

Unix Assignment Questions

Basic File Operations:

- **Q1:** Create a new directory called `project` in your home directory. Inside the `project` directory, create two subdirectories named `src` and `bin`.
- **Q2:** Create a text file named `notes.txt` in the `src` directory and add some text into it using the `echo` command. Display the contents of the file.

2. Working with File Permissions:

- **Q3:** Create a file named `data.txt`. Set the permissions so that:
 - The owner can read and write.
 - The group can read.
 - Others have no permissions.
- **Q4:** Change the permissions of `data.txt` to be readable, writable, and executable by everyone.

3. File Searching and Manipulation:

- **Q5:** Using the `find` command, search for all `.txt` files in your home directory.
- **Q6:** Find all files in the `/etc` directory that were last modified in the last 7 days.
- **Q7:** Use the `grep` command to search for the word "error" in the `/var/log/syslog` file. Display the lines where this word occurs.

4. Text File Operations:

- **Q8:** Display the contents of a file `report.txt` line by line using the `cat`, `more`, and `less` commands.
- **Q9:** Use `head` and `tail` commands to display the first 10 and last 10 lines of a file named `log.txt`.
- **Q10:** Create a file named `names.txt` containing a list of names. Use `sort` to display the names in alphabetical order.
- **Q11:** Use the `wc` command to count the number of words, lines, and characters in a file `data.csv`.

5. Process Management:

- **Q12:** List all running processes using the `ps` command.

6. System Information:

- **Q13:** Display the current date and time using the `date` command.
- **Q14:** Use the `df` command to display disk space usage.
- **Q15:** Use the `uname` command to display your system's information (e.g., OS type, version).
- **Q16:** Display the current system uptime using the `uptime` command.

7. Network Commands:

- **Q17:** Use the `ping` command to check if a remote server (e.g., `google.com`) is reachable.
- **Q18:** Use the `ifconfig` or `ip a` command to display the network configuration of your system.
- **Q19:** Display the active network connections using the `netstat` command.

Answers

```
krishna_agrawal@DESKTOP-8P05TC6:~$ mkdir project
krishna_agrawal@DESKTOP-8P05TC6:~$ cd project/
krishna_agrawal@DESKTOP-8P05TC6:~/project$ mkdir src
krishna_agrawal@DESKTOP-8P05TC6:~/project$ mkdir bin
krishna_agrawal@DESKTOP-8P05TC6:~/project$
```

1.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ touch notes.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ echo "Hello World!" > notes.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ cat notes.txt
Hello World!
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$
```

2.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ touch data.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ chmod 640 data.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ls -l data.txt
-rw-r----- 1 krishna_agrawal krishna_agrawal 0 Jan  2 14:36 data.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$
```

3.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ chmod 777 data.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ls -l data.txt
-rwxrwxrwx 1 krishna_agrawal krishna_agrawal 0 Jan  2 14:36 data.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$
```

4.

```
krishna_agrawal@DESKTOP-8P05TC6:~$ find project -type f -name "*.txt"
project/src/notes.txt
project/src/data.txt
```

5.

```
krishna_agrawal@DESKTOP-8P05TC6:~$ find /etc -type f -mtime -7
/etc/timezone
find: '/etc/polkit-1/localauthority': Permission denied
/etc/ld.so.conf.d/ld.wsl.conf
find: '/etc/ssl/private': Permission denied
/etc/hosts
/etc/ld.so.cache
/etc/hostname
```

6.


```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ tail report.txt
World
World
World
World
World
World
World
World
World
World
World
```

10.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ touch names.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ echo -e "krish\nvarun\ngemini\nsolution" > names.txt
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ cat names.txt
krish
varun
gemini
solution
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ sort names.txt
gemini
krish
solution
varun
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ touch data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ echo "ID,Name,Age,Department" > data.csv
echo "1,John Doe,29,Engineering" >> data.csv
echo "2,Jane Smith,34,Marketing" >> data.csv
echo "3,Bob Johnson,45,Sales" >> data.csv
echo "4,Emily Davis,27,HR" >> data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ cat data.csv
ID,Name,Age,Department
1,John Doe,29,Engineering
2,Jane Smith,34,Marketing
3,Bob Johnson,45,Sales
4,Emily Davis,27,HR
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ wc data.csv
  5   9 118 data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ wc -l data.csv
5 data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ wc -w data.csv
  9 data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ wc -m data.csv
118 data.csv
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$
```

11.

12.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ps
  PID TTY          TIME CMD
  403 pts/0        00:00:00 bash
 7540 pts/0        00:00:00 ps
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ date
Thu Jan  2 14:59:22 IST 2025
```

13.

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ df -h
Filesystem      Size  Used Avail Use% Mounted on
none            3.9G  0  3.9G   0% /usr/lib/modules/5.15.167.4-microsoft-standard-WSL2
none            3.9G  4.0K  3.9G   1% /mnt/wsl
drivers         377G  116G  261G  31% /usr/lib/wsl/drivers
/dev/sdc        1007G  9.1G  947G   1% /
none            3.9G   84K  3.9G   1% /mnt/wslg
none            3.9G   0  3.9G   0% /usr/lib/wsl/lib
rootfs          3.9G  2.2M  3.9G   1% /init
none            3.9G  824K  3.9G   1% /run
none            3.9G   0  3.9G   0% /run/lock
none            3.9G   0  3.9G   0% /run/shm
tmpfs           4.0M   0  4.0M   0% /sys/fs/cgroup
none            3.9G   76K  3.9G   1% /mnt/wslg/versions.txt
none            3.9G   76K  3.9G   1% /mnt/wslg/doc
C:\             377G  116G  261G  31% /mnt/c
D:\             2.1G   90M  2.1G   5% /mnt/d
snapfuse        128K  128K   0 100% /snap/bare/5
snapfuse         74M   74M   0 100% /snap/core22/1663
snapfuse         74M   74M   0 100% /snap/core22/1722
snapfuse         92M   92M   0 100% /snap/gtk-common-themes/1535
snapfuse         45M   45M   0 100% /snap/snapd/23258
snapfuse        132M  132M   0 100% /snap/ubuntu-desktop-installer/1276
snapfuse        132M  132M   0 100% /snap/ubuntu-desktop-installer/1286
14. snapfuse         39M   39M   0 100% /snap/snapd/21759
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ uname
Linux
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ uname -a
Linux DESKTOP-8P05TC6 5.15.167.4-microsoft-standard-WSL2 #1 SMP Tue Nov 5 00:21:55 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ uptime
15. 15:01:00 up 31 min,  1 user,  load average: 0.16, 0.06, 0.02
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ping google.com
PING google.com (142.250.194.206) 56(84) bytes of data.
64 bytes from del12s07-in-f14.1e100.net (142.250.194.206): icmp_seq=1 ttl=52 time=14.2 ms
64 bytes from del12s07-in-f14.1e100.net (142.250.194.206): icmp_seq=2 ttl=52 time=14.9 ms
64 bytes from del12s07-in-f14.1e100.net (142.250.194.206): icmp_seq=3 ttl=52 time=15.4 ms
64 bytes from del12s07-in-f14.1e100.net (142.250.194.206): icmp_seq=4 ttl=52 time=14.4 ms
^C
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
17. rtt min/avg/max/mdev = 14.198/14.729/15.379/0.454 ms
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:3f:89:54 brd ff:ff:ff:ff:ff:ff
    inet 172.22.170.30/20 brd 172.22.175.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe3f:8954/64 scope link
    valid_lft forever preferred_lft forever
18.
```

```
krishna_agrawal@DESKTOP-8P05TC6:~/project/src$ ss -tuln
Netid  State      Recv-Q     Send-Q      Local Address:Port      Peer Address:Port      Process
udp     UNCONN     0           0           127.0.0.53%lo:53        0.0.0.0:*
udp     UNCONN     0           0           127.0.0.1:323          0.0.0.0:*
udp     UNCONN     0           0           [::]:323               [::]:*
tcp     LISTEN     0          4096        127.0.0.53%lo:53        0.0.0.0:*
tcp     LISTEN     0          4096        127.0.0.1:27017        0.0.0.0:*
19.
```