

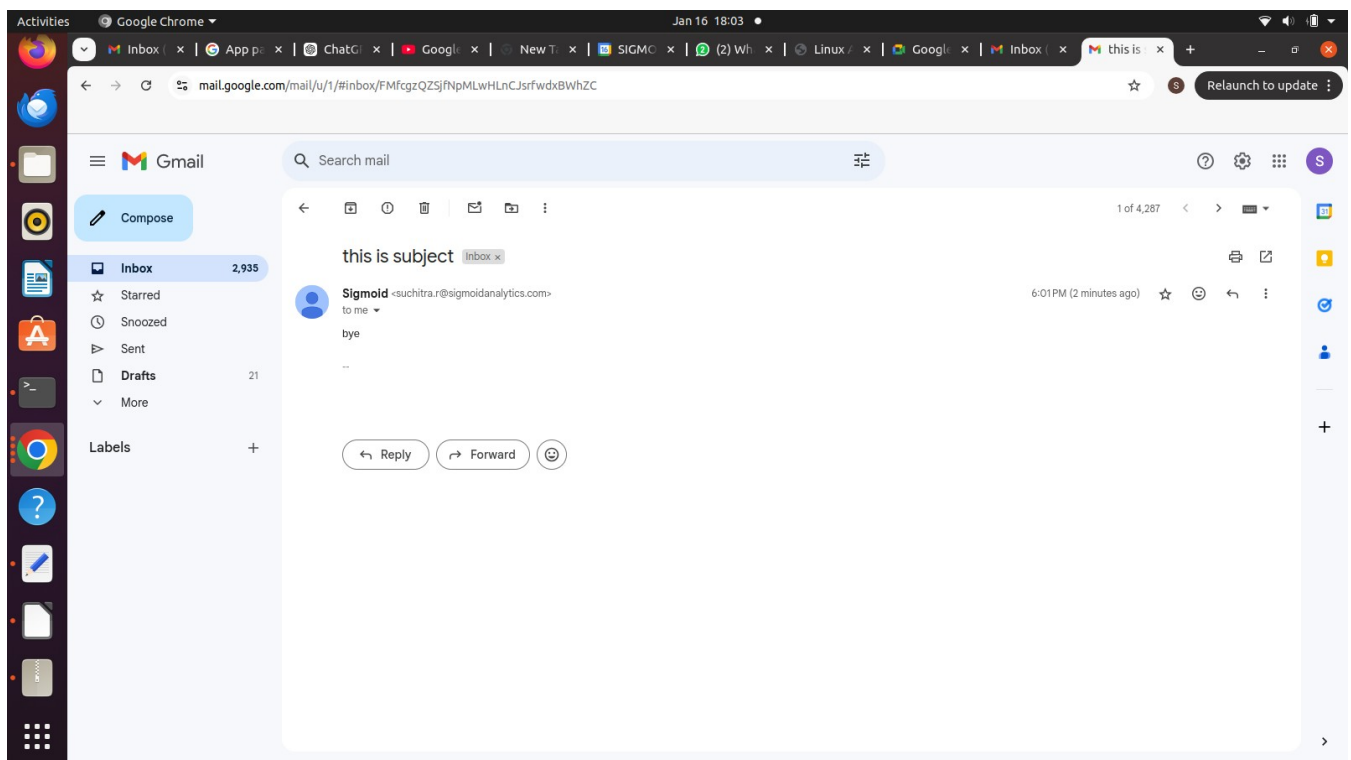
## 1. Configure smtp in localhost.

**sudo apt install postfix**

```
Activities Terminal Jan 16 18:01 sigmold@sigmold-ThinkPad-T450: /etc/postfix/sasl

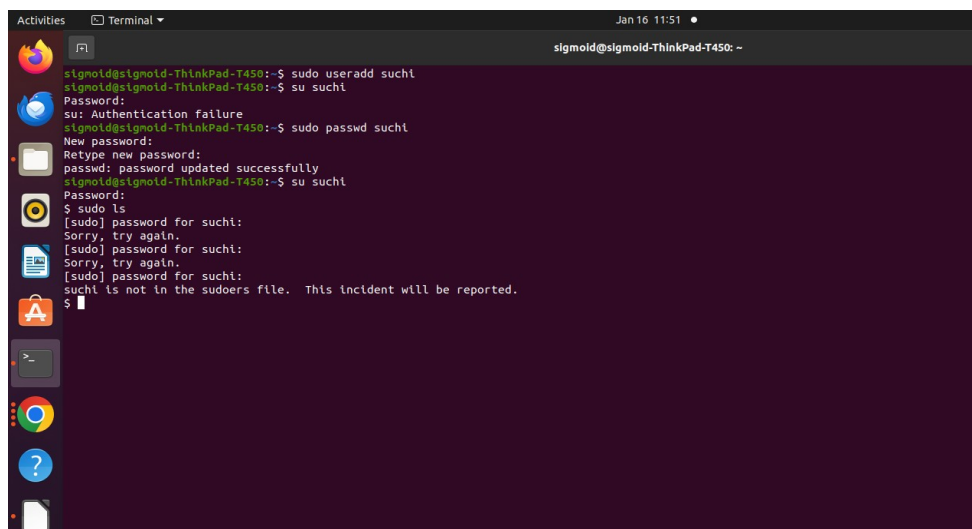
sigmold@sigmold-ThinkPad-T450:~$ cd /etc/postfix
sigmold@sigmold-ThinkPad-T450:/etc/postfix$ ls
dynamicmaps.cf  main.cf  makedefs.out  master.cf.proto  postfix-files.d  post-install  sasl_passwd
dynamicmaps.cf.d  main.cf.proto  master.cf  postfix-files  postfix-script  sasl  sasl_passwd.db
sigmold@sigmold-ThinkPad-T450:/etc/postfix$ nano main.cf
sigmold@sigmold-ThinkPad-T450:/etc/postfix$ cd sasl
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ ls
sasl_passwd
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ nano sasl_passwd
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ postmap sasl_passwd
postmap: fatal: open database sasl_passwd.db: Permission denied
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ sudo postmap sasl_passwd
[sudo] password for sigmold:
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ systemctl start postfix
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ systemctl status postfix
● postfix.service - Postfix Mail Transport Agent
   Loaded: loaded (/lib/systemd/system/postfix.service; enabled; vendor preset: enabled)
   Active: active (exited) since Thu 2025-01-16 14:49:02 IST; 3h 10min ago
   Main PID: 73140 (code=exited, status=0/SUCCESS)
   Tasks: 0 (limit: 9054)
   Memory: 0B
   CGroup: /system.slice/postfix.service

Jan 16 14:49:02 sigmold-ThinkPad-T450 systemd[1]: Starting Postfix Mail Transport Agent...
Jan 16 14:49:02 sigmold-ThinkPad-T450 systemd[1]: Finished Postfix Mail Transport Agent.
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$ echo "bye"| mail -s "this is subject" suchitrar2002@gmail.com
sigmold@sigmold-ThinkPad-T450:/etc/postfix/sasl$
```



