UNIX login session begins in your home directory.

To switch to a subdirectory (of the current directory) named *myfiles*, enter:

```
$ cd myfiles
```

To switch to a directory named /home/abc/xyz_doc, enter:

```
$ cd  /home/abc/xyz_doc
```

To move to the parent directory of the current directory, enter:

```
$ cd . .
```

To move to the root directory, enter:

```
$ cd /
```

To return to your home directory, enter:

```
$ cd
```

mkdir

This command will make a new subdirectory.

To create a subdirectory named *mystuff* in the current directory, enter:

```
$ mkdir mystuff
```

To create a subdirectory named *morestuff* in the existing directory named */abc*, enter:

```
$ mkdir /abc/morestuff
```

rmdir

```
$ rmdir:
```

This command will remove a subdirectory. To remove a subdirectory named *mystuff*, enter:

```
$ rmdir mystuff
```

Note: The directory you specify for removal must be empty. To clean it out, switch to the directory and use the ls and rm commands to inspect and delete files.

ls

```
$ ls
```

This command will list the files stored in a directory. To see a brief, multi-column list of the files in the current directory, enter:

```
$ ls
```

To also see "dot" files (configuration files that begin with a period, such as .login), enter:

```
$ ls -a
```

To see the file permissions, owners, and sizes of all files, enter:

```
$ ls –la
```

If the listing is long and scrolls off your screen before you can read it, combine ls with the less utility, for example:

```
$ ls –la | less
```

Mv

```
$ mv
```

This command will move a file. You can use mv not only to change the directory location of a file, but also to rename files. Unlike the cp command, mv will not preserve the original file.

Note: As with the cp command, you should always use -i to make sure you do not overwrite an existing file.

To rename a file named *oldname* in the current directory to the new name *newname*, enter:

```
$ mv – i oldname newname
```

To move a file named abc from a subdirectory named newdir to another subdirectory named olddir (both subdirectories of the current directory), enter:

```
$ mv – i newdir/abc olddir
```

If, in this last operation, you also wanted to give the file a new name, such as *abcnew*, you would enter:

```
$ mv – I newdir/abc  olddir/abcnew
```

chmod

```
$ chmod
```

This command changes the permission information associated with a file. Every file (including directories, which Unix treats as files) on a Unix system is stored with records indicating who has permission to read, write, or execute the file, abbreviated as r, w, and x. These permissions are broken down for three categories of user: first, the owner of the file; second, a group with which both the user and the file may be associated; and third, all other users. These categories are abbreviated as u for owner (or user), g for group, and o for other.

To allow yourself to execute a file that you own named *myfile*, enter:

```
$ chmod u+x myfile
```

To allow anyone who has access to the directory in which *myfile* is stored to read or execute *myfile*, enter:

```
$ chmod o+rx myfile
```

Note: Be careful with the chmod command. If you tamper with the directory permissions of your home directory, for example, you could lock yourself out or allow others unrestricted access to your account and its contents.

cp

```
$ cp
```

This command copies a file, preserving the original and creating an identical copy. If you already have a file with the new name, cp will overwrite and destroy the duplicate. For this reason, it's safest to always add – i after the cp command, to force the system to ask for your approval before it destroys any files. The general syntax for cp is:

```
$ cp – i  oldfile newfile
```

To copy a file named abc in the directory /home/xyz/notes to your current directory, enter:

```
$ cp – i  /home/xyz/notes/abc .
```

The. (period) indicates the current directory as destination, and the – i ensures that if there is another file named abc in the current directory, you will not overwrite it by accident.

To copy a file named *oldfile* in the current directory to the new name *newfile* in the *mystuff* subdirectory of your home directory, enter:

```
$ cp – i oldfile ~/mystuff/newfile
```

The ~ character (tilde) is interpreted as the path of your home directory.

Note: You must have permission to read a file in order to copy it.

grep

```
$ grep
```

Grep is the frequently used command in Unix (or Linux). Most of us use grep just for finding the words in a file. The power of grep comes with using its options and regular expressions. You can analyze large sets of log files with the help of grep command.

Grep stands for Global search for Regular Expressions and Print.

The basic syntax of grep command is

grep [options] pattern [list of files]

Let see some practical examples on grep command.

1. Running the last executed grep command

this saves a lot of time if you are executing the same command again and again.

```
$ !grep
```

This displays the last executed grep command and also prints the result set of the command on the terminal.
2. Search for a string in a file

This is the basic usage of grep command. It searches for the given string in the specified file.

```
$ grep “Error”  logfile.txt
```

This searches for the string "Error" in the log file and prints all the lines that has the word "Error".

3. Searching for a string in multiple files.

```
$ grep "string" file1 file2
```

```
$ grep "string" file_pattern
```

This is also the basic usage of the grep command. You can manually specify the list of files you want to search or you can specify a file pattern (use regular expressions) to search for.

4. Case insensitive search

The -i option enables to search for a string case insensitively in the give file. It matches the words like "UNIX", "Unix", "unix".

```
$ grep -i "UNix" file.txt
```

5. Specifying the search string as a regular expression pattern.

```
$ grep "^[0-9].*" file.txt
```

This will search for the lines which starts with a number. Regular expressions is huge topic and I am not covering it here. This example is just for providing the usage of regular expressions.

6. Checking for the whole words in a file.

By default, grep matches the given string/pattern even if it found as a substring in a file. The -w option to grep makes it match only the whole words.

```
$ grep -w "world" file.txt
```

Self-assessment Questions

12) The first official Ubuntu release — Version 4.10, codenamed was----

a) Shuttleworth
b) 'Warty Warthog'
c) WorthShuttle
d) 'Warthhog'y

13) Which symbol will be used with grep command to match the pattern pat at the beginning of a line?

a) ^pat
b) $pat
c) pat$
d) pat^m

14) Which command is used to remove a directory?

a) rd
b) rmdir
c) rdir
d) dldire

15) Which command is used to remove the read permission of the file 'note' from both the group and others?

a) chmod go+r note
b) chmod go+rw note
c) chmod go-x note
d) chmod go-r note

Summary

- Linux distributions take the Linux kernel and combine it with other free software to create complete packages. Debian, Ubuntu, Fedora, SuSE and Mandriva, are by far the most popular Linux systems and generally considered easy to handle for the beginning user.
- Ubuntu: Ubuntu is probably the most well-known Linux distribution. Ubuntu is based on Debian, but it has its own software repositories. Much of the software in these repositories is synced from Debian's repositories
- Mint is a Linux distribution built on top of Ubuntu. It uses Ubuntu's software repositories, so the same packages are available on both
- Debian is an operating system composed only of free, open-source software. The Debian project has been operating since 1993.
- Fedora is a project with a strong focus on free software. Fedora is sponsored by Red Hat, and is the foundation for the commercial Red Hat Enterprise Linux project.
- Red Hat Enterprise Linux is a commercial Linux distribution intended for servers and workstations
- Package management systems take all the various files containing programs and data, documentation, and configuration information, and place them in one specially formatted file. There are two main systems for package management: RPM and APT/DEB.
- The rpm command is a low-level package manager. RPM can access packages on remote servers using URLs.
- The Debian package system allows you to install, remove, and upgrade software packages, which are neat little bundles containing the program files and information that helps the computer manage them properly
- Ubuntu is one of a number of Linux distributions. The source code that makes up the Ubuntu Linux distribution originates from another, much older Linux distribution known as Debian. A South African internet entrepreneur– Shuttleworth was behind evolution of Ubuntu.

- The Ubuntu team broke new ground in committing to a programme of scheduled releases on a predictable six-month basis. It was decided that every fourth release, issued on a two-year basis, would receive long-term support (LTS). LTS releases are typically used for large-scale deployments.

Terminal Questions

1. List popular Linux distributions and also explain their features in detail.
2. What is packet management system? Explain Debian and RPM package. Also Explain commands used to install and remove Debian and RPM package.
3. Discuss the history of Ubuntu. Explain the prerequisite for installing Ubuntu.
4. Explain the different features of Ubuntu.
5. Explain the following Unix commands with example: who, pwd, cd, mkdir ,rm, rmdir, ls, mv, ln.

Answer Keys

Self-assessment Questions	
Question No.	Answer
1	a
2	c
3	d
4	b
5	a
6	b
7	b
8	b
9	a
10	b
11	b
12	b
13	a
14	b

Activity

Activity Type: Online/Offline **Duration: 30 Minutes**

Description:

Do a research and prepare report on hardware, software, and information requirement for the installation of Ubuntu.

Bibliography

e-References

1. This website was referred on 3rd May 2016 while developing content for Linux Flavours and Commands http://www.informit.com/articles/article.aspx?p=1186095&seqNum=3
2. This website was referred on 3rd May 2016 while developing content for Linux Flavours and Commands http://www.techotopia.com/index.php/The_History_of_Ubuntu_Linux
3. This website was referred on 3rd May 2016 while developing content for Linux Flavours and Commands http://www.linuxtechi.com/ubuntu-15-10-desktop-installation-guide/
4. This website was referred on 3rd May 2016 while developing content for Linux Flavours and Commands https://wiki.ubuntu.com/Releases
5. This website was referred on 3rd May 2016 while developing content for Linux Flavours and Commands http://www.howtogeek.com/191207/10-of-the-most-popular-linux-distributions-compared/

External Resources

- Maurice J. Bach, The Design of Unix Operating System, (2010) Pearson Education
- S. Prata, Advance UNIX, a Programmer's Guide, (2011), BPB Publications, and New Delhi,
- B.W. Kernighan & R. Pike, The UNIX Programming Environment, (2009) Prentice Hall of India.
- Jack Dent Tony Gaddis, Guide to UNIX Using LINUX, (2010) Vikas/ Thomson Pub. House Pvt. Ltd.

Video Links

Topic	Link
The Linux File System	https://www.youtube.com/watch?v=2qQTXp4rBEE
Directory structure of the UNIX file system	https://www.youtube.com/watch?v=PEmi550E7zw

Notes: