Parul University

Faculty of Engineering & Technology

BACHELOR OF TECHNOLOGY

High Performance Computing (303105356)

3rd Year / 6th Semester

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

Laboratory Manual

Submitted by :

Name : Prince kumar
Enroll. No. : 2303051240166
Division : 6B2_AI
Roll No. : 26

Submitted to :

Mrs. Kusum Lata

CERTIFICATE

This is to certify that

Mr./~~Ms.~~ **Prince kumar** *with*

Enrollment no. **2303051240166** *has successfully completed his/~~her~~ laboratory practical in the* **High Performance Computing (303105356)** *from the Department of Computer Science & Engineering during the academic year* **2025 - 26**

योगः कर्मसु कौशलम्

PARUL UNIVERSITY

Date of Submission

Staff In charge

Head of Department

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Subject Code: 303105356 Class: 3rd Year / 6th Sem

Subject : High Performance Computing Academic Year: 2025 - 2026

S.No.	Practical Title	Page No.		Date of Perf.	Date of Sub.	Marks	Sign
		From	To				
01.	Study the facilities provided by Google Colab.						
02.	Demonstrate basic Linux Commands.						
03.	Using Divide and Conquer Strategies design a class for Concurrent Quick Sort using C++.						
04.	Demonstrate MPI functions through a simple program.						
05.	Write a program to check task distribution using Gprof.						
06.	Write a simple CUDA program to print “Hello World!”						
07.	Write a simple CUDA program to add two numbers.						
08.	Write a CUDA program to add two arrays.						
09.	Analyze the code using Nvidia-Profilers.						
10.	Demonstration of OpenMP and pthread functions.						

Practical 2

Aim : Demonstrate basic Linux Commands.

Overview : This practical focuses on introducing fundamental Linux commands essential for navigating and managing a Linux-based operating system using Command Line Interface(CLI). We will learn how to use terminal commands for file manipulation, directory navigation, system monitoring, and user management. Key topics include creating, moving, and deleting files and directories, understanding file permissions.

Commands :

1.ls

Lists files and directories in the current directory.

Syntax :

```
ls
```

Output:

Practical 2

2.pwd

Prints the working directory (shows the current directory path)

Syntax :

pwd

Output:

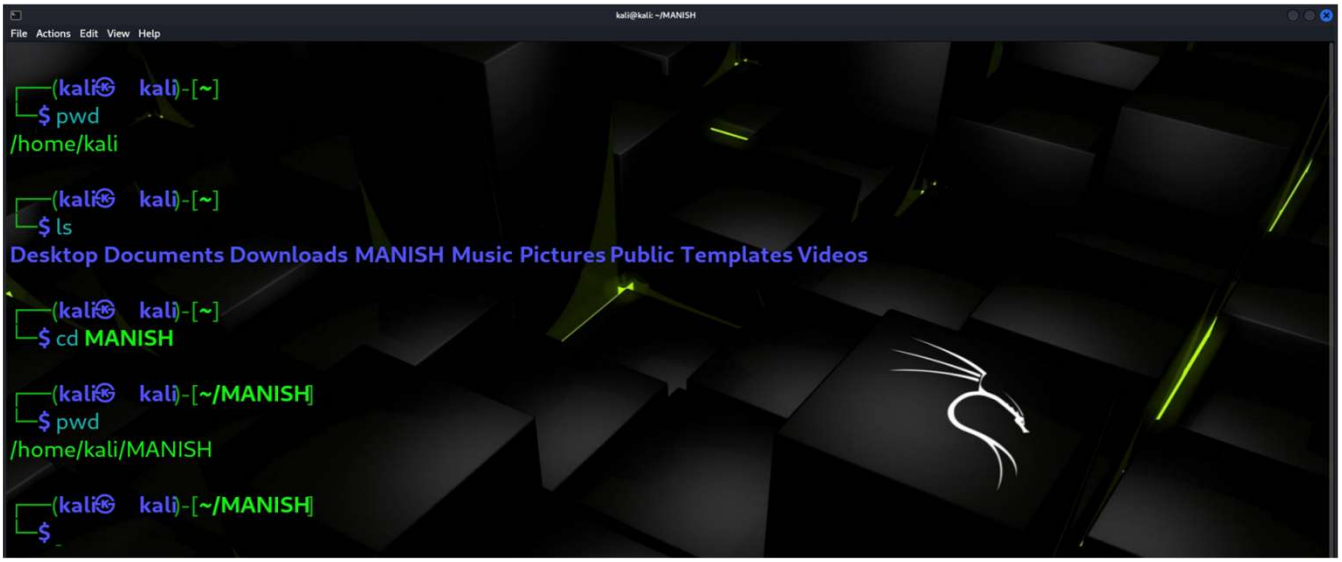
3.cd

Changes the current directory.