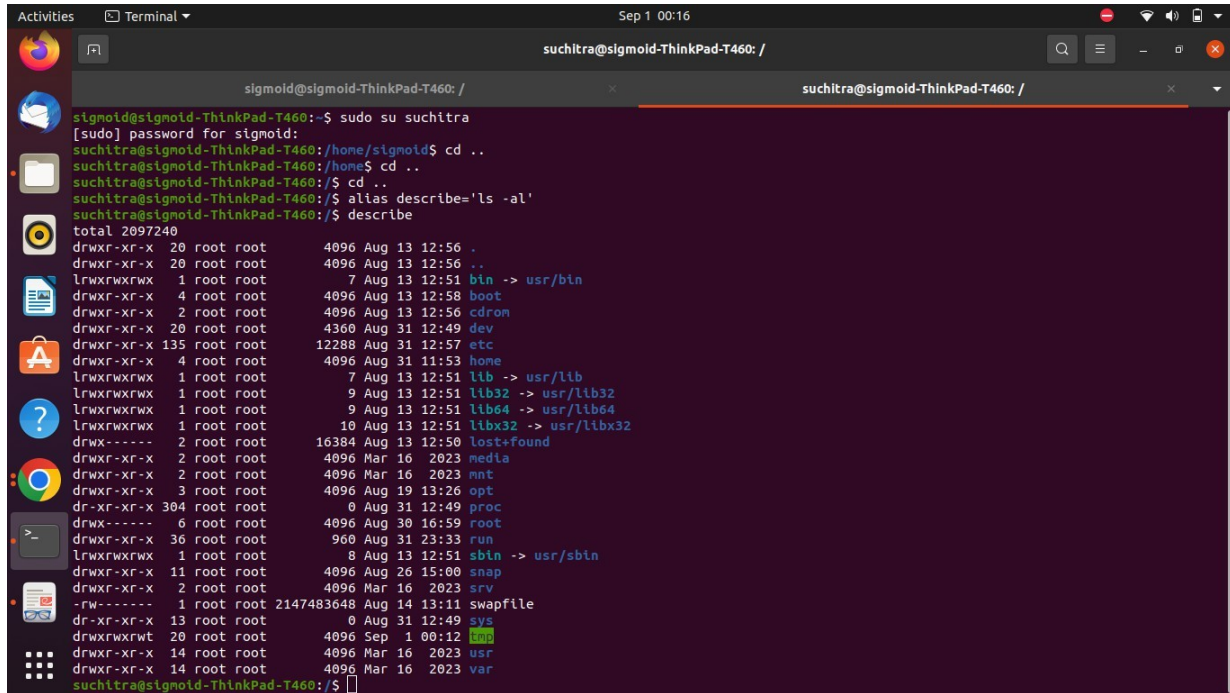
2. Create a user in your localhost, which should not be able to execute the sudo command.

```
sigmoid@sigmoid-ThinkPad-T460:/$ sudo useradd suchi
sigmoid@sigmoid-ThinkPad-T460:/$ su suchi
Password:
su: Authentication failure
sigmoid@sigmoid-ThinkPad-T460:/$ sudo passwd suchi
New password:
Retype new password:
passwd: password updated successfully
sigmoid@sigmoid-ThinkPad-T460:/$ su suchi
Password:
$ sudo ls
[sudo] password for suchi:
Sorry, try again.
[sudo] password for suchi:
suchi is not in the sudoers file. This incident will be reported.
```



3. Configure your system in such a way that when a user type and executes a describe command from anywhere of the system it must list all the files and folders of the user's current directory.

```
- $ alias describe='ls'  
$describe
```

