

ASSIGNMENT 2

SECTION A

What will the following commands do?

- echo "Hello, World!"

```
cdac@Voldemond:~$ echo "Hello, World!"
Hello, World!
cdac@Voldemond:~$ |
```

Prints "Hello, World!" to the terminal.

- name="Productive"

```
cdac@Voldemond:~/LinuxAssignment$ name="productive"
cdac@Voldemond:~/LinuxAssignment$ echo name
name
cdac@Voldemond:~/LinuxAssignment$ echo $name
productive
cdac@Voldemond:~/LinuxAssignment$
```

Creates a variable named `name` and assigns it the value "Productive".

- touch file.txt

```
cdac@Voldemond:~/LinuxAssignment$ touch file.txt
cdac@Voldemond:~/LinuxAssignment$ ls
Solution.sh docs docs_2 file.txt file1.txt input.txt
cdac@Voldemond:~/LinuxAssignment$ |
```

It is use to create a File .

- ls -a

```
cdac@Voldemond:~$ ls -a
.  .bash_history  .bashrc  .landscape  .motd_shown  .sudo_as_admin_successful  abc.txt  file1.txt  s1.txt
.. .bash_logout  .cache   .local     .profile    LinuxAssignment  copied.txt  kunal    s2.txt
cdac@Voldemond:~$ |
```

It list the all directories and file , including all the hidden files in it .

- rm file.txt

```
cdac@Voldemond:~/LinuxAssignment$ rm file.txt
cdac@Voldemond:~/LinuxAssignment$ ls
Solution.sh docs docs_2 file1.txt input.txt
cdac@Voldemond:~/LinuxAssignment$ |
```

It is used to remove a file from the directory . likewise it will delete file.txt.

ASSIGNMENT 2

- cp file1.txt file2.txt

```
cdac@Voldemond:~/LinuxAssignment$ cp file1.txt file2.txt
cdac@Voldemond:~/LinuxAssignment$ nano file2.txt
cdac@Voldemond:~/LinuxAssignment$ cat file2.txt
this is file 1 content .
cdac@Voldemond:~/LinuxAssignment$ |
```

Copies the content from file1.txt to file2.txt .

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

```
cdac@Voldemond:~/LinuxAssignment$ touch abc.txt
cdac@Voldemond:~/LinuxAssignment$ mv abc.txt /kunal/
mv: cannot move 'abc.txt' to '/kunal/': Not a directory
cdac@Voldemond:~/LinuxAssignment$ ls
Solution.sh abc.txt docs docs_2 file1.txt file2.txt input.txt
cdac@Voldemond:~/LinuxAssignment$ mv abc.txt docs
cdac@Voldemond:~/LinuxAssignment$ cd docs
cdac@Voldemond:~/LinuxAssignment/docs$ ls
abc.txt data.txt duplicate.txt file2.txt fruit.txt hello.txt input.txt output.txt
cdac@Voldemond:~/LinuxAssignment/docs$ |
```

It moves file to the respective directory .

- chmod 755 script.sh

```
cdac@Voldemond:~/LinuxAssignment$ ls -l
total 24
-rw-r--r-- 1 cdac cdac 1103 Aug 29 13:56 Solution.sh
drwxr-xr-x 2 cdac cdac 4096 Aug 29 17:32 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:24 file1.txt
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:26 file2.txt
-rw-r--r-- 1 cdac cdac 1103 Aug 29 14:00 input.txt
cdac@Voldemond:~/LinuxAssignment$ chmod 755 file1.txt
cdac@Voldemond:~/LinuxAssignment$ ls -l
total 24
-rw-r--r-- 1 cdac cdac 1103 Aug 29 13:56 Solution.sh
drwxr-xr-x 2 cdac cdac 4096 Aug 29 17:32 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
-rwxr-xr-x 1 cdac cdac 26 Aug 29 17:24 file1.txt
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:26 file2.txt
-rw-r--r-- 1 cdac cdac 1103 Aug 29 14:00 input.txt
cdac@Voldemond:~/LinuxAssignment$ |
```

It gives the permission to file of owner to RWX , other RX and group RX.

