

Activity No. 11	
Command Line Skills	
<b>Course Code:</b> CPE 201A	<b>Program:</b> BSCPE
<b>Course Title:</b> COMPUTER SYSTEM ADMINISTRATION AND TROUBLESHOOTING	<b>Date Performed:</b> 10/24/2025
<b>Section:</b> CPE11S1	<b>Date Submitted:</b> 10/25/2025
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<b>1. Objective/s:</b>	
This activity aims to execute basic commands using command line interface of Linux.	
<b>2. Intended Learning Outcome/s:</b>	
The students should be able to:	
2.1 Demonstrate how to use commands to explore BASH features.	
2.2 Demonstrate how to use commands to display the values of Shell variables.	
2.3 Demonstrate how to use quoting in Bash shells.	
<b>3. Discussion:</b>	
<p><b>Command Line Interface</b></p> <p>The Linux community promotes the CLI due to its power, speed and ability to accomplish a vast array of tasks with a single command line instruction. The CLI provides more precise control, greater speed and the ability to automate tasks more easily through scripting. By learning the CLI, a user can easily be productive almost instantly on ANY flavor or distribution of Linux.</p>	
<p><b>The Shell</b></p> <p>Once a user has entered a command , the terminal then accepts what the user has typed and passes to a shell. The shell is a program that enables text based communication between the operating system and the user. It is the command line interpreter that translates commands entered by a user into actions to be performed by the operating system. The Linux environment allows the use of many different shells.</p> <p>There are several different shells on Linux, these are just a few:</p> <ul style="list-style-type: none"> <li>• Bourne-again shell (Bash)</li> <li>• C shell (csh or tcsh, the enhanced csh)</li> <li>• Korn shell (ksh)</li> <li>• Z shell (zsh)</li> </ul> <p>The most commonly used shell for Linux distributions is called the <b>Bash</b> shell. When using an interactive shell, the user inputs commands at a so-called prompt. For each Linux distribution, the default prompt may look a little different, but it usually follows this structure:</p> <pre>username@hostname current_directory shell_type</pre> <p>On Ubuntu or Debian GNU/Linux, the prompt for a regular user will likely look like this:</p> <pre>carol@mycomputer:~\$</pre> <p>The superuser's prompt will look like this:</p> <pre>root@mycomputer:~#</pre> <p>On CentOS or Red Hat Linux, the prompt for a regular user will instead look like this:</p> <pre>[dave@mycomputer ~]\$</pre> <p>And the superuser's prompt will look like this:</p>	

```
[root@mycomputer ~]#
```

Let's explain each component of the structure:

#### **username**

Name of the user that runs the shell

#### **hostname**

Name of the host on which the shell runs. There is also a command `hostname`, with which you can show or set the system's host name.

#### **current\_directory**

The directory that the shell is currently in. A ~ means that the shell is in the current user's home directory.

#### **shell\_type**

\$ indicates the shell is run by a regular user.

# indicates the shell is run by the superuser root

## **4. Resources:**

Personal Computer with installed Virtual Box

Ubuntu Server or Desktop virtual machine

## **5. Procedure:**

1. Login using your username and password.
2. Use terminal emulator application (if you are using desktop version)
3. Execute the following commands. Copy a screenshot as output after you execute the given command. Create a brief explanation of the command.

Command	Screenshot	Explanation
1. ls -l	<pre>angel@angel-VirtualBox:~\$ ls -l total 44 drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Desktop drwxr-xr-x 3 angel angel 4096 Oct 18 22:35 Documents drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Downloads drw-r--r-- 1 angel angel 8980 Oct 18 20:10 examples.desktop drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Music drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Pictures drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Public drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Templates drwxr-xr-x 2 angel angel 4096 Oct 18 22:29 Videos</pre>	This command lists all files and directories in the current location in long format. It shows details like file permissions, owner, size, and date modified.
2. ls -l ./Documents	<pre>angel@angel-VirtualBox:~\$ ls -l ./Documents total 4 drwxr-xr-x 2 angel angel 4096 Oct 18 22:35 'Angel Mae C. Ramirez'</pre>	This lists everything inside the "Documents" directory in long format, even if you're not currently inside that folder.
3. whoami	<pre>angel@angel-VirtualBox:~\$ whoami angel</pre>	Displays the username of the person currently logged into the terminal.
4. uname	<pre>angel@angel-VirtualBox:~\$ uname Linux</pre>	Shows the operating system name or type that your computer is running, such as "Linux".
5. pwd	<pre>angel@angel-VirtualBox:~\$ pwd /home/angel</pre>	Prints the current working directory, showing where you are in the file system.