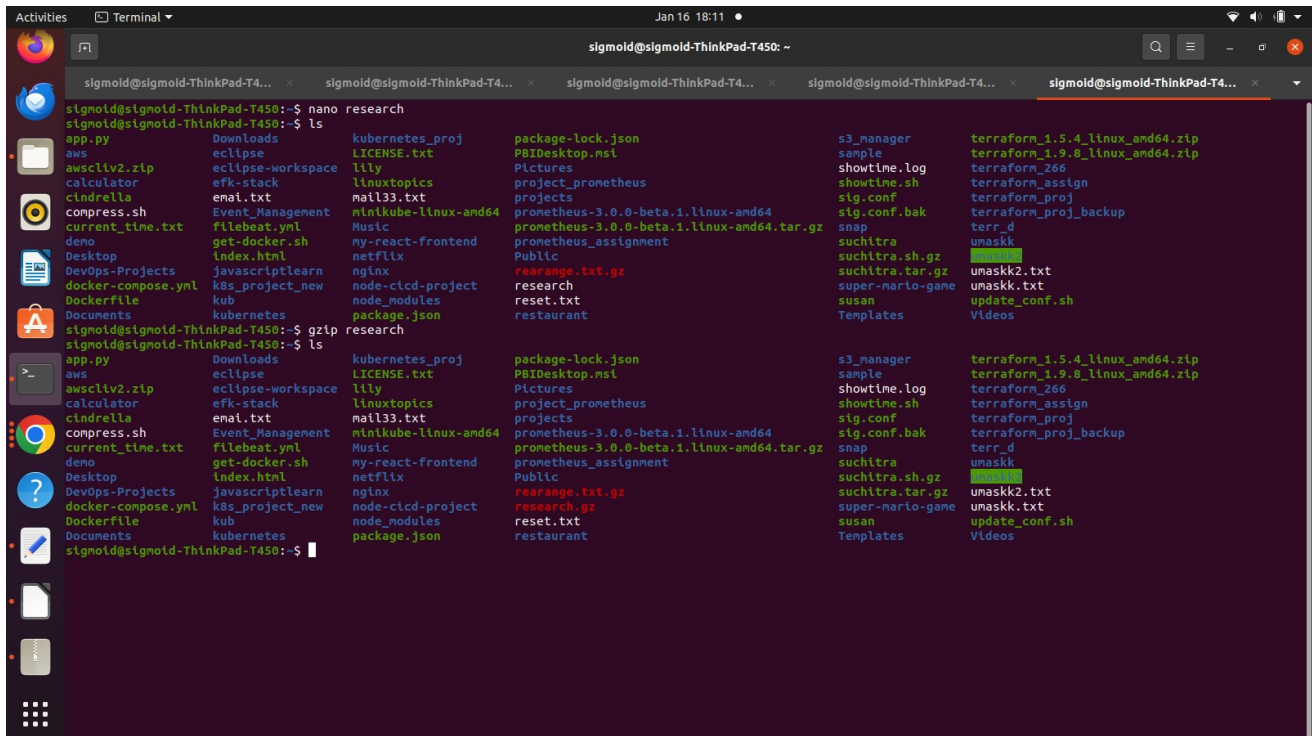


The screenshot shows a terminal window on a system named 'sigmoid-ThinkPad-T460'. The user 'sigmoid' is logged in. The terminal shows the following sequence of commands and output:

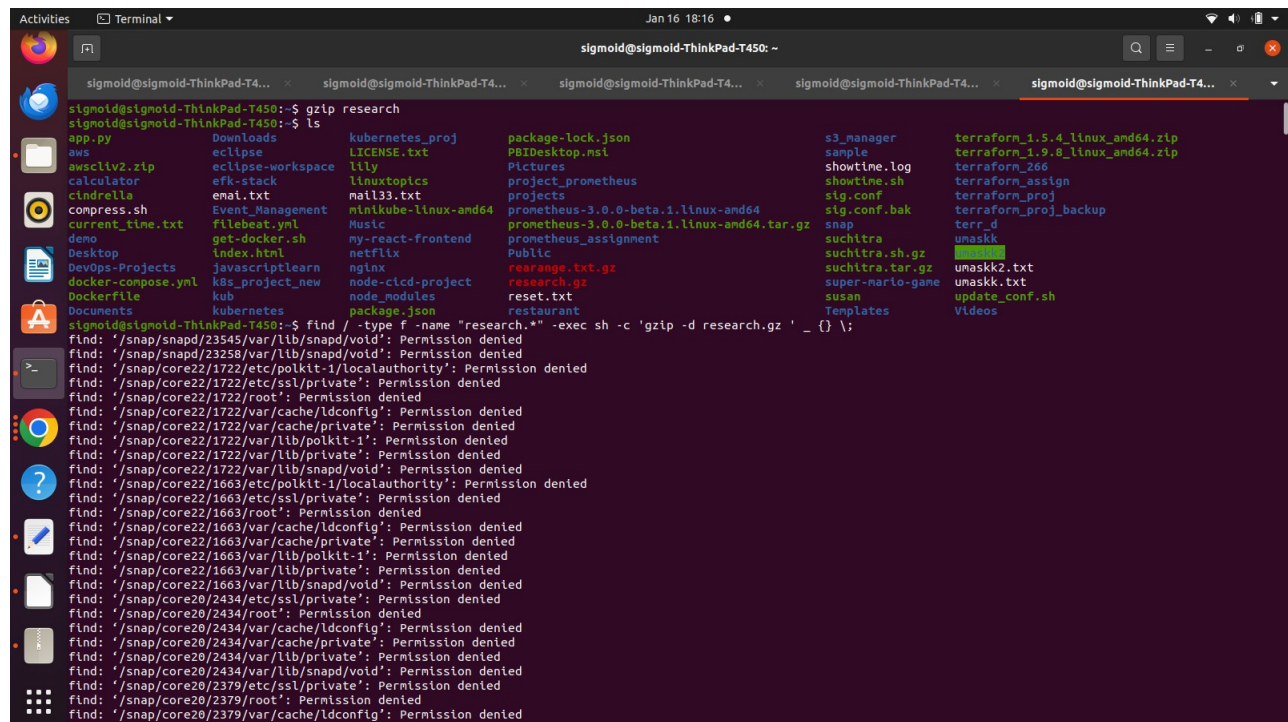
```
sigmoid@sigmoid-ThinkPad-T460:~$ sudo su suchitra  
[sudo] password for sigmoid:  
suchitra@sigmoid-ThinkPad-T460:/home/sigmoid$ cd ..  
suchitra@sigmoid-ThinkPad-T460:/home$ cd ..  
suchitra@sigmoid-ThinkPad-T460:/$ cd ..  
suchitra@sigmoid-ThinkPad-T460:/$ alias describe='ls -al'  
suchitra@sigmoid-ThinkPad-T460:/$ describe  
total 2097240  
drwxr-xr-x 20 root root 4096 Aug 13 12:56 .  
drwxr-xr-x 20 root root 4096 Aug 13 12:56 ..  
lrwxrwxrwx 1 root root 7 Aug 13 12:51 bin -> usr/bin  
drwxr-xr-x 4 root root 4096 Aug 13 12:58 boot  
drwxr-xr-x 2 root root 4096 Aug 13 12:56 cdrom  
drwxr-xr-x 20 root root 4360 Aug 31 12:49 dev  
drwxr-xr-x 135 root root 12288 Aug 31 12:57 etc  
drwxr-xr-x 4 root root 4096 Aug 31 11:53 home  
lrwxrwxrwx 1 root root 7 Aug 13 12:51 lib -> usr/lib  
lrwxrwxrwx 1 root root 9 Aug 13 12:51 lib32 -> usr/lib32  
lrwxrwxrwx 1 root root 9 Aug 13 12:51 lib64 -> usr/lib64  
lrwxrwxrwx 1 root root 10 Aug 13 12:51 libx32 -> usr/libx32  
drwx----- 2 root root 16384 Aug 13 12:50 lost+found  
drwxr-xr-x 2 root root 4096 Mar 16 2023 media  
drwxr-xr-x 2 root root 4096 Mar 16 2023 mnt  
drwxr-xr-x 3 root root 4096 Aug 19 13:26 opt  
dr-xr-xr-x 304 root root 0 Aug 31 12:49 proc  
drwx----- 6 root root 4096 Aug 30 16:59 root  
drwxr-xr-x 36 root root 960 Aug 31 23:33 run  
lrwxrwxrwx 1 root root 8 Aug 13 12:51/sbin -> usr/sbin  
drwxr-xr-x 11 root root 4096 Aug 26 15:00 snap  
drwxr-xr-x 2 root root 4096 Mar 16 2023 srv  
-rw----- 1 root root 2147483648 Aug 14 13:11 swapfile  
dr-xr-xr-x 13 root root 0 Aug 31 12:49 sys  
drwxrwxrwt 20 root root 4096 Sep 1 00:12 tmp  
drwxr-xr-x 14 root root 4096 Mar 16 2023 usr  
drwxr-xr-x 14 root root 4096 Mar 16 2023 var  
suchitra@sigmoid-ThinkPad-T460:/$
```

4. Users can put a compressed file at any path of the linux file system. The name of the file will be research and the extension will be of compression type, example for gzip type extension will be .gz.

