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Practical - 2

Aim: Linux commands : Working with files :
ps, top, kill, pkill, bg, fg, grep, locate, find, date, cal, uptime, w, whoami, finger, uname, man, df, du, free, where is, which.

1) **ps** : to display information about the running processes on a system.
The ps command, which stands for "process status", is like a computer tool that helps you see what's happening inside your linux computer. Imagine your computer is doing several things simultaneously, like running different programs or apps. These are the processes and the 'ps' command let's you take a quick look at them.

Command : ps

Example output:

```
  PID TTY          TIME CMD
 1234 pts/0    00:00:01 bash
 5678 pts/0    00:00:00 ps
```

where, PID : process ID.
TTY : Terminal type.
TIME : CPU time used.
CMD : Command name of the process.

2) **top** : real time dynamic view
The top command in Linux is used to display real-time information about the system's resource usage, including CPU, memory and running processes.

Command: top

~~Sample output:~~

~~top - 10:51:42 up 10 days,~~

3) kill, pkill: Terminate processes

kill command in Linux is a built-in command which is used to terminate processes manually. kill command sends a signal to a process that terminates the process. pkill is a utility, preinstalled on most linux systems used to terminate processes from the terminal. Processes can be killed using various attributes including partial names

Command (kill): kill 1234

(This sends the default SIGTERM signal to the process with PID 1234, name instead of PID.

Command (pkill): pkill firefox

(This terminates all processes named "firefox").

4) bg, fg: Manage background and foreground jobs

The bg command is a useful tool that allows you to manage and move processes between the foreground and background.

The fg command in Linux is used to bring a background job into the foreground. It allows you to resume a suspended job or a background process directly in the terminal window, so you can interact with it.

Command (bg): bg %1

(This resumes the job with ID 1 in the background).

Command (fg): fg %1

(This brings the job with ID 1 to the foreground).

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- It is used to find out how long the system is active (running). This command returns set of values that involve, the current time, and the amount of time system is in running state.
  Command: uptime (This displays the system uptime, load averages, and the number of users.)

7) w, whoami, uname: Show user / system info
- The 'w' command in Linux gives us important information about who is currently using the computer, how much the computer is being used and what programs are running.
  Command: w (shows currently logged in users)

- The whoami command provides basic information that is extremely useful when working on multiple systems. In general, if you are working with a single computer, you will not require it as frequently as a network administrator.
  Command: whoami (This displays the name of current user)

- The uname command is used to check the complete OS information of the system.
  Command: uname -a (Displays detailed system information like the kernel version, hostname and architecture.

8) man, df, du: Access manuals and disk usage details.
- The man command displays a user manual for any commands or utilities available in the Terminal, including their name, description and options.
  Command: man ls (Shows the manual page for ls command).

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5) grep, find, locate: Search for files and patterns

- The grep command is used to find a specific string in a series of outputs.

Command: grep "text" file.txt
(This searches for the word "text" in file.txt)

- The find command in Linux is a dynamic utility designed for comprehensive file and directory searches with a hierarchial structure.

Command: find /home/user -name "file.txt"
(This searches for a file named file.txt in the /home/user directory and its subdirectories)

- The locate command is generally used to locate the files in the database. Use an asterik (*) to search for content that contains two or more words.

Command: locate file.txt
(This searches for file.txt on the system using a database

6) date, cal, uptime: Display system time, calendar and uptime.

- The date command in Linux allows the user to display the current date and time in a variety of formats and set the system date and time.

Command: date (This displays the current date and time.)

- cal command is the not the most famous command in the terminal but it functions to view the calendar for a particular month in the terminal.

Command: cal 03 2025 (This displays the calendar for March 2025)

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- df command in Linux gets the details of the file system.
  Command: df -h (This shows the disk usage in a human-readable format.)

- The du command in Linux is a powerful utility that allows users to analyze and report on disk usage within directories and files.
  Command: du -sh /home/user
  (This shows the disk usage of the /home/user directory in a human-readable format.)

9) free, whereis, which: Memory info and command locations

- The free command in Linux is the one that facilitates with providing the overview of system memory utilization. It displays all the details regarding the RAM usage such as how is the total, what is used and free memory including buffers and cached data, aiding in real-time monitoring of memory resources.
  Command: free -h (This shows the memory usage in a human-readable format.)

- Whereis command in Linux is generally used to see the exact location of any command typed after this.
  Command: whereis ls (This shows the location of the ls command binary, source and manual page.)

- The which command in linux is used to locate the executable file associated with a given command. When you enter a command in the terminal, 'which' helps identify which executable file will be executed when that command is invoked.
  Command: which python (This shows the path of the python executable.)