



CEIS106

LINUX FINAL PRESENTATION

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INTRODUCTION

- Learned the operation system of Linux
- Understanding Filesystem Hierarchy
- Understanding Linux Shell Scripts

NAVIGATE THE LINUX FILE SYSTEM TREE

1. What is the *pwd* command an acronym for? What about the *cd* command?

Answer here:

pwd – print working directory and it shows you where you are currently located in the file structure

cd – change directory, and it changes to a new directory location.

2. Explain the differences between a relative path and an absolute/full path in Linux.

Answer here:

Relative path is based on your current location

Absolute path starts at the top of the directory tree called the root

References:

1. Project Assistance video

CREATE DIRECTORIES AND FILES

```
└─ snap
   └─ snap-store
└─ Templates
└─ Videos

17 directories
student@ubuntu1:~/JanFebSession/Course1$ ls -l ~/JanFebSession/course1
ls: cannot access '/home/student/JanFebSession/course1': No such file or directory
student@ubuntu1:~/JanFebSession/Course1$ ls -l ~/JanFebSession/Course1
total 0
-rw-rw-r-- 1 student student 0 Feb  3 19:33 file1
-rw-rw-r-- 1 student student 0 Feb  3 19:33 file2
```

- Image shows directories and files

COPY AND REMOVE DIRECTORIES AND FILES

How directories/files are
copied and removed.

```
student@ubuntu1: ~  
├── file2  
├── file3  
├── Course2  
└── Course3  
  
6 directories, 6 files  
student@ubuntu1:~$ rmdir MarAprSession/Course3  
student@ubuntu1:~$ rm MarAprSession/Course1/file3  
student@ubuntu1:~$ tree JanFebSession MarAprSession  
JanFebSession  
├── Course1  
│   ├── file1  
│   ├── file2  
│   └── file3  
├── Course2  
└── Course3  
MarAprSession  
├── Course1  
│   ├── file1  
│   └── file2  
└── Course2  
  
5 directories, 5 files  
student@ubuntu1:~$
```

LOCATE DIRECTORIES AND FILES

Where files were
located in the directory.

```
student@ubuntu1: ~  
/home/student/JanFebSession/Course1/file2  
student@ubuntu1:~$ locate -S  
Database /var/lib/mlocate/mlocate.db:  
    39,924 directories  
   448,872 files  
  31,464,267 bytes in file names  
  11,284,188 bytes used to store database  
student@ubuntu1:~$ sudo updatedb  
[sudo] password for student:  
student@ubuntu1:~$ locate -i course  
/home/student/JanFebSession/Course1  
/home/student/JanFebSession/Course2  
/home/student/JanFebSession/Course3  
/home/student/JanFebSession/Course1/file1  
/home/student/JanFebSession/Course1/file2  
/home/student/JanFebSession/Course1/file3  
/home/student/MarAprSession/Course1  
/home/student/MarAprSession/Course2  
/home/student/MarAprSession/Course1/file1  
/home/student/MarAprSession/Course1/file2  
student@ubuntu1:~$ locate -r /file1$  
/home/student/JanFebSession/Course1/file1  
/home/student/MarAprSession/Course1/file1  
student@ubuntu1:~$
```

CREATE A SHELL SCRIPT

1. What are the file permissions of the script?

Answer here:

rw- --owner can read and write but cannot execute.

rw- --group can read and write but cannot execute.

r- - --everyone else can only read the file, but not write or execute.

2. What's the name of the user-defined variable in the script?

Answer here:

--text

3. Which redirection meta-character is used in the script? What does it do?

Answer here:

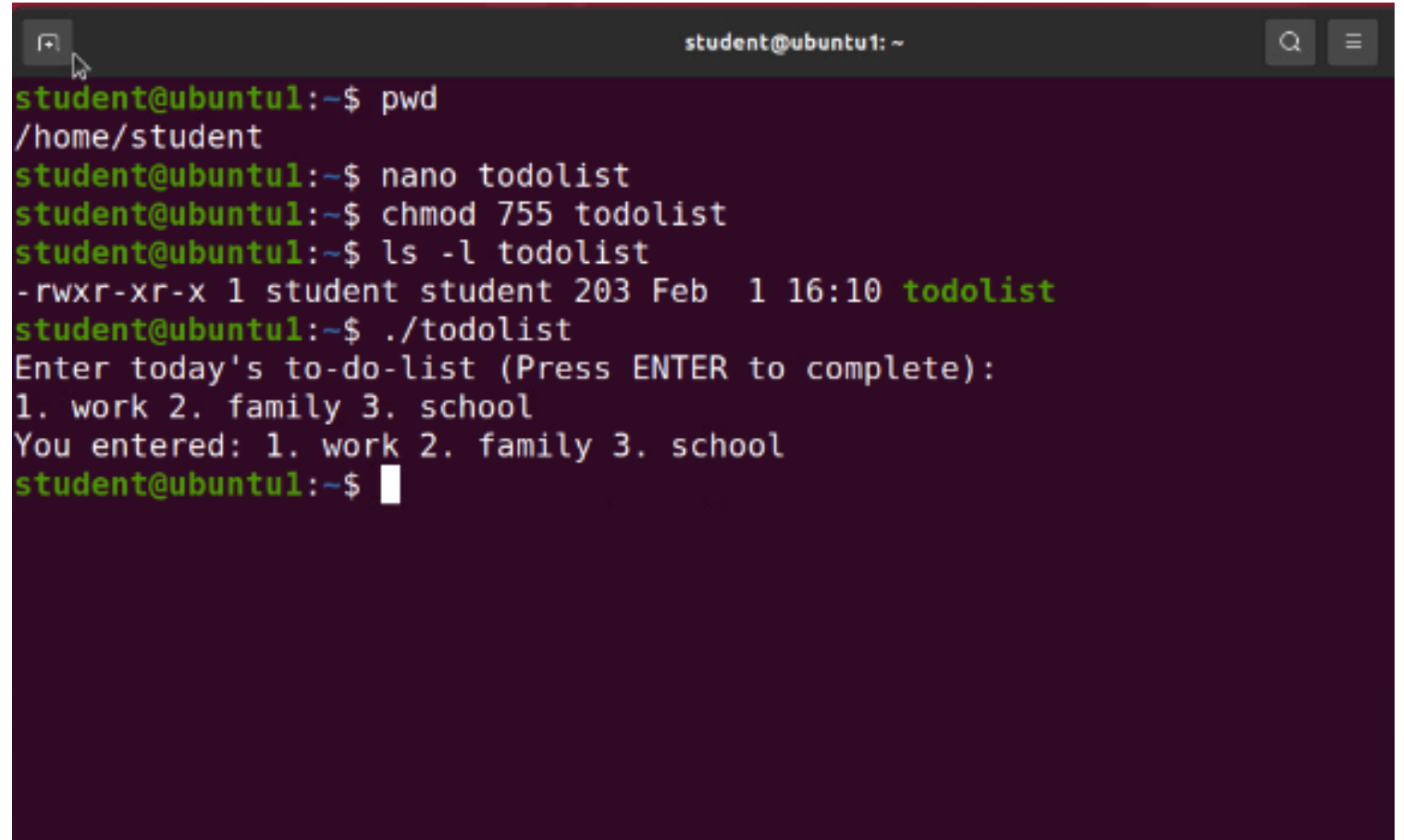
>> --appends the information to the end of the file