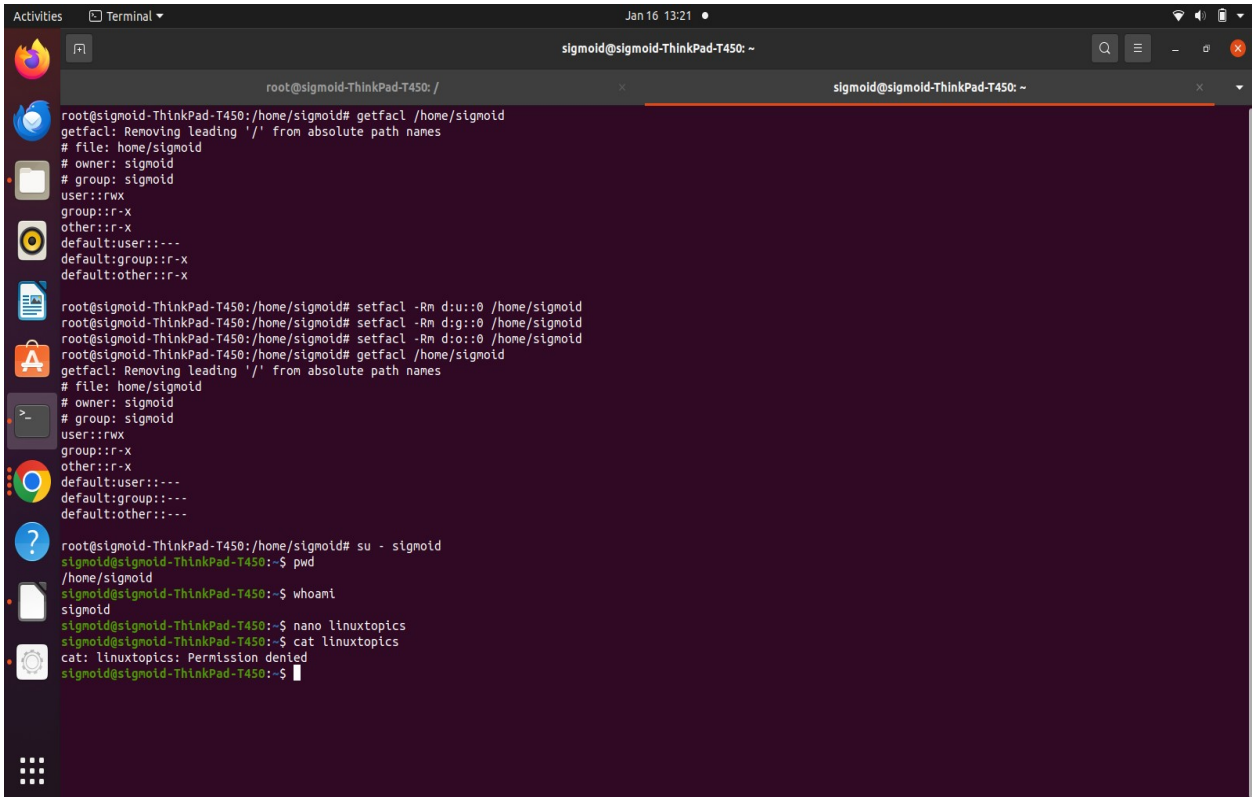
You have to find the file and check the compression type and uncompress it.

A terminal window on a Linux system showing the output of the 'ls' command. The terminal has a dark background with a light-colored font. The output lists various files and directories in the current directory, including 'Downloads', 'eclipse', 'eclipse-workspace', 'efk-stack', 'enail.txt', 'Event\_Management', 'filebeat.yml', 'get-docker.sh', 'index.html', 'javascriptlearn', 'k8s\_project\_new', 'kub', 'kubernetes', 'package.json', 'package-lock.json', 'PBIDesktop.msi', 'Pictures', 'project\_prometheus', 'projects', 'prometheus-3.0.0-beta.1.linux-amd64', 'prometheus-3.0.0-beta.1.linux-amd64.tar.gz', 'prometheus\_assignment', 'Public', 'rearrange.txt.gz', 'research', 'reset.txt', 'restaurant', 's3\_manager', 'sample', 'showtime.log', 'showtime.sh', 'sig.conf', 'sig.conf.bak', 'snap', 'suchitra', 'suchitra.sh.gz', 'suchitra.tar.gz', 'super-nario-game', 'susan', 'Templates', 'terraform\_1.5.4\_linux\_amd64.zip', 'terraform\_1.9.8\_linux\_amd64.zip', 'terraform\_266', 'terraform\_assign', 'terraform\_proj', 'terraform\_proj\_backup', 'terr\_d', 'unaskk', 'unaskk2.txt', 'unaskk.txt', 'update\_conf.sh', and 'Videos'. The terminal prompt is 'sigmoild@sigmoild-ThinkPad-T450:~\$'.

using find command :

A terminal window on a Linux system showing the output of the 'find' command. The terminal has a dark background with a light-colored font. The output shows the results of the 'find' command, which is searching for files with the extension '.gz' in the current directory. The output lists various files and directories, including 'Downloads', 'eclipse', 'eclipse-workspace', 'efk-stack', 'enail.txt', 'Event\_Management', 'filebeat.yml', 'get-docker.sh', 'index.html', 'javascriptlearn', 'k8s\_project\_new', 'kub', 'kubernetes', 'package.json', 'package-lock.json', 'PBIDesktop.msi', 'Pictures', 'project\_prometheus', 'projects', 'prometheus-3.0.0-beta.1.linux-amd64', 'prometheus-3.0.0-beta.1.linux-amd64.tar.gz', 'prometheus\_assignment', 'Public', 'rearrange.txt.gz', 'research', 'reset.txt', 'restaurant', 's3\_manager', 'sample', 'showtime.log', 'showtime.sh', 'sig.conf', 'sig.conf.bak', 'snap', 'suchitra', 'suchitra.sh.gz', 'suchitra.tar.gz', 'super-nario-game', 'susan', 'Templates', 'terraform\_1.5.4\_linux\_amd64.zip', 'terraform\_1.9.8\_linux\_amd64.zip', 'terraform\_266', 'terraform\_assign', 'terraform\_proj', 'terraform\_proj\_backup', 'terr\_d', 'unaskk', 'unaskk2.txt', 'unaskk.txt', 'update\_conf.sh', and 'Videos'. The terminal prompt is 'sigmoild@sigmoild-ThinkPad-T450:~\$'.

5. Configure your system in such a way that any user of your system creates a file then there should not be permission to do any activity in that file.



The image shows a terminal window on a Linux system. The user is root at a machine named sigmoid-ThinkPad-T450. The terminal shows the following commands and output:

```
root@sigmoid-ThinkPad-T450: /home/sigmoid# getfacl /home/sigmoid
getfacl: Removing leading '/' from absolute path names
# file: home/sigmoid
# owner: sigmoid
# group: sigmoid
user::rwx
group::r-x
other::r-x
default:user::---
default:group::r-x
default:other::r-x

root@sigmoid-ThinkPad-T450:/home/sigmoid# setfacl -Rm d:u::0 /home/sigmoid
root@sigmoid-ThinkPad-T450:/home/sigmoid# setfacl -Rm d:g::0 /home/sigmoid
root@sigmoid-ThinkPad-T450:/home/sigmoid# setfacl -Rm d:o::0 /home/sigmoid
root@sigmoid-ThinkPad-T450:/home/sigmoid# getfacl /home/sigmoid
getfacl: Removing leading '/' from absolute path names
# file: home/sigmoid
# owner: sigmoid
# group: sigmoid
user::rwx
group::r-x
other::r-x
default:user::---
default:group::---
default:other::---

root@sigmoid-ThinkPad-T450:/home/sigmoid# su - sigmoid
sigmoid@sigmoid-ThinkPad-T450:~$ pwd
/home/sigmoid
sigmoid@sigmoid-ThinkPad-T450:~$ whoami
sigmoid
sigmoid@sigmoid-ThinkPad-T450:~$ nano linuxtopics
sigmoid@sigmoid-ThinkPad-T450:~$ cat linuxtopics
cat: linuxtopics: Permission denied
sigmoid@sigmoid-ThinkPad-T450:~$
```

The terminal window has a dark purple background. The left sidebar shows various application icons. The top bar indicates the date and time as Jan 16 13:21.



6. Create a service with the name `showtime`, after starting the service, every minute it should print the current time in a file in the user home directory.

Ex:-

`sudo service showtime start` -> It should start writing in file.

`sudo service showtime stop` -> It should stop writing in file.