6. echo Hi	<pre>angel@angel-VirtualBox:~\$ echo Hi Hi</pre>	prints the text “Hi” on the screen. The echo command simply outputs text or variables.
7. history	<pre>angel@angel-VirtualBox:~\$ history  1  ls 1  2  ls -l  3  ls -l  4  ls -l ./Documents  5  whoami  6  uname  7  pwd  8  echo Hi  9  history</pre>	Shows a list of all commands you have recently used in the terminal.
8. history 5	<pre>angel@angel-VirtualBox:~\$ history 5  6  uname  7  pwd  8  echo Hi  9  history 10  history 5</pre>	Displays only the last 5 commands from your command history.
9. !9	<pre>angel@angel-VirtualBox:~\$ !9 history  1  ls 1  2  ls -l  3  ls -l  4  ls -l ./Documents  5  whoami  6  uname  7  pwd  8  echo Hi  9  history 10  history 5 11  history</pre>	Runs the 9th command from your command history list automatically.
10. echo Hello Student	<pre>angel@angel-VirtualBox:~\$ echo Hello Student Hello Student</pre>	Displays the message “Hello Student” in the terminal window.
11. echo \$HISTSIZE	<pre>angel@angel-VirtualBox:~\$ echo \$HISTSIZE 1000</pre>	Prints the value of the HISTSIZE variable, which tells how many commands your shell remembers in its history.
12. echo \$PATH	<pre>angel@angel-VirtualBox:~\$ \$PATH bash: /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/usr/local/games:/snap/bin: No such file or directory</pre>	Shows the list of directories where the system looks for executable files (commands).
13. which date	<pre>angel@angel-VirtualBox:~\$ which date /bin/date</pre>	Displays the full path of the date command, showing where the program is located in your system.
14. type cd	<pre>angel@angel-VirtualBox:~\$ type cd cd is a shell builtin</pre>	Tells what kind of command cd is. It usually says it's a “shell builtin” because it's built into the shell itself.
15. type ls	<pre>angel@angel-VirtualBox:~\$ type ls ls is aliased to `ls --color=auto'</pre>	Tells if ls is a shell builtin or an external command stored in the system's directories.
16. alias	<pre>angel@angel-VirtualBox:~\$ alias alias alert='notify-send --urgency=low -i "S[ \$? = 0 ] &amp;&amp; echo terminal    echo \$!)" \$(history tail -n1 sed -e '\\$s/^s*[0-9]+\$/\\$/;s/[0-9]\\$/^/;s/\^/`/g')'\${^}^' alias egrep='grep --color=auto' alias fgrep='fgrep --color=auto' alias grep='grep --color=auto' alias l='ls -A' alias ll='ls -alF' alias lsa='ls -c --color=auto'</pre>	Lists all the command shortcuts (aliases) currently active in your shell session

17. type vi	<pre>angel@angel-VirtualBox:~\$ type vi vi is /usr/bin/vi</pre>	Shows the type of command vi is, usually saying it's an external program (text editor).	
18. cd /bin	<pre>angel@angel-VirtualBox:~\$ cd /bin</pre>	Changes the current working directory to /bin, which contains many system commands and executables.	
19. type vlc	<pre>angel@angel-VirtualBox:/bin\$ type vlc bash: type: vlc: not found</pre>	Checks if the VLC media player command exists and where it's located, if installed.	
20. cd	<pre>angel@angel-VirtualBox:/bin\$ cd</pre>	Moves you back to your home directory, no matter where you are.	
21. echo Today is `date`	<pre>angel@angel-VirtualBox:~\$ echo Today is `date` Today is Fri Oct 24 03:03:21 +08 2025</pre>	Displays the text "Today is" followed by the system's current date and time. The backticks run the date command inside the echo.	
22. echo Today is \$(date)	<pre>angel@angel-VirtualBox:~\$ echo