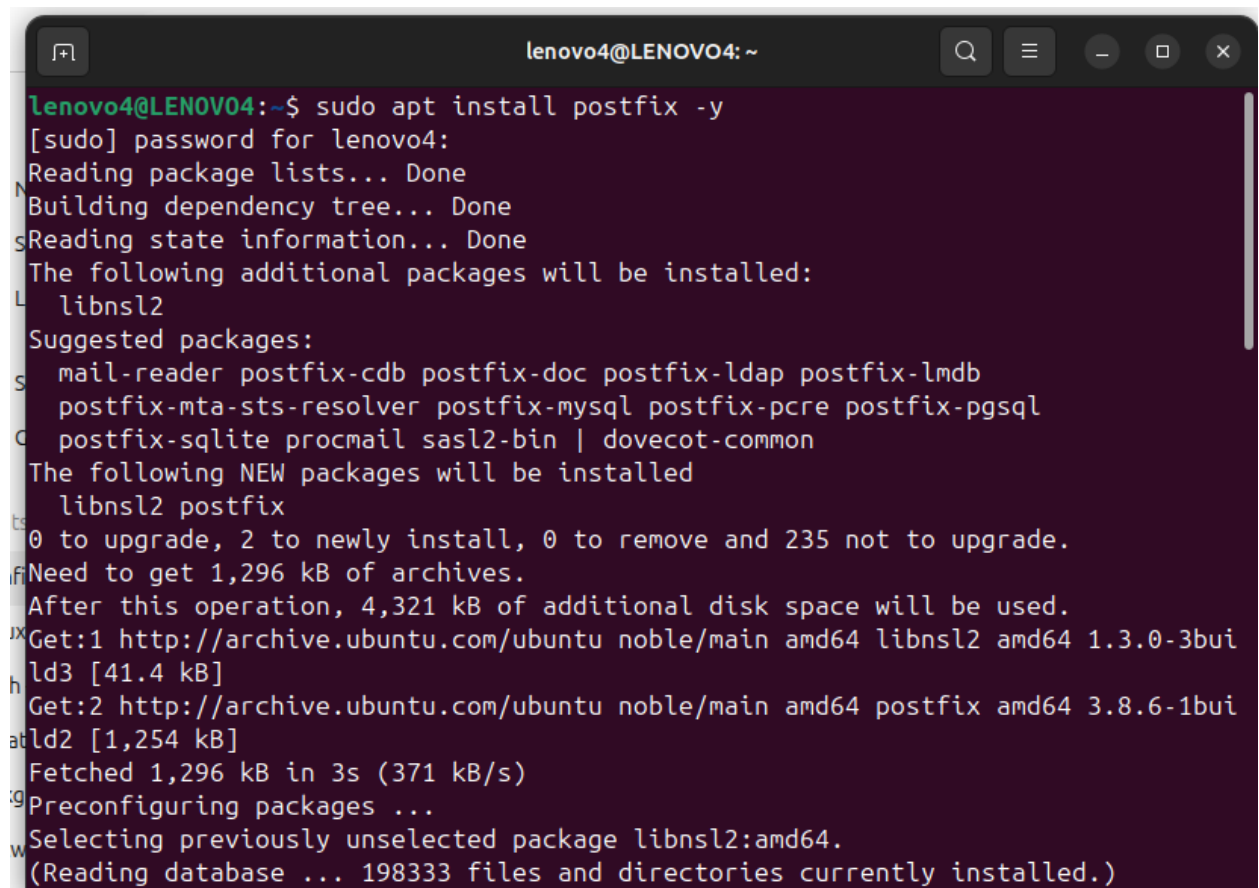


Linux Assignment

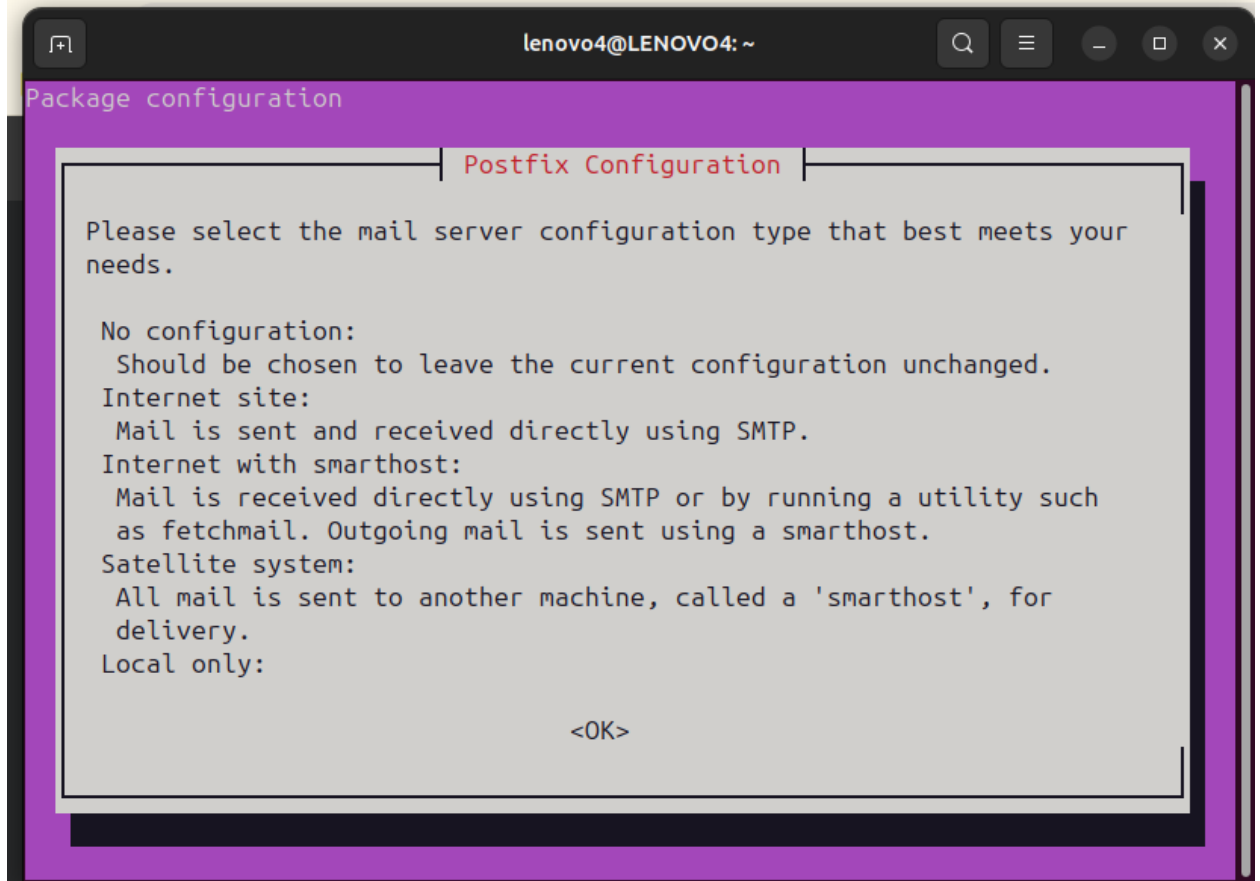
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1. Configure smtp in localhost:

- a. SMTP is a protocol used to send emails between client and servers.
 - b. Installing Postfix
 - c. Configure Postfix
 - d. Create mail directory
 - e. Restart Postfix
 - f. Testing
- a. Install Postfix



```
lenovo4@LENOVO4: ~  
lenovo4@LENOVO4:~$ sudo apt install postfix -y  
[sudo] password for lenovo4:  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  libnsl2  
Suggested packages:  
  mail-reader postfix-cdb postfix-doc postfix-ldap postfix-lmdb  
  postfix-mta-sts-resolver postfix-mysql postfix-pcre postfix-pgsql  
  postfix-sqlite procmail sasl2-bin | dovecot-common  
The following NEW packages will be installed  
  libnsl2 postfix  
0 to upgrade, 2 to newly install, 0 to remove and 235 not to upgrade.  
Need to get 1,296 kB of archives.  
After this operation, 4,321 kB of additional disk space will be used.  
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 libnsl2 amd64 1.3.0-3bui  
ld3 [41.4 kB]  
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 postfix amd64 3.8.6-1bui  
ld2 [1,254 kB]  
Fetched 1,296 kB in 3s (371 kB/s)  
Preconfiguring packages ...  
Selecting previously unselected package libnsl2:amd64.  
(Reading database ... 198333 files and directories currently installed.)
```



- b. Configure Postfix, create the mail directory

```
lenovo4@LENOVO4:~$ sudo vim /etc/postfix/main.cf
lenovo4@LENOVO4:~$ echo "localhost" | sudo tee /etc/mailname
localhost
lenovo4@LENOVO4:~$ 
lenovo4@LENOVO4:~$ mkdir -p ~/Maildir/{cur,new,tmp}
lenovo4@LENOVO4:~$ ls ~
1.txt      Documents  Music      Public     snap
apikey.txt Downloads  nohup.out  scripts    Templates
Desktop    Maildir    Pictures   shellgpt   Videos
lenovo4@LENOVO4:~$ tree ~/Maildir/
/home/lenovo4/Maildir/
├── cur
├── new
└── tmp

4 directories, 0 files
lenovo4@LENOVO4:~$
```

- c. Restart Postfix, check the status

```
lenovo4@LENOVO4:~$ sudo systemctl restart postfix
lenovo4@LENOVO4:~$ sudo systemctl enable postfix
Synchronizing state of postfix.service with SysV service script with /usr/lib/sy
stemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable postfix
lenovo4@LENOVO4:~$ sudo systemctl status postfix
● postfix.service - Postfix Mail Transport Agent
   Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; preset: >
   Active: active (exited) since Tue 2025-07-22 15:39:40 IST; 24s ago
     Docs: man:postfix(1)
    Main PID: 13162 (code=exited, status=0/SUCCESS)
      CPU: 1ms

Jul 22 15:39:40 LENOVO4 systemd[1]: Starting postfix.service - Postfix Mail Tra
Jul 22 15:39:40 LENOVO4 systemd[1]: Finished postfix.service - Postfix Mail Tra
lines 1-9/9 (END)
```

d. Install mailutils

```
lenovo4@LENOVO4:~$ sudo apt install mailutils
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  gsasl-common guile-3.0-libs libgc1 libgsasl18 libgssglue1 libmailutils9t64
  libmysqlclient21 libntlm0 libpq5 mailutils-common mysql-common
Suggested packages:
  mailutils-mh mailutils-doc
The following NEW packages will be installed:
  gsasl-common guile-3.0-libs libgc1 libgsasl18 libgssglue1 libmailutils9t64
  libmysqlclient21 libntlm0 libpq5 mailutils mailutils-common mysql-common
0 to upgrade, 12 to newly install, 0 to remove and 235 not to upgrade.
Need to get 10.3 MB of archives.
After this operation, 67.5 MB of additional disk space will be used.
```

e. Send test mail and read it

```
lenovo4@LENOVO4:~$ echo "Test email - 1" | mail -s "Sending you this test email
to verify SMTP" lenovo4@localhost
lenovo4@LENOVO4:~$ cat ~/Maildir/new/
cat: /home/lenovo4/Maildir/new/: Is a directory
lenovo4@LENOVO4:~$ cat ~/Maildir/new/*
Return-Path: <lenovo4@LENOVO4>
X-Original-To: lenovo4@localhost
Delivered-To: lenovo4@localhost
Received: by LENOVO4 (Postfix, from userid 1000)
        id F2007421759; Tue, 22 Jul 2025 15:45:28 +0530 (IST)
Subject: Sending you this test email to verify SMTP
To: <lenovo4@localhost>
User-Agent: mail (GNU Mailutils 3.17)
Date: Tue, 22 Jul 2025 15:45:28 +0530
Message-Id: <20250722101528.F2007421759@LENOVO4>
From: LENOVO4 <lenovo4@LENOVO4>

Test email - 1
lenovo4@LENOVO4:~$
```

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

- a. Use "sudo useradd username" to create user

- b. By default, except for the user we created while installing the linux no one can use sudo command.
- c. To check if the user is part of the sudo group we can use "groups username"
- d. In case if want to remove sudo privilege from user, we can use "sudo deluser username sudo"

```
test email - 1
lenovo4@LENOVO4:~$ sudo useradd devopsintern
[sudo] password for lenovo4:
Sorry, try again.
[sudo] password for lenovo4:
lenovo4@LENOVO4:~$ passwd devopsintern
passwd: You may not view or modify password information for devopsintern.
lenovo4@LENOVO4:~$ sudo passwd devopsintern
New password:
BAD PASSWORD: The password contains the user name in some form
Retype new password:
passwd: password updated successfully
lenovo4@LENOVO4:~$ groups devopsintern
devopsintern : devopsintern
lenovo4@LENOVO4:~$ su devopsintern
Password:
$ sudo ls
[sudo] password for devopsintern:
devopsintern is not in the sudoers file.
This incident has been reported to the administrator.
$ exit
lenovo4@LENOVO4:~$
```

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.
- a. Using alias, we can perform this task.
 - b. But this is temporary. To make this permanent, we have to update this to the .bashrc file.

```

lenovo4@LENOVO4:~$ alias describe="ls -l ./"
lenovo4@LENOVO4:~$ describe
total 56
-rw-rw-r-- 1 lenovo4 lenovo4  6 Jul  4 18:38 1.txt
-rw-rw-r-- 1 lenovo4 lenovo4 165 Jul 15 15:30 apikey.txt
drwxr-xr-x 11 lenovo4 lenovo4 4096 Jul 22 15:22 Desktop
drwxr-xr-x  2 lenovo4 lenovo4 4096 Apr 14 21:36 Documents
drwxr-xr-x  3 lenovo4 lenovo4 4096 Jul 22 15:06 Downloads
drwxrwxr-x  5 lenovo4 lenovo4 4096 Jul 22 15:38 Maildir
drwxr-xr-x  2 lenovo4 lenovo4 4096 Apr 14 21:36 Music
-rw----- 1 lenovo4 lenovo4   0 Jul 11 12:05 nohup.out
drwxr-xr-x  3 lenovo4 lenovo4 4096 Jul  9 16:39 Pictures
drwxr-xr-x  2 lenovo4 lenovo4 4096 Apr 14 21:36 Public
drwxrwxr-x  3 lenovo4 lenovo4 4096 Jul 17 11:18 scripts
drwxrwxr-x  3 lenovo4 lenovo4 4096 Jul 15 15:21 shellgpt
drwx----- 7 lenovo4 lenovo4 4096 Jul  8 18:08 snap
drwxr-xr-x  2 lenovo4 lenovo4 4096 Apr 14 21:36 Templates
drwxr-xr-x  2 lenovo4 lenovo4 4096 Apr 14 21:36 Videos
lenovo4@LENOVO4:~$

```

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. Compress the file using any of the available compression types.
 - b. Find the file using find/plocate.
 - c. Verify the compression type using "file" command.
 - d. Uncompress the file.

```
lenovo4@LENOV04:~/Desktop$ tar -czf research.tar.gz Training_sessions
lenovo4@LENOV04:~/Desktop$ ls -l
```

```
total 2160
-rw-rw-r-- 1 lenovo4 lenovo4 16064 Jul  8 18:23 123.txt
-rw-rw-r-- 1 lenovo4 lenovo4 1278 Jul  8 19:21 a
-rw-rw-r-- 1 lenovo4 lenovo4 1275 Jul 11 11:54 abc.txt
drwxrwxr-x 2 lenovo4 lenovo4 4096 Jul 22 16:10 Assignments
-rw-rw-r-- 1 lenovo4 lenovo4 0 Jul 11 11:54 b
-rw-rw-r-- 1 Shanmukha sudo 3094 Jul 10 15:54 cpuinfo.txt
drwxrwxrwx 3 Shanmukha Shanmukha 4096 Jul 10 14:58 dir1
drwxr-xr-x 135 lenovo4 lenovo4 12288 Jul  8 17:58 etc
-rw-rw-r-- 1 lenovo4 lenovo4 1215796 Jul  9 13:17 etc.tar.gz
-rw-rw-r-- 1 lenovo4 lenovo4 439 Jul 10 17:51 filename
-rw-rw-r-- 1 lenovo4 lenovo4 7 Jul  9 11:33 inode2.txt
-rw-rw-r-- 1 lenovo4 lenovo4 0 Jan 15 1990 linux.txt
-rwxr-xr-x 1 lenovo4 lenovo4 142314 Jul  8 17:50 ls
-rw----- 1 lenovo4 lenovo4 0 Jul 11 12:10 nohup.out
-rw-rw-r-- 1 lenovo4 lenovo4 35164 Jul 11 12:39 processes.txt
drwxrwxr-x 2 lenovo4 lenovo4 4096 Jul  8 18:22 projects
drwxrwxrwx 1 lenovo4 lenovo4 11 Jul  9 11:40 pswd -> /etc/passwd
-rw-rw-r-- 1 lenovo4 lenovo4 656851 Jul 22 16:30 research.tar.gz
-r----- 2 lenovo4 lenovo4 33298 Jul  9 11:41 run
-r----- 2 lenovo4 lenovo4 33298 Jul  9 11:41 running.txt
-rw-r--r-- 1 lenovo4 lenovo4 3881 Jul  8 19:23 sshd config
```

```
lenovo4@LENOV04:~/Desktop$ plocate research.
/home/lenovo4/Desktop/research.tar.gz
/home/lenovo4/shellgpt/gpt_cli/lib/python3.12/site-packages/material/templates/.
icons/simple/roamresearch.svg
lenovo4@LENOV04:~/Desktop$
```

```
lenovo4@LENOV04:~/Desktop$ file /home/lenovo4/Desktop/research.tar.gz
/home/lenovo4/Desktop/research.tar.gz: gzip compressed data, from Unix, original
size modulo 2^32 686080
lenovo4@LENOV04:~/Desktop$
```

```

lenovo4@LENOVO4:~/Desktop$ mkdir training
lenovo4@LENOVO4:~/Desktop$ tar -xzf /home/lenovo4/Desktop/research.tar.gz -C tra
ining
lenovo4@LENOVO4:~/Desktop$ tree training
training
├── Training_sessions
│   ├── 201812301220.45
│   ├── Certificates
│   │   └── 30ac2ef6-e5e1-4e78-ad1a-afae5c62e4f9certificate-information_security
│   └── -kalavatala_shanmukha_viswanath.pdf
├── first.txt
├── four.txt
├── Linked
│   └── Demo -> Demo
├── new.txt
├── sec.txt
└── third.txt

4 directories, 8 files
lenovo4@LENOVO4:~/Desktop$

```

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.

```

lenovo4@LENOVO4:~/Desktop/training/Training_sessions$ echo "umask 0777" >> ../.b
ashrc
lenovo4@LENOVO4:~/Desktop/training/Training_sessions$ source ../.bashrc
lenovo4@LENOVO4:~/Desktop/training/Training_sessions$ mkdir folder2
lenovo4@LENOVO4:~/Desktop/training/Training_sessions$ touch file2
lenovo4@LENOVO4:~/Desktop/training/Training_sessions$ ls -l
total 28
-rw-rw-r-- 1 lenovo4 lenovo4  0 Jul  7 18:24 201812301220.45
drwxrwxr-x 2 lenovo4 lenovo4 4096 Jul  4 11:54 Certificates
----- 1 lenovo4 lenovo4  0 Jul 22 16:49 file2
-rw-rw-r-- 1 lenovo4 lenovo4 457 Jul  4 18:37 first.txt
d----- 2 lenovo4 lenovo4 4096 Jul 22 16:49 folder2
-rw-rw-r-- 1 lenovo4 lenovo4  0 Dec 30 2018 four.txt
drwxrwxr-x 2 lenovo4 lenovo4 4096 Jul  3 14:37 Linked
-rw-rw-r-- 1 lenovo4 lenovo4 460 Jul  8 11:44 new.txt
-rw-rw-r-- 1 lenovo4 lenovo4  3 Jul  3 14:30 sec.txt
-rw-rw-r-- 1 lenovo4 lenovo4  3 Jul  3 14:31 third.txt
lenovo4@LENOVO4:~/Desktop/training/Training_sessions$

```

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.


```

Jul 22 19:03:09 LENOVO4 systemd[1]: showtime.service: Start request repeated too often>
Jul 22 19:03:09 LENOVO4 systemd[1]: showtime.service: Failed with result 'exit-code>
Jul 22 19:03:09 LENOVO4 systemd[1]: Failed to start showtime.service - Show cur>
lenovo4@LENOVO4:~$ ls -l /home/lenovo4/showtime.sh
-rw-rw-r-- 1 lenovo4 lenovo4 95 Jul 22 19:00 /home/lenovo4/showtime.sh
lenovo4@LENOVO4:~$ chmod -x showtime.sh
lenovo4@LENOVO4:~$ ls -l /home/lenovo4/showtime.sh
-rw-rw-r-- 1 lenovo4 lenovo4 95 Jul 22 19:00 /home/lenovo4/showtime.sh
lenovo4@LENOVO4:~$ chmod +x showtime.sh
lenovo4@LENOVO4:~$ ls -l /home/lenovo4/showtime.sh
-rwxrwxr-x 1 lenovo4 lenovo4 95 Jul 22 19:00 /home/lenovo4/showtime.sh
lenovo4@LENOVO4:~$ sudo vim /etc/systemd/system/showtime.service
lenovo4@LENOVO4:~$ sudo systemctl daemon-reload
Unknown command verb 'daemon-reload', did you mean 'daemon-reload'?
lenovo4@LENOVO4:~$ sudo systemctl daemon-reload
lenovo4@LENOVO4:~$ sudo systemctl restart showtime.service
lenovo4@LENOVO4:~$ sudo systemctl enable showtime.service
lenovo4@LENOVO4:~$ sudo systemctl status showtime.service
● showtime.service - Show current time every minute
   Loaded: loaded (/etc/systemd/system/showtime.service; enabled; preset: ena>
   Active: active (running) since Tue 2025-07-22 19:07:13 IST; 35s ago
     Main PID: 17675 (showtime.sh)
        Tasks: 2 (limit: 9057)
       Memory: 608.0K (peak: 904.0K)
          CPU: 15ms
       CGroup: /system.slice/showtime.service
               └─17675 /bin/bash /home/lenovo4/showtime.sh
                 └─17677 sleep 60

Jul 22 19:07:13 LENOVO4 systemd[1]: Started showtime.service - Show current tim>
Jul 22 19:07:13 LENOVO4 showtime.sh[17675]: /home/lenovo4/showtime.sh: line 5: >
lenovo4@LENOVO4:~$ tail showtime.log
lenovo4@LENOVO4:~$ vim showtime.sh
lenovo4@LENOVO4:~$ sudo systemctl restart showtime.service
lenovo4@LENOVO4:~$ ls
1.txt      Desktop  Downloads  Music      Pictures  scripts  showtime.sh  Templates
apikey.txt Documents Maildir    nohup.out  Public    shellgpt  snap         Videos
lenovo4@LENOVO4:~$ pwd
/home/lenovo4
lenovo4@LENOVO4:~$ cat showtime.log
cat: showtime.log: No such file or directory
lenovo4@LENOVO4:~$ vim showtime.sh
lenovo4@LENOVO4:~$ chmod +x /home/lenovo4/showtime.sh
lenovo4@LENOVO4:~$ sudo systemctl restart showtime.service
lenovo4@LENOVO4:~$ ps aux | grep showtime.sh
lenovo4      18170  0.1  0.0   9940  3376 ?        Ss   19:21   0:00 /bin/bash /home/lenovo4/showtime.sh
lenovo4      18175  0.0  0.0   9284  2232 pts/0    S+   19:21   0:00 grep --color=auto showtime.sh
lenovo4@LENOVO4:~$ sudo find / -name showtime.log 2>/dev/null
/home/lenovo4/showtime.log
lenovo4@LENOVO4:~$ ls
1.txt      Desktop  Downloads  Music      Pictures  scripts  showtime.log  snap         Videos
apikey.txt Documents Maildir    nohup.out  Public    shellgpt  showtime.sh   Templates
lenovo4@LENOVO4:~$ tail showtime.log
Current time: Tue Jul 22 07:21:09 PM IST 2025
Current time: Tue Jul 22 07:22:09 PM IST 2025
lenovo4@LENOVO4:~$

```