

Batch: A1 Roll No.: 16010123012

Experiment No. 01

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of the Staff In-charge with date

TITLE: Exploring basic Commands of UNIX: Shell, Processes, Files

AIM: To Explore basic commands for handling File system under Unix/Linux using shell scripts.
(Creating groups, chown, chmod, directory name, tty , diff, umask).

Expected Outcome of Experiment:

CO 1. To introduce basic concepts and functions of operating systems.

Books/ Journals/ Websites referred:

1. **Silberschatz A., Galvin P., Gagne G. “Operating Systems Principles”, Willey Eight edition.**
2. **Achyut S. Godbole, Atul Kahate “Operating Systems”, McGraw Hill Third Edition.**
3. **Sumitabha Das “UNIX Concepts & Applications”, McGraw Hill Second Edition.**

Pre Lab/ Prior Concepts:

An operating system (OS) is a resource manager. It takes the form of a set of software routines that allow users and application programs to access system resources (e.g. the CPU, memory, disks, modems, printers network cards etc.) in safe efficient and abstract way.

- The operating system kernel is in direct control of the underlying hardware. The kernel provides low-level device, memory and processor management functions (e.g. dealing with interrupts from hardware devices, sharing the processor among multiple programs, allocating memory for programs etc.)
- Basic hardware-independent kernel services are exposed to higher-level programs through a library of system calls (e.g. services to create a file, begin execution of a program, or open a logical network connection to another computer).
- Application programs (e.g. word processors, spreadsheets) and system utility programs (simple but useful application programs that come with the operating system, e.g. programs which find text inside a group of files) make use of system calls. Applications and system utilities are launched using a shell (a textual command line interface) or a graphical user interface that provides direct user interaction.

Operating systems can be distinguished from one another by the system calls, system utilities and user interface they provide, as well as by the resource scheduling policies implemented by the kernel. UNIX has been a popular OS for more than two decades because of its multi-user, multi-tasking environment, stability, portability and powerful networking capabilities.

Linux is a free open source UNIX OS for PCs.

Linux has all of the components of a typical OS :

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- **Kernel**

The Linux kernel includes device driver support for a large number of PC hardware devices (graphics cards, network cards, hard disks etc.), advanced processor and memory management features, and support for many different types of file systems. In terms of the services that it provides to application programs and system utilities, the kernel implements most BSD and SYSV system calls, as well as the system calls described in the POSIX.1 specification.

The kernel (in raw binary form that is loaded directly into memory at system startup time) is typically found in the file `/boot/vmlinuz`, while the source files can usually be found in `/usr/src/linux`.

- **Shells and GUIs**

Linux supports two forms of command input: through textual command line shells similar to those found on most UNIX systems (e.g. `sh` - the Bourne shell, `bash` - the Bourne again shell and `csh` - the C shell) and through graphical interfaces (GUIs) such as the KDE and GNOME window managers.

- **System Utilities**

Virtually every system utility that you would expect to find on standard implementations of UNIX has been ported to Linux. This includes commands such as `ls`, `cp`, `grep`, `awk`, `sed`, `bc`, `wc`, `more`, and so on. These system utilities are designed to be powerful tools that do a single task extremely well (e.g. `grep` finds text inside files while `wc` counts the number of words, lines and bytes inside a file). Users can often solve problems by interconnecting these tools instead of writing a large monolithic application program.

- **Application programs**

Linux distributions typically come with several useful application programs as standard. Examples include the `emacs` editor, `xv` (an image viewer), `gcc` (a C compiler), `g++` (a C++ compiler), `xfig` (a drawing package), `latex` (a powerful typesetting language) and `soffice` (StarOffice, which is an MS-Office style clone that can read and write Word, Excel and PowerPoint files).