Syntax :

cd “directory_name”

Output:



Practical 2

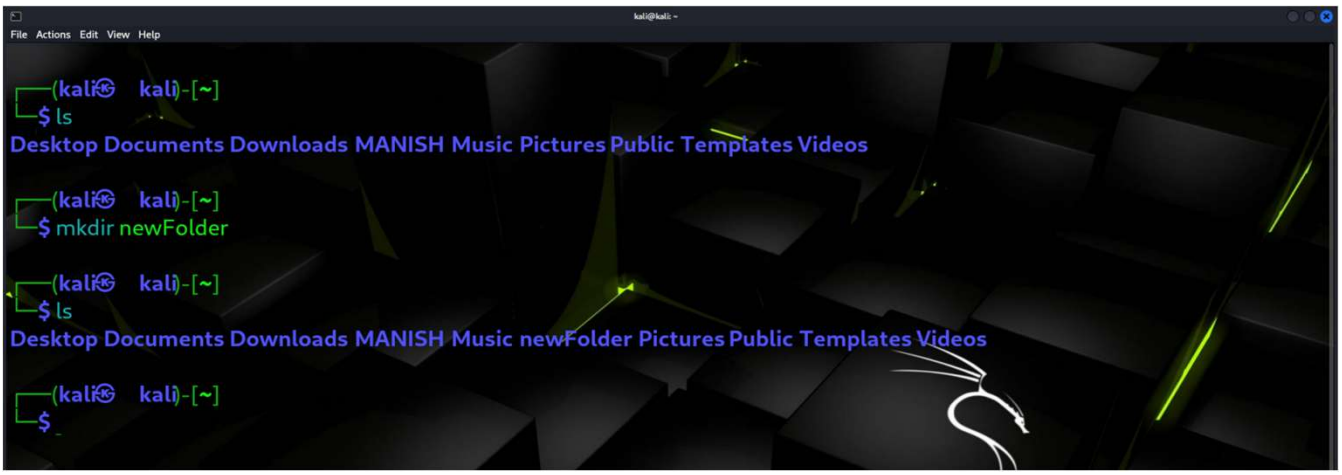
4. mkdir

Creates a new directory.

Syntax :

mkdir “directory_name”

Output:



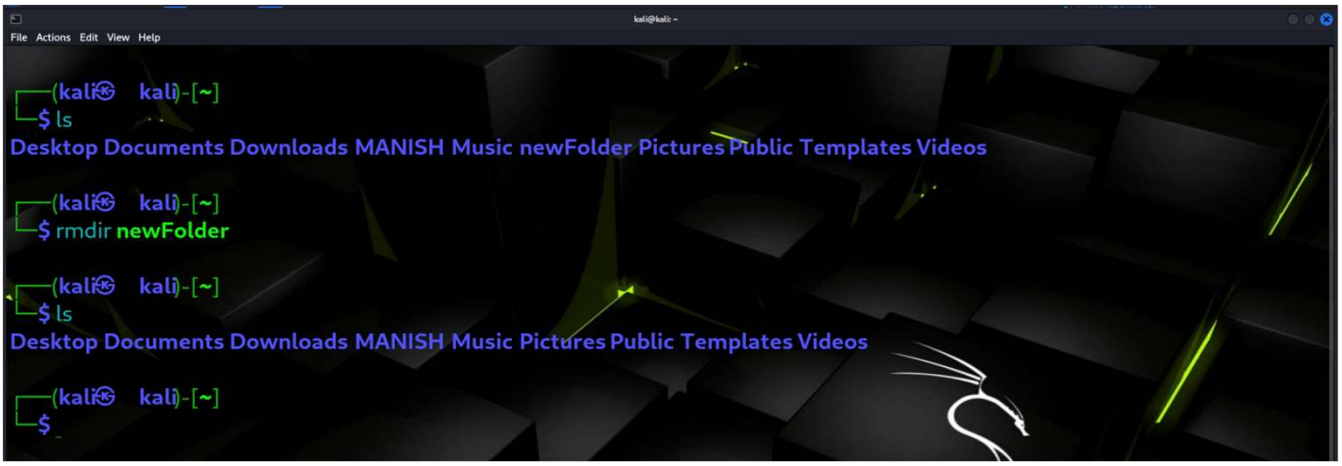
5.rmdir

Removes a directory.

