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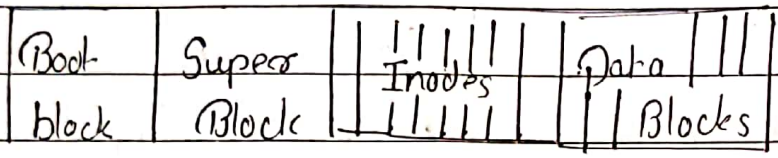
8688 SEIT

Assignment - 1

Q1] Blocks in Unix File System:

1) A boot block located in first few sectors of file system. Contain boot initial bootstrap programs used to load OS.
2) A super block describe state of file system, total size of partition, block size, pointers to list of free blocks.
3) A linear array of inodes (index nodes). There is one to one mapping of files to inodes and vice versa.
4) Data block contains Actual content of files.



Q2] 1) The mount command is used to mount file system in linux.

mount [-lhv]

mount [-fnrsvw] [-t vfstype] [-O options] device|dir

2) The unmount command is used to unmount a file system in linux.

umount [-hv]

unmount [-dflnrv] {dir|device}

Q3] Dir & files with description:

- /: Root Filesystem tree
- /bin: stands for "binaries" Contain fundamental utilities like ls or cp.
- /boot: Contain all files required for boot process.
- /dev: Contain info of devices and psuedo-devices.
- /etc: Contain system wide config files and system databases.

-/home: Contain all home directory for users
-/lib: Contain system libraries and critical files like kernel modules.
-/media: Default mount point for removable devices.
-/mnt: Contains filesystem mount points.
-/proc: procfs virtual filesystem showing info of ~~files and~~ processes as files.
-/root: Home directory for superuser root i.e. system admin.
-/tmp: A place for temporary files. Cleaned on startup.
-/usr: Holds executables, libraries and shared resources which are not system critical.

Q4] a)

Hard Link	Symbolic Link
1) Hard link is a directory entry that associates a name ~~of~~ with a file on a file system.	1) A symbolic link is a term for any file that contains a ref to another file or directory.
2) When link is deleted reference counter is decremented. When reaches 0, target deleted.	2) When link is deleted target is deleted.
3) When target is moved hard link remains valid.	3) When target is moved symbolic link become invalid.
4) Relative path not allowed	4) Relative path is allowed.
5) Crossing filesystem boundary is not allowed.	5) Crossing boundary is allowed.
6) Exist for files and partially exist for directories.	6) Exist for both files and directories.

b) Who | Finger

1) Who tells basic info of logged in user. | 1) Finger gives detailed information of user.

2) Who can't used on network | 2) Finger can be used over network.

3) e.g. who | 3) finger vaarad.

Q5] bc :

- bc is a language that supports arbitary-precision numbers.
- It delivers accurate results irrespective of size of number.
- It has syntax similar to 'c'
- bc [-hlwsqv] [long-opt] [File (with code)]

Functions in bc:

1) read()

read() function will read no from standard input.

2) scale (expression)

Returns no of digits after decimal point in expression.

3) sqrt (expression)

Calculates square root of expression.

4) return (expression)

Returns value of expression from function.

5) print()

Prints entered values on terminal.

Q6] Globbing:

- The patterns containing strings like '?', '*' are wildcard patterns.
- File globbing is operation that recognizes these patterns and does job of file path expansion.

Example of use of wildcard Characters:

1) Astorick (*):
   is used to match any no. of characters.
2) question mark (?)
   is used to match exactly one character.
3) Square brackets:
   square brackets are used to match characters inside [ ]
4) exclamation mark (!)
   ! is used to exclude characters from list that is specified in [ ]

Q7] Command to display square root of 17

~~sqrt(17)~~

sqrt 17

Q8] While in command ls -li, if we found 2 files have same inode numbers, it implies that both files exist of different Partitions.

Q9] Command to display node name:

~~hostname -s~~

uname --nodename

Q10] To apped data from a.txt to c.txt

cat a.txt >> c.txt

cat b.txt >> c.txt

Q11] To display system config in linux: lshw is used.

Q12] sort: It prints lines of its input or concatenation of all files listed in its argument in sorted order.

wc: Reads files and counts newline, word & bytes.

head: head used to display beginning of a text file or piped data.

tail: tail is used to display tail end of text file or piped data.

diff: diff compares dicontents of 2 files and prints differences in 2 files.

uniq: Uniq outputs text with identical lines merged together.

split: Split is used to file in short files.

cmp: Cmp compares 2 files and writes result in stdout

comm: It is used to compare 2 files for common and distinct lines.

Q13] chmod -764 to assign given permission to file.

Q14] chmod g=foldername -764

Q15] chown Charles file1.txt

Q16] cat ~~b.txt~~ tail -8 a.txt >> b.txt

Q17] ~~uniq filename~~ g groupadd scicl

~~sort filename | uniq~~

Q18] uniq abc.txt

Q19] split -b 10K a.txt

Q21] Zip: This command is used to compress files and to reduce filesize.

unzip: this command list, test and extract compressed files from ZIP archive.

compress: compress reduces file size using Lempel-Ziv algorithm.

Uncompress: Uncompress expands compressed data.

pack: Compresses file with huffman coding.

unpack: unpack expands file compressed by pack
set: Used to define and determine values of system enviroment variables.

Q22] /etc/hosts.deny file will deny all clients to access all daemons on server.
/etc/hosts.allow allows Linux machine to communicate with all daemons on subnet.

Q23] Creating variable:
Shell variable created as
var_name = var_value.
Always starting with '_' or letter.
All letters in name should uppercase
special chars like '+', '-', '*' are not allowed.

Create Global Variable:
~~export $var~~
$export var_name
is used to convert local variable to globle so that it can be used through any other shell on machine.

Q24] File with mode feild 1 implices it is executable only.
No read or write permissions are allowed.

Q25] grep character file

Q25] $bash -f main.sh
/usr/bin/cat
/home/cg/root/9784322