Description of Unix Commands and options:

A. Basic and Important UNIX (Linux/macOS) Commands

1. Directory and File Management-`ls`, `cp`, `rm`, `mv`,
2. Viewing and Editing Files- `cat`, `echo`, `more`, `less`, `head`, `tail`, `grep`
3. Searching and Permissions-`chmod`, `chown`, `chgrp`

B. Process and System Management

1. Process Control-`ps`, `top`, `kill`
2. System Information-`hostname`, `w`, `uname`

C. Advanced and Useful UNIX Commands

1. Administrative and Remote Operations-`whoami`, `id`, `groups`, `passwd`, `who`, `last`
2. Searching and Processing Files- `find`, `cut`, `sort`
3. System Monitoring and Disk Management-`history`, `top`, `df`, `du`

Screen Shot of Implemented Commands:

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```
aaryan@Aaryan:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
aaryan@Aaryan:~$ cd Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan
aaryan@Aaryan:~/Desktop$ mkdir os
aaryan@Aaryan:~/Desktop$ ls
aaryan  os
aaryan@Aaryan:~/Desktop$ ls *.txt
ls: cannot access '*.txt': No such file or directory
aaryan@Aaryan:~/Desktop$ touch n1.txt
aaryan@Aaryan:~/Desktop$ touch n2.txt
aaryan@Aaryan:~/Desktop$ ls
aaryan  n1.txt  n2.txt  os
aaryan@Aaryan:~/Desktop$ ls *.txt
n1.txt  n2.txt
aaryan@Aaryan:~/Desktop$ cat>n1.txt
Hello
aaryan@Aaryan:~/Desktop$ cat>n2.txt
World!aaryan@Aaryan:~/Desktop$ cat n1.txt
Hello
aaryan@Aaryan:~/Desktop$ cat n2.txt
World!aaryan@Aaryan:~/Desktop$ cat n1.txt cat n2.txt>cat n3.txt
cat: cat: input file is output file
cat: n3.txt: No such file or directory
aaryan@Aaryan:~/Desktop$ cat>n3.txt
H Y N
aaryan@Aaryan:~/Desktop$ cat n1.txt cat n2.txt>cat n3.txt
cat: cat: input file is output file
aaryan@Aaryan:~/Desktop$ cat n3.txt
H Y N
aaryan@Aaryan:~/Desktop$ cat n1.txt n2.txt>cat n3.txt
```

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```
aaryan@Aaryan:~/Desktop$ cat n1.txt n2.txt>cat n3.txt
aaryan@Aaryan:~/Desktop$ cat n3.txt
H Y N
aaryan@Aaryan:~/Desktop$ cat n1.txt n2.txt>cat n3.txt
aaryan@Aaryan:~/Desktop$ cat n3.txt
H Y N
aaryan@Aaryan:~/Desktop$ pwd
/home/aaryan/Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan  cat  n1.txt  n2.txt  n3.txt  os
aaryan@Aaryan:~/Desktop$ ls -lrth
total 24K
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 27 18:16 aaryan
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 10:56 os
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 11:00 n3.txt
-rw-rw-r-- 1 aaryan aaryan 18 Jan 29 11:02 cat
aaryan@Aaryan:~/Desktop$ chmod 777 aaryan
aaryan@Aaryan:~/Desktop$ ls -lrth
total 24K
drwxrwxrwx 2 aaryan aaryan 4.0K Jan 27 18:16 aaryan
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 10:56 os
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 11:00 n3.txt
-rw-rw-r-- 1 aaryan aaryan 18 Jan 29 11:02 cat
aaryan@Aaryan:~/Desktop$ chmod 555 cat
aaryan@Aaryan:~/Desktop$ ls -lrth
total 24K
drwxrwxrwx 2 aaryan aaryan 4.0K Jan 27 18:16 aaryan
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 10:56 os
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n1.txt
```

