Concepts of Operating System
Assignment 2

Part A

What will the following commands do?

- echo "Hello, World!"

```
shree@Shreeram_M ~/LinuxAssignment
$ echo "Hello,World"
Hello,World
```

- name="Productive"

```
shree@Shreeram_M ~/LinuxAssignment
$ name="Productive"
```

- touch file.txt

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ touch file.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls
file.txt
```

- ls -a

Putting a . in front of file name will hide the file

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ mv hidden.txt .hidden.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls
file.txt
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls -a
.  ..  .hidden.txt  file.txt
```

- rm file.txt

  rm command deletes directories as well as the contents within them

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls
deletefile.txt  file.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ rm deletefile.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls
file.txt
```

- cp file1.txt file2.txt

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cat file1.txt
hello world
everything is good
goodnight
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cp file1.txt file2.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cat file2.txt
hello world
everything is good
goodnight
```

- mv file.txt /path/to/directory/

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ mv file.txt /home/shree/LinuxAssignment/Assignment_2/move_dir

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls
file1.txt  file2.txt  move_dir

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cd move_dir

shree@Shreeram_M ~/LinuxAssignment/Assignment_2/move_dir
$ ls
file.txt
```

Move files from directory to directory

- chmod 755 script.sh

  chmod 755 filename, we remit everyone to execute and read the file

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2/move_dir
$ ls -l
total 0
-rw-r--r-- 1 shree shree 0 Aug 30 15:54 file.txt
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2/move_dir
$ chmod 755 file.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2/move_dir
$ ls -l
total 0
-rwxr-xr-x 1 shree shree 0 Aug 30 15:54 file.txt
```

- grep "pattern" file.txt

  Searches a certain pattern of the word.

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ grep "hello" file1.txt
hello world
good hello
```

- kill PID

Kills the running process in the terminal by using pid.to get the pid of running terminal use ps.

```
$ ps
      PID    PPID    PGID     WINPID   TTY         UID    STIME COMMAND
      900       1     900       5316  ?        197609 22:00:43 /usr/bin/mintty
      901     900     901       5396  pty0     197609 22:00:43 /usr/bin/bash
      905     901     905       5696  pty0     197609 22:00:47 /usr/bin/ps
```

- mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt

Performed many commands all at once like creating mydir directory in that directory creating file.txt and printing Hello,World and then displaying the text

```
shree@Shreeram_M ~
$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt &
& cat file.txt
Hello, World!
```

- ls -l | grep ".txt"
  Displays the permission of files

```
shree@Shreeram_M ~/LinuxAssignment
$ ls -l | grep ".txt"
-rw-r--r-- 1 shree shree  34 Aug 29 20:16 file1.txt
```

- cat file1.txt file2.txt | sort | uniq

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$  cat file1.txt file2.txt | sort | uniq

everything is good
good hello
goodnight
hello world
```

- ls -l | grep "^d"

  Display or list all directories

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls -l | grep "^d"
drwxr-xr-x 1 shree shree  0 Aug 30 20:40 move_dir
```

- grep -r "pattern" /path/to/directory/

  Returns output of recurring word

```
shree@Shreeram_M ~
$ grep -r "good" /home/shree/LinuxAssignment/Assignment_2
/home/shree/LinuxAssignment/Assignment_2/file1.txt:everything is good
/home/shree/LinuxAssignment/Assignment_2/file1.txt:goodnight
/home/shree/LinuxAssignment/Assignment_2/file1.txt:good hello
/home/shree/LinuxAssignment/Assignment_2/file2.txt:everything is good
/home/shree/LinuxAssignment/Assignment_2/file2.txt:goodnight
```

- cat file1.txt file2.txt | sort | uniq –d

Sort and displays the repeated lines

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cat file1.txt
hello world
everything is good
goodnight
123123
good hello
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cat file2.txt
hello world
everything is good
1414141441441
goodnight
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ cat file1.txt file2.txt | sort | uniq -d
everything is good
goodnight
hello world
```

- chmod 644 file.txt
  sets the permissions for the file.txt as -rw-r--r–

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ chmod 644 file1.txt

shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ ls -l
total 2
-rw-r--r-- 1 shree shree 60 Aug 31 18:23 file1.txt
-rw-r--r-- 1 shree shree 55 Aug 31 18:23 file2.txt
drwxr-xr-x 1 shree shree  0 Aug 30 20:40 move_dir
```

- find /path/to/search -name "*.txt"

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2
$ find /home/shree/LinuxAssignment/Assignment_2/destination -name "*.txt"
/home/shree/LinuxAssignment/Assignment_2/destination/demo1.txt
```

- chmod u+x file.txtn

  will assign execute permissions for the user (owner) of the file

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2/de
$ ls -l
total 0
-rw-r--r-- 1 shree shree 0 Aug 31 18:44 demo1.txt
```

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2/destination
$ ls -l
total 0
-rwxr--r-- 1 shree shree 0 Aug 31 18:44 demo1.txt
```

- echo $PATH
  output is a list of directories where executable files are stored

```
shree@Shreeram_M ~/LinuxAssignment/Assignment_2/destination
$ echo $PATH
/usr/local/bin:/usr/bin:/cygdrive/c/Windows/system32:/cygdrive/c/Windows:/cygdrive/c/Windows/Syste
m32/Wbem:/cygdrive/c/Windows/System32/WindowsPowerShell/v1.0:/cygdrive/c/Windows/System32/OpenSSH:
/cygdrive/c/Users/shree.SHREERAM_M/AppData/Local/Microsoft/WindowsApps
```

Part B

Identify True or False:

1. ls is used to list files and directories in a directory.-**TRUE**

2. mv is used to move files and directories.**TRUE**

3. cd is used to copy files and directories.**TRUE**

4. pwd stands for "print working directory" and displays the current directory.**TRUE**

5. grep is used to search for patterns in files.**TRUE**

6. chmod 755 file.txt gives read, write, and execute permissions to the owner, and read and execute to group and others. **TRUE**

7. mkdir -p directory1/directory2 creates nested directories, creating directory2 inside directory1 if directory1 does not exist.**TRUE**

8. rm -rf file.txt deletes a file forcefully without confirmation.**FALSE**
    rm -f command deletes files forcefully regardless the files permission.
    rm -r command removes directory and all files in it.

Identify the Incorrect Commands:

1. chmodx is used to change file permissions.**chmod**
2. cpy is used to copy files and directories.**cp**
3. mkfile is used to create a new file.**mkdir**
4. catx is used to concatenate files. **cat**
5. rn is used to rename files. **rename**

Part C

Question 1: Write a shell script that prints "Hello, World!" to the terminal.
Question 2: Declare a variable named "name" and assign the value "CDAC Mumbai" to it. Print the
value of the variable.
Question 3: Write a shell script that takes a number as input from the user and prints it.
Question 4: Write a shell script that performs addition of two numbers (e.g., 5 and 3) and prints the
result.
Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwise
prints "Odd".
Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.
Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.
Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If it
does, print "File exists", otherwise, print "File does not exist".
Question 9: Write a shell script that uses the if statement to check if a number is greater than 10 and
prints a message accordingly.
Question 10: Write a shell script that uses nested for loops to print a multiplication table for numbers
from 1 to 5. The output should be formatted nicely, with each row representing a number and each
column representing the multiplication result for that number.
Question 11: Write a shell script that uses a while loop to read numbers from the user until the user enters
a negative number. For each positive number entered, print its square. Use the break statement to exit the
loop when a negative number is entered.