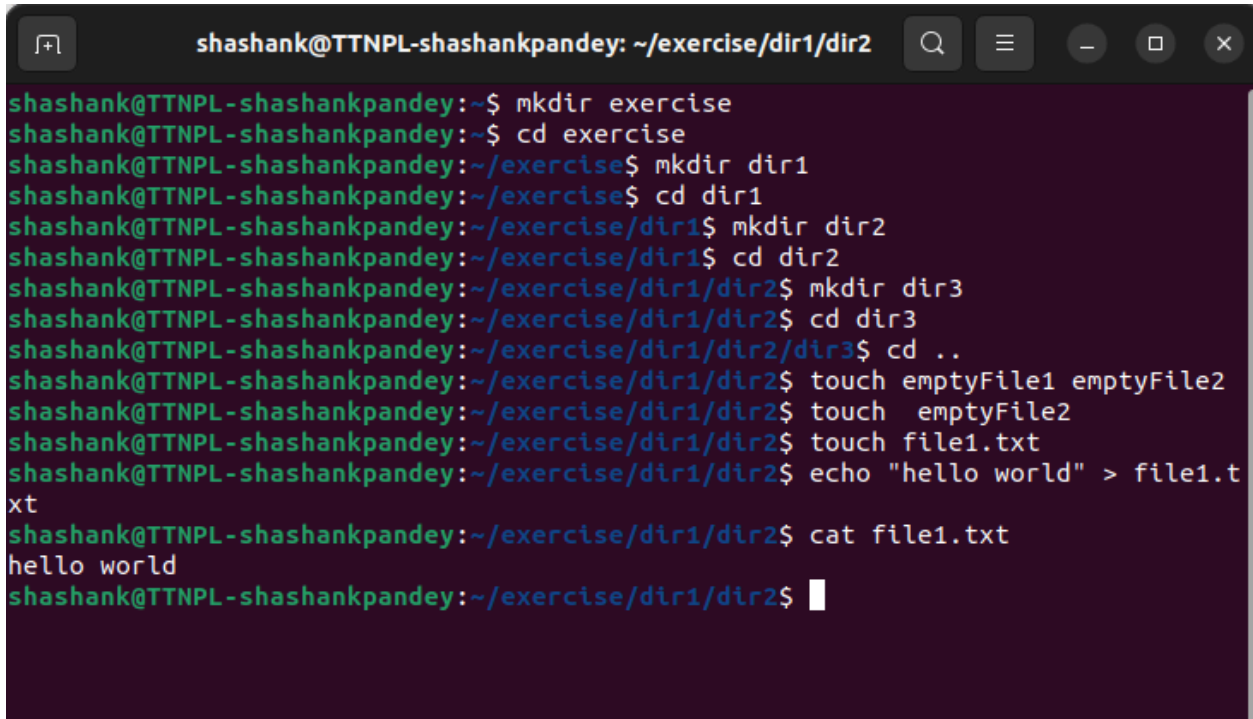


Ans 1,2,3.

To change the timestamp *touch emptyFile2*

A terminal window with a dark background and light green text. The window title is "shashank@TTNPL-shashankpandey: ~/exercise/dir1/dir2". The terminal shows a series of commands and their outputs: creating a directory 'exercise', navigating into it, creating 'dir1', 'dir2', and 'dir3', touching 'emptyFile1' and 'emptyFile2', creating 'file1.txt', and writing 'hello world' to it. The final prompt is at the directory ~/exercise/dir1/dir2.

```
shashank@TTNPL-shashankpandey:~$ mkdir exercise
shashank@TTNPL-shashankpandey:~$ cd exercise
shashank@TTNPL-shashankpandey:~/exercise$ mkdir dir1
shashank@TTNPL-shashankpandey:~/exercise$ cd dir1
shashank@TTNPL-shashankpandey:~/exercise/dir1$ mkdir dir2
shashank@TTNPL-shashankpandey:~/exercise/dir1$ cd dir2
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ mkdir dir3
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ cd dir3
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2/dir3$ cd ..
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ touch emptyFile2
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ touch file1.txt
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ echo "hello world" > file1.txt
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$ cat file1.txt
hello world
shashank@TTNPL-shashankpandey:~/exercise/dir1/dir2$
```

Ans 4.

Find a "passwd" file using find command inside /etc.

copy this files as passwd_copy

rename this file as passwd_backup.

```

shashank@TTNPL-shashankpandey:~$ find /etc -name "passwd"
find: '/etc/ssl/private': Permission denied
find: '/etc/cups/ssl': Permission denied
/etc/passwd
/etc/pam.d/passwd
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/ma.d/ENDP_AM_1070LYNX': Permission denied
find: '/etc/ma.d/ENDP_FW_1070LYNX': Permission denied
find: '/etc/ma.d/ENDP_GS_1070LYNX': Permission denied
shashank@TTNPL-shashankpandey:~$ cd
shashank@TTNPL-shashankpandey:~$
shashank@TTNPL-shashankpandey:~$ sudo find /etc -name "passwd"
[sudo] password for shashank:
/etc/passwd
/etc/pam.d/passwd
shashank@TTNPL-shashankpandey:~$ cp /etc/passwd /etc/passwd_copy
cp: cannot create regular file '/etc/passwd_copy': Permission denied
shashank@TTNPL-shashankpandey:~$ sudo cp /etc/passwd /etc/passwd_copy
shashank@TTNPL-shashankpandey:~$ sudo mc /etc/passwd_copy /etc/passwd_backup
sudo: mc: command not found
shashank@TTNPL-shashankpandey:~$ sudo mv /etc/passwd_copy /etc/passwd_backup
shashank@TTNPL-shashankpandey:~$

```

Ans 5

```

shashank@TTNPL-shashankpandey:~$
shashank@TTNPL-shashankpandey:~$ less /etc/passwd_backup
shashank@TTNPL-shashankpandey:~$ more /etc/passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:,:/nonexistent:/usr/sbin/nologin

```

```

shashank@TTNPL-shashankpandey:~$ cat /etc/passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
cvslog:x:104:111:/:home/cvslog:/usr/sbin/nologin

```

```

Setting up binutils (2.38-4ubuntu2.6) ...
Processing triggers for libc-bin (2.35-0ubuntu3.8) ...
Processing triggers for man-db (2.10.2-1) ...
shashank@TTNPL-shashankpandey:~$ strings /etc/passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin

```

Ans 6, 7

```

/home/shashank
shashank@TTNPL-shashankpandey:~$ grep -c "/bin/false" /etc/passwd_backup
6
shashank@TTNPL-shashankpandey:~$ head -n 5 /etc/passwd_backup > output
shashank@TTNPL-shashankpandey:~$ cat output
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
shashank@TTNPL-shashankpandey:~$

```

Get the line 6-10 from above file (took help from internet)

```
shashank@TTNPL-shashankpandey:~$ sed -n '6,10p' /etc/passwd_backup >> output
shashank@TTNPL-shashankpandey:~$ cat output
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

Ans 8

Create a "test" user, create its password and find out its uid and gid.

```
shashank@TTNPL-shashankpandey:~$ sudo useradd test5
shashank@TTNPL-shashankpandey:~$ sudo passwd qwert
passwd: user 'qwert' does not exist
shashank@TTNPL-shashankpandey:~$ sudo passwd test5
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
shashank@TTNPL-shashankpandey:~$ id test5
uid=1010(test5) gid=1011(test5) groups=1011(test5)
shashank@TTNPL-shashankpandey:~$
```

Ans 9 touch command can be used to update the timestamp as well

```
shashank@TTNPL-shashankpandey:~$ cd exercise/dir1/dir2
shashank@TTNPL-shashankpandey:dir2$ touch dir2/emptyFile1 dir2/emptyFile2
touch: cannot touch 'dir2/emptyFile1': No such file or directory
touch: cannot touch 'dir2/emptyFile2': No such file or directory
shashank@TTNPL-shashankpandey:dir2$ touch emptyFile1 emptyFile2
shashank@TTNPL-shashankpandey:dir2$
```

Ans 10. [Need to understand this question concept properly]

```
shashank@TTNPL-shashankpandey:~ $ sudo chmod 777 output
[sudo] password for shashank:
shashank@TTNPL-shashankpandey:~ $ ls -l output
-rwxrwxrwx 1 shashank shashank 424 Jan 22 23:05 output
shashank@TTNPL-shashankpandey:~ $ sudo usermod -aG shashank test5
shashank@TTNPL-shashankpandey:~ $ id test5
uid=1010(test5) gid=1011(test5) groups=1011(test5),1000(shashank)
shashank@TTNPL-shashankpandey:~ $ su -test5
su: invalid option -- 't'
Try 'su --help' for more information.
shashank@TTNPL-shashankpandey:~ $ su - test5
Password:
su: warning: cannot change directory to /home/test5: No such file or directory
$ echo 'changed' > output
$ exit
shashank@TTNPL-shashankpandey:~ $ sudo chown shashank output
shashank@TTNPL-shashankpandey:~ $ sudo chmod o-w output
shashank@TTNPL-shashankpandey:~ $ sudo chown test output
shashank@TTNPL-shashankpandey:~ $ su -test5
su: invalid option -- 't'
Try 'su --help' for more information.
shashank@TTNPL-shashankpandey:~ $ su - test5
Password:
su: warning: cannot change directory to /home/test5: No such file or directory
$ vi output
$ exit
shashank@TTNPL-shashankpandey:~ $ sudo chown shashank output
shashank@TTNPL-shashankpandey:~ $
```

Ans 11

```
shashank@TTNPL-shashankpandey:~$ alias shashank='touch /tmp/aliastesting'
shashank@TTNPL-shashankpandey:~$
```


Ans 12 [searched from internet]

```
password:
shashank@TTNPL-shashankpandey:~$ if [ '$USER' == 'test' ]; then
> clear
> echo "Welcome"
> fi
shashank@TTNPL-shashankpandey:~$
```

Ans 13

```
shashank@TTNPL-shashankpandey:~$ sudo apt install zip
[sudo] password for shashank:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
zip is already the newest version (3.0-12build2).
0 upgraded, 0 newly installed, 0 to remove and 6 not upgraded.
shashank@TTNPL-shashankpandey:~$
```

Ans 14

```
shashank@TTNPL-shashankpandey:~$
shashank@TTNPL-shashankpandey:~$ tar -cvf compress.tar output passwd_backup
output
tar: passwd_backup: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
shashank@TTNPL-shashankpandey:~$ tar -cvf compress.tar output password_backup
output
tar: password_backup: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
shashank@TTNPL-shashankpandey:~$ tar -tvf compress.tar
-rw-rw-r-- shashank/shashank 424 2025-01-22 17:23 output
shashank@TTNPL-shashankpandey:~$
```

Ans 15

scp files_backup.tar test@192.168.0.168: /home/test5/

And 16 [Need remote access- will take access and add new screenshot]

```
shashank@TTNPL-shashankpandey:~$ ssh aryan@10.1.210.277
ssh: Could not resolve hostname 10.1.210.277: Name or service not known
shashank@TTNPL-shashankpandey:~$ tar -xvf /compress.tar
tar: /compress.tar: Cannot open: No such file or directory
tar: Error is not recoverable: exiting now
shashank@TTNPL-shashankpandey:~$
```

Ans 17

```
shashank@TTNPL-shashankpandey:~$ wget https://images.app.goo.gl/SoGXoyGyyUZxG5Nh7
--2025-01-22 23:55:00-- https://images.app.goo.gl/SoGXoyGyyUZxG5Nh7
Resolving images.app.goo.gl (images.app.goo.gl)... 172.217.27.174, 2404:6800:4002:81d::200e, 2404:6800:4002:820
::200e, ...
Connecting to images.app.goo.gl (images.app.goo.gl)|172.217.27.174|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://www.google.com/imgres?imgurl=https://images.pexels.com/photos/674010/pexels-photo-674010.jpeg
?cs%3Dsrgb%26dl%3Dpexels-anjana-c-169994-674010.jpg%26fm%3Djpg&tbnid=sKMM4eBjWSQEBM&vet=1&imgrefurl=https://www
.pexels.com/search/beautiful/&docid=B51x0PBR9KNzVM&w=2976&h=3968&itg=1&source=sh/x/im/m1/1&kgs=44d732ab1bb6adcb
[following]
--2025-01-22 23:55:02-- https://www.google.com/imgres?imgurl=https://images.pexels.com/photos/674010/pexels-ph
oto-674010.jpeg?cs%3Dsrgb%26dl%3Dpexels-anjana-c-169994-674010.jpg%26fm%3Djpg&tbnid=sKMM4eBjWSQEBM&vet=1&imgref
url=https://www.pexels.com/search/beautiful/&docid=B51x0PBR9KNzVM&w=2976&h=3968&itg=1&source=sh/x/im/m1/1&kgs=4
4d732ab1bb6adcb
Resolving www.google.com (www.google.com)... 216.58.196.100, 142.250.206.164, 142.250.77.196, ...
Connecting to www.google.com (www.google.com)|216.58.196.100|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'SoGXoyGyyUZxG5Nh7'

SoGXoyGyyUZxG5Nh7          [ <=>          ] 36.12K  ---KB/s   in 0.007s

2025-01-22 23:55:02 (5.20 MB/s) - 'SoGXoyGyyUZxG5Nh7' saved [36990]

shashank@TTNPL-shashankpandey:~$ mv SoGXoyGyyUZxG5Nh7.jpg/home/testUser/
```

Ans 18

```

shashank@TTNPL-shashankpandey:~$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILES (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
  -a, --all                do not ignore entries starting with .
  -A, --almost-all        do not list implied . and ..
      --author             with -l, print the author of each file
  -b, --escape             print C-style escapes for nongraphic characters
      --block-size=SIZE   with -l, scale sizes by SIZE when printing them;
                          e.g., '--block-size=M'; see SIZE format below
  -B, --ignore-backups     do not list implied entries ending with ~
  -c                       with -lt: sort by, and show, ctime (time of last
                          modification of file status information);
                          with -l: show ctime and sort by name;
                          otherwise: sort by ctime, newest first
  -C                       list entries by columns
      --color[=WHEN]      colorize the output; WHEN can be 'always' (default
                          if omitted), 'auto', or 'never'; more info below
  -d, --directory          list directories themselves, not their contents
  -D, --dired              generate output designed for Emacs' dired mode
  -f                       do not sort, enable -aU, disable -ls --color
  -F, --classify           append indicator (one of */=>@|) to entries
      --file-type          likewise, except do not append '*'
      --format=WORD       across -x, commas -m, horizontal -x, long -l,
                          single-column -1, verbose -l, vertical -C
      --full-time          like -l --time-style=full-iso
  -g                       like -l, but do not list owner
      --group-directories-first
                          group directories before files;
                          can be augmented with a --sort option, but any
                          use of --sort=none (-U) disables grouping
  -G, --no-group           in a long listing, don't print group names
  -h, --human-readable    with -l and -s, print sizes like 1K 234M 2G etc.
      --si                likewise, but use powers of 1000 not 1024
  -H, --dereference-command-line
                          follow symbolic links listed on the command line

```

Ans 19 [took help from internet]

```

shashank@TTNPL-shashankpandey:~$ ln -s /etc/service /tmp/ports-infor
shashank@TTNPL-shashankpandey:~$ ln -s /etc/service /tmp/ports-info
shashank@TTNPL-shashankpandey:~$

```

Ans 20. To check I will use **sudo find xyz**, here 'find' will search in entire system but it is less accurate and it will more time as compared to 'locate'

Ans 21


```

shashank@TTNPL-shashankpandey:~$ grep "cron" /var/log/syslog | tail -n 10
Jan 22 22:33:52 TTNPL-shashankpandey systemd[1]: Started Run anacron jobs.
Jan 22 22:33:52 TTNPL-shashankpandey anacron[6007]: Anacron 2.3 started on 2025-01-22
Jan 22 22:33:52 TTNPL-shashankpandey anacron[6007]: Normal exit (0 jobs run)
Jan 22 22:33:52 TTNPL-shashankpandey systemd[1]: anacron.service: Deactivated successfully.
Jan 22 23:17:01 TTNPL-shashankpandey CRON[6797]: (root) CMD ( cd / && run-parts --report /etc/cron.hourly)
Jan 22 23:30:01 TTNPL-shashankpandey CRON[7809]: (root) CMD ([ -x /etc/init.d/anacron ] && if [ ! -d /run/systemd/system ]; then /usr/sbin/invoke-rc.d anacron start >/dev/null; fi)
Jan 22 23:32:30 TTNPL-shashankpandey systemd[1]: Started Run anacron jobs.
Jan 22 23:32:30 TTNPL-shashankpandey anacron[7854]: Anacron 2.3 started on 2025-01-22
Jan 22 23:32:30 TTNPL-shashankpandey anacron[7854]: Normal exit (0 jobs run)
Jan 22 23:32:30 TTNPL-shashankpandey systemd[1]: anacron.service: Deactivated successfully.
shashank@TTNPL-shashankpandey:~$ grep "error" /var/log/syslog | head -n 5
Jan 22 00:49:37 TTNPL-shashankpandey kernel: [ 28.622020] ACPI Error: Aborting method \_SB.IETM._OSC due to previous error (AE_NOT_FOUND) (20230628/psparse-529)
Jan 22 00:49:37 TTNPL-shashankpandey gnome-session-binary[1041]: Glib-GIO-CRITICAL: g_bus_get_sync: assertion 'error == NULL || *error == NULL' failed
Jan 22 00:49:37 TTNPL-shashankpandey gnome-session-binary[1041]: Glib-GIO-CRITICAL: g_bus_get_sync: assertion 'error == NULL || *error == NULL' failed
Jan 22 00:49:37 TTNPL-shashankpandey gnome-session-binary[1041]: Glib-GIO-CRITICAL: g_bus_get_sync: assertion 'error == NULL || *error == NULL' failed
Jan 22 00:49:37 TTNPL-shashankpandey gnome-session-binary[1041]: Glib-GIO-CRITICAL: g_bus_get_sync: assertion 'error == NULL || *error == NULL' failed
shashank@TTNPL-shashankpandey:~$ grep "ssh" /var/log/syslog | tail -n 20 > ssh_errors.log
shashank@TTNPL-shashankpandey:~$ cat ssh_errors.log
Jan 22 14:33:52 TTNPL-shashankpandey systemd[992]: Listening on GnuPG cryptographic agent (ssh-agent emulation).
Jan 22 14:34:24 TTNPL-shashankpandey systemd[2215]: Listening on GnuPG cryptographic agent (ssh-agent emulation).
Jan 22 14:34:25 TTNPL-shashankpandey sh[2378]: dbus-update-activation-environment: setting SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
Jan 22 14:34:25 TTNPL-shashankpandey gnome-keyring-secrets.desktop[2402]: SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
Jan 22 14:34:25 TTNPL-shashankpandey gnome-keyring-pkcs11.desktop[2403]: SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
Jan 22 14:34:25 TTNPL-shashankpandey gnome-keyring-ssh.desktop[2404]: SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
Jan 22 14:34:25 TTNPL-shashankpandey systemd[2215]: app-gnome-gnome\x2dkeyring\x2dssh-2400.scope: Couldn't move process 2400 to requested cgroup '/user.slice/user-1000.slice/user@1000.service/app.slice/app-gnome-gnome\x2dkeyring\x2dssh-2400.scope': No such process
Jan 22 14:34:25 TTNPL-shashankpandey systemd[2215]: app-gnome-gnome\x2dkeyring\x2dssh-2400.scope: Failed to add PIDs to scope's control group: No such process
Jan 22 14:34:25 TTNPL-shashankpandey systemd[2215]: app-gnome-gnome\x2dkeyring\x2dssh-2400.scope: Failed with result 'resources'.
Jan 22 14:34:43 TTNPL-shashankpandey systemd[992]: Closed GnuPG cryptographic agent (ssh-agent emulation).
Jan 22 22:04:58 TTNPL-shashankpandey systemd[970]: Listening on GnuPG cryptographic agent (ssh-agent emulation)

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