Syntax :

rmdir “directory_name”

Output:



Practical 2

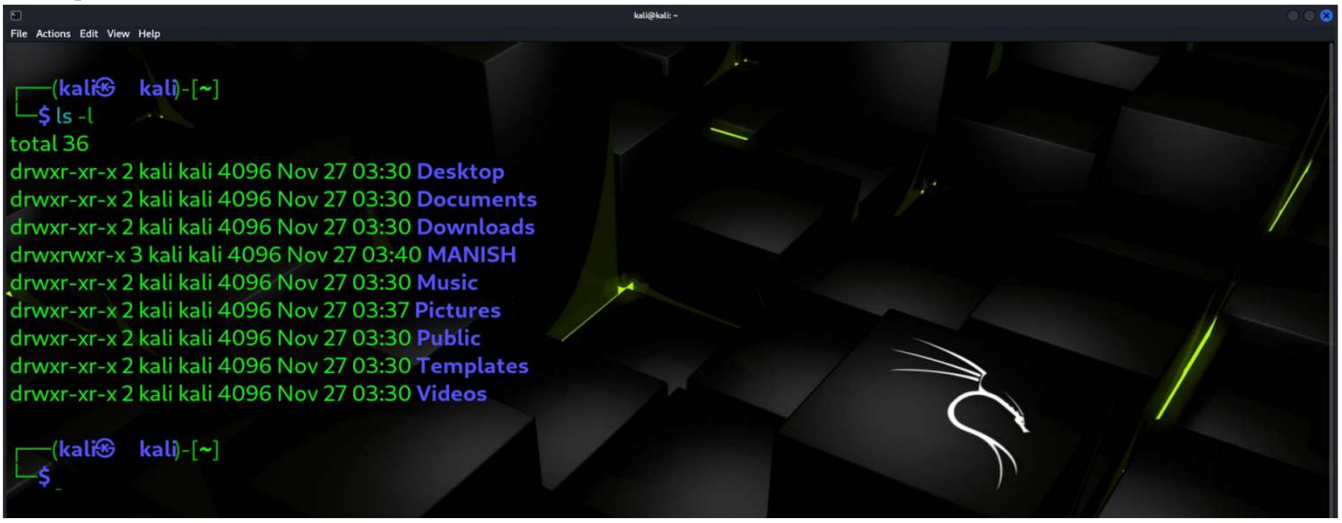
6. ls -l

Used to list the contents of a directory in long format, providing detailed information.

Syntax :

```
ls -l
```

Output:



7.touch

Creates an empty file or updates the timestamp of an existing file.

Syntax :

```
touch filename.txt
```

Output:

Practical 2

8. cat

Concatenates and displays the content of a file.

Syntax :

```
cat>> filename.txt     {To create a file with data}
cat fileName.txt       {To display data of file }
```

Output:

9.cd

Returns to the root directory

Syntax :

```
cd
```

Output:

