

Practical 1

1. whoami:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ whoami
student
```

- The `whoami` command displays the username associated with the current user session. This is particularly useful in multi-user environments or when scripting to dynamically retrieve the current user.

2. pwd:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ pwd
/home/student/Desktop/22BCP225
```

- The `pwd` command stands for "present working directory" and prints the full path of the current working directory in the terminal. It's helpful for keeping track of your location within the file system and is often used in scripts to obtain the current directory for subsequent operations.

3. ls:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occuring_once  element_occuring_once.c  helloworld.txt  namasteduniya.txt
```

- The `ls` command lists the contents of the current directory. It provides a quick overview of the files and subdirectories present. Additional options such as `-l` can be used for detailed information, and `-a` can show hidden files, making it a versatile command for directory exploration.

4. ls -r:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls -r
namasteduniya.txt  helloworld.txt  element_occuring_once.c  element_occuring_once
```

- When used with the `-r` option, the `ls` command lists the contents of a directory in reverse order. This is useful when you want to view the contents in a reversed sequence, providing flexibility in displaying directory contents.

5. ls -a:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls -a
element_occuring_once  element_occuring_once.c  helloworld.txt  namasteduniya.txt
```

- The `ls` command with the `-a` option lists all files, including hidden ones (those starting with a dot). This is beneficial for revealing files and directories that are typically hidden from standard listings, making it useful for managing configuration files and directories.

6. history:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ history
1007 rmdir test.txt
1008 ls
1009 rmdir test.txt
1010 ls
1011 display
1012 gcc arrayMin.c
1013 gcc --version
1014 gcc arrayMin.c
1015 a/a.out
1016 ./a.out
1017 gcc arrayMin.c
1018 ./a.out
1019 gcc arrayMin.c
1020 ./a.out
1021 gcc arrayMin.c
1022 ./a.out
1023 gcc arrayMin.c
1024 0
1025 gcc bubble.c
1026 ./a.out
1027 gcc arrayMin.c
1028 ./a.out
1029 gcc insertion.c
1030 ./a.out
1031 gcc insertion.c
1032 ./a.out
1033 gcc insertion.c
1034 ./a.out
1035 ls
1036 clear
1037 cat test1.txt
1038 touch m1.txt
1039 ls m1.txt
1040 cat m1.txt
1041 cal
1042 cal -y
1043 cal 9999
1044 passwd
1045 touch m2.txt
1046 ls m2.txt
```

- The `history` command shows a list of previously executed commands in the terminal. It allows users to recall and reuse commands without retyping them. The history can be customized, and specific commands can be rerun using their corresponding history number.

7. clear:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
Default Style  Liberation Serif  12  B I U S A
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ clear
1807: printf: text.txt
1808: ls
1809: printf: text.txt
1810: ls
1811: display
1812: gcc: arraylin.c
1813: gcc: -version
1814: gcc: arraylin.c
1815: a/a.out
1816: a/a.out
```

- The 'clear' command clears the commands and output from the terminal, providing a clean slate. It enhances readability and helps organize the terminal screen without deleting any command history, offering a visually clean interface.

8. echo:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ echo "hello world"
hello world
```

- The 'echo' command is used to print the specified text or variable to the terminal. It is commonly employed in scripts for displaying messages, variables, or debugging information in the terminal.

9. chmod:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ chmod a-w namasteduniya.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The 'chmod' command is used to change the permissions of files or directories. It allows users to control who can read, write, or execute a file. The command uses symbolic or numeric representations to modify permissions, providing flexibility in access control.

10. wc:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ wc namasteduniya.txt
1  2 15 namasteduniya.txt
```

- The 'wc' command, which stands for word count, is used to count the number of lines, words, and characters in a file. It's valuable for analyzing text files and understanding their structure.

11. touch:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ touch testcase.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occuring_once  element_occuring_once.c  helloworld.txt  namasteduniya.txt  testcase.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `touch` command is used to create an empty file or update the access and modification times of an existing file. It's commonly used when you need a placeholder file or want to update timestamps without modifying the file content.

12. rm:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occurring_once  element_occurring_once.c  helloworld.txt  namasteduniya.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `rm` command is used to remove files or directories. Caution should be exercised when using this command, as deleted files are not typically sent to the trash but permanently removed. The `-r` option is used to remove directories and their contents recursively.

13. mkdir:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ mkdir testcase
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occurring_once  element_occurring_once.c  helloworld.txt  namasteduniya.txt  testcase
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `mkdir` command is used to create a new directory. It allows users to organize their file system by easily generating new folders for better file management.

14. rmdir:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ rmdir testcase
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occurring_once  element_occurring_once.c  helloworld.txt  namasteduniya.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `rmdir` command removes an empty directory. Unlike `rm`, it is specifically designed for removing directories and is useful when you want to ensure that a directory is empty before deletion.

15. mv:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ mv helloworld.txt helloworld.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occurring_once  element_occurring_once.c  helloworld.txt  namasteduniya.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `mv` command is used to move files or directories from one location to another. It can also be used to rename files by specifying a new name as the destination.

16. cd:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ cd /home
student@cpl19-HP-ProDesk-400-G4-SFF:/home$ pwd
/home
```

- The `cd` command is used to change the current working directory. It enables users to navigate through the file system and access different directories.

17. cmp:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ ls
element_occurring_once  element_occurring_once.c  helloworld.txt  namasteduniya.txt
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ cmp helloworld.txt namasteduniya.txt
helloworld.txt namasteduniya.txt differ: byte 1, line 1
```

- The `cmp` command is used to compare two files byte by byte. It highlights the first byte where the files differ, providing insights into the variations between them.

18. cat:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ cat helloworld.txt
hello world
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ cat namasteduniya.txt
namaste duniya
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `cat` command is used to concatenate and display the content of files. It is versatile and can be used to create, display, and concatenate files.

19. comm:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ comm helloworld.txt namasteduniya.txt
hello world
      namaste duniya
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `comm` command is used to compare two sorted files line by line. It displays lines that are unique to each file and common to both, providing a structured comparison.

20. date:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ date
Thu Jan 11 15:41:51 IST 2024
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `date` command displays the current date and time. It can also be used to format and set the system date and time.

21. cal:


```

student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ cal
      January 2024
Su Mo Tu We Th Fr Sa
                1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |

```

- The `cal` command displays a calendar for the specified month or the entire year. It provides a quick overview of days and dates.

22. passwd:

```

student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ passwd
Changing password for student.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
You must choose a longer password
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully

```

- The `passwd` command is used to change a user's password. It prompts the user to enter a new password, enhancing security on Unix-like systems.

23. grep:

```

student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ grep "hello" helloworld.txt
hello world
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |

```

- The `grep` command is used for searching patterns in files. It allows users to find specific text within files, making it a powerful tool for text processing and searching.

24. free:

```

student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ free
              total        used        free      shared  buff/cache   available
Mem:      16316728    1431032    12910460     316592     1975236     14206884
Swap:      16668668           0     16668668
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |

```

- The `free` command displays information about the system's free and used memory. It provides insights into the system's memory usage, aiding in performance monitoring.

25. uname:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ uname
Linux
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ uname -a
Linux cpl19-HP-ProDesk-400-G4-SFF 4.15.0-142-generic #146~16.04.1-Ubuntu SMP Tue Apr 13 09:27:15 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `uname` command provides information about the system name, kernel version, and other system-related details. It's useful for obtaining basic information about the system.

26. groups:

```
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ groups
student
student@cpl19-HP-ProDesk-400-G4-SFF:~/Desktop/22BCP225$ |
```

- The `groups` command displays the groups to which the current user belongs. It provides information about the user's group memberships, which is useful for access control and permissions.