ASSIGNMENT 2

- grep "pattern" file.txt

```
cdac@Voldemond:~/LinuxAssignment/docs$ ls
abc.txt data.txt duplicate.txt example.txt file2.txt fruit.txt hello.txt input.txt output.txt
cdac@Voldemond:~/LinuxAssignment/docs$ nano file.txt
cdac@Voldemond:~/LinuxAssignment/docs$ grep "pattern" file.txt
pattern is this
cdac@Voldemond:~/LinuxAssignment/docs$ |
```

- kill PID

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

```
cdac@Voldemond:~/LinuxAssignment/docs$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && c
at file.txt
Hello, World!
cdac@Voldemond:~/LinuxAssignment/docs/mydir$ ls
file.txt
cdac@Voldemond:~/LinuxAssignment/docs/mydir$ cd ..
cdac@Voldemond:~/LinuxAssignment/docs$ ls
abc.txt data.txt duplicate.txt example.txt file.txt file2.txt fruit.txt hello.txt input.txt mydir output.txt
cdac@Voldemond:~/LinuxAssignment/docs$ |
```

It is creating mydir directory and we navigating to the folder and creating the file.txt and giving the printing command as echo and displaying with the help of cat command .

- ls -l | grep ".txt"

```
cdac@Voldemond:~$ ls -l | grep ".txt"
-rw-rw-r-- 1 cdac cdac 30 Aug 28 04:57 abc.txt
-rw-rw-r-- 1 cdac cdac 97 Aug 28 05:20 copied.txt
-rw-r--r-- 1 cdac cdac 0 Aug 28 12:31 file1.txt
-rw-r--r-- 1 cdac cdac 97 Aug 27 17:19 s1.txt
-rw-r--r-- 1 kunal cdac 229 Aug 27 17:22 s2.txt
cdac@Voldemond:~$ A
```

Lists directories in the current directory in long format

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

Combines the contents of multiple files, sorts the combined output, and then displays only the duplicate lines.

- ls -l | grep "^d"

```
cdac@Voldemond:~/LinuxAssignment$ ls -l | grep "^d"
drwxr-xr-x 3 cdac cdac 4096 Aug 29 18:05 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
cdac@Voldemond:~/LinuxAssignment$ |
```

Lists directories in the current directory by displaying detailed information (long format) and filters the results to show only directories.

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

```
cdac@Voldemond:~/LinuxAssignment/docs$ grep -r "pattern" /home/cdac/LinuxAssignment/docs/example.txt
pattern is this
cdac@Voldemond:~/LinuxAssignment/docs$
```

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

```
cdac@Voldemond:~/LinuxAssignment/docs/cat$ echo -e "apple\nbanana\ncherry\napple" > file1.txt
cdac@Voldemond:~/LinuxAssignment/docs/cat$ echo -e "apple\nbanana\ncherry\napple" > file2.txt
cdac@Voldemond:~/LinuxAssignment/docs/cat$ cat file1.txt file2.txt | sort | uniq -d
apple
banana
cherry
cdac@Voldemond:~/LinuxAssignment/docs/cat$ |
```

Combines the contents of file1.txt and file2.txt, sorts them, and shows only duplicate lines.

- `chmod 644 file.txt`

```
cdac@Voldemond:~/LinuxAssignment$ ls -l
total 24
-rw-r--r-- 1 cdac cdac 1103 Aug 29 13:56 Soluion.sh
drwxr-xr-x 3 cdac cdac 4096 Aug 29 18:05 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
-rwxr-xr-x 1 cdac cdac 26 Aug 29 17:24 file1.txt
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:26 file2.txt
-rwxr--r-- 1 cdac cdac 1103 Aug 29 14:00 input.txt
cdac@Voldemond:~/LinuxAssignment$ chmod 644 input.txt
cdac@Voldemond:~/LinuxAssignment$ ls -l
total 24
-rw-r--r-- 1 cdac cdac 1103 Aug 29 13:56 Soluion.sh
drwxr-xr-x 3 cdac cdac 4096 Aug 29 18:05 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
-rwxr-xr-x 1 cdac cdac 26 Aug 29 17:24 file1.txt
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:26 file2.txt
-rw-r--r-- 1 cdac cdac 1103 Aug 29 14:00 input.txt
cdac@Voldemond:~/LinuxAssignment$ |
```

It gives permissions like read , write and execute to owner , execute , read to group and execute to other.

