ASSIGNMENT 0 (LINUX BASICS)

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Question: Summarize use of following Linux command?

1) **Dictionary related - mkdir, chdir (cd), rmdir, pwd, ls, tree**

Answer:

mkdir: This command will create a new directory or say folder if it not exists. Syntax be like

    $mkdir directoryName

Create a new directory with directoryName.

chdir (cd): This command is used to change directory. Syntax be like

    $cd Desktop

Go inside desktop

rmdir: This command will remove or delete an existing directory or folder, provided it is empty. Syntax be like

    $rmdir directoryName

pwd: This command will show the present working directory or folder where you are currently in. Syntax be like

    $pwd

ls: This command will list the content of the present or current directory. Syntax be like

    $ls

Display the content of the directory.

tree: This command lists the content of the directory in the tree format. Syntax be like

    $tree ./directory.

2) **File related - rm, mv, cp, chmod, chown, chgrp, ln, cat, grep, find, srm, wipe, head, tail, cmp, diff, less, more, dd, locate, shred**

Answer:

rm: This command will delete the file. Syntax be like

    $rm file1.txt

mv: This command is used to rename the files and directories. Syntax be like

    $ mv file1.txt file2.txt

Rename file1.txt to file2.txt

cp: This command copies the content of one file to another file. Syntax be like

$ cp file1.txt file2.txt

If file2.txt doesn't exist then it is created otherwise content is overloaded.

chmod: This command is used to change the file permission of the file system objects. Syntax be like

$chmod [reference][operator][mode] file…

chown: This command allows us to change the user and/or the group ownership of a given file, directory or symbolic link. Syntax be like

$chown [options] USER [: Group] FILE(s)

USER is the user name or the user ID of the new owner

Group is the name of the new group or the group id.

FILE is the name of one or more files, directories or links.

chgrp: This command is used to change the group ownership of a file or directory. Syntax be like

$chgrp name file.txt

ln: This command is used to create a hard link or a symbolic link to an existing file or directory. Syntax be like

$ln -s [OPTIONS] FILE LINK

cat: This command allows us to create single or multiple files, view contain of file, concatenate files and redirect output in terminal or files. Syntax be like

$cat [OPTION] [FILE] …

grep: This command is used to search a string of characters in a specified file. The text search pattern is called regular expression. When if finds a match, it prints the line with the result. The grep command is handy when searching through large files. Syntax be like

$grep sampleText filename.txt

find: This command is used to find files and directories and perform subsequent operations on them. This supports searching a file, folder, name, creation date, modification date, owner and permissions. Syntax be like

$find ./GFG -name sample.txt

It will search for sample.txt in GFG directory.

srm: This command removes each specified file by overwriting, renaming, truncating it before unlinking. This prevents other people from undeleting or recovery any information about the file form the command line. By default, srm uses the simple mode to overwrite the file's contents.

wipe: This command securely erases files from magnetic memory and thereby making it impossible to recover deleted files or directory content. Syntax be like

$wipe -rfi private/*

This command will destroy everything under the directory private.

head: This command will by default write the first ten lines of the input file to the standard output. Syntax be like

      $ head -n filename.txt

      If we don't specify n then it prints first 10 lines.

tail: This command will by default write the last ten lines of the input file to the standard output. Syntax be like

      $tail -n filename.txt

      If n is specified then last n lines else last 10 lines.

cmp: This command is used to compare the two files byte by byte and helps you to find out whether the two files are identical or not.

      $cmp filename1.txt filename2.txt

It will return _ if the files are identical otherwise the it returns the byte and line where mismatch occur.

diff: This command is used to display the differences in the files by comparing the files line by line. Syntax be like

      $diff filename1.txt filename2.txt

less: This command is used to read contents of text file one page (one screen) per time. It has faster access because if file is large, it doesn't access complete file, but access it page by page

      $less filename

more: This command is used to view the text files in the command prompt, displaying one screen at a time in case the file is large. The more command allows the user do scroll up and down through the page. Syntax be like

      $more filename.txt

dd: This command is used for copying data; hence it stands for data duplicator. This tool can be used for

➢ Backing up and restoring an entire hard drive or a partition.
➢ Creating virtual filesystem and backup images of CD or DVD's called ISO files.
➢ Copy regions of raw device files like backing up MBR (master boot record).
➢ Converting data formats like ASCII to EBCDIC.
➢ Converting lower case to uppercase and vice versa.

locate: This command is used to find the files by name. Syntax be like

      $locate sample.txt

shred: This command overwrites a file to hide its content and can optionally delete it as well. Syntax be like

      $shred -zvu -n 5 password.list

3) **Process related - ps, fork, kill, signal, exec, nice, touch, top**

Answer:

ps: This command stands for 'Process Status'. This command is quite similar with top command but the way in which information is displayed is different.

$ps ux

This will show all the process running under a user.

fork: This is a system call used to create a new process by duplicating the existing process from which it is called.

kill: This command terminates running process on a Linux Machine. Syntax be like

$kill PID

signal: This is generally used in response to some condition. Upon receipt of a signal, a process may take action.

exec: This command in Linux is used to execute a command from the bash itself. This command doesn't create a new process it just replaces the bash with the command to be executed. If the exec command is successful, it does not return to the calling process.

nice: This command is used to give priority to the process according to our need. This priority is called niceness in Linux and its value lies between -20 to 19. Syntax be like

$nice -n 'Nice Value' process name

touch: This command is used to create, change and modify timestamps of a file. Syntax be like

$touch filename.txt

top: This command will tell the user about all the running process on the Linux machine. Syntax be like

$top

4) **Network related - ifconfig, ping, finger, iptables, traceroute,**

Answer:

ifconfig: It stands for interface configurator. It is used to initialize an interface, configure it with an IP address, and enable or disable the route and the network interface. Syntax be like

$ifconfig

ping: This command basically checks for the network connectivity between two nodes. It stands for Packet Internet Groper. Syntax be like

$ping <destination>

finger: This command is a user information lookup command which gives details of all the user logged in. This tool is generally used by system administrators. It provides details like login name, user name, idle time, login time, and in some cases their email address even. Syntax be like

    $finger username

iptables: This command line interface used to set up and maintain tables for the Netfilter firewall for IPv4, included in the Linux kernel. The firewall matches packets with rules defined in these tables and then takes the specified action a possible match.

traceroute: This command is used to troubleshoot the network. It detects the delay and determines the pathway to our target. Syntax be like

    $traceroute <IP address>

5) **System related - sudo, apt-get, passwd, whoami, whereis, ssh, sftp, name**

Answer:

sudo: The sudo command allows us to run programs with the security privileges of another user. It prompts us for our personal password and confirms your request to execute a command by checking a file, called sudoers, which the system administrator configures.

    $sudo command

apt-get: This command line tool helps in checking packages in Linux. Its main task is to retrieve the information and packages from the authenticates sources for installation, upgrade and removal of the packages along with their dependencies, Here apt stands for advanced packaging tool. Syntax be like

    $apt-get [options] command

passwd: This command is used to change the account passwords. The root user reserves to change the password for any user on the system, while a normal user can only change the account for his or her own account.

    $passwd [options] [username]

whoami: This command prints the name of the current user.

    $whoami

whereis: This command is used to find the location of source/binary file of a command and manuals sections for a specified file in Linux System.

    $whereis [options] filename…

ssh: This command is used to login into remote host. For example, the below command will connect to remote host (192.168.50.2) using user as ashutosh.

    $ssh ashutosh@192.168.50.2

sftp: This command is used to connect to remote ftp host. It stands for secure file transfer protocol. For example, below command connect to ftp host 192.168.50.2

    $ftp 192.168.50.2

name: This command is used to obtain the DNS (Domain Name System) name and set the system's hostname or NIS (Network Information System) domain name. A hostname is a name which is given to a computer and it attached to the network. Its main purpose is to uniquely identify over a network.

      $name –[options] [file]

6) **Disk related - du, format, fdisk, sfdisk,**

Answer:

du: This command allows a user to gain disk usage information quickly. This can be used to trace the files and directories which are consuming excessive amount of space on hard disk drive.

format: This command is used to format the disk.

fdisk: This command can display the partitions and details like file system type. However, it does not report the size of each partitions. Syntax be like

      $sudo fdisk -l

sfdisk: This command is similar to fdisk but it have some more features. It can display the size of each partition in MB.

      $sudo sfdisk -l -uM

7) **Miscellaneous - echo, clear, sudo, tar, which, mount, man, wget, debug, | (pipe) , > (redirect) , more, top,**

Answer:

echo: This command is used to display line of text/string that are passed as an argument. This is a built-in command that is mostly used in shell scripts and batch files to output status text to the screen or a file.

      $echo [option] [string]

clear: This command is used to clear the terminal screen. This command first looks for a terminal type in the environment and after that, it figures out the terminfo database for how to clear the screen. And this command will ignore any command-line parameters that may be present. Also, the clear command doesn't take any argument and it is almost similar to cls command of other operating System.

sudo: The sudo command allows us to run programs with the security privileges of another user. It prompts us for our personal password and confirms your request to execute a command by checking a file, called sudoers, which the system administrator configures.

      $sudo command

tar: 'tar' stands for tape archive, is used to create Archieve and extract the Archieve files.tar command provides archiving functionality in Linux. We can use Linux tar command to create compressed or uncompressed Archieve files and also maintain and modify them.

      $tar xvf filename.tar

which: This command is used to locate the executable file associated with the given command by searching it in the path environment variable.

mount: This command is used to mount the filesystem found on a device to big tree structure rooted at 'l'. Conversely, another command umount can be used to detach these devices from the tree.

man: This command is used to display the user manual of any command that we can run on the terminal.

wget: This command is the non-interactive network downloader which is used to download files from the server even when the user has not logged on to the system and it can work in the background without hindering the current process.

   $wget [option] [URL]

debug: This command may vary form debugger to debugger as GNU Debugger used gdb to debug the program of C, C++, Ada, Fortran etc. The console can be opened using gdb command on terminal.

l (pipe): The final action that we can perform is to direct the output of one application into another one. This is commonly referred to as piping and uses the | operator instead

   $ ls | wc

     This directly connects the standard output of our first application into the standard input of the second one and then lets the data directly flow between them

>(redirect): This command needs when we run applications is to direct the output into a file instead of the terminal. For example, we can send the output of the ls command into a file called files as follows

   $ ls > files

more: This command is used to view the text files in the command prompt, displaying one screen at a time in case the file is large. The more command allows the user do scroll up and down through the page. Syntax be like

   $more filename.txt

top: This command will tell the user about all the running process on the Linux machine. Syntax be like

   $top