References:

1. Project assistance video

CHANGE SCRIPT FILE PERMISSIONS

screenshot of the
output.



```
student@ubuntu1: ~  
student@ubuntu1:~$ pwd  
/home/student  
student@ubuntu1:~$ nano todolist  
student@ubuntu1:~$ chmod 755 todolist  
student@ubuntu1:~$ ls -l todolist  
-rwxr-xr-x 1 student student 203 Feb  1 16:10 todolist  
student@ubuntu1:~$ ./todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. work 2. family 3. school  
You entered: 1. work 2. family 3. school  
student@ubuntu1:~$
```



```
student@ubuntu1: ~  
student@ubuntu1:~$ nano todolist  
student@ubuntu1:~$ chmod 755 todolist  
student@ubuntu1:~$ ls -l todolist  
-rwxr-xr-x 1 student student 203 Feb  1 16:10 todolist  
student@ubuntu1:~$ ./todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. work 2. family 3. school  
You entered: 1. work 2. family 3. school  
student@ubuntu1:~$ pwd  
/home/student  
student@ubuntu1:~$ todolist  
todolist: command not found  
student@ubuntu1:~$ echo $PATH  
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin  
student@ubuntu1:~$ PATH=$PATH:/home/student  
student@ubuntu1:~$ echo $PATH  
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/home/student  
student@ubuntu1:~$ todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. school 2. work 3. family  
You entered: 1. school 2. work 3. family  
student@ubuntu1:~$
```