- `cp -r source_directory destination_directory`

```
cdac@Voldemond:~/LinuxAssignment$ ls
Soluion.sh docs docs_2 file1.txt file2.txt input.txt
cdac@Voldemond:~/LinuxAssignment$ cp -r input.txt docs_2/
cdac@Voldemond:~/LinuxAssignment$ docs_2
docs_2: command not found
cdac@Voldemond:~/LinuxAssignment$ cd docs_2
cdac@Voldemond:~/LinuxAssignment/docs_2$ ls
docs docs.zip input.txt
cdac@Voldemond:~/LinuxAssignment/docs_2$
```

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It copies the respective file to the path destination path provided.

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

```
cdac@Voldemond:~/LinuxAssignment$ find docs_2 -name "*.txt"
docs_2/docs/file2.txt
docs_2/input.txt
cdac@Voldemond:~/LinuxAssignment$
```

It searches for the File name mention in the quotes .

- chmod u+x file.txt

```
cdac@Voldemond:~/LinuxAssignment$ chmod u+x input.txt
cdac@Voldemond:~/LinuxAssignment$ ls -l
total 24
-rw-r--r-- 1 cdac cdac 1103 Aug 29 13:56 Solution.sh
drwxr-xr-x 3 cdac cdac 4096 Aug 29 18:05 docs
drwxr-xr-x 3 cdac cdac 4096 Aug 28 13:18 docs_2
-rwxr-xr-x 1 cdac cdac 26 Aug 29 17:24 file1.txt
-rw-r--r-- 1 cdac cdac 26 Aug 29 17:26 file2.txt
-rwxr--r-- 1 cdac cdac 1103 Aug 29 14:00 input.txt
cdac@Voldemond:~/LinuxAssignment$ |
```

It gives the file owner of execute .

- echo \$PATH

```
cdac@Voldemond:~/LinuxAssignment$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/usr/lib/wsl/lib:/mnt/c/Python27:/mnt/c/Python27/Scripts:/mnt/c/Program Files/Common Files/Oracle/Java/javapath:/mnt/c/Windows/system32:/mnt/c/Windows:/mnt/c/Windows/System32/Wbem:/mnt/c/Windows/System32/WindowsPowerShell/v1.0:/mnt/c/Windows/System32/OpenSSH:/mnt/c/Program Files/NVIDIA Corporation/NVIDIA NvDLISR:/mnt/c/Program Files (x86)/NVIDIA Corporation/PhysX/Common:/mnt/c/Program Files/Java/jdk-20/bin:/mnt/c/Program Files/dotnet:/mnt/c/Program Files/Git/cmd:/mnt/c/Program Files/nodejs:/mnt/c/WINDOWS/system32:/mnt/c/WINDOWS:/mnt/c/WINDOWS/System32/Wbem:/mnt/c/WINDOWS/System32/WindowsPowerShell/v1.0:/mnt/c/WINDOWS/System32/OpenSSH:/mnt/c/Program Files/MongoDB/Server/6.0/bin:/mnt/c/mongosh-1.10.3-win32-x64/mongosh-1.10.3-win32-x64/bin:/mnt/c/MinGW/bin:/mnt/c/Program Files/Docker/Docker/resources/bin:/mnt/c/curl-8.2.1_6-win64-mingw/bin:/mnt/c/Program Files/Git LFS:/mnt/c/Program Files/Geth:/mnt/c/flutter/bin:/mnt/c/MinGW/bin:/mnt/c/Program Files/MySQL/MySQL Server 8.0/bin:/mnt/c/Program Files/MySQL/MySQL Shell 8.0/bin:/mnt/c/Python27/Scripts:/mnt/c/Users/ACER/AppData/Local/Microsoft/WindowsApps:/mnt/c/Program Files/JetBrains/IntelliJ IDEA Community Edition 2023.1.2/bin:/mnt/c/Users/ACER/AppData/Local/Programs/Microsoft VS Code/bin:/mnt/c/Users/ACER/AppData/Local/GitHubDesktop/bin:/mnt/c/Users/ACER/AppData/Local/spicetify:/mnt/c/Users/ACER/AppData/Roaming/npm:/mnt/c/Users/ACER/AppData/Local/Microsoft/WindowsApps:/mnt/c/FASTN:/mnt/c/Program Files (x86)/fastn:/mnt/c/Program Files/JetBrains/CLion 2024.1.3/bin:/snap/bin
cdac@Voldemond:~/LinuxAssignment$
```

Displays the current value of the PATH environment variable

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SECTION 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.