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```
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 11:00 n3.txt
-r-xr-xr-x 1 aaryan aaryan 18 Jan 29 11:02 cat
aaryan@Aaryan:~/Desktop$ cp n2.txt n4.txt
aaryan@Aaryan:~/Desktop$ cat n4.txt
World!aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt n4.txt os
aaryan@Aaryan:~/Desktop$ chmod o+wx n1.txt
aaryan@Aaryan:~/Desktop$ ls -l
total 28
drwxrwxrwx 2 aaryan aaryan 4096 Jan 27 18:16 aaryan
-r-xr-xr-x 1 aaryan aaryan 18 Jan 29 11:02 cat
-rw-rw-rwx 1 aaryan aaryan 6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 11:00 n3.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 11:04 n4.txt
drwxrwxr-x 2 aaryan aaryan 4096 Jan 29 10:56 os
aaryan@Aaryan:~/Desktop$ mv n4.txt aaryan
aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt os
aaryan@Aaryan:~/Desktop$ mv n4.txt os
mv: cannot stat 'n4.txt': No such file or directory
aaryan@Aaryan:~/Desktop$ cd aaryan
aaryan@Aaryan:~/Desktop/aaryan$ ls
addusers.sh n4.txt twofiles.sh
aaryan@Aaryan:~/Desktop/aaryan$ mv n4.txt Desktop
aaryan@Aaryan:~/Desktop/aaryan$ cd
aaryan@Aaryan:~$ cd Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt os
aaryan@Aaryan:~/Desktop$ cd
aaryan@Aaryan:~$ ls
```

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```
Desktop Documents Downloads Music Pictures Public snap Templates Videos
aaryan@Aaryan:~$ cd Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt os
aaryan@Aaryan:~/Desktop$ cd
aaryan@Aaryan:~$ $id
aaryan@Aaryan:~$ $ id
$: command not found
aaryan@Aaryan:~$ id
uid=1000(aaryan) gid=1000(aaryan) groups=1000(aaryan),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users),114(lpadmin)
aaryan@Aaryan:~$ grep l n1.txt
grep: n1.txt: No such file or directory
aaryan@Aaryan:~$ cd Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt os
aaryan@Aaryan:~/Desktop$ grep l n1.txt
Hello
aaryan@Aaryan:~/Desktop$ chmod o+wx n4.txt
chmod: cannot access 'n4.txt': No such file or directory
aaryan@Aaryan:~/Desktop$ ls
aaryan cat n1.txt n2.txt n3.txt os
aaryan@Aaryan:~/Desktop$ mkdir new
aaryan@Aaryan:~/Desktop$ ls -lrth
total 28K
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 10:56 os
-rw-rw-rw- 1 aaryan aaryan 6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 11:00 n3.txt
-r-xr-xr-x 1 aaryan aaryan 18 Jan 29 11:02 cat
drwxrwxrwx 2 aaryan aaryan 4.0K Jan 29 11:08 aaryan
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 11:10 new
```

