

1. Configure smtp in localhost.

```
Activities Terminal Aug 30 19:10
sigmoid@sigmoid-ThinkPad-T460: ~
sigmoid@sigmoid-... x sigmoid@sigmoid-... x sigmoid@sigmoid-... x sigmoid@sigmoid-... x sigmoid@sigmoid-... x sigmoid@sigmoid-...
/0.01/0/0, dsn=2.0.0, status=sent (delivered to command: procmail -a "$EXTENSION")
Aug 30 19:08:14 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: EE6E42A0123: removed
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/smtp[20854]: EF1EF2A0129: to=<krupa.ht@sigmoidanalytics.com>, relay=aspmx.l.google.com[142.251.1
2.27]:25, delay=131, delays=128/0.06/2.1/0.93, dsn=5.7.1, status=bounced (host aspmx.l.google.com[142.251.12.27] said: 550-5.7.1 [14.97.164.46
] The IP you're using to send mail is not authorized to send mail to our servers. Please use the SMTP relay at your 550-5.
7.1 service provider instead. For more information, go to 550 5.7.1 https://support.google.com/mail/?p=NotAuthorizedError 41be03b00d2f7-7d22e
98c62csl1984781a12.369 - gsmt (in reply to end of DATA command))
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/cleanup[20845]: 0A7412A0123: message-id=<20240830133815.0A7412A0123@sigmoid-ThinkPad-T460>
postfix/bounce[20855]: EF1EF2A0129: sender non-delivery notification: 0A7412A0123
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 0A7412A0123: from=<>, size=3108, nrcpt=1 (queue active)
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/cleanup[20867]: 0B49B2A0120: message-id=<20240830133815.0B49B2A0120@sigmoid-ThinkPad-T460>
postfix/bounce[20856]: EF1EF2A0129: sender delivery status notification: 0B49B2A0120
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 0B49B2A0120: from=<>, size=2918, nrcpt=1 (queue active)
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: EF1EF2A0129: removed
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/local[20857]: 0A7412A0123: to=<sigmoid@sigmoid-ThinkPad-T460>, relay=local, delay=0.01, delays=0
/0/0/0.01, dsn=2.0.0, status=sent (delivered to command: procmail -a "$EXTENSION")
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 0A7412A0123: removed
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/local[20857]: 0B49B2A0120: to=<sigmoid@sigmoid-ThinkPad-T460>, relay=local, delay=0.02, delays=0
/0.01/0/0.01, dsn=2.0.0, status=sent (delivered to command: procmail -a "$EXTENSION")
Aug 30 19:08:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 0B49B2A0120: removed
Aug 30 19:08:20 sigmoid-ThinkPad-T460 postfix/local[20858]: 118072A012B: to=<sigmoid@sigmoid-ThinkPad-T460>, relay=local, delay=8, delays=0/0.
01/0/0, dsn=2.0.0, status=sent (delivered to command: procmail -a "$EXTENSION")
Aug 30 19:08:20 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 118072A012B: removed
Aug 30 19:09:15 sigmoid-ThinkPad-T460 postfix/pickup[20842]: 2981E2A0121: uid=1000 from=<sigmoid>
Aug 30 19:09:15 sigmoid-ThinkPad-T460 postfix/cleanup[20845]: 2981E2A0121: message-id=<20240830133915.2981E2A0121@sigmoid-ThinkPad-T460>
Aug 30 19:09:15 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 2981E2A0121: from=<sigmoid@sigmoid-ThinkPad-T460>, size=327, nrcpt=1 (queue active)
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/smtp[20850]: 2981E2A0121: to=<krupa.ht@sigmoidanalytics.com>, relay=aspmx.l.google.com[142.251.1
2.27]:25, delay=2.1, delays=0/0/1.3/0.86, dsn=2.0.0, status=sent (250 2.0.0 OK 1725025157 41be03b00d2f7-7d22e9bf2981e2a0121.605 - gsmt)
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/cleanup[20867]: 4A1622A0123: message-id=<20240830133917.4A1622A0123@sigmoid-ThinkPad-T460>
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/bounce[20856]: 2981E2A0121: sender delivery status notification: 4A1622A0123
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 4A1622A0123: from=<>, size=2266, nrcpt=1 (queue active)
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 2981E2A0121: removed
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/local[20857]: 4A1622A0123: to=<sigmoid@sigmoid-ThinkPad-T460>, relay=local, delay=0.02, delays=0
.01/0/0/0.01, dsn=2.0.0, status=sent (delivered to command: procmail -a "$EXTENSION")
Aug 30 19:09:17 sigmoid-ThinkPad-T460 postfix/qmgr[20843]: 4A1622A0123: removed
sigmoid@sigmoid-ThinkPad-T460:~$
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo nano
```

```
/etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo chmod +x /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# ls -l /usr/local/bin/showtime.sh
```

```
-rwxr-xr-x 1 root root 179 Aug 30 17:48 /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# cat /usr/local/bin/showtime.sh
```

```
#!/bin/bash
```

```
# Path to the file where the current time will be written
```

```
OUTPUT_FILE="/home/$(whoami)/current_time.txt"
```

```
# Write the current time to the file
```

```
date >> "$OUTPUT_FILE"
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl daemon-reload
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl start showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl status showtime.service
```

