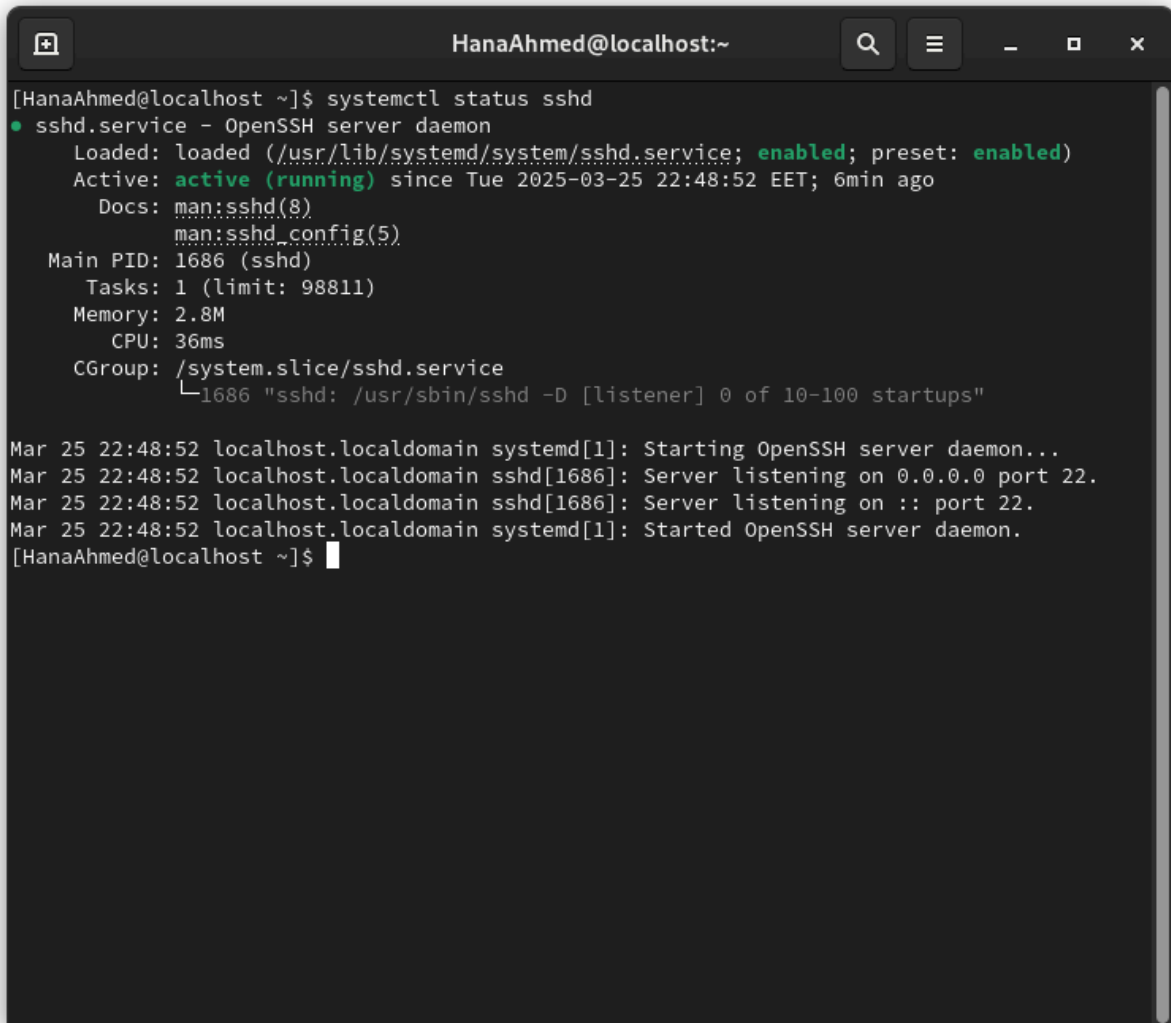Q1. use systemctl to View the status of sshd services

```
[HanaAhmed@localhost ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
     Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-03-25 22:48:52 EET; 6min ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 1686 (sshd)
      Tasks: 1 (limit: 98811)
     Memory: 2.8M
        CPU: 36ms
     CGroup: /system.slice/sshd.service
             └─1686 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 22:48:52 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on 0.0.0.0 port 22.
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on :: port 22.
Mar 25 22:48:52 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[HanaAhmed@localhost ~]$
```

Q2. use systemctl to view the status of all the system services

```
[HanaAhmed@localhost ~]$ systemctl list-units --type=service
  UNIT                                                                    LOAD   ACTIVE SUB      DESCRIPTIO>
  accounts-daemon.service                                                 loaded active running Accounts S>
  alsa-state.service                                                      loaded active running Manage Sou>
  atd.service                                                             loaded active running Deferred e>
  auditd.service                                                          loaded active running Security A>
  avahi-daemon.service                                                    loaded active running Avahi mDNS>
  bluetooth.service                                                       loaded active running Bluetooth >
  chronyd.service                                                         loaded active running NTP client>
  colord.service                                                          loaded active running Manage, In>
  containerd.service                                                      loaded active running containerd>
  crond.service                                                           loaded active running Command Sc>
  cups.service                                                            loaded active running CUPS Sched>
  dbus-:1.1-org.fedoraproject.SetroubleshootPrivileged@0.service loaded active running dbus-:1.1->
  dbus-broker.service                                                     loaded active running D-Bus Syst>
  docker.service                                                          loaded active running Docker App>
  dracut-shutdown.service                                                 loaded active exited  Restore /r>
  firewalld.service                                                       loaded active running firewalld >
  flatpak-system-helper.service                                           loaded active running flatpak sy>
  fwupd.service                                                           loaded active running Firmware u>
  gdm.service                                                             loaded active running GNOME Disp>
  httpd.service                                                           loaded active running The Apache>
  irqbalance.service                                                      loaded active running irqbalance>
  kdump.service                                                           loaded active exited  Crash reco>
  kmod-static-nodes.service                                               loaded active exited  Create Lis>
  libstoragemgmt.service                                                  loaded active running libstorage>
  lvm2-monitor.service                                                    loaded active exited  Monitoring>
  mcelog.service                                                          loaded active running Machine Ch>
  ModemManager.service                                                    loaded active running Modem Mana>
  mongod.service                                                          loaded active running MongoDB Da>
  NetworkManager-wait-online.service                                      loaded active exited  Network Ma>
  NetworkManager.service                                                  loaded active running Network Ma>
```

Q3.
a- Send mail to the root user and Verify that you have received this mail
[HanaAhmed@localhost ~]$ echo "trial email to be sent to root" | mail -s "trial mail" root
Mail
b- Use systemctl utility to stop postfix/sendmail service
Systemctl stop postfix
c- Send mail again to the root user and Verify that you have received this mail
[HanaAhmed@localhost ~]$ echo "trial email 2 to be sent to root" | mail -s "trial mail2" root
Mail

d- Use systemctl utility to start postfix/sendmail service
Systemctl start postfix
e- Verify that you have received this mail
[HanaAhmed@localhost ~]$ sudo mail -u root
s-nail version v14.9.22. Type `?' for help
/var/spool/mail/root: 2 messages 2 new
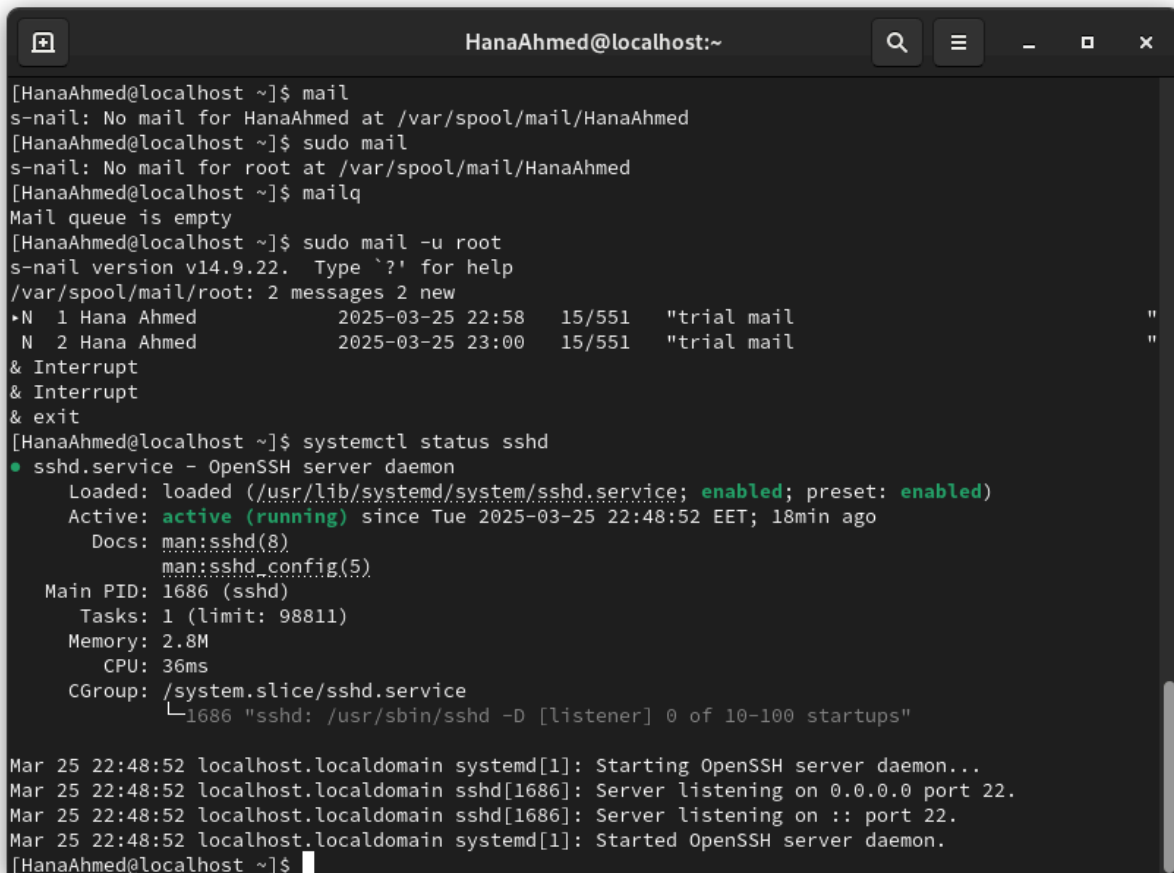▶N 1 Hana Ahmed   2025-03-25 22:58   15/551   "trial mail   "

N 2 Hana Ahmed   2025-03-25 23:00   15/551   "trial mail

Q4. switch to the multi-user target manually without rebooting
systemctl isolate multi-user.target

Q5. display default target
systemctl get-default

Q6. change the default target back to multi-user.target and reboot
systemctl set-default multi-user.target
reboot

Q7. set the default systemd target back to graphical.target
systemctl set-default graphical.target

--- -
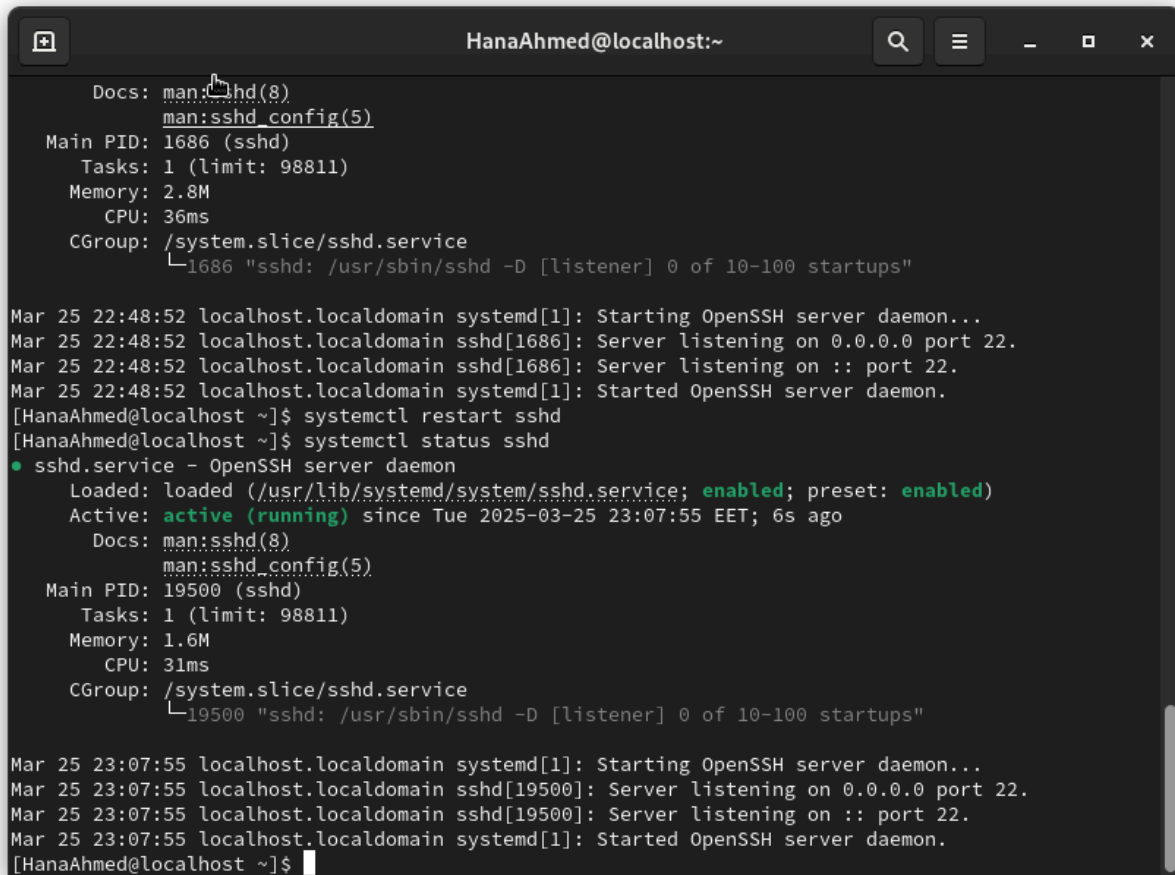
Q8.Display the status of sshd service, note the PID of the daemon.

```
[HanaAhmed@localhost ~]$ mail
s-nail: No mail for HanaAhmed at /var/spool/mail/HanaAhmed
[HanaAhmed@localhost ~]$ sudo mail
s-nail: No mail for root at /var/spool/mail/HanaAhmed
[HanaAhmed@localhost ~]$ mailq
Mail queue is empty
[HanaAhmed@localhost ~]$ sudo mail -u root
s-nail version v14.9.22.  Type `?' for help
/var/spool/mail/root: 2 messages 2 new
▸N  1 Hana Ahmed               2025-03-25 22:58   15/551    "trial mail                              "
 N  2 Hana Ahmed               2025-03-25 23:00   15/551    "trial mail                              "
& Interrupt
& Interrupt
& exit
[HanaAhmed@localhost ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
     Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-03-25 22:48:52 EET; 18min ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 1686 (sshd)
      Tasks: 1 (limit: 98811)
     Memory: 2.8M
        CPU: 36ms
     CGroup: /system.slice/sshd.service
             └─1686 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 22:48:52 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on 0.0.0.0 port 22.
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on :: port 22.
Mar 25 22:48:52 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[HanaAhmed@localhost ~]$
```
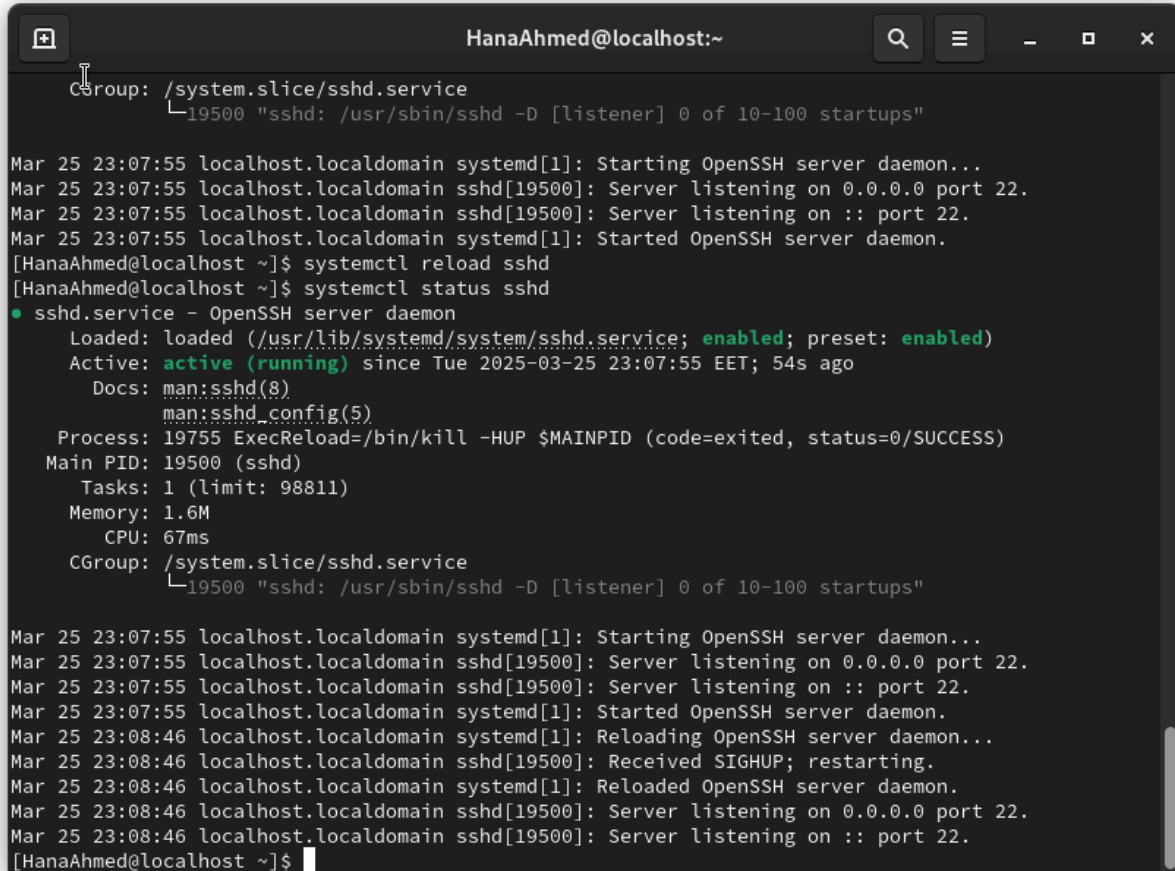

Q9. Restart the sshd service and view the status, The PID of the daemon has changed

```
           Docs: man:sshd(8)
                 man:sshd_config(5)
       Main PID: 1686 (sshd)
          Tasks: 1 (limit: 98811)
         Memory: 2.8M
            CPU: 36ms
         CGroup: /system.slice/sshd.service
                 └─1686 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 22:48:52 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on 0.0.0.0 port 22.
Mar 25 22:48:52 localhost.localdomain sshd[1686]: Server listening on :: port 22.
Mar 25 22:48:52 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[HanaAhmed@localhost ~]$ systemctl restart sshd
[HanaAhmed@localhost ~]$ systemctl status sshd
● sshd.service - OpenSSH server daemon
     Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-03-25 23:07:55 EET; 6s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 19500 (sshd)
      Tasks: 1 (limit: 98811)
     Memory: 1.6M
        CPU: 31ms
     CGroup: /system.slice/sshd.service
             └─19500 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 23:07:55 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Mar 25 23:07:55 localhost.localdomain sshd[19500]: Server listening on 0.0.0.0 port 22.
Mar 25 23:07:55 localhost.localdomain sshd[19500]: Server listening on :: port 22.
Mar 25 23:07:55 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[HanaAhmed@localhost ~]$
```

Q10. Reload the sshd service and view the status, The PID of the daemon has not changed

and connection has not be interrupted

Q11. Verify that the chronyd service is running

Q12.
a- Determine if the chronyd service is enabled to start at the system boot

```
                              HanaAhmed@localhost:~                    Q  ≡  _  □  ×

    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: enabled)
    Active: active (running) since Tue 2025-03-25 22:48:51 EET; 20min ago
      Docs: man:chronyd(8)
            man:chrony.conf(5)
   Process: 1007 ExecStart=/usr/sbin/chronyd $OPTIONS (code=exited, status=0/SUCCESS)
  Main PID: 1066 (chronyd)
     Tasks: 1 (limit: 98811)
    Memory: 4.1M
       CPU: 130ms
    CGroup: /system.slice/chronyd.service
            └─1066 /usr/sbin/chronyd -F 2

Mar 25 22:48:50 localhost chronyd[1066]: chronyd version 4.6.1 starting (+CMDMON +NTP +REFCLOCK +>
Mar 25 22:48:50 localhost chronyd[1066]: Loaded 0 symmetric keys
Mar 25 22:48:50 localhost chronyd[1066]: Using right/UTC timezone to obtain leap second data
Mar 25 22:48:50 localhost chronyd[1066]: Frequency -9.045 +/- 0.271 ppm read from /var/lib/chrony>
Mar 25 22:48:50 localhost chronyd[1066]: Loaded seccomp filter (level 2)
Mar 25 22:48:51 localhost systemd[1]: Started NTP client/server.
Mar 25 22:49:11 localhost.localdomain chronyd[1066]: Selected source 196.49.100.57 (2.centos.pool>
Mar 25 22:49:11 localhost.localdomain chronyd[1066]: System clock TAI offset set to 37 seconds
Mar 25 22:49:12 localhost.localdomain chronyd[1066]: Selected source 196.10.55.57 (2.centos.pool.>
Mar 25 23:04:16 localhost.localdomain chronyd[1066]: Selected source 196.10.52.57 (2.centos.pool.>

[HanaAhmed@localhost ~]$ systemctl is-enabled chronyd
enabled
[HanaAhmed@localhost ~]$
```

b- Reboot the system, then view the status of the chronyd service

reboot
systemctl status chronyd

Q13.
a- Disable the chronyd service so that it doesn't start at system boot, then view the status
of the service

systemctl disable chronyd
systemctl status chronyd

b- Reboot the system, then view the status of the chronyd service

reboot
systemctl status chronyd

Q14. disblay all Static Sevices

systemctl list-unit-files --type=service --state=static

--- --

Q15. What difference Between enable,disable,static,mask Service
systemctl enable service_name: Enables the specified service to start automatically at system boot.
systemctl disable service_name: Enables the specified service to stop automatically at system boot.
Static service is not enabled but can be started by dependencies
Masking a service makes it permanently unusable unless we unmask it.

--- --

Q16. Display all logs from the current boot
sudo journalctl -b

--- --

Q17. View logs for the sshd service
sudo journalctl -u sshd

--- --

Q18. Follow (live-tail) new log entries
journalctl -f

--- --

Q19. Show logs from the last 30 minutes

--- --

Q20. List all running services

```
[HanaAhmed@localhost ~]$ systemctl list-units --type=service --state=running
  UNIT                                                                    LOAD   ACTIVE SUB     DESCRIPTIO>
    accounts-daemon.service                                               loaded active running Accounts S>
    alsa-state.service                                                    loaded active running Manage Sou>
    atd.service                                                           loaded active running Deferred e>
    auditd.service                                                        loaded active running Security A>
    avahi-daemon.service                                                  loaded active running Avahi mDNS>
    bluetooth.service                                                     loaded active running Bluetooth >
    chronyd.service                                                       loaded active running NTP client>
    colord.service                                                        loaded active running Manage, In>
    containerd.service                                                    loaded active running containerd>
    crond.service                                                         loaded active running Command Sc>
    cups.service                                                          loaded active running CUPS Sched>
    dbus-:1.1-org.fedoraproject.SetroubleshootPrivileged@0.service        loaded active running dbus-:1.1->
    dbus-broker.service                                                   loaded active running D-Bus Syst>
    docker.service                                                        loaded active running Docker App>
    firewalld.service                                                     loaded active running firewalld >
    fwupd.service                                                         loaded active running Firmware u>
    gdm.service                                                           loaded active running GNOME Disp>
    httpd.service                                                         loaded active running The Apache>
    irqbalance.service                                                    loaded active running irqbalance>
    libstoragemgmt.service                                                loaded active running libstorage>
    mcelog.service                                                        loaded active running Machine Ch>
    ModemManager.service                                                  loaded active running Modem Mana>
    mongod.service                                                        loaded active running MongoDB Da>
    NetworkManager.service                                                loaded active running Network Ma>
```

-- --

Q21. Create Customer Service

mkdir -p ~/.test
touch ~/.test/first.sh
chmod u+x ~/.test/first.sh

nano ~/.test/first.sh

#! /usr/bin/bash
/home/HanaAhmed/.test/first.sh

typeset -i x=0
while true;
do
    echo "Test script $x"
    date >> ~/.test/output
    ((x++))
    sleep 10
done

sudo nano /etc/systemd/system/my_first_service.service

```
[Unit]
Description=My first Script Service
After=network.target

[Service]
ExecStart=/home/HanaAhmed/.test/first.sh
Restart=always
User=HanaAhmed
Group=HanaAhmed

[Install]
WantedBy=multi-user.target
```

sudo systemctl daemon-reload

sudo systemctl enable my_first_service.service
sudo systemctl start my_first_service.service

sudo systemctl status my_first_service.service

tail -f ~/.test/output

--- -