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```
aaryan@Aaryan:~/Desktop$ touch board/borad{1..3}.txt
touch: cannot touch 'board/borad1.txt': No such file or directory
touch: cannot touch 'board/borad2.txt': No such file or directory
touch: cannot touch 'board/borad3.txt': No such file or directory
aaryan@Aaryan:~/Desktop$ mkdir board
aaryan@Aaryan:~/Desktop$ touch board/board{1..3}.txt
aaryan@Aaryan:~/Desktop$ ls -lrth board/
total 0
-rw-rw-r-- 1 aaryan aaryan 0 Jan 29 11:12 board3.txt
-rw-rw-r-- 1 aaryan aaryan 0 Jan 29 11:12 board2.txt
-rw-rw-r-- 1 aaryan aaryan 0 Jan 29 11:12 board1.txt
aaryan@Aaryan:~/Desktop$ touch mfile.txt
aaryan@Aaryan:~/Desktop$ ls -l
total 32
drwxrwxrwx 2 aaryan aaryan 4096 Jan 29 11:08 aaryan
drwxrwxr-x 2 aaryan aaryan 4096 Jan 29 11:12 board
-r-xr-xr-x 1 aaryan aaryan 18 Jan 29 11:02 cat
-rw-rw-r-- 1 aaryan aaryan 0 Jan 29 11:13 mfile.txt
-rw-rw-rwx 1 aaryan aaryan 6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan 6 Jan 29 11:00 n3.txt
drwxrwxr-x 2 aaryan aaryan 4096 Jan 29 11:10 new
drwxrwxr-x 2 aaryan aaryan 4096 Jan 29 10:56 os
aaryan@Aaryan:~/Desktop$ sudo chown -c Test os
[sudo] password for aaryan:
chown: invalid user: 'Test'
aaryan@Aaryan:~/Desktop$ sudo adduser test
info: Adding user `test' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `test' (1001) ...
info: Adding new user `test' (1001) with group `test (1001)' ...
info: Creating home directory `/home/test' ...
info: Copying files from `/etc/skel' ...
```


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```

New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for test
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] Y
info: Adding new user 'test' to supplemental / extra groups 'users' ...
info: Adding user 'test' to group 'users' ...
aaryan@Aaryan:~/Desktop$ uname
Linux
aaryan@Aaryan:~/Desktop$ w
 11:17:20 up 23 min,  1 user,  load average: 0.42, 0.18, 0.12
USER      TTY      FROM                    LOGIN@   IDLE   JCPU   PCPU WHAT
aaryan    tty2      -                      10:53    23:51  0.09s  0.08s /usr/libexec/gnome-session-binary --session=ubuntu
aaryan@Aaryan:~/Desktop$ hostname
Aaryan
aaryan@Aaryan:~/Desktop$ ps
    PID TTY          TIME CMD
    2881 pts/0    00:00:00 bash
    3347 pts/0    00:00:00 ps
aaryan@Aaryan:~/Desktop$ top
top - 11:23:26 up 30 min,  1 user,  load average: 0.05, 0.14, 0.11
Tasks: 224 total,  1 running, 223 sleeping,  0 stopped,  0 zombie
%Cpu(s):  0.2 us,  0.2 sy,  0.0 ni, 99.5 id,  0.1 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem :  3404.8 total,  1693.5 free,   946.1 used,   952.8 buff/cache
MiB Swap:   0.0 total,   0.0 free,   0.0 used.  2458.7 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 3348 aaryan    20   0 23184 5760 3712 R  0.3   0.2   0:01.06 top
    1 root      20   0 22928 13640 9288 S  0.0   0.4   0:03.15 systemd
    2 root      20   0      0     0     0 S  0.0   0.0   0:00.04 kthreadd
    3 root      20   0      0     0     0 S  0.0   0.0   0:00.00 pool_workqueue_release
    4 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-rcu_g
    5 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-rcu_p
    6 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-slub_
    7 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-netns
    9 root      20   0      0     0     0 I  0.0   0.0   0:00.73 kworker/0:1-cgroup_destroy
top - 11:24:22 up 30 min,  1 user,  load average: 0.02, 0.12, 0.10
Tasks: 223 total,  1 running, 222 sleeping,  0 stopped,  0 zombie
%Cpu(s):  0.1 us,  0.1 sy,  0.0 ni, 99.7 id,  0.0 wa,  0.0 hi,  0.1 si,  0.0 st
MiB Mem :  3404.8 total,  1693.5 free,   946.1 used,   952.9 buff/cache
MiB Swap:   0.0 total,   0.0 free,   0.0 used.  2458.7 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
    2 root      20   0      0     0     0 S  0.0   0.0   0:00.04 kthreadd
    3 root      20   0      0     0     0 S  0.0   0.0   0:00.00 pool_workqueue_release
    4 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-rcu_g
    5 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-rcu_p
    6 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-slub_
    7 root       0 -20      0     0     0 I  0.0   0.0   0:00.00 kworker/R-netns
    9 root      20   0      0     0     0 I  0.0   0.0   0:00.73 kworker/0:1-cgroup_destroy
   10 root       0 -20      0     0     0 I  0.0   0.0   0:00.08 kworker/0:0H-kblockd
   11 root      20   0      0     0     0 I  0.0   0.0   0:00.00 kworker/u10:0-ext4-rsv-conversion