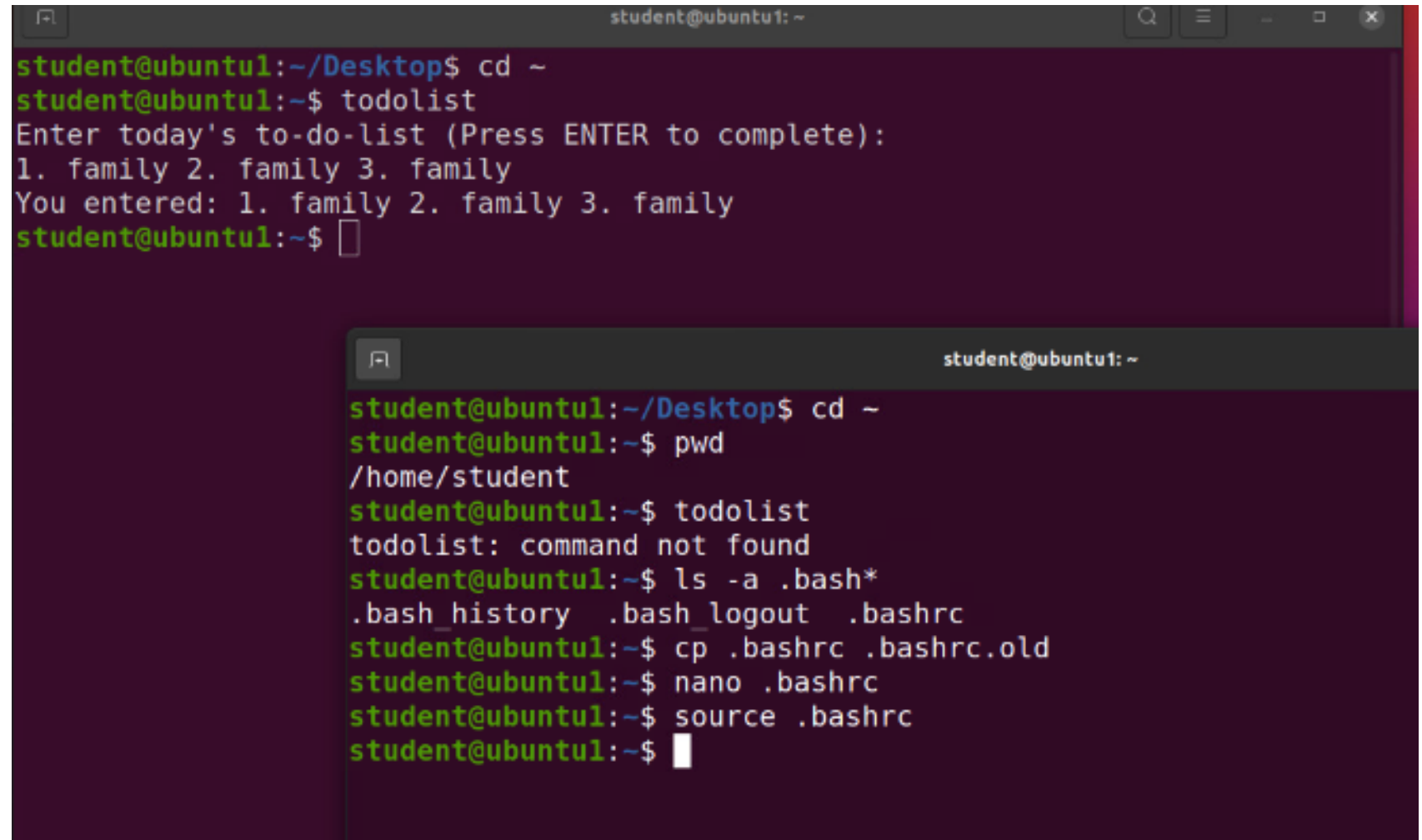
SET THE PATH VARIABLE

The out put.

MAKE THE PATH VARIABLE PERMANENT

Running the *todolist* script before and after making the PATH variable permanent.

A screenshot of both Terminal windows.



```
student@ubuntu1: ~  
student@ubuntu1:~/Desktop$ cd ~  
student@ubuntu1:~$ todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. family 2. family 3. family  
You entered: 1. family 2. family 3. family  
student@ubuntu1:~$  
  
student@ubuntu1: ~  
student@ubuntu1:~/Desktop$ cd ~  
student@ubuntu1:~$ pwd  
/home/student  
student@ubuntu1:~$ todolist  
todolist: command not found  
student@ubuntu1:~$ ls -a .bash*  
.bash_history .bash_logout .bashrc  
student@ubuntu1:~$ cp .bashrc .bashrc.old  
student@ubuntu1:~$ nano .bashrc  
student@ubuntu1:~$ source .bashrc  
student@ubuntu1:~$
```

ADD USERS AND GROUPS IN CLI

1. What does the `-m` option in the `useradd` command do?

Answer here: Creates a home directory for the user

2. What does the `-3` option in the `tail` command do?

Answer here: This tells `tail` how many lines to show

3. Which line of the `/etc/group` file lists members of the “students” group? Copy it here.

Answer here:

```
students:x:1002:student,mary
```

References:

