



CONESTOGA

Connect Life and Learning

Student Name:	Aagam Sanjay Shah
Deliverable:	Practical Assignment2
Course Name:	NTWK8141-24S-Sec3-Linux Server

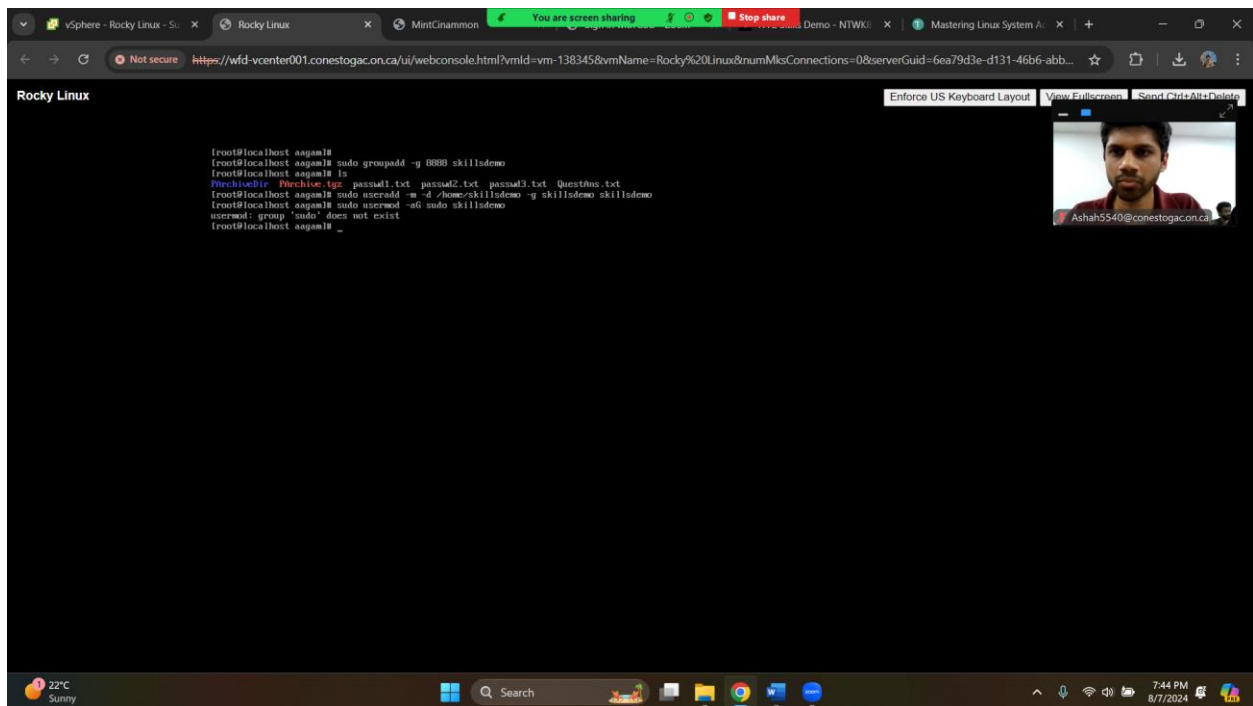
Date Assigned:	29/05/2024
Date Due:	30/05/2024
Rules:	<ul style="list-style-type: none">• Individual.• Cheating is not allowed.• Plagiarism counts as cheating!• That FAILURE to submit work in the course can result in a grade of 'F' or 'I' for failure to complete the course!

PA2 Skills Demo - Section 3 - Wednesday August 7, 2024

Instructor: Jason Paul

1.

- On your Linux Mint GUI VM, log in as root.
- Create a group called "skillsdemo" with a GID of 8888.
- Create a new user called "skillsdemo" who is a member of this group. Ensure this user has a proper home directory at /home/skillsdemo created automatically.
- Add the newly created "skillsdemo" user to the "sudo" group.



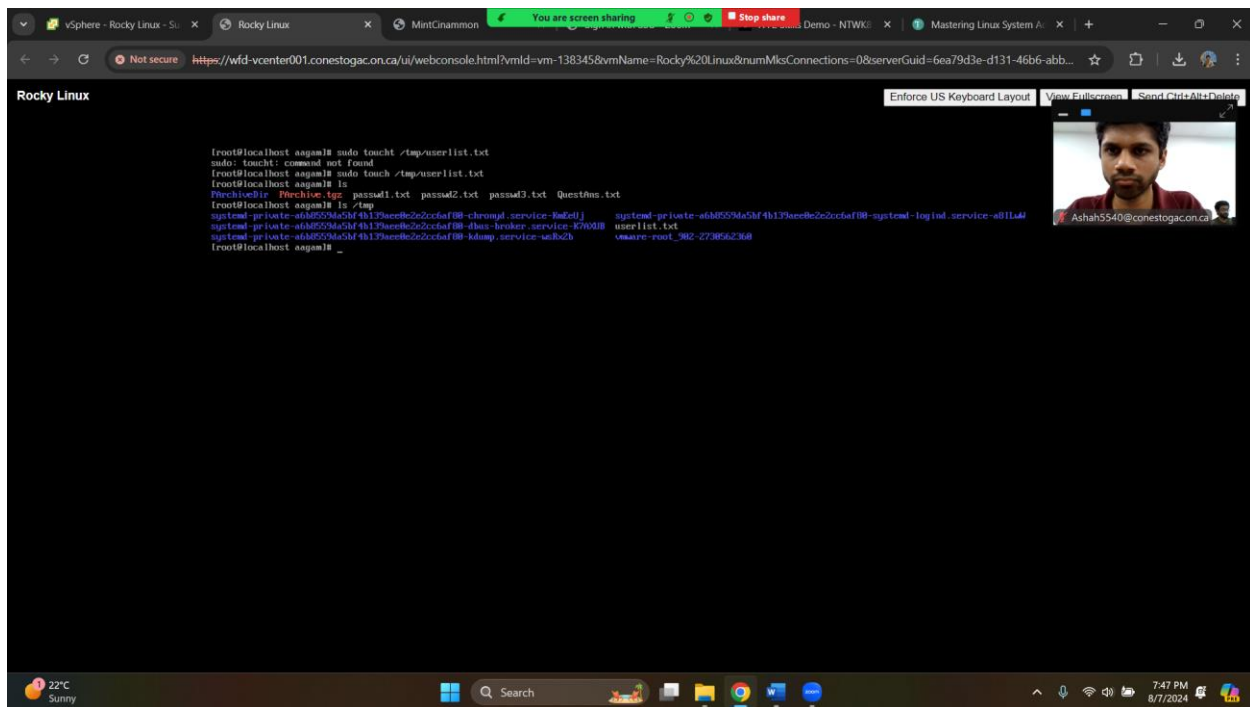
The screenshot shows a web browser window displaying a web console for a Rocky Linux VM. The terminal output shows the following commands and results:

```
root@localhost asgani#
root@localhost asgani# sudo groupadd -g 8888 skillsdemo
root@localhost asgani# ls
bin chroot bin chroot: tgz passwd1.txt passwd2.txt passwd3.txt Qeiosbin.txt
root@localhost asgani# sudo useradd -s /bin/bash -m -d /home/skillsdemo -g skillsdemo skillsdemo
root@localhost asgani# sudo usermod -s /bin/bash skillsdemo
usermod: group 'sudo' does not exist
root@localhost asgani# _
```

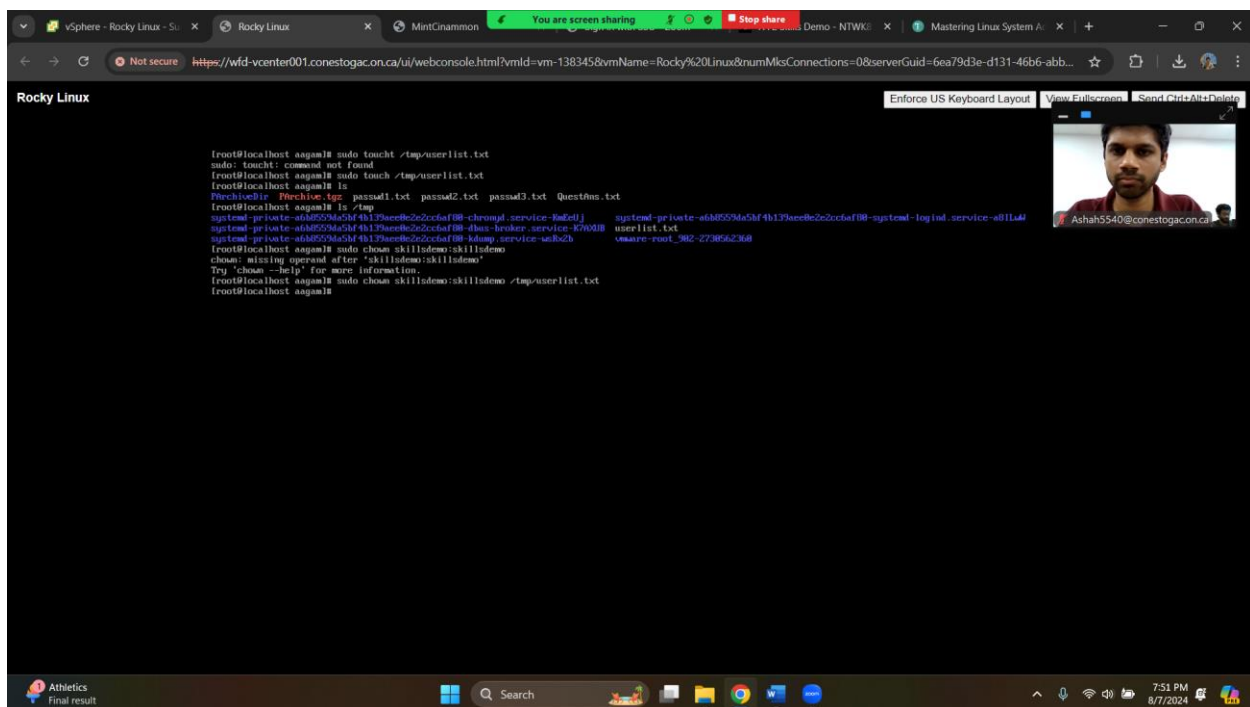
The browser window also shows a video feed of the instructor, Ashah5540@conestogac.on.ca, in the top right corner. The browser address bar shows the URL: <https://wld-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-138345&vmName=Rocky%20Linux&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abb...>

2.

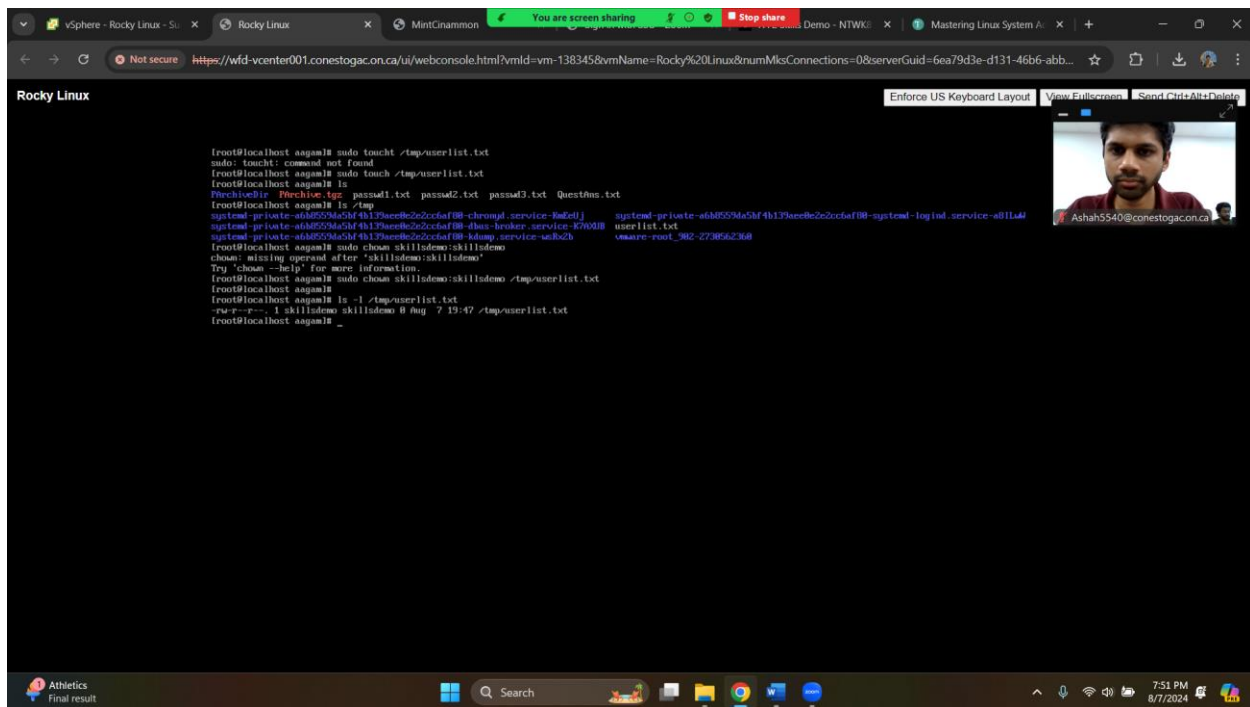
- As root, in your /tmp directory, create a file called "userlist.txt".



- Run a command to assign the user and group ownership of this file to your "skillsdemo" user and group.



- List the files and show this file has the correct ownership settings.

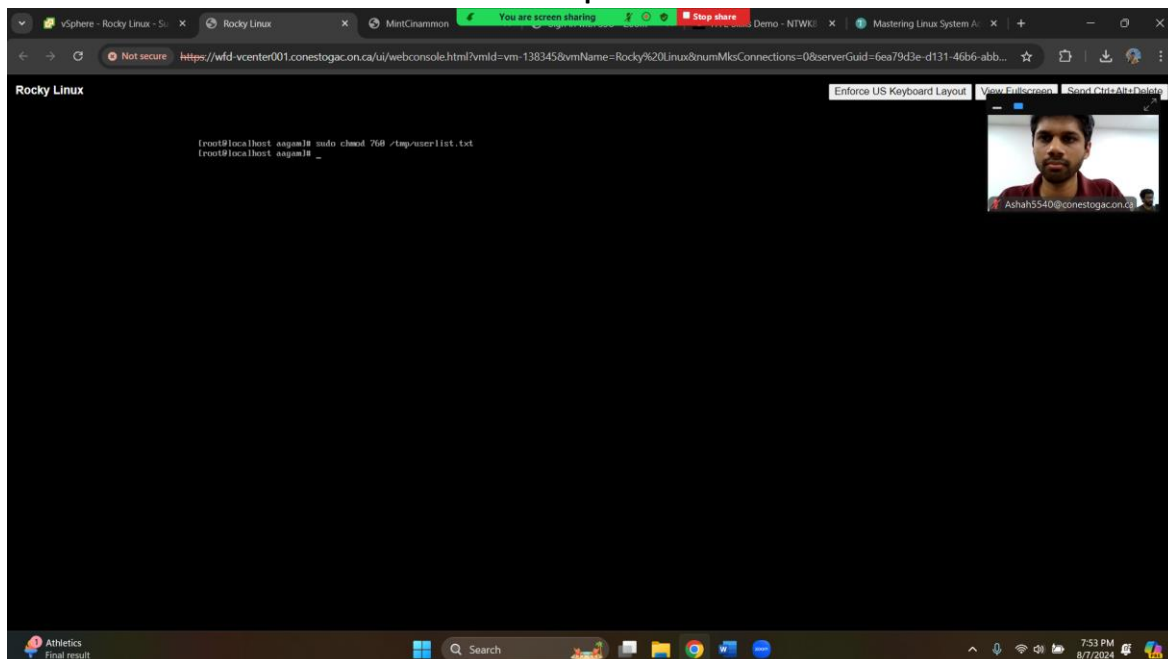


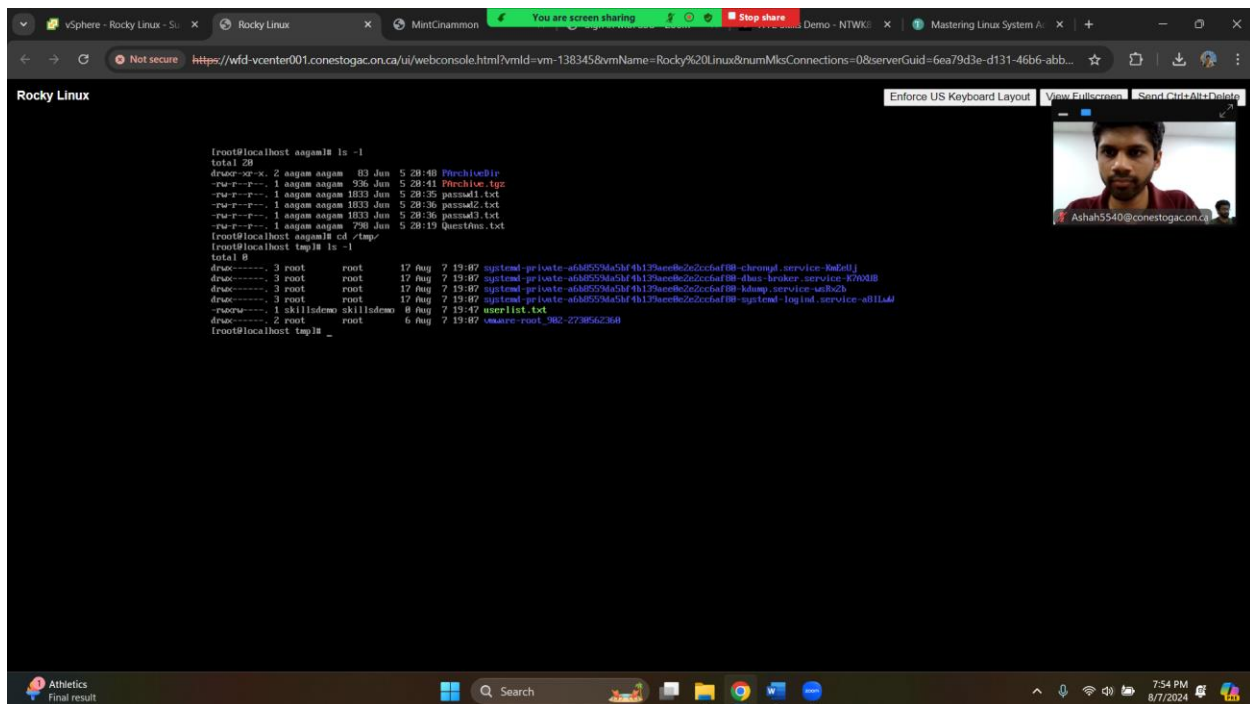
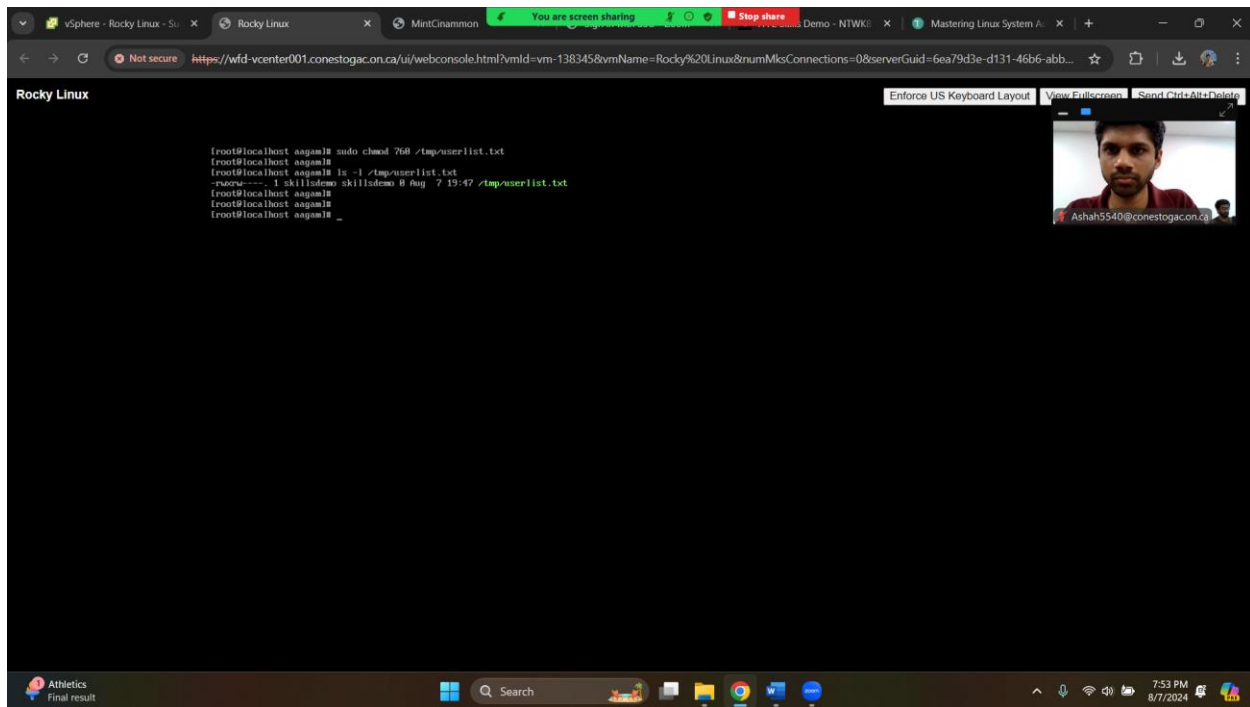
3.

- As root, using octal values, change the file permissions on this file to:

- Allow the owning user to have full access
- The owning group to have read/write access
- Others to have no access.

- List the files and show this file has the correct permissions.





4.

- Ensure that you have a "skillsdemo" user on your Rocky Linux CLI server that you can log in as. You may need to create this.


```
Rocky Linux

[root@localhost tmp]# id skilldemo
uid=1001(skilldemo) gid=8888(skilldemo) groups=8888(skilldemo),8889(sudo)
[root@localhost tmp]#
[root@localhost tmp]# sudo dnf install -y openssh-server
Last metadata expiration check: 0:38:37 ago on Wed 07 Aug 2024 07:19:17 PM EDT.
Package openssh-server-8.7p1-30.el9_4.4.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@localhost tmp]# sudo systemctl enable sshd
[root@localhost tmp]# sudo systemctl start sshd
[root@localhost tmp]# sudo systemctl status sshd
* sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-08-07 19:07:06 EDT; 51min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
    Main PID: 307 (sshd)
      Tasks: 1 (limit: 100456)
     Memory: 2.5M
        CPU: 1ms
     Group: /system.slice/sshd.service
    CGroup: /system.slice/sshd.service
            └─307 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

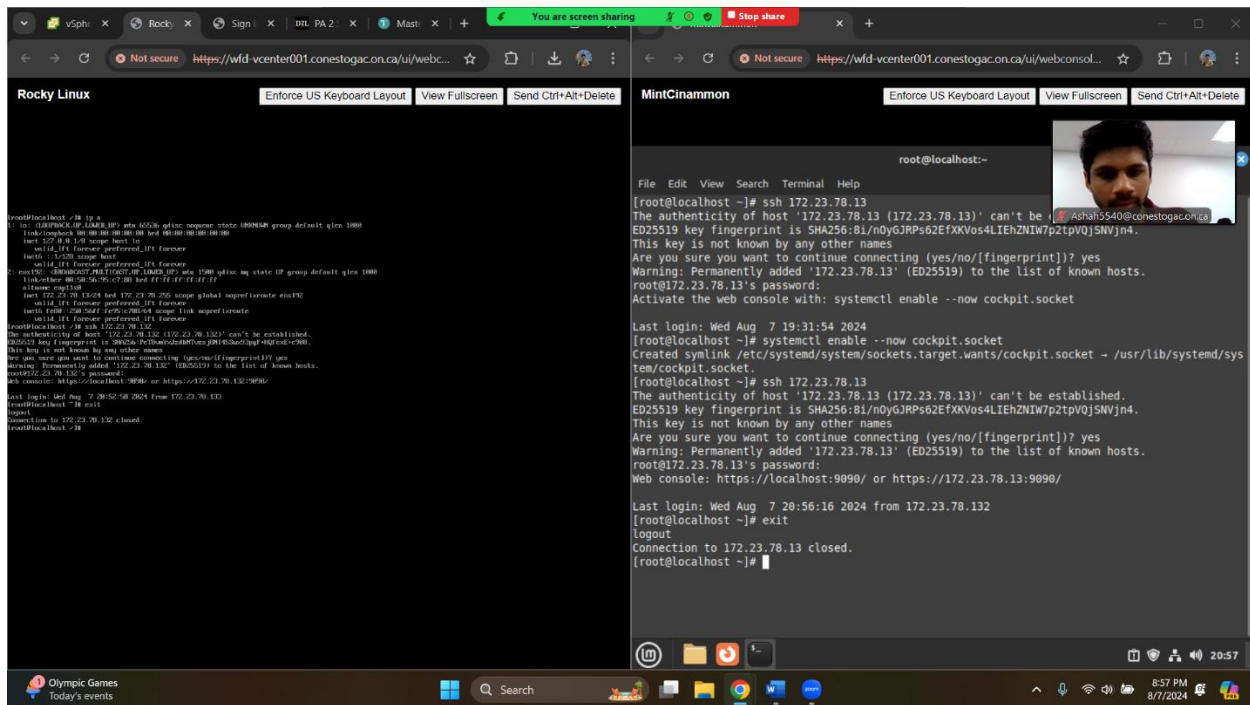
Aug 07 19:07:06 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Aug 07 19:07:06 localhost.localdomain sshd[307]: Server listening on 0.0.0.0 port 22.
Aug 07 19:07:06 localhost.localdomain sshd[307]: Server listening on :: port 22.
Aug 07 19:07:06 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
[root@localhost tmp]#
[root@localhost tmp]# sudo firewall-cmd --permanent --add-service=ssh
Warning: SELinux state is unknown:
success
[root@localhost tmp]#
```

- Adjust any firewall rules as necessary to allow connection from the Linux Mint GUI machine to the Rocky Linux CLI server via SSH.

```
Rocky Linux

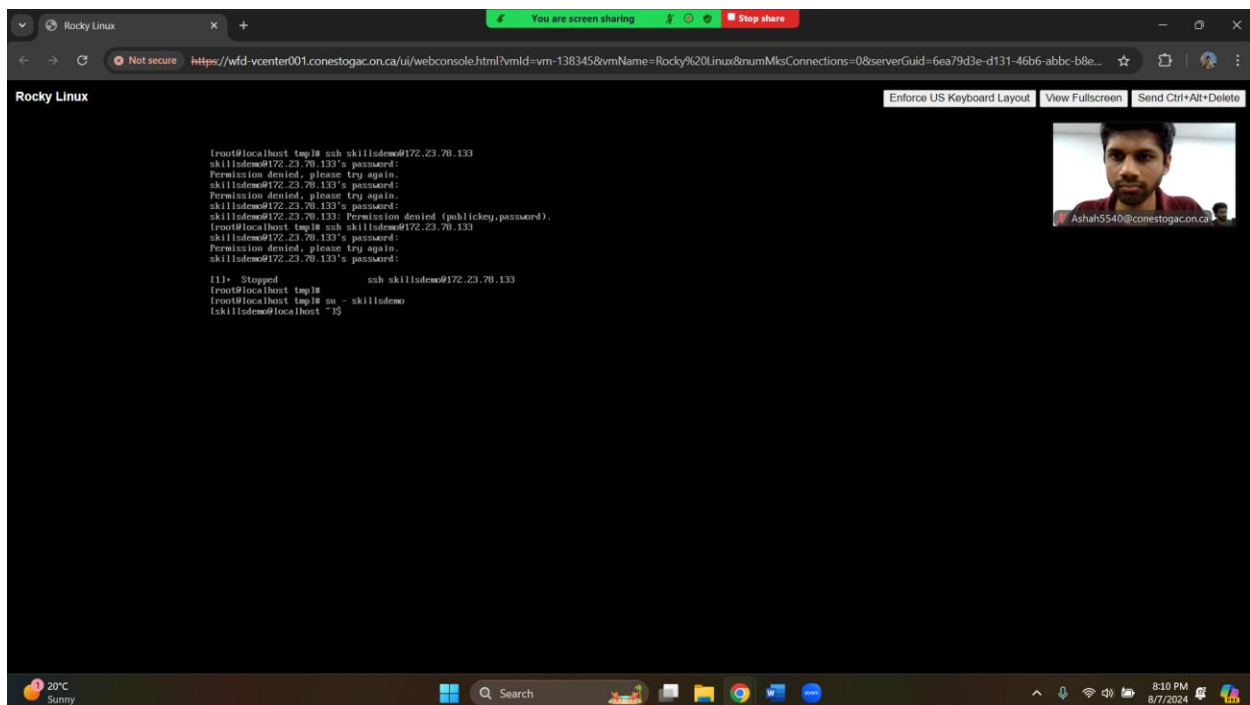
[root@localhost tmp]# sudo firewall-cmd --reload
success
[root@localhost tmp]# sudo firewall-cmd --reload
success
[root@localhost tmp]#
```

- Ensure that you are able to SSH from your Linux Mint GUI machine to your Rocky Linux CLI server with the "skillsdemo" user.



5.

- On your Linux Mint GUI machine, in a terminal, switch to your "skillsdemo" user.



- As this user, run a command to generate an SSH keypair (public/private):

- Using an RSA key type

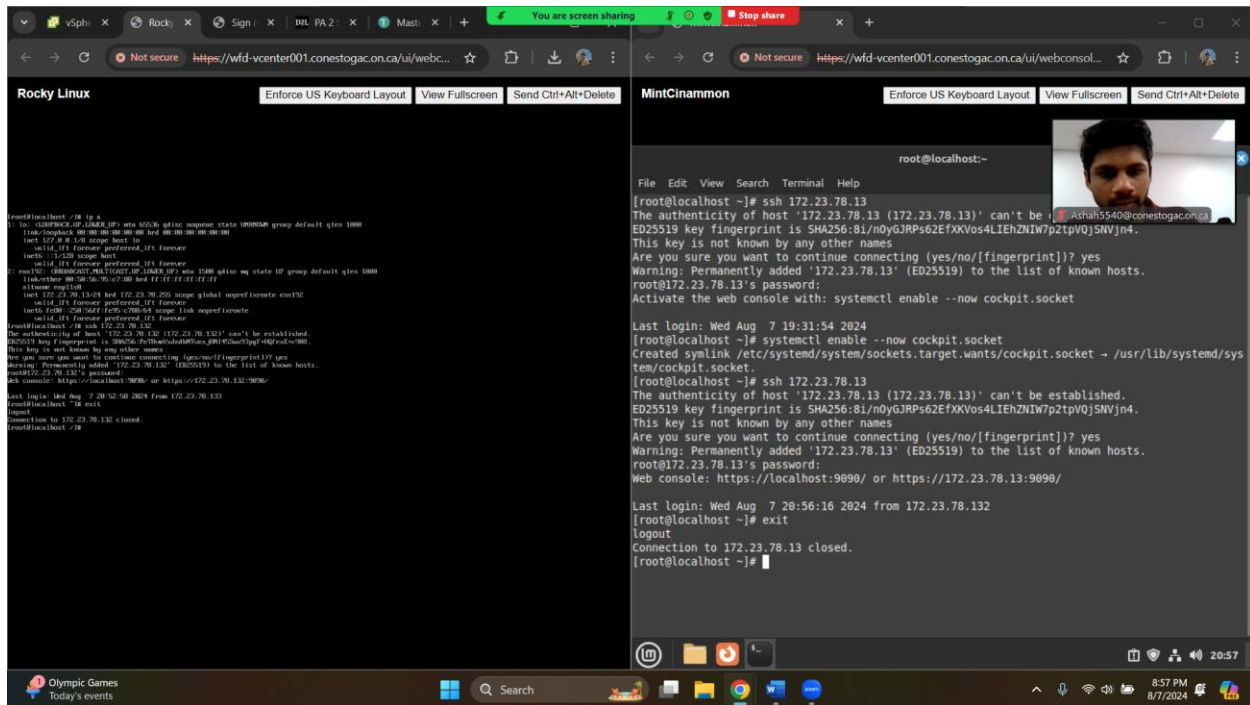
- Storing the keys in the .ssh folder in the user's home directory. Use a relative filepath from the user's home directory.

- Naming the keys "skillsdemokey".

6.

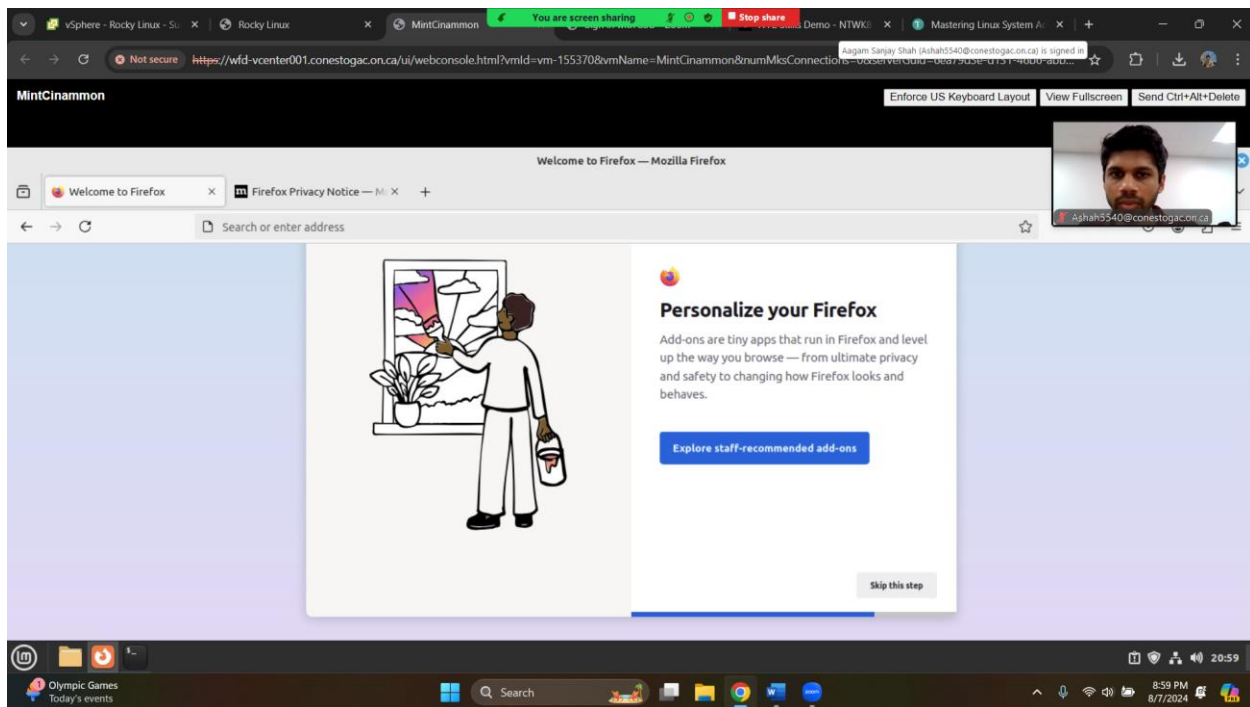
- As the "skillsdemo" user, run a command to send your generated SSH public key to the Rocky Linux CLI server.

- Demonstrate logging into the Rocky Linux CLI server with that SSH key and no password.



7.

- In your Linux Mint GUI, open a Firefox web browser window. If it is not installed, install Firefox.



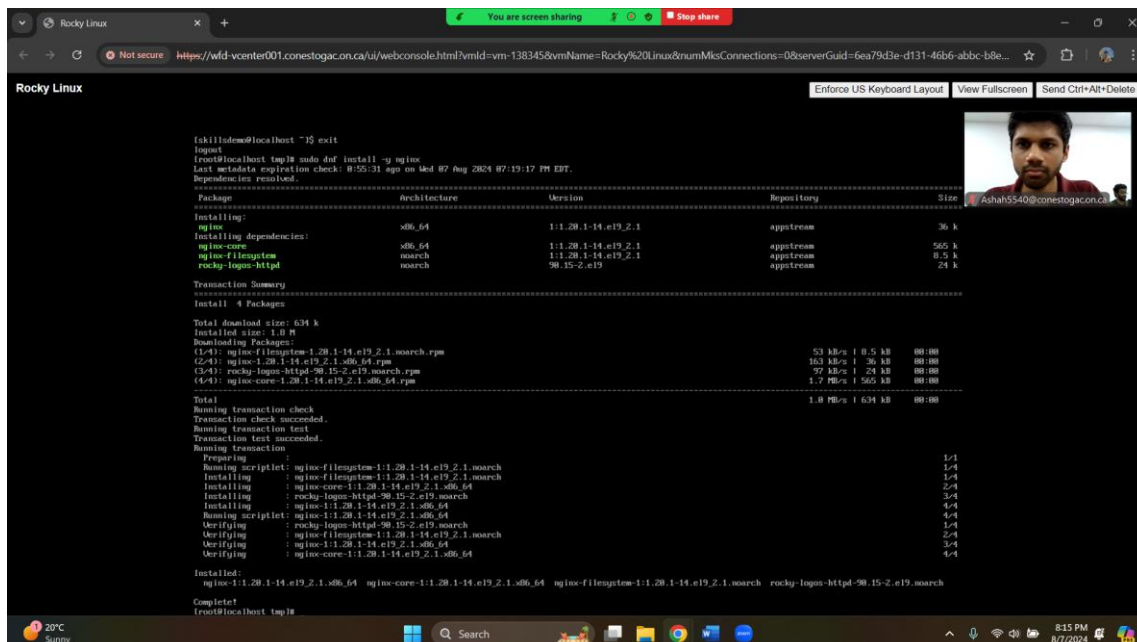
- In your terminal window, execute a command that will unconditionally terminate the Firefox browser process by name.

ps au

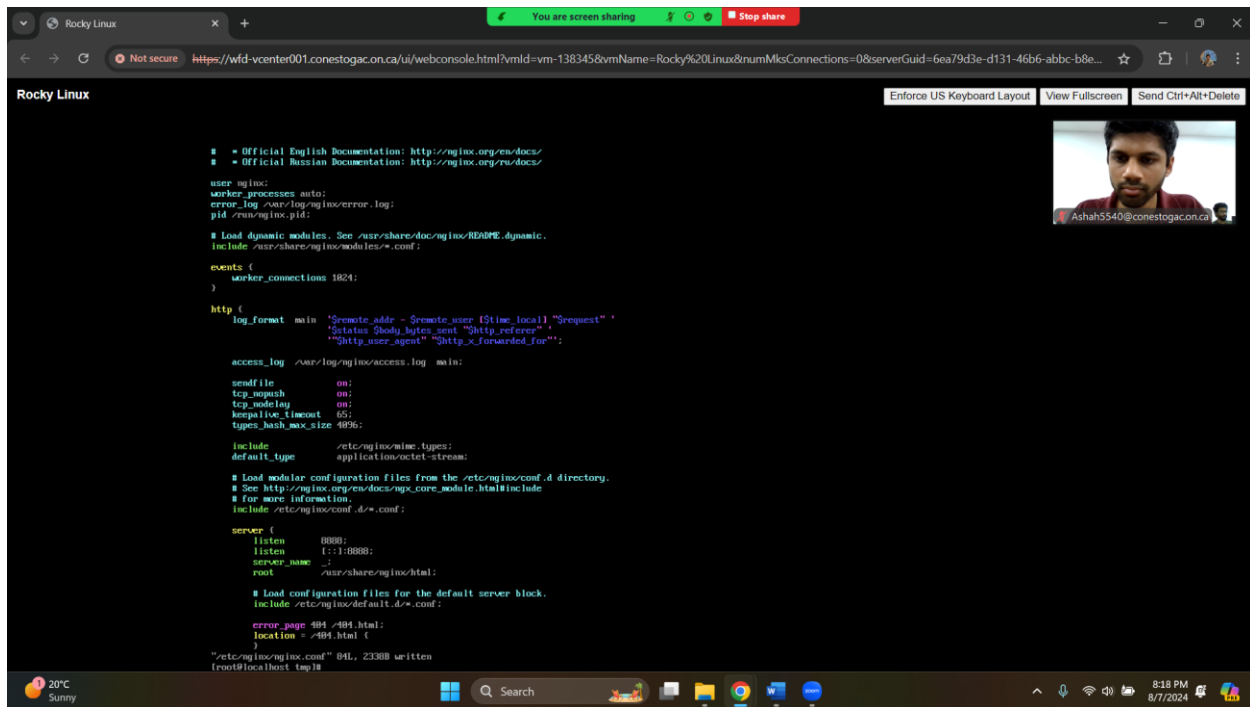
Kill -Firefox

8.

- On the Rocky Linux CLI server, install the nginx web server.



- Configure it to run on port 8888.



The screenshot shows a terminal window titled "Rocky Linux" with a dark background. The terminal displays the configuration of Nginx. The configuration includes the following lines:

```
# Official English Documentation: http://nginx.org/en/docs/
# Official Russian Documentation: http://nginx.org/ru/docs/

user nginx;
worker_processes auto;
error_log /var/log/nginx/error.log;
pid /run/nginx.pid;

# Load dynamic modules. See /usr/share/doc/nginx/README.dynamic.
include /usr/share/nginx/modules/*.conf;

events {
    worker_connections 1024;
}

http {
    log_format main '$remote_addr - $remote_user [$time_local] "$request" '
        '$status $body_bytes_sent "$http_referer" '
        '"$http_user_agent" "$http_x_forwarded_for"';

    access_log /var/log/nginx/access.log main;

    sendfile on;
    tcp_nopush on;
    tcp_nodelay on;
    keepalive_timeout 65;
    types_hash_max_size 4096;

    include /etc/nginx/mime.types;
    default_type application/octet-stream;

    # Load modular configuration files from the /etc/nginx/conf.d directory.
    # See http://nginx.org/en/docs/nginx_core_module.html#include
    # for more information.
    include /etc/nginx/conf.d/*.conf;

    server {
        listen 8888;
        listen [::]:8888;
        server_name _;
        root /usr/share/nginx/html;

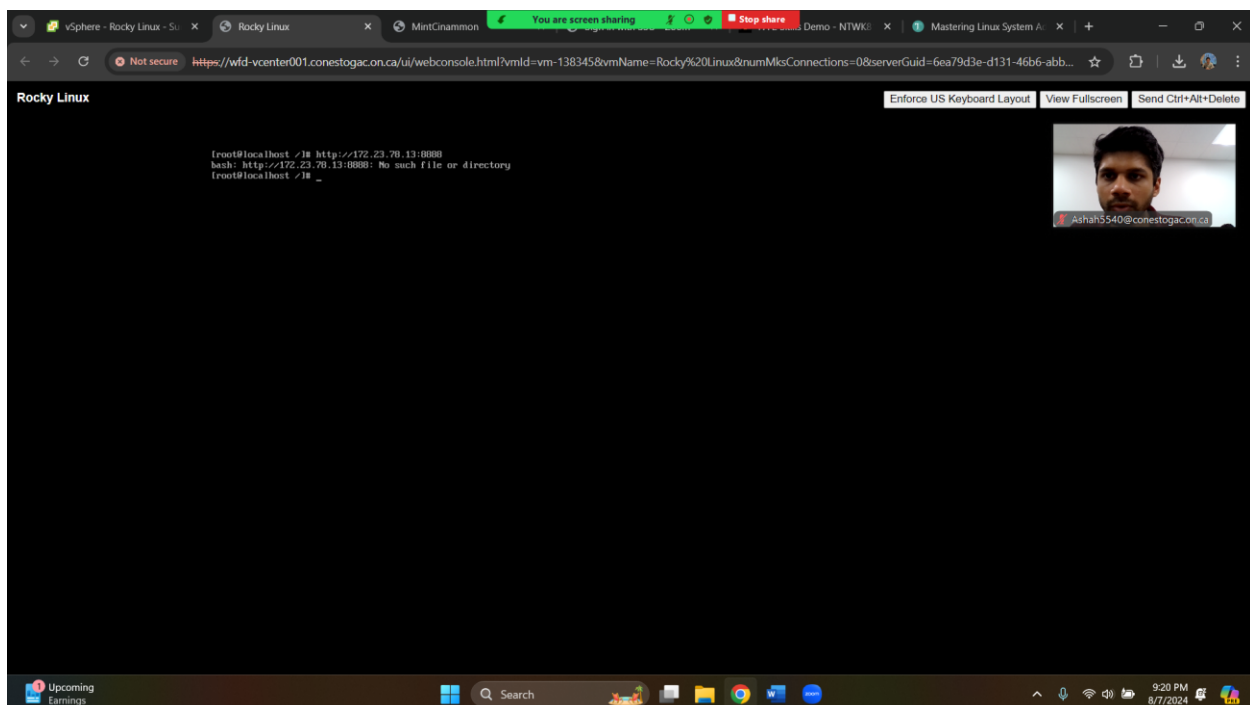
        # Load configuration files for the default server block.
        include /etc/nginx/default.conf;

        error_page 404 /404.html;
        location /404.html {
        }
    }
}

"/etc/nginx/nginx.conf" 84L, 2338B written
[root@localhost ~]#
```

The terminal window also shows a weather widget at the bottom left indicating 20°C and Sunny. The system tray at the bottom right shows the time as 8:18 PM on 8/7/2024. A small video feed of a person is visible in the top right corner of the terminal window.

- Test this by going to <http://serverIPaddress:8888>. Provide screenshots.



The screenshot shows a terminal window titled "Rocky Linux" with a dark background. The terminal displays the following commands and output:

```
[root@localhost ~]# http://172.23.70.13:8888
bash: http://172.23.70.13:8888: No such file or directory
[root@localhost ~]#
```

The terminal window also shows a weather widget at the bottom left indicating 20°C and Sunny. The system tray at the bottom right shows the time as 9:20 PM on 8/7/2024. A small video feed of a person is visible in the top right corner of the terminal window.

9.

- On the Rocky Linux CLI server, install PostgreSQL.

```
Rocky Linux
https://wld-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-138345&vmName=Rocky%20Linux&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abb6-b8e...

[root@localhost tmp]# sudo dnf install -y postgresql
Last metadata expiration check: 1:09:51 ago on Wed 07 Aug 2024 07:19:17 PM EDT.
Dependencies resolved.
=====
Package                                architecture      Version            Repository          Size
-----
Installing:
postgresql                                x86_64            13.14-1.el9_3      appstream           1.5 M
Installing dependencies:
postgresql-libs                            x86_64            13.14-1.el9_3      appstream           132 k
Transaction Summary
-----
Install 2 Packages
Total download size: 1.6 M
Installed size: 6.0 M
Downloading Packages:
(1/2): postgresql-libs-13.14-1.el9_3.x86_64.rpm                398 kB/s | 132 kB  00:00
(2/2): postgresql-13.14-1.el9_3.x86_64.rpm                    2.0 MB/s | 1.5 MB  00:00
-----
Total
-----
1.9 MB/s | 1.6 MB  00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : postgresql-libs-13.14-1.el9_3.x86_64 1/1
Installing : postgresql-13.14-1.el9_3.x86_64 1/2
Running scriptlet: postgresql-13.14-1.el9_3.x86_64 2/2
Verifying : postgresql-libs-13.14-1.el9_3.x86_64 1/2
Verifying : postgresql-13.14-1.el9_3.x86_64 2/2
Installed:
postgresql-13.14-1.el9_3.x86_64                postgresql-libs-13.14-1.el9_3.x86_64
Complete!
[root@localhost tmp]#
```

- Log in as the database super user.

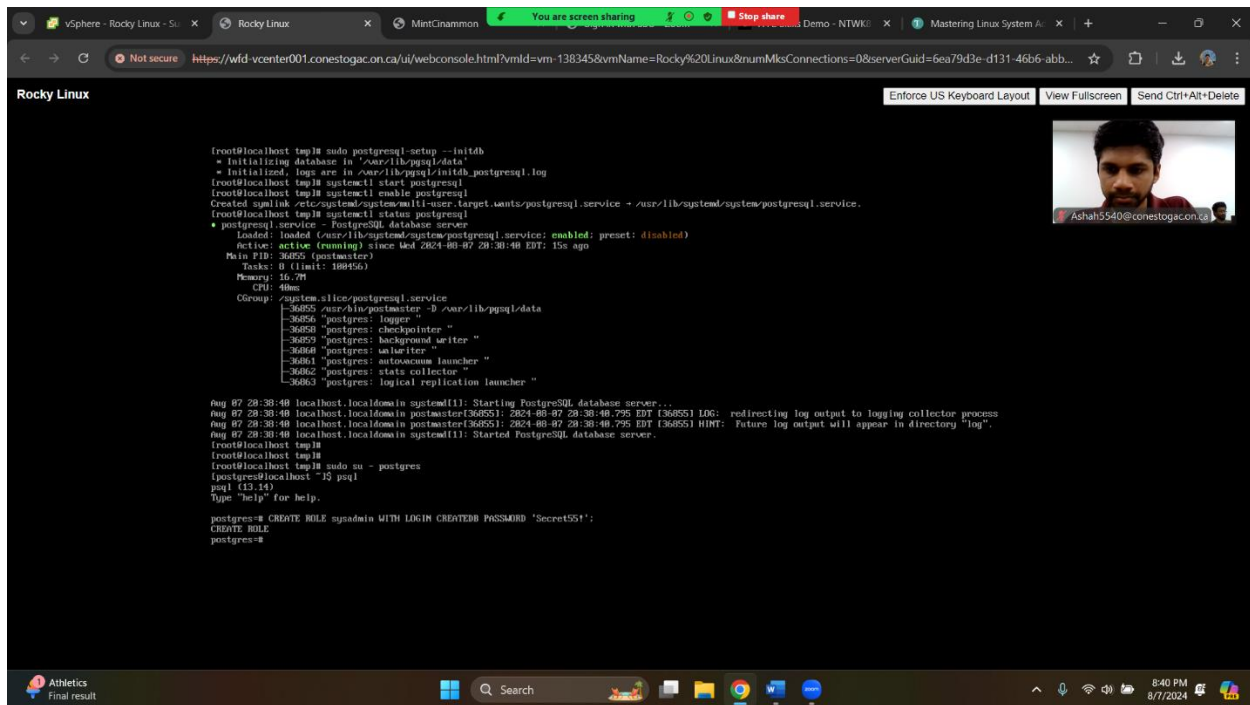
```
Rocky Linux
https://wld-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-138345&vmName=Rocky%20Linux&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abb...

[root@localhost tmp]# sudo postgresql-setup --initdb
* Initializing database in '/var/lib/pgsql/data'
* Initialized. logs are in /var/lib/pgsql/initdb_postgresql.log
[root@localhost tmp]# systemctl start postgresql
[root@localhost tmp]# systemctl enable postgresql
Created symlink /etc/systemd/system/multi-user.target.wants/postgresql.service → /usr/lib/systemd/system/postgresql.service.
* postgresql.service - PostgreSQL database server
Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; preset: disabled)
Active: active (running) since Wed 2024-08-07 20:30:40 EDT; 15s ago
Main PID: 36855 (postmaster)
Tasks: 0 (limit: 188456)
Memory: 16.7M
CPU: 40ms
Group: /system.slice/postgresql.service
CGroup: /system.slice/postmaster - D /var/lib/pgsql/data
        --36856 postgres: logger --
        --36858 postgres: checkpoint --
        --36859 postgres: background writer --
        --36860 postgres: autovacuum launcher --
        --36861 postgres: stats collector --
        --36863 postgres: logical replication launcher --

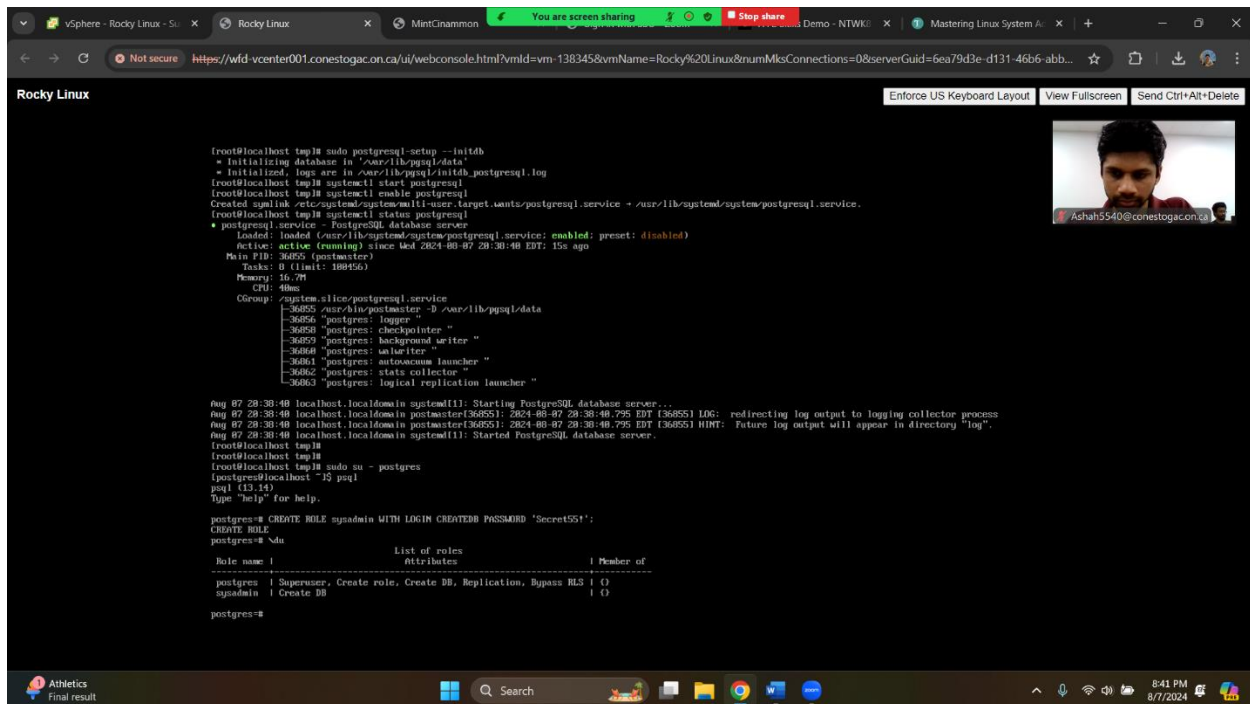
Aug 07 20:30:40 localhost.localdomain systemd[1]: Starting PostgreSQL database server...
Aug 07 20:30:40 localhost.localdomain postmaster[36855]: 2024-08-07 20:30:40.795 EDT [36855] LOG: redirecting log output to logging collector process
Aug 07 20:30:40 localhost.localdomain postmaster[36855]: 2024-08-07 20:30:40.795 EDT [36855] HINT: Future log output will appear in directory "log".
Aug 07 20:30:40 localhost.localdomain systemd[1]: Started PostgreSQL database server.
[root@localhost tmp]#
[postgres@localhost tmp]# su - postgres
postgres@localhost ~$ psql
psql (13.14)
Type "help" for help.

postgres=#
```

- Create a role called "sysadmin" with CREATEDB access.



- List all roles to confirm the "sysadmin" user has the proper attribute. Provide a screenshot.



- Log in as the "sysadmin" user and create a database called "ntwk8141". Provide a screenshot.

Rocky Linux

Verifying: perl-MIME-File-1.15-401.e19.x86_64
Verifying: perl-IO-1.43-401.e19.x86_64
Verifying: perl-FCtrl-1.13-401.e19.x86_64
Verifying: perl-Ermu-1.30-401.e19.x86_64
Verifying: perl-B-1.80-401.e19.x86_64
Verifying: perl-vars-1.05-401.e19.noarch
Verifying: perl-mbs-1.03-401.e19.noarch
Verifying: perl-overload-0.02-401.e19.noarch
Verifying: perl-overload-1.31-401.e19.noarch
Verifying: perl-IF-0.60-000-401.e19.noarch
Verifying: perl-base-2.27-401.e19.noarch
Verifying: perl-Symbol-1.00-401.e19.noarch
Verifying: perl-SelectSaver-1.02-401.e19.noarch
Verifying: perl-IPC-Open3-1.21-401.e19.noarch
Verifying: perl-Getopt-Std-1.12-401.e19.noarch
Verifying: perl-FileHandle-2.03-401.e19.noarch
Verifying: perl-File-stat-1.09-401.e19.noarch
Verifying: perl-File-Basename-2.05-401.e19.noarch
Verifying: perl-Class-Struct-0.66-401.e19.noarch
Verifying: perl-AutoLoader-5.74-401.e19.noarch
Verifying: perl-Net-SSLay-1.92-2.e19.x86_64
Verifying: m4-1.6.2-55.e19.x86_64
Verifying: perl-parent-1.0.230-401.e19.noarch

Installed:
perl-AutoLoader-5.74-401.e19.noarch
perl-Class-Struct-0.66-401.e19.noarch
perl-Digest-PBP-2.50-4.e19.x86_64
perl-Exporter-5.74-401.e19.noarch
perl-File-Path-2.10-4.e19.noarch
perl-FileHandle-2.03-401.e19.noarch
perl-HTTP-Tiny-0.076-402.e19.noarch
perl-ID-Socket-SSL-2.072-1.e19.noarch
perl-Mozilla-Ca-20200520-6.e19.noarch
perl-POSIX-1.94-401.e19.x86_64
perl-Pod-Perldoc-3.20-01-401.e19.noarch
perl-Scalar-List-Utils-4.1.56-401.e19.x86_64
perl-Storable-1.31-401.e19.x86_64
perl-Term-Cap-1.17-60.e19.noarch
perl-Time-Local-2.1.300-7.e19.noarch
perl-constant-1.33-401.e19.noarch
perl-IO-1.43-401.e19.noarch
perl-overload-1.31-401.e19.noarch
perl-podlators-1.14-400.e19.noarch
postgresql-contrib-13.14-1.e19_3.x86_64

Complete!
[root@localhost tmp]#
[root@localhost tmp]#
[root@localhost tmp]#

perl-B-1.80-401.e19.x86_64
perl-Bits-Buffer-2.174-402.e19.x86_64
perl-Encode-4.1.00-402.e19.x86_64
perl-FCtrl-1.13-401.e19.x86_64
perl-File-Temp-1.0.231.100-4.e19.noarch
perl-Getopt-Long-1.12.52-4.e19.noarch
perl-ID-1.43-401.e19.x86_64
perl-IPC-Open3-1.21-401.e19.noarch
perl-MIME-File-1.15-401.e19.x86_64
perl-PathTools-3.70-401.e19.x86_64
perl-Pod-Simple-1.32-4.e19.noarch
perl-SelectSaver-1.02-401.e19.noarch
perl-Symbol-1.00-401.e19.noarch
perl-Term-Paradoc-3.20-60.e19.noarch
perl-URI-5.09-3.e19.noarch
perl-IF-0.60-000-401.e19.noarch
perl-lhs-4.15.32-1-401.e19.x86_64
perl-overload-0.02-401.e19.noarch
perl-mbs-1.03-401.e19.noarch
m4-1.6.2-55.e19.x86_64

perl-Carp-1.50-400.e19.noarch
perl-Digest-1.19-4.e19.noarch
perl-Ermu-1.30-401.e19.x86_64
perl-File-Basename-2.05-401.e19.noarch
perl-File-stat-1.09-401.e19.noarch
perl-Getopt-Std-1.12-401.e19.noarch
perl-ID-Socket-IP-0.41-5.e19.noarch
perl-MIME-Based-3.10-4.e19.x86_64
perl-Net-SSLay-1.92-2.e19.x86_64
perl-Pod-Escapes-1.1.07-400.e19.noarch
perl-Text-Fabulous-2013.0223-400.e19.noarch
perl-Socket-4.2.031-4.e19.x86_64
perl-Term-ANSIColor-5.01-401.e19.noarch
perl-Text-Fabulous-2013.0223-400.e19.noarch
perl-base-2.27-401.e19.noarch
perl-Interpreter-4.15.32-1-401.e19.x86_64
perl-Net-1.23-401.e19.x86_64
perl-parent-1.0.230-401.e19.noarch
perl-vars-1.05-401.e19.noarch

Wrestling
Cuba - United St...

8:33 PM
8/7/2024

Rocky Linux

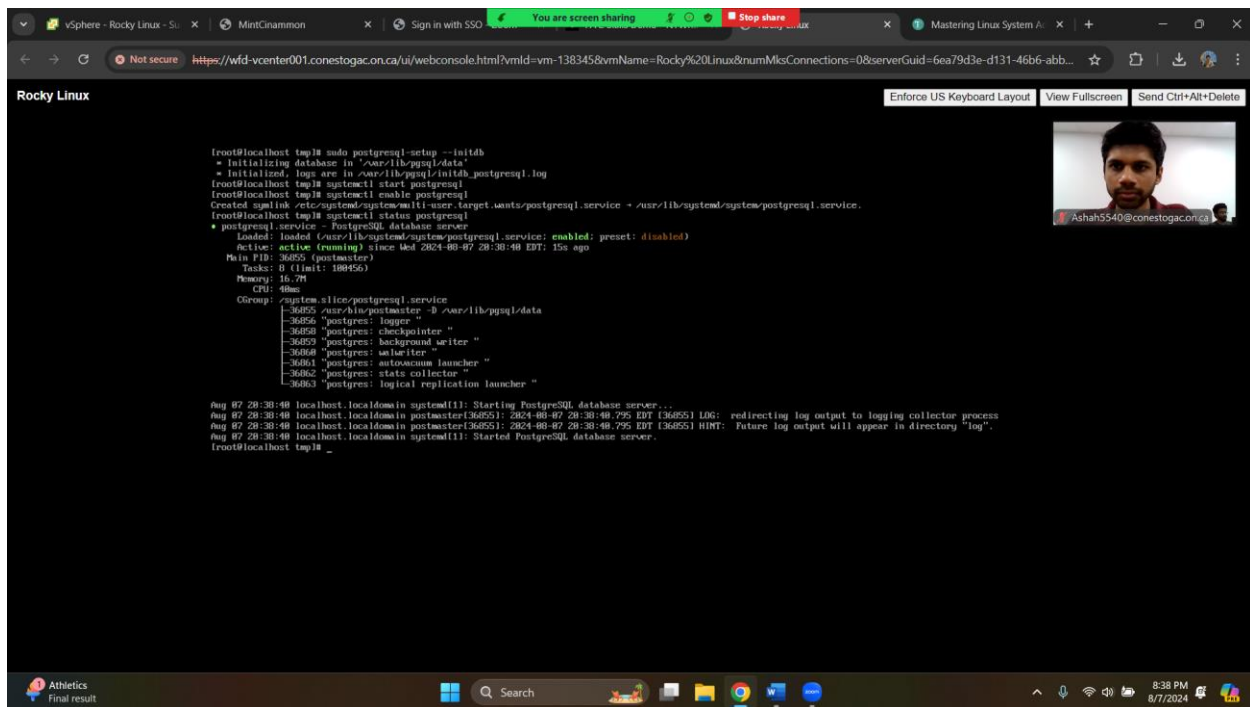
[root@localhost tmp]# sudo postgresql-setup --initdb
sudo postgresql-setup: command not found
[root@localhost tmp]# sudo install postgresql-setup
No such command: install. Please use /usr/bin/dnf --help
It could be a rpm plugin command, try: 'dnf install --dnf-command=install'''
[root@localhost tmp]# sudo install postgresql-setup
Last metadata expiration check: 1:16:00 ago on Wed 07 Aug 2024 07:19:17 PM EDT.
No match for argument: postgresql-setup
Error: Unable to find a match: postgresql-setup
[root@localhost tmp]# systemctl start postgresql
Failed to start postgresql.service: Unit postgresql.service not found.
[root@localhost tmp]# systemctl enable postgresql
Failed to enable unit: Unit file postgresql.service does not exist.
[root@localhost tmp]# sudo dnf install -y postgresql-server postgresql-contrib
Last metadata expiration check: 1:10:19 ago on Wed 07 Aug 2024 07:19:17 PM EDT.
Package postgresql-contrib-13.14-1.e19_3.x86_64 is already installed.
Dependencies resolved.
=====

Package	Architecture	Version	Repository	Size
Installing:				
postgresql-server	x86_64	13.14-1.e19_3	appstream	5.7 M

Transaction Summary
Install 1 Package
Total download size: 5.7 M
Installed size: 23 M
Downloading Packages:
postgresql-server-13.14-1.e19_3.x86_64.rpm 2.6 MB/s | 5.7 MB 00:02
Total 2.5 MB/s | 5.7 MB 00:02
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing:
Running scriptlet: postgresql-server-13.14-1.e19_3.x86_64 1/1
Installing: postgresql-server-13.14-1.e19_3.x86_64 1/1
Running scriptlet: postgresql-server-13.14-1.e19_3.x86_64 1/1
Verifying: postgresql-server-13.14-1.e19_3.x86_64 1/1
Installed:
postgresql-server-13.14-1.e19_3.x86_64
Complete!
[root@localhost tmp]# s_

Athletics
Final result

8:37 PM
8/7/2024



```
root@localhost tmp# sudo yum install postgresql-server
* Installing database in '/var/lib/pgsql/data'
* Initialized, logs are in /var/lib/pgsql/initdb_postgresql.log
root@localhost tmp# systemctl start postgresql
root@localhost tmp# systemctl enable postgresql
Created symlink /etc/systemd/system/multi-user.target.wants/postgresql.service → /usr/lib/systemd/system/postgresql.service.
root@localhost tmp# systemctl status postgresql
● postgresql.service - PostgreSQL database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; preset: disabled)
   Active: active (running) since Wed 2024-08-07 20:30:40 EDT; 15s ago
     Main PID: 36855 (postmaster)
       Tasks: 0 (limit: 188956)
        Memory: 15.7M
         CPU: 48ms
    CGroup: /system.slice/postgresql.service
            └─36855 /usr/sbin/postmaster -D /var/lib/pgsql/data
               └─36856 postgres: logger "
                  └─36858 postgres: checkpoint "
                     └─36859 postgres: background writer "
                        └─36860 postgres: walwriter "
                           └─36861 postgres: autovacuum launcher "
                              └─36862 postgres: stats collector "
                                 └─36863 postgres: logical replication launcher "
```

10.

- Create a Bash script that takes in one parameter when executed, and does the following:
- If the parameter is "skillsdemo", loop 3 times and output the text "Project" each time.
- If the parameter is "exam", loop 4 times and output the text "Study" each time.
- If the parameter is anything else, output "Error" once, and end the script.
- Demonstrate the script working for all three of these scenarios. Provide screenshots.