```


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PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3168	root	20	0	0	0	0	I	0.3	0.0	0:01.19	kworker/u14:1-events_unbound
3348	aaryan	20	0	23184	5760	3712	R	0.3	0.2	0:01.75	top
1	root	20	0	22928	13640	9288	S	0.0	0.4	0:03.15	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.04	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_g
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_p
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.10	kworker/0:0H-kblockd
11	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/u10:0-ext4-rsv-conversion
12	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_pe
13	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
16	root	20	0	0	0	0	S	0.0	0.0	0:00.38	ksoftirqd/0
17	root	20	0	0	0	0	I	0.0	0.0	0:01.51	rcu_preempt
18	root	rt	0	0	0	0	S	0.0	0.0	0:00.06	migration/0
19	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/0
20	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
21	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
22	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/1
23	root	rt	0	0	0	0	S	0.0	0.0	0:00.40	migration/1
24	root	20	0	0	0	0	S	0.0	0.0	0:00.11	ksoftirqd/1
26	root	0	-20	0	0	0	I	0.0	0.0	0:00.07	kworker/1:0H-kblockd

```

aaryan@Aaryan:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  Templates  Videos
aaryan@Aaryan:~$ cd Desktop
aaryan@Aaryan:~/Desktop$ ls
aaryan  board  cat  mfile.txt  n1.txt  n2.txt  n3.txt  new  os
aaryan@Aaryan:~/Desktop$ sudo addgroup prac
[sudo] password for aaryan:
Sorry, try again.
[sudo] password for aaryan:
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `prac' (GID 1002) ...
aaryan@Aaryan:~/Desktop$ sudo chgrp prac n1.txt
aaryan@Aaryan:~/Desktop$ ls -lrth
total 32K
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 10:56 os
-rw-rw-rwx 1 aaryan prac    6 Jan 29 10:58 n1.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 10:58 n2.txt
-rw-rw-r-- 1 aaryan aaryan  6 Jan 29 11:00 n3.txt
-r-xr-xr-x 1 aaryan aaryan 18 Jan 29 11:02 cat
drwxrwxrwx 2 aaryan aaryan 4.0K Jan 29 11:08 aaryan
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 11:10 new
drwxrwxr-x 2 aaryan aaryan 4.0K Jan 29 11:12 board
-rw-rw-r-- 1 aaryan aaryan  0 Jan 29 11:13 mfile.txt
aaryan@Aaryan:~/Desktop$ ls
aaryan  board  cat  mfile.txt  n1.txt  n2.txt  n3.txt  new  os

```

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Conclusion:

This experiment successfully introduced the basic concepts and functionalities of operating systems, with a focus on exploring essential UNIX/Linux commands. By practicing commands related to file and directory management, process handling, system information, and permissions. The experiment also helped me gain a deeper understanding of key Unix/Linux commands for managing the file system, such as `chown` and `chmod`. I explored creating directories and managing groups. Mastering these commands is crucial for efficiently handling files, ensuring security, and applying operating system principles to solve real-world problems.

Post Lab Multiple Choice Questions

1. What does the `-r` option do when used with the `rm` command?

- a) Removes files recursively
- b) Removes files forcefully
- c) Removes files interactively
- d) Removes files silently

Answer: a) Removes files recursively

2. Which command is used to move a file from one location to another?

- a) `cp`
- b) `mv`
- c) `rm`
- d) `touch`

Answer: b) `mv`

3. What is the purpose of the `-n` option in the `cat` command?

- a) Displays the file contents in reverse order
- b) Displays the file contents with line numbers
- c) Displays the file contents in uppercase
- d) Displays the file contents in lowercase

Answer: b) Displays the file contents with line numbers

4. Which command is used to search for a specific pattern in a file?

- a) `find`

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- b) grep
- c) locate
- d) chmod

Answer: b) grep

Post Lab Descriptive Questions

1. Explain how do you read and interpret syntax of any OS command.

To interpret an OS command, start by identifying the command name, which specifies the action. Next, look for options (modifiers) that alter the command's behaviour. Then, identify the arguments, which are the targets (e.g., files or directories). Commands usually follow the structure command [options] [arguments]. You can use --help or man to get more details on a command's usage.

2. Explain different functions of the operating systems.

An operating system manages processes, allocates memory, and organizes files. It controls hardware devices through device drivers and ensures system security with user access control. Additionally, it provides a user interface for interaction.

3. What are the default permissions assigned by Unix for Directory.

In Unix, the default permissions for a directory are typically rwxr-xr-x, allowing the owner full access, while the group and others can only read and execute. This means the owner can modify the directory's contents, while others can list and access files within it.

Date: 13 / 01 / 2025

Signature of faculty in-charge