• showtime.service - Showtime Service

Loaded: loaded (/etc/systemd/system/showtime.service; enabled; vendor preset: enabled)

Active: active (running) since Fri 2024-08-30 20:00:58 IST; 14s ago

Main PID: 22379 (showtime.sh)

Tasks: 2 (limit: 4440)

Memory: 544.0K

CGroup: /system.slice/showtime.service

└─22379 /bin/bash /usr/local/bin/showtime.sh

└─22381 sleep 60

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

```
sigmoid@sigmoid-ThinkPad-T460:/$ sudo useradd heypentu
```

```
sigmoid@sigmoid-ThinkPad-T460:/$ su heypentu
```

```
Password:
```

```
su: Authentication failure
```

```
sigmoid@sigmoid-ThinkPad-T460:/$ sudo passwd heypentu
```

```
New password:
```

```
Retype new password:
```

```
passwd: password updated successfully
```

```
sigmoid@sigmoid-ThinkPad-T460:/$ su heypentu
```

```
Password:
```

```
$ sudo ls
```

```
[sudo] password for heypentu:
```

```
Sorry, try again.
```

```
[sudo] password for heypentu:
```

```
Sorry, try again.
```

```
[sudo] password for heypentu:
```

```
sudo: 3 incorrect password attempts
```

```
$ sudo ls
```

```
[sudo] password for heypentu:
```

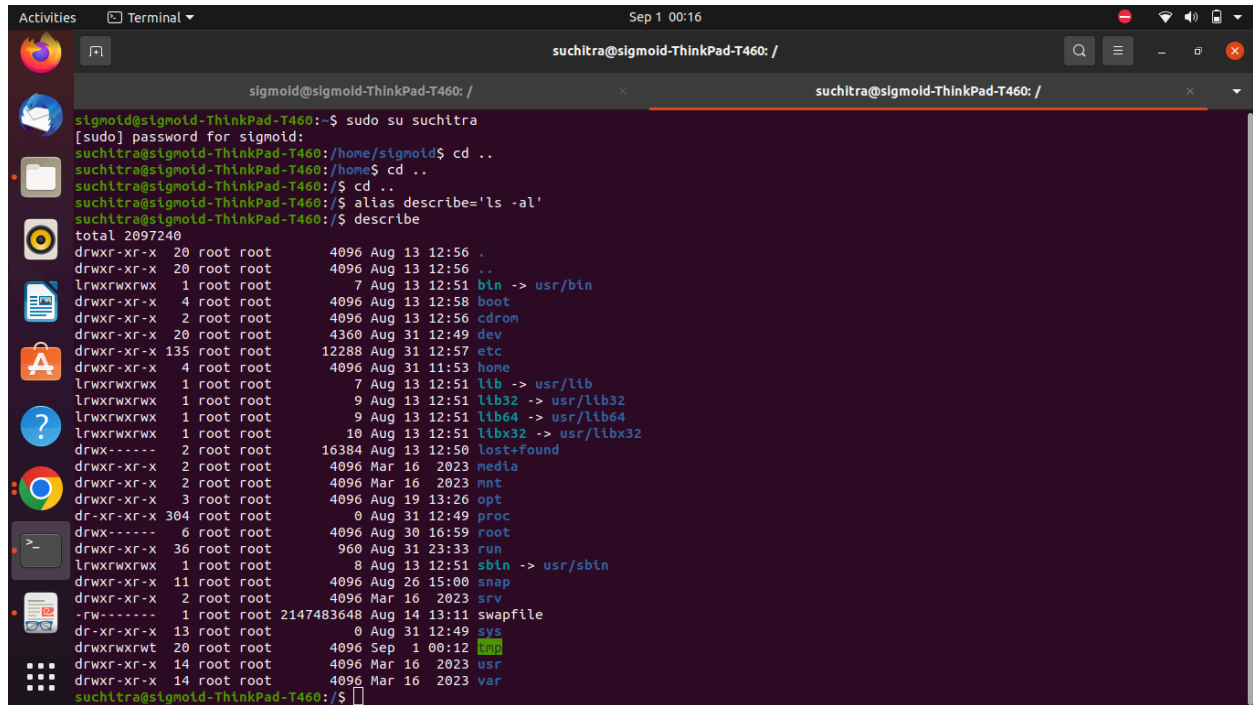
```
heypentu is not in the sudoers file. This incident will be reported.
```

