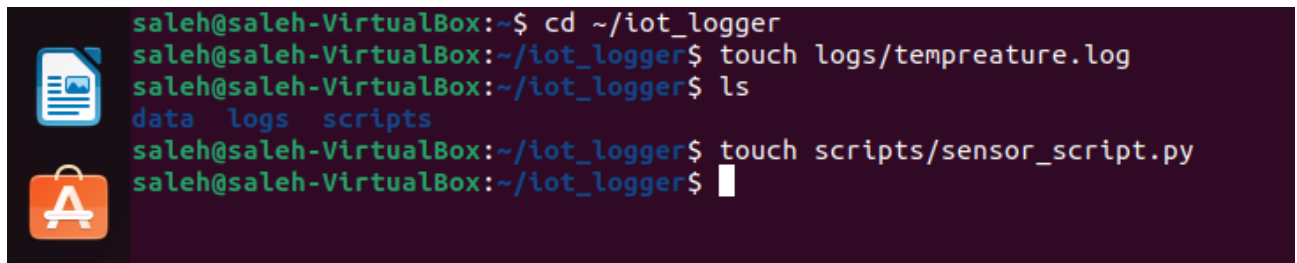# Day 2 – Phase 2 File & Directory Management + Search
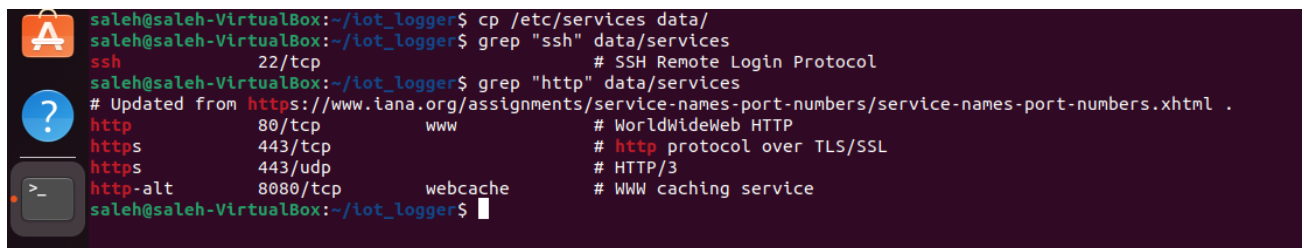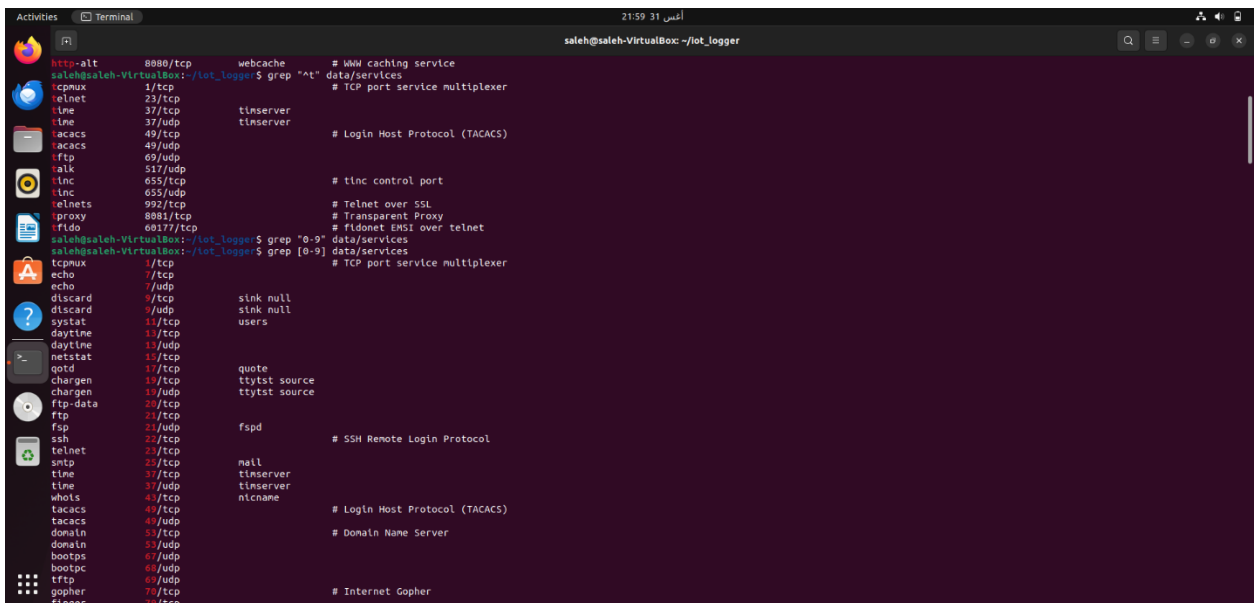
Tasks:

1.


```
saleh@saleh-VirtualBox:~$ cd ~/iot_logger
saleh@saleh-VirtualBox:~/iot_logger$ touch logs/tempreature.log
saleh@saleh-VirtualBox:~/iot_logger$ ls
data  logs  scripts
saleh@saleh-VirtualBox:~/iot_logger$ touch scripts/sensor_script.py
saleh@saleh-VirtualBox:~/iot_logger$
```

2.


```
saleh@saleh-VirtualBox:~/iot_logger$ cp /etc/services data/
saleh@saleh-VirtualBox:~/iot_logger$ grep "ssh" data/services
ssh             22/tcp                          # SSH Remote Login Protocol
saleh@saleh-VirtualBox:~/iot_logger$ grep "http" data/services
# Updated from https://www.iana.org/assignments/service-names-port-numbers/service-names-port-numbers.xhtml .
http            80/tcp          www             # WorldWideWeb HTTP
https           443/tcp                         # http protocol over TLS/SSL
https           443/udp                         # HTTP/3
http-alt        8080/tcp        webcache        # WWW caching service
saleh@saleh-VirtualBox:~/iot_logger$
```

3.

4.

```
saleh@saleh-VirtualBox:~/iot_logger$ find /home/saleh -name "*.txt"
/home/saleh/gitdemo/file.txt
/home/saleh/gitdemo/test.txt
/home/saleh/snap/firefox/common/.mozilla/firefox/7co90aou.default/serviceworker.txt
/home/saleh/snap/firefox/common/.mozilla/firefox/7co90aou.default/pkcs11.txt
/home/saleh/.cache/tracker3/files/locale-for-miner-apps.txt
/home/saleh/.cache/tracker3/files/first-index.txt
/home/saleh/.cache/tracker3/files/last-crawl.txt
saleh@saleh-VirtualBox:~/iot_logger$ rm /home/saleh/temp*.txt
rm: cannot remove '/home/saleh/temp*.txt': No such file or directory
saleh@saleh-VirtualBox:~/iot_logger$ find /home/saleh -name "temp*.txt" -delete
```

5.

```
saleh@saleh-VirtualBox:~/iot_logger$ cd logs
saleh@saleh-VirtualBox:~/iot_logger/logs$ ln -s tempreatur symbolic_link
saleh@saleh-VirtualBox:~/iot_logger/logs$ ln  tempreatur hard_link
ln: failed to access 'tempreatur': No such file or directory
saleh@saleh-VirtualBox:~/iot_logger/logs$ ln tempreature hard_link
ln: failed to access 'tempreature': No such file or directory
saleh@saleh-VirtualBox:~/iot_logger/logs$ ln tempreature.log  hard_link
saleh@saleh-VirtualBox:~/iot_logger/logs$ ls
hard_link  symbolic_link  tempreature.log
saleh@saleh-VirtualBox:~/iot_logger/logs$ ln -s tempreatur.log symbolic_link
ln: failed to create symbolic link 'symbolic_link': File exists
saleh@saleh-VirtualBox:~/iot_logger/logs$ ls
hard_link  symbolic_link  tempreature.log
```

6.

```
saleh@saleh-VirtualBox:~/iot_logger/logs$ tree ~/iot_logger
/home/saleh/iot_logger
├── data
│   └── services
├── logs
│   ├── hard_link
│   ├── symbolic_link -> tempreatur
│   └── tempreature.log
└── scripts
    └── sensor_script.py

4 directories, 5 files
saleh@saleh-VirtualBox:~/iot_logger/logs$
```

Open-Ended Questions:

1-

Regular file (-): text, binary, scripts.

Directory (d): contains files.

Symbolic link (l): shortcut pointing to another file.

Character device (c): hardware device (e.g., /dev/tty).

Block device (b): storage devices (e.g., /dev/sda).

Socket (s): used for inter-process communication.

Pipe (p): first-in-first-out (FIFO) communication.

To check file type:

ls -l

file <filename>

2-

Hard Link: A hard link: there is in a way another label for that very file. It refers to the same inode (which is the data on disk) and practically preserves the data even if the original file is erased. However, hard links are not valid in different partitions or filesystems.

symbolic link (or symlink): is a file that serves as a pointer or shortcut to a different file by its path. If that file is removed, the symlink is left broken since there is no target to link to. For the sake of illustration, a hard link works like having backup copies that remain intact even if one name is removed. Symlinks serve as pointers in configuration, like in /etc/alternatives/, where the links are used to designate the active version of the program.

3-

- **rmdir <dir>:** Removes only empty directories.
- **rm -r <dir>:** Recursively deletes a directory and all its contents (files + subfolders).