Experiment 6: Executing System and Utility Commands in Linux

Date:
Roll no:

Aim:

To understand and demonstrate the use of essential system and utility commands in a Linux environment.

Theory:

System and utility commands are fundamental tools for managing and interacting with a Linux operating system. These commands allow users to perform various administrative tasks, such as monitoring system performance, managing processes, checking disk usage, and more. Familiarity with these commands is crucial for effective system administration and troubleshooting.

Key Commands:-

1) **System Monitoring:**

- top: Displays active processes and system resource usage in real-time.

Example: `top`

- htop: An enhanced version of `top` with a user-friendly interface.

Example: `htop`

- ps: Shows a snapshot of current processes.

Example: `ps aux`

2) **Disk Usage**:

- df: Reports filesystem disk space usage.

Example: `df -h`

- du: Estimates file and directory space usage.

Example: `du -sh /path/to/directory`

3) **File System:**

- ls: Lists files and directories in the current directory.

Example: `ls -l`

- cd: Changes the current directory.

Example: `cd /home/user`

- pwd: Prints the current working directory.

Example: `pwd`

- find: Searches for files in a directory hierarchy.

Example: `find /path -name filename.txt`

4) File Operations:

- cp: Copies files or directories.

Example: `cp source.txt destination.txt`

- mv: Moves or renames files or directories.

Example: `mv oldname.txt newname.txt`

- rm: Removes files or directories.

Example: `rm file.txt`

- mkdir: Creates a new directory.

Example: `mkdir new_directory`

- rmdir: Removes an empty directory.

Example: `rmdir empty_directory`

5) Network Utilities:

- ifconfig: Configures and displays network interface parameters.

Example: `ifconfig eth0`

- ping: Tests network connectivity to a host.

Example: `ping google.com`

- netstat: Displays network connections, routing tables, and interface statistics.

Example: `netstat -tuln`

- wget: Downloads files from the web.

Example: `wget http://example.com/file.zip`

6) Process Management:

- kill: Terminates a process by PID.

Example: `kill 1234`

- pkill: Kills processes by name.

Example: `pkill firefox`

- killall: Kills all processes with a specific name.

Example: `killall chrome`

7) System Information:

- uname: Displays system information.

Example: `uname -a`

- hostname: Shows the system's hostname.

Example: `hostname`

- uptime: Shows how long the system has been running.

Example: `uptime`

8) Package Management:

- apt-get: Package management command for Debian-based systems.
  Example: `apt-get install package_name`
- yum: Package manager for RPM-based systems (like CentOS).
  Example: `yum install package_name`
- dnf: Next-generation package manager for RPM-based systems.
  Example: `dnf install package_name`

Conclusion:

This experiment demonstrates the use of essential system and utility commands in Linux.