Practical 2

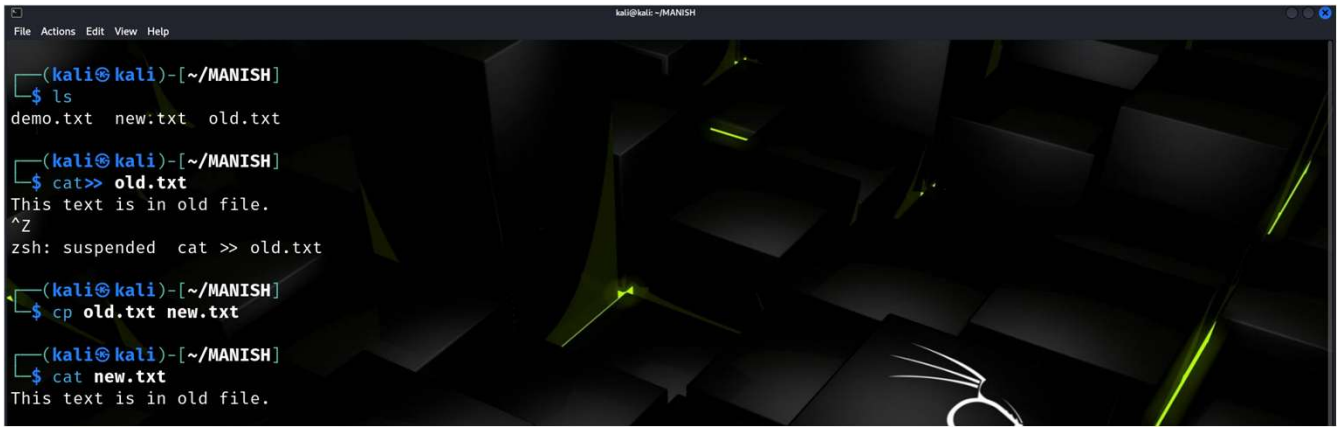
10. cp

Copies data from one file to another file.

Syntax :

```
cp oldFile.txt newFile.txt
```

Output:



11.mv

Moves data from one file to another file.

Syntax :

```
mv oldFile.txt newFile.txt
```

Output:

Practical 2

12. rm

Removes files or directories.

Syntax :

```
rm file1.txt
```

Output:

13.ps

Displays information about running processes.

Syntax :

```
ps
```

Output:

Practical 2

14. who

Displays who is logged into the system.

Syntax :

who

Output:

15.date

Displays or sets the system date and time.

Syntax :

date

Output:

Practical 2

16. whoami

Used to display the current username.

Syntax :

whoami

Output:

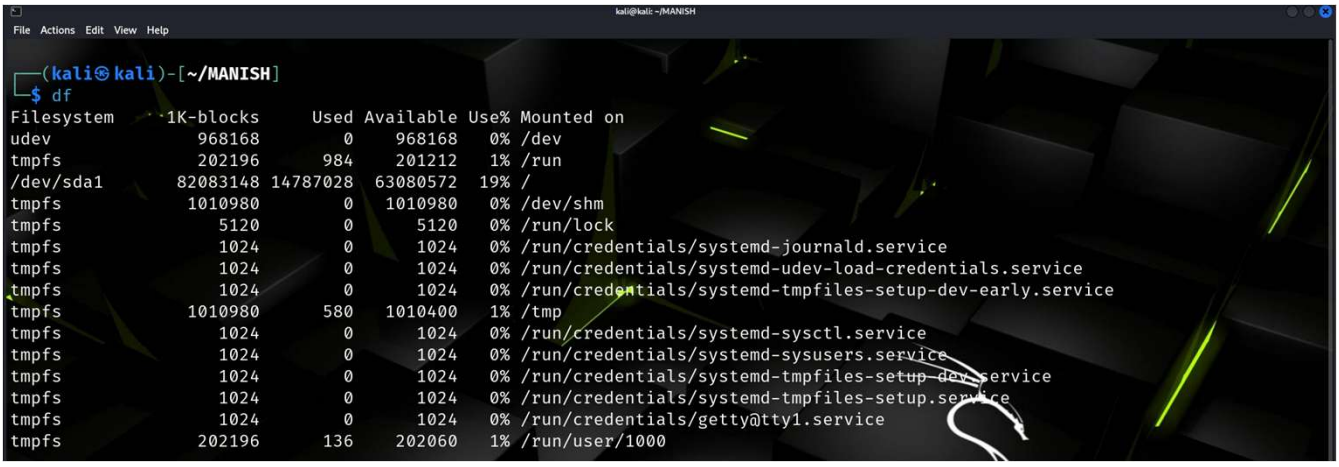
17. df

Gets the details of the File System

Syntax :

df

Output:



Practical 2

18. echo

Displays a message or the value of a variable.

Syntax :

echo “Message to print.”

Output:

19. time

Displays the current time

Syntax :

time

Output:

Practical 2

20. cal

Displays a calendar(current month).

Syntax :

```
cal
```

Output:

21. id

Displays User ID (UID) and Group ID (GID)

Syntax :

```
id
```

Output: