

INSHA MANOWAR 190906184

- 1) Clustering: linux can be configured to work in clusters so that multiple system can appear in one system to the outside world. Service can run back and forth between cluster nodes.
- 2) Virtualisation: Can be operated by installing a virtual machine, depending on backend system.

Specialised storage: can be stored in network storage interfaces like iscsi fibre channels and intiband.

Real time computing: time can be configured as RTL, where high priority process can expect fast, predictable,

etc : contains all config files and directories

home : default location for users home directories.

bin : standard sub directory of root directory.

It contains the executables programs that must be available to attain minimal functionality for purpose of booting.

usr : contains sub dirs which contain other files that are binary (lib, doc) and source code.

lib : contains files that ~~are~~ are used by an application or command for their proper execution.

dev : contains various partitions on the first drive of the system. Contains device files.

3) ~~mkdir NewProject  
cd NewProject  
touch house1 house2 house3 house4 house5  
ls house{2..5}~~

3) mkdir NewProject  
cd NewProject  
touch house{2..5}  
ls house{2..5}  
chmod 755 house{2..5}

4)  $gg^*$ : ~~finds~~ ~~at~~ highlights letter 'g' in the file content

\* : zero or more occurrences of preceding character or regex.

.\* : zero or more occurrence of any single character.



d)  $[^a-zA-Z]$  : match all strings that contain a non-letter.  
~~start with a letter~~

e)  $[pqr]$  : matches any one set of character.  
\$ grep "New[pqr]". filename → New p, New q, New r.

f)  $^{\$}$  : Matches all empty line.

5) 8 features of linux OS are:

- Portability - supports different types of hardware.
- Application support : It has its own security repository from where users can download and install many applications.
- File system : provides hierarchical file system in which files and directories are arranged.
- Supports customised keyboard : As it's used worldwide hence supports different language keyboard.

- Live CD/USB: Almost all linux distros provide live CD/USB so that users can run/try it without installing.
- Security: It supports authentication, encryption and authorisation.
- Multitasking: Variable functions can be performed simultaneously by dividing CPU time intelligently.
- Open Source: The source code for linux is freely available to all and is community base dev project.

6) a). In sed -e option causes the next string to be interpreted as an editing instruction:

`sed -e '/^$/d' $filename.`

→ operate on text contained in \$filename.

Using -f (number)

\$ seq 6 | sed '1d  
3d  
5d'

b) ~~sed '/student/d' student.lst~~

6  
b) i) sed -i '/student/d' student.lst

ii) sed -n '/student/!p' student.lst

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