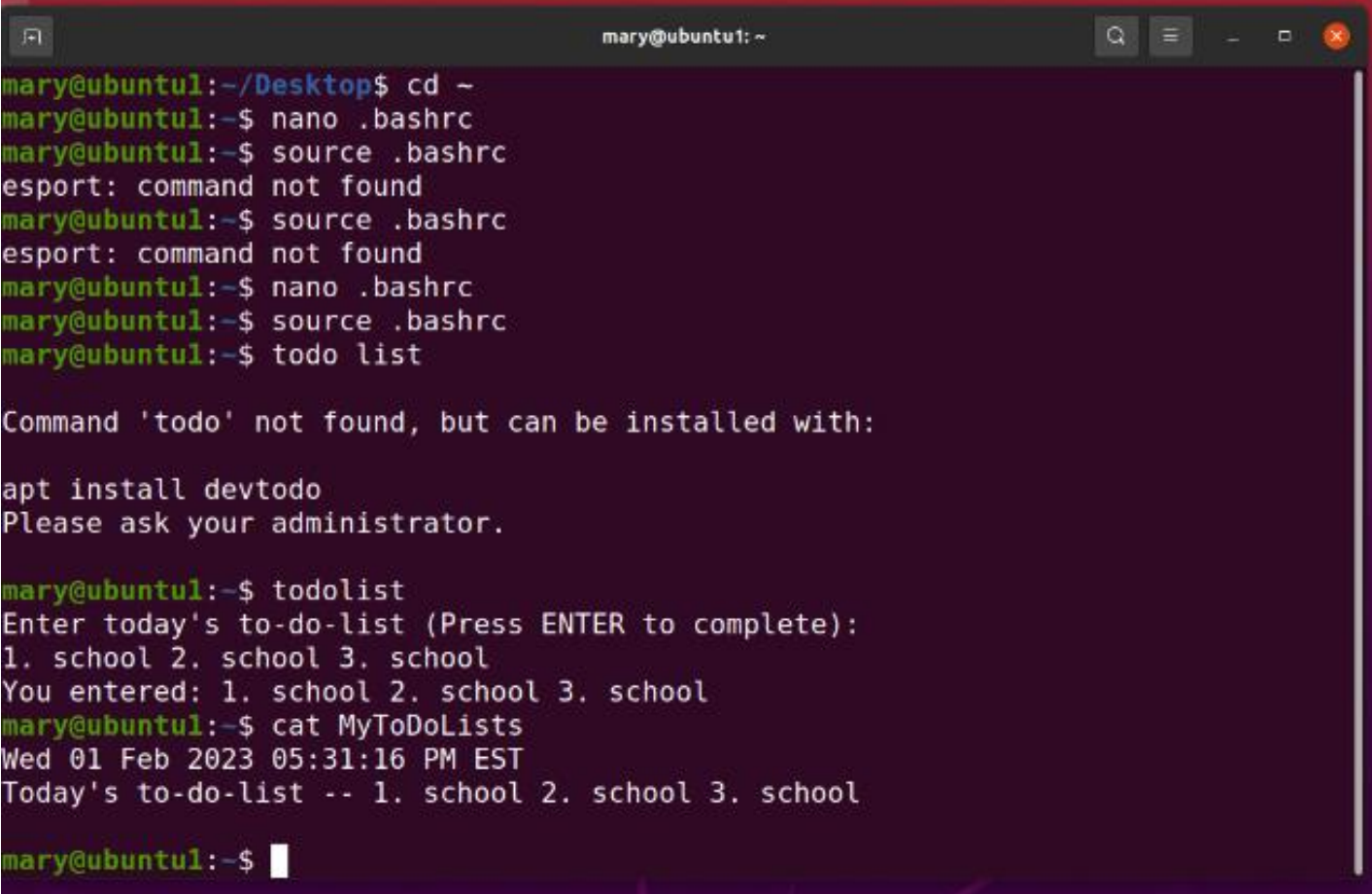
1. Project assistance video

2.

TEST USER

AND GROUP SETTINGS

Take a screenshot of the output in Step 6.



```
mary@ubuntu1: ~  
mary@ubuntu1:~/Desktop$ cd ~  
mary@ubuntu1:~$ nano .bashrc  
mary@ubuntu1:~$ source .bashrc  
esport: command not found  
mary@ubuntu1:~$ source .bashrc  
esport: command not found  
mary@ubuntu1:~$ nano .bashrc  
mary@ubuntu1:~$ source .bashrc  
mary@ubuntu1:~$ todo list  
  
Command 'todo' not found, but can be installed with:  
  
apt install devtodo  
Please ask your administrator.  
  
mary@ubuntu1:~$ todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. school 2. school 3. school  
You entered: 1. school 2. school 3. school  
mary@ubuntu1:~$ cat MyToDoLists  
Wed 01 Feb 2023 05:31:16 PM EST  
Today's to-do-list -- 1. school 2. school 3. school  
  
mary@ubuntu1:~$
```

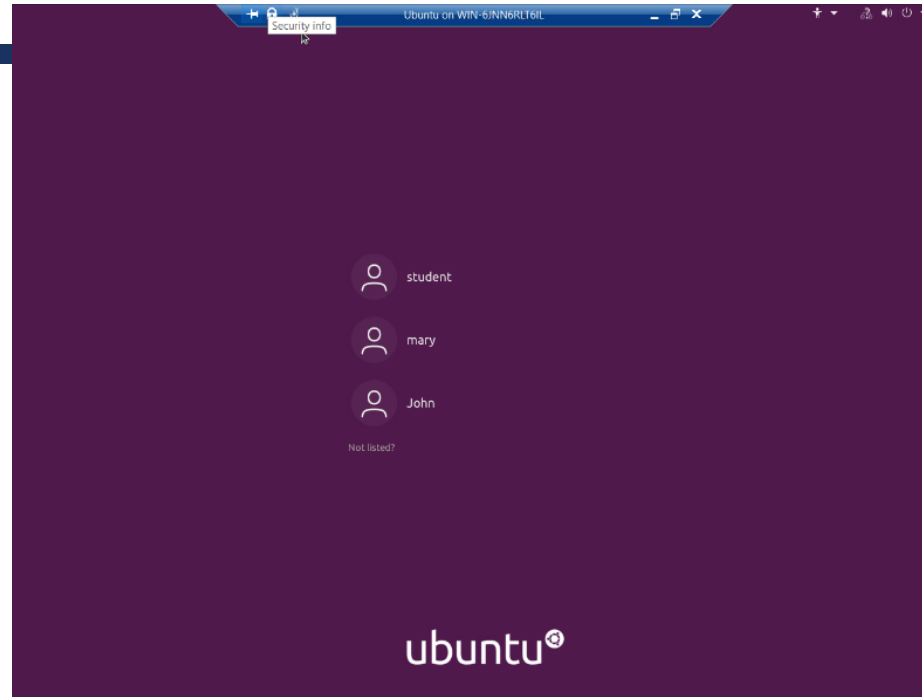
ADD USERS IN GUI

Take a screenshot of the output in Step 9.

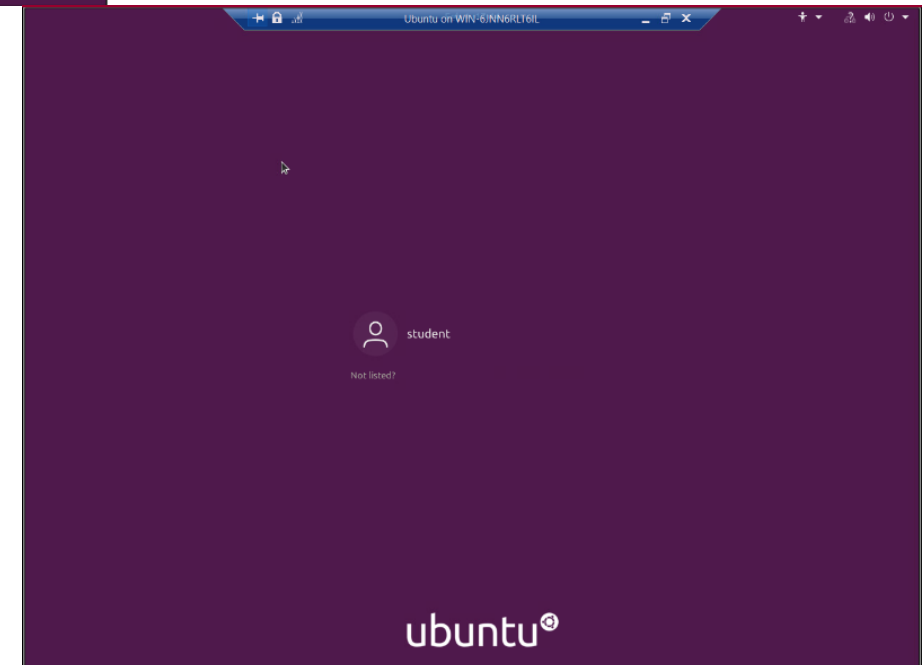
```
john@ubuntu1: ~  
john@ubuntu1:~/Desktop$ cd ~  
john@ubuntu1:~$ pwd  
/home/john  
john@ubuntu1:~$ nano .bashrc  
john@ubuntu1:~$ todolist  
todolist: command not found  
john@ubuntu1:~$ source .bashrc  
john@ubuntu1:~$ todolist  
Enter today's to-do-list (Press ENTER to complete):  
1. family 2. family 3. family  
You entered: 1. family 2. family 3. family  
john@ubuntu1:~$ cat MyToDoLists  
Wed 01 Feb 2023 05:40:22 PM EST  
Today's to-do-list -- 1. family 2. family 3. family  
john@ubuntu1:~$
```

~~REMOVE~~ USERS AND GROUPS

Take a screenshot of the log on page with three user accounts.



Take a screenshot of the log on page with only your user account (i.e., student).



DISCOVER HOST IP CONFIGURATIONS

1. What is the IP address of your Ubuntu machine?

Answer here: 192.168.1.107

2. What is the IP address of its default gateway?

Answer here: 192.168.1.1

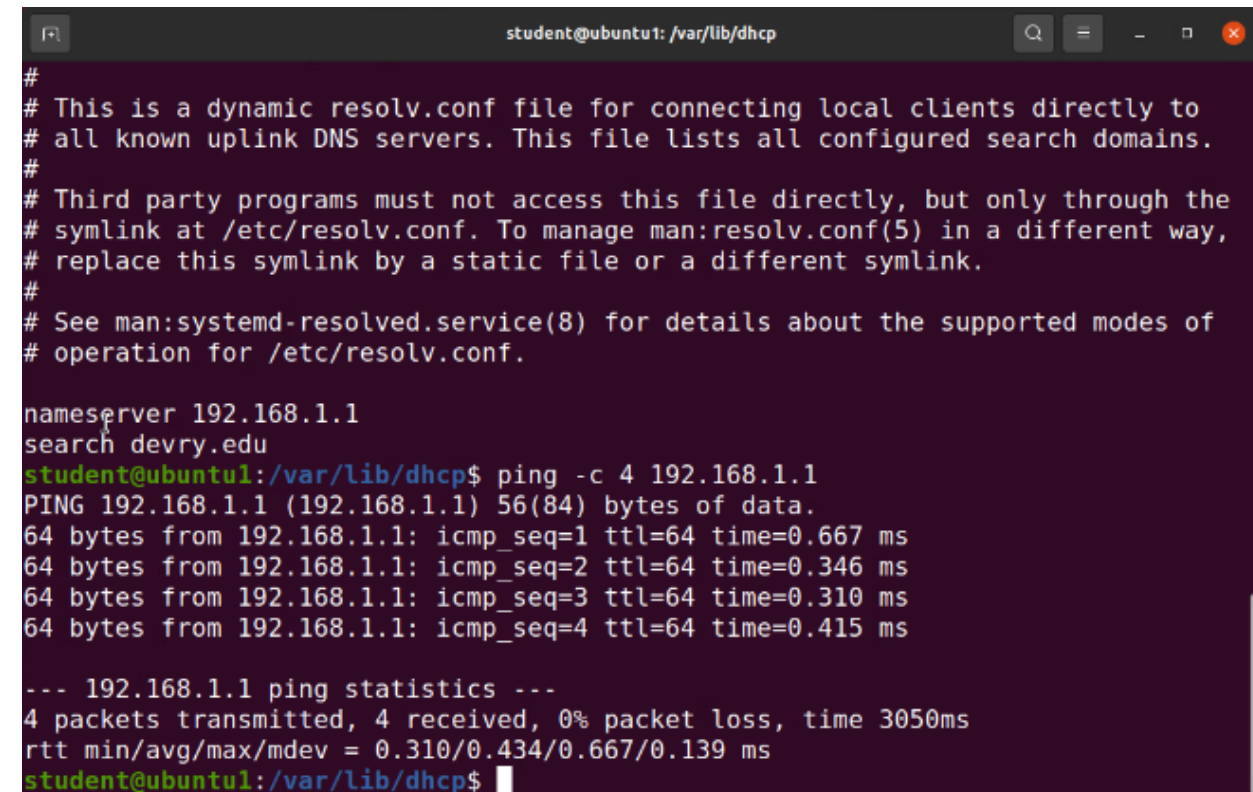
3. What is the IP address of its DHCP server?

Answer here: 192.168.1.1

4. What is the IP address of its DNS server?

Answer here: 192.168.1.1

Take a screenshot of the output in Step 6.



```
student@ubuntu1: /var/lib/dhcp
#
# This is a dynamic resolv.conf file for connecting local clients directly to
# all known uplink DNS servers. This file lists all configured search domains.
#
# Third party programs must not access this file directly, but only through the
# symlink at /etc/resolv.conf. To manage man:resolv.conf(5) in a different way,
# replace this symlink by a static file or a different symlink.
#
# See man:systemd-resolved.service(8) for details about the supported modes of
# operation for /etc/resolv.conf.

nameserver 192.168.1.1
search devry.edu
student@ubuntu1:/var/lib/dhcp$ ping -c 4 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data:
64 bytes from 192.168.1.1: icmp_seq=1 ttl=64 time=0.667 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=64 time=0.346 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=64 time=0.310 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=64 time=0.415 ms

--- 192.168.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3050ms
rtt min/avg/max/mdev = 0.310/0.434/0.667/0.139 ms
student@ubuntu1:/var/lib/dhcp$
```

MANAGE NETWORK INTERFACES

1. Which DHCP message is shown in the output of the **sudo dhclient -v -r eth0** command?
[hint: the message name is in uppercase.]

Answer here: DCHPRELEASE

2. Which four DHCP messages are shown in the output of the **sudo dhclient -v eth0** command? [hint: the message names are in uppercase.]

Answer here: DHCPDISCOVER, DHCPOFFER , DHCPREQUEST, DHCPACK

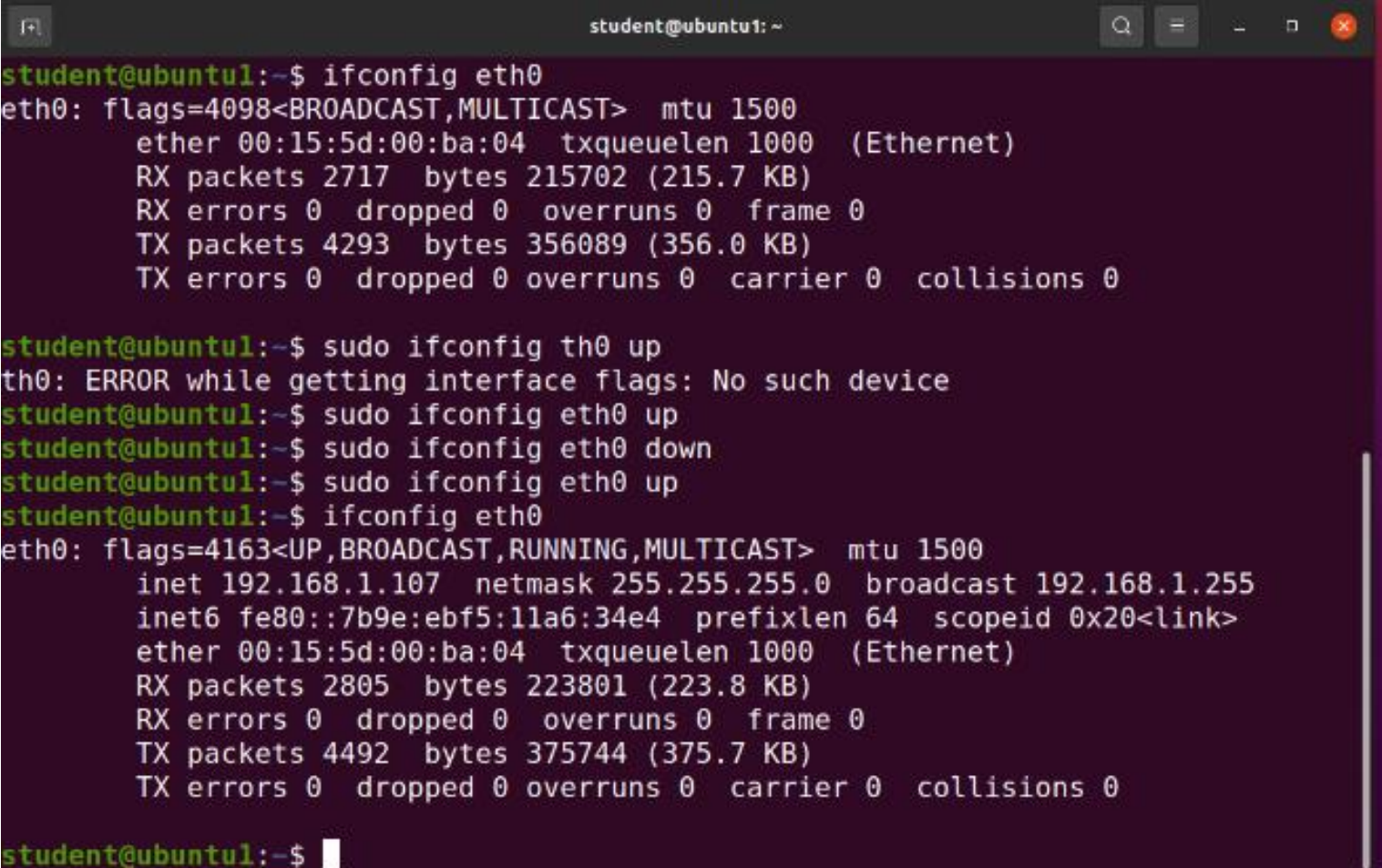
References:

1. Project video assistance

2.

USE NETWORK UTILITIES

Take a screenshot of the output in Step 5.



```
student@ubuntu1: ~  
student@ubuntu1:~$ ifconfig eth0  
eth0: flags=4098<BROADCAST,MULTICAST> mtu 1500  
    ether 00:15:5d:00:ba:04 txqueuelen 1000  (Ethernet)  
    RX packets 2717  bytes 215702 (215.7 KB)  
    RX errors 0  dropped 0  overruns 0  frame 0  
    TX packets 4293  bytes 356089 (356.0 KB)  
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0  
  
student@ubuntu1:~$ sudo ifconfig th0 up  
th0: ERROR while getting interface flags: No such device  
student@ubuntu1:~$ sudo ifconfig eth0 up  
student@ubuntu1:~$ sudo ifconfig eth0 down  
student@ubuntu1:~$ sudo ifconfig eth0 up  
student@ubuntu1:~$ ifconfig eth0  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.107 netmask 255.255.255.0  broadcast 192.168.1.255  
    inet6 fe80::7b9e:ebf5:11a6:34e4 prefixlen 64  scopeid 0x20<link>  
    ether 00:15:5d:00:ba:04 txqueuelen 1000  (Ethernet)  
    RX packets 2805  bytes 223801 (223.8 KB)  
    RX errors 0  dropped 0  overruns 0  frame 0  
    TX packets 4492  bytes 375744 (375.7 KB)  
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0  
  
student@ubuntu1:~$
```

MONITOR LINUX PROCESSES

1. What is the default action of the *15 SIGTERM* kill signal?

Answer here: kill the highlighted process

2. In the System Monitor window, click on % *CPU* to sort the processes by CPU load. Which process shows the highest percentage of CPU usage?

Answer here: gnome-shell (GUI)

References:

1. Project assistances video

2.

MONITOR USER ACTIVITIES

Issue the **sudo accton on** command to turn on GNC accounting. Run the **sudo updatedb** command. Enter **lastcomm updatedb** to check if the *updatedb* command was executed before. Remember to turn off GNC accounting (**sudo accton off**) after answering the questions.

1. What flag value is displayed in the output?

Answer here: S- super user

2. Why is the name of the user who ran the processes shown as root, not student?

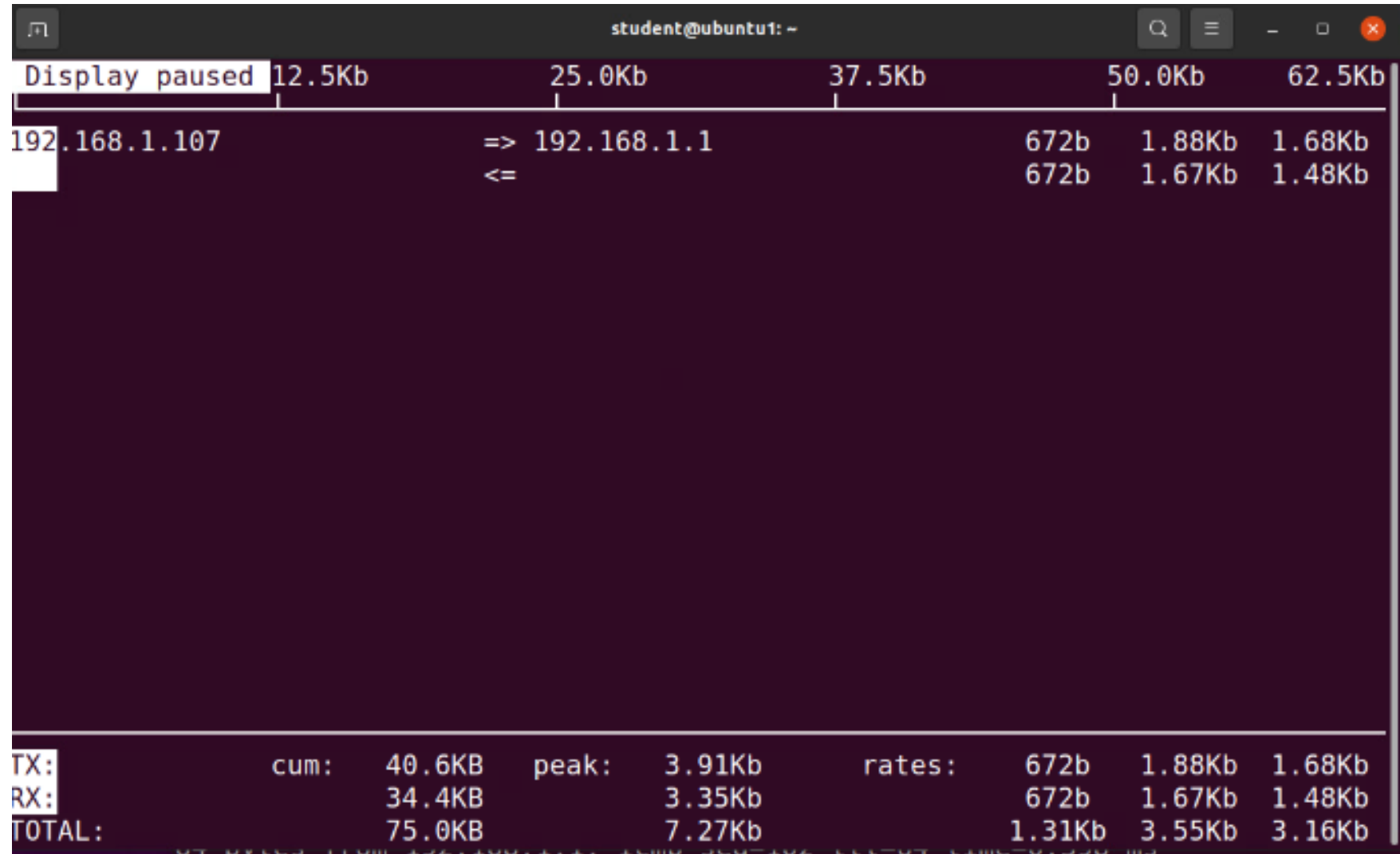
Answer here: super user- since we typed sudo in front of the command

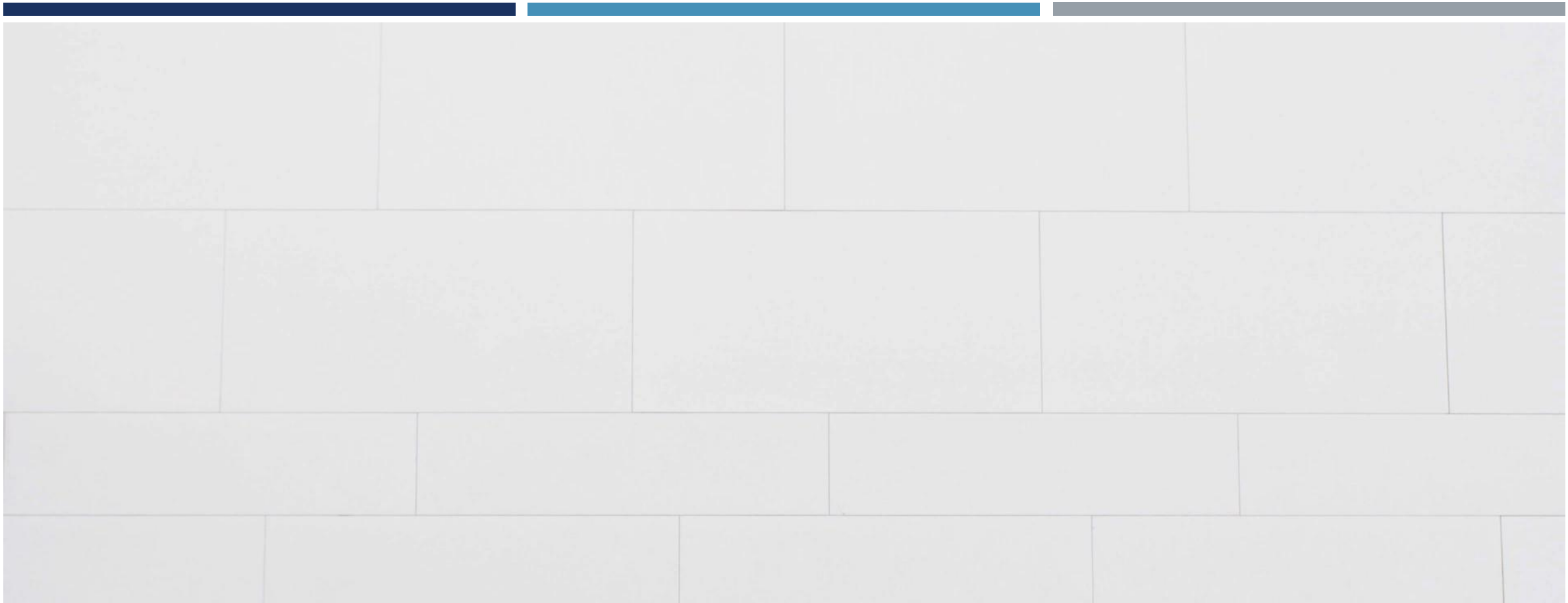
References:

1. Project assistance video

2.

Take a screenshot of the output in Step 4.

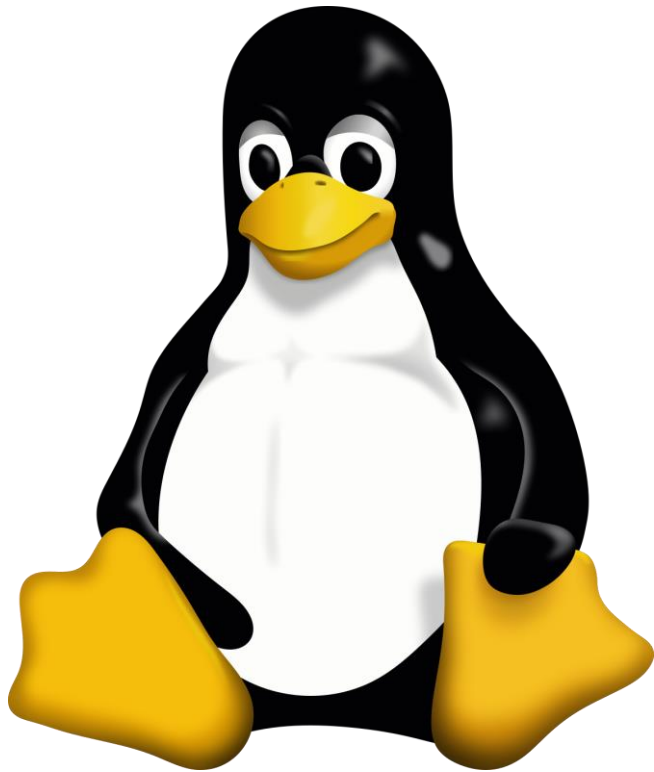




CAREER SKILLS

Knowing Linux is ideal for individuals that see themselves working for a large organization as many of them use this system. Furthermore, this course has shown me the steps to prepare for the Linux certification.

PROJECT CHALLENGES



- I enjoyed conducting this course project. A challenge I faced a lot was wrongfully placing the file in the wrong directory. When stumbling into a problem my best command was “~” or the command “clear”. Making sure I did not continue in the wrong direction. Finally, not often did I run into problems, but knowing the command and how to get in the right direction allowed me to complete this project correctly.