False

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 permissions to group and others.

True

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

False

8. rm -rf file.txt deletes a file forcefully without confirmation.

True

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Identify the Incorrect Commands:

1. chmodx is used to change file permissions.

Incorrect `chmod u+x`

2. cpy is used to copy files and directories.

Incorrect `cp`

3. mkfile is used to create a new file.

Incorrect `touch`, `cat`, `nano`

4. catx is used to concatenate files.

Incorrect `cat filename filename > combined.txt`

5. rn is used to rename files.

Incorrect `mv`

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SECTION C

Question 1: Write a shell script that prints "Hello, World!" to the terminal.

```
GNU nano 7.2
echo "Hello World!"
```

Question 2: Declare a variable named "name" and assign the value "CDAC Mumbai" to it. Print the value of the variable.

```
GNU nano 7.2
name="CDAC Mumbai"
echo $name
```

Question 3: Write a shell script that takes a number as input from the user and prints it.

```
GNU nano 7.2
read number
echo $number
```

Question 4: Write a shell script that performs addition of two numbers (e.g., 5 and 3) and prints the result.

```
echo "Enter a number "
read number
echo "Number is $number"
```


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Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwise prints "Odd".

```
GNU nano 7.2
echo "Enter a number "
read number
if(( number % 2==0 )) then
    echo Number is Even
else
    echo Number is Odd
fi
```

Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.

```
GNU nano 7.2
for((i=1;i<=5;i++))
do
    echo "$i"
done
```

Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.

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```
GNU nano 7.2
i=1
while [ $i -lt 6 ]
do
echo $i
i=$((i+1))

done
```

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".

```
#!/bin/bash
if [ -f "file.txt" ]; then
    echo "File exists"
else
    echo "File does not exist"
fi
```

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.