`sudo service showtime status` -> It should show status.

```
Activities Terminal Jan 16 18:25
sigmoid@sigmoid-ThinkPad-T450: /

sigmoid@sigmoid-ThinkPad-T450:~$ cat showtime.sh
#!/bin/bash

while true
do
    date +%r >> /home/sigmoid/showtime.log
    sleep 60
done

sigmoid@sigmoid-ThinkPad-T450:~$ cd /etc/systemd/system
sigmoid@sigmoid-ThinkPad-T450:/etc/systemd/system$ nano showtime.service
sigmoid@sigmoid-ThinkPad-T450:/etc/systemd/system$ cat showtime.service
[Unit]
Description=Current Time Every Minute

[Service]
ExecStart=/home/sigmoid/showtime.sh
User=sigmoid
Restart=always

[Install]
WantedBy=multi-user.target

sigmoid@sigmoid-ThinkPad-T450:/etc/systemd/system$ cd ..
sigmoid@sigmoid-ThinkPad-T450:/etc/systemd/system$ cd ..
sigmoid@sigmoid-ThinkPad-T450:/etc$ cd ..
sigmoid@sigmoid-ThinkPad-T450:/etc$ ls
bin boot cdrom dev etc home lib lib32 lib64 libx32 lost+found media mnt opt proc root run sbin showtime.sh snap srv swapfile sys usr var

sigmoid@sigmoid-ThinkPad-T450:/etc$ systemctl start showtime.service
sigmoid@sigmoid-ThinkPad-T450:/etc$ systemctl status showtime.service
● showtime.service - Current Time Every Minute
   Loaded: loaded (/etc/systemd/system/showtime.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2025-01-16 15:43:44 IST; 2h 40min ago
     Main PID: 79931 (showtime.sh)
        Tasks: 2 (limit: 9054)
```

```
Activities Terminal Jan 16 18:26
sigmoid@sigmoid-ThinkPad-T450: ~

sigmoid@sigmoid-ThinkPad-T450:~$ cd ..
cd..: command not found

sigmoid@sigmoid-ThinkPad-T450:~$ cd
sigmoid@sigmoid-ThinkPad-T450:~$ systemctl start showtime.service
sigmoid@sigmoid-ThinkPad-T450:~$ systemctl status showtime.service
● showtime.service - Current Time Every Minute
   Loaded: loaded (/etc/systemd/system/showtime.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2025-01-16 15:43:44 IST; 2h 42min ago
     Main PID: 79931 (showtime.sh)
        Tasks: 2 (limit: 9054)
       Memory: 1.3M
      CGroup: /system.slice/showtime.service
              └─79931 /bin/bash /home/sigmoid/showtime.sh
                  └─97062 sleep 60

Jan 16 15:43:44 sigmoid-ThinkPad-T450 systemd[1]: showtime.service: Succeeded.
Jan 16 15:43:44 sigmoid-ThinkPad-T450 systemd[1]: Stopped Current Time Every Minute.
Jan 16 15:43:44 sigmoid-ThinkPad-T450 systemd[1]: Started Current Time Every Minute.
sigmoid@sigmoid-ThinkPad-T450:~$ ls
app.py          Downloads      kubernetes_proj  package-lock.json  s3_manager        terraform_1.5.4_linux_and64.zip
aws             eclipse       LICENSE.txt      PBIDesktop.nsi     sample            terraform_1.9.8_linux_and64.zip
awscli2.zip    eclipse-workspace  lily             Pictures            showtime.log      terraform_266
calculator     enal.txt      linuxtopics     project_pronetheus  sig.conf          terraform_assign
cindrellis    Event_Management  mail33.txt      projects            sig.conf.bak      terraform_proj
compress.sh    filebeat.yml    music            prometheus-3.0.0-beta.1.linux_and64  terr_d
current_time.txt  get-docker.sh  my-react-frontend  prometheus-3.0.0-beta.1.linux_and64.tar.gz  unaskk
demo           index.html      netflix          Public              suchitra           unaskk2.txt
Desktop        javascriptlearn  nginx            rearrange.txt.gz    suchitra.sh.gz    unaskk2.txt
DevOps-Projects  k8s_project_new  node_modules     research            super-mario-game   update.txt
docker-compose.yml  kub            node_modules     reset.txt           susan              update_conf.sh
Documents       kubernetes      package.json     restaurant          Templates          Videos
sigmoid@sigmoid-ThinkPad-T450:~$ cat showtime.log
03:43:44 PM IST
03:44:44 PM IST
03:45:44 PM IST
03:46:44 PM IST
03:47:44 PM IST
03:48:44 PM IST
03:49:44 PM IST
03:50:44 PM IST
03:51:44 PM IST
03:52:44 PM IST
```