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.

Ex:- \$ describe

\$ content1 content2

Content3 content 4



The screenshot shows a terminal window on a Linux system. The user 'sigmoid' is logged in and switches to the user 'suchitra' using 'sudo su suchitra'. They then navigate to the home directory and set an alias for the 'describe' command to 'ls -al'. Finally, they run the 'describe' command, which lists all files and directories in the current directory with their permissions, ownership, size, and timestamps.

```
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        10 Aug 13 12:51 lib32 -> usr/lib32
lrwxrwxrwx 1 root root        10 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
-rwxr-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.

```
#!/bin/bash
# Find the file
file_path=$(sudo find / -type f -name 'research.*' 2>/dev/null)
if [ -z "$file_path" ]; then
echo "No file named 'research' found."
exit 1
fi
# Check the file type
file_type=$(file -b "$file_path")
echo "Found file: $file_path"
echo "File type: $file_type"
# Uncompress based on file type
case "$file_type" in
*gzip*)
echo "Uncompressing gzip file..."
gunzip "$file_path"
;;
*bzip2*)
echo "Uncompressing bzip2 file..."
bunzip2 "$file_path"
;;
*XZ*)
echo "Uncompressing xz file..."
unxz "$file_path"
;;
*)
echo "Unknown compression type: $file_type"
exit 1
;;
esac
echo "File uncompressed successfully."
```

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.

Note:- Don't use the chmod command.

```
sigmoid@sigmoid-ThinkPad-T460:~$ nano ~/.bashrc
sigmoid@sigmoid-ThinkPad-T460:~$ nano ~/.bashrc
sigmoid@sigmoid-ThinkPad-T460:~$ ls -ltr
total 2847920
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Videos
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Templates
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Public
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Music
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Documents
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Desktop
drwx-----  3 sigmoid sigmoid   4096 Aug 19 13:24 snap
--wx-wx--x  1 sigmoid sigmoid      0 Aug 21 17:06 jerry
-rw-rw-r--  1 sigmoid sigmoid      0 Aug 21 17:07 hello
-rw-rw-r--  1 sigmoid sigmoid      0 Aug 21 17:07 sigu
-rw-rw-r--  1 sigmoid sigmoid      0 Aug 21 17:07 krupa
drwxrwxr-x  5 sigmoid sigmoid    4096 Aug 21 17:20 hei
drwxrwxr-x  2 sigmoid sigmoid    4096 Aug 21 17:24 heinew-bak
-rw-rw-r--  1 sigmoid sigmoid    930 Aug 22 16:06 listings
-rw-rw-r--  1 sigmoid sigmoid    930 Aug 22 17:07 hi
-rw-rw-r--  1 sigmoid sigmoid 1635911680 Aug 23 12:10 Krupatar
drwxrwxr-x 11 sigmoid sigmoid    4096 Aug 23 12:19 blah
-rw-rw-r--  1 sigmoid sigmoid   18971 Aug 26 14:53 log_activity
-rwxrwxr-x  1 sigmoid sigmoid     40 Aug 26 19:12 shellsript
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 28 15:29 Pictures
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 29 00:36 Downloads
-rw-rw-r--  1 sigmoid sigmoid     42 Aug 30 15:19 research.gz
-rw-rw-r--  1 sigmoid sigmoid 1280261054 Aug 30 15:30 krupaa.tar.gz
sigmoid@sigmoid-ThinkPad-T460:~$ umask 0777
sigmoid@sigmoid-ThinkPad-T460:~$ source ~/.bashrc
sigmoid@sigmoid-ThinkPad-T460:~$ sudo nano /etc/profile
[sudo] password for sigmoid:
sigmoid@sigmoid-ThinkPad-T460:~$
sigmoid@sigmoid-ThinkPad-T460:~$
sigmoid@sigmoid-ThinkPad-T460:~$
```

```
sigmoid@sigmoid-ThinkPad-T460:~$ touch namfile
sigmoid@sigmoid-ThinkPad-T460:~$ ls -ltr
total 2847920
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Videos
drwxr-xr-x  2 sigmoid sigmoid    4096 Aug 14 13:11 Templates
```

drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 14 13:11	Public
drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 14 13:11	Music
drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 14 13:11	Documents
drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 14 13:11	Desktop
drwx-----	3	sigmoid	sigmoid	4096	Aug 19 13:24	snap
--wx-wx--x	1	sigmoid	sigmoid	0	Aug 21 17:06	jerry
-rw-rw-r--	1	sigmoid	sigmoid	0	Aug 21 17:07	hello
-rw-rw-r--	1	sigmoid	sigmoid	0	Aug 21 17:07	sigu
-rw-rw-r--	1	sigmoid	sigmoid	0	Aug 21 17:07	krupa
drwxrwxr-x	5	sigmoid	sigmoid	4096	Aug 21 17:20	hei
drwxrwxr-x	2	sigmoid	sigmoid	4096	Aug 21 17:24	heinew-bak
-rw-rw-r--	1	sigmoid	sigmoid	930	Aug 22 16:06	listings
-rw-rw-r--	1	sigmoid	sigmoid	930	Aug 22 17:07	hi
-rw-rw-r--	1	sigmoid	sigmoid	1635911680	Aug 23 12:10	Krupatar
drwxrwxr-x	11	sigmoid	sigmoid	4096	Aug 23 12:19	blah
-rw-rw-r--	1	sigmoid	sigmoid	18971	Aug 26 14:53	log_activity
-rwxrwxr-x	1	sigmoid	sigmoid	40	Aug 26 19:12	shellscript
drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 28 15:29	Pictures
drwxr-xr-x	2	sigmoid	sigmoid	4096	Aug 29 00:36	Downloads
-rw-rw-r--	1	sigmoid	sigmoid	42	Aug 30 15:19	research.gz
-rw-rw-r--	1	sigmoid	sigmoid	1280261054	Aug 30 15:30	krupaa.tar.gz
-----	1	sigmoid	sigmoid	0	Aug 30 17:02	namfile

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.

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo nano
```

```
/etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /etc/systemd/system/showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo chmod +x /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# ls -l /usr/local/bin/showtime.sh
```

```
-rwxr-xr-x 1 root root 179 Aug 30 17:48 /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# cat /usr/local/bin/showtime.sh
```

```
#!/bin/bash
```

```
# Path to the file where the current time will be written
```

```
OUTPUT_FILE="/home/$(whoami)/current_time.txt"
```

```
# Write the current time to the file
```

```
date >> "$OUTPUT_FILE"
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# nano /usr/local/bin/showtime.sh
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl daemon-reload
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl start showtime.service
```

```
root@sigmoid-ThinkPad-T460:/home/sigmoid# sudo systemctl status showtime.service
```

● showtime.service - Showtime Service

Loaded: loaded (/etc/systemd/system/showtime.service; enabled; vendor preset: enabled)

Active: active (running) since Fri 2024-08-30 20:00:58 IST; 14s ago

Main PID: 22379 (showtime.sh)

Tasks: 2 (limit: 4440)

Memory: 544.0K

CGroup: /system.slice/showtime.service

└─22379 /bin/bash /usr/local/bin/showtime.sh

└─22381 sleep 60