```
read -p "Enter a number: " number
if (( number > 10 )); then
    echo "The number is greater than 10"
else
    echo "The number is not greater than 10"
fi
```

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.

	AT	BT	CT	TAT	WT
P ₁	0	5	5	10	0
P ₂	1	3	8	7	4
P ₃	2	6	14	12	6
				29	10

8	3.3
---	-----

P ₁	P ₂	P ₃
0	1	3

	AT	BT	PT	CT	TAT	CT
P ₁	0	60	3	12	12	6
P ₂	1	40	1	6	5	1
P ₃	2	7	4	16	14	7
P ₄	3	2	~	7	4	2
				Avg	8.75	4.5

P ₁	P ₂	P ₃	P ₄	P ₂	P ₄
0	1	2	3	4	6

P ₁	P ₃
12	16

(2)

	AT	BT	CT	TAT	CT
P ₁	0	3	5	5	2
P ₂	1	5	14	13	8
P ₃	2	1	2	0	
P ₄	3	4	9	6	

P_1	P_3	P_1	P_4	P_2	
0	1	2	3	14	
	A T	B T	C T	T A T	C T
P_1	0	3	3	3	
P_2	1	5	8	7	
P_3	2	1	9	7	
P_4	3	4	13	16	

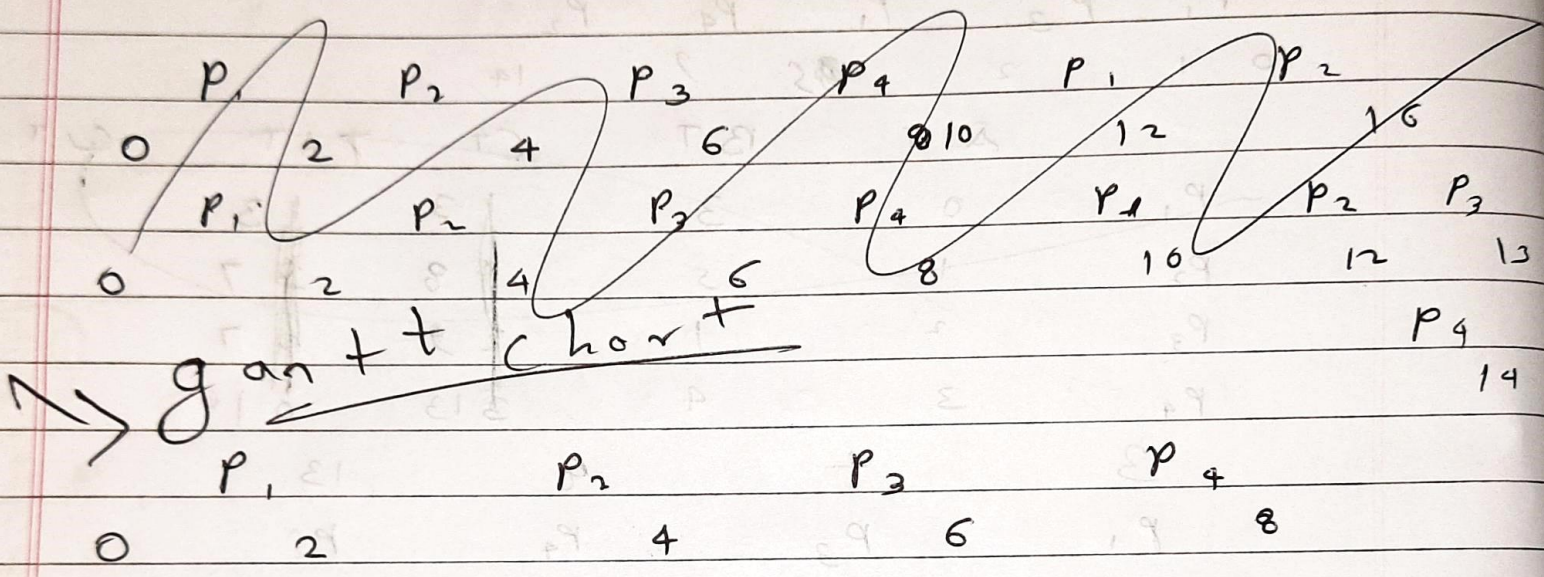
	3	4	8	13	
	P_1	P_3	P_4	P_2	
	0	1	2	3	4
	A T	B T	C T	T A T	C T
P_1	0	3	3	3	0
P_2	1	5	13	12	6
P_3	2	1	4	2	1
P_4	3	4	8	5	1

5	1
5.3.5	2

P_1	P_3	P_4	P_{+2}	
0	1	2	3	4

④

	AT	BT	CT	TAT	WT
P ₁	0	4 2 0	10		
P ₂	1	5 3 2 0 2	10		
P ₃	2	2 0			
P ₄	3	3 1 0			



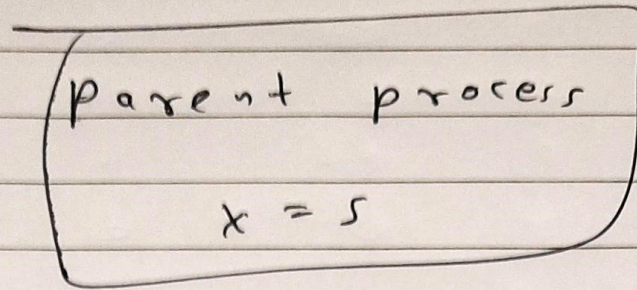
	AT	BT	CT	TAT	WT
P ₁	0	4	10	10	6
P ₂	1	5	15	14	9
P ₃	2	2	6	4	2
P ₄	3	3	10	10	7

9.5

6

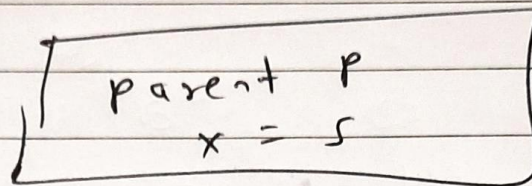
5

①

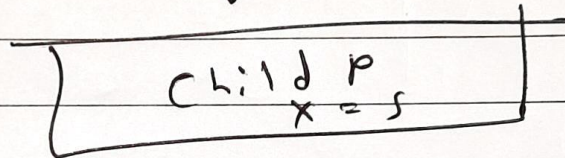
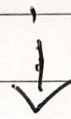


~~fork~~

②



for x()



③

+ 1

after incrementing both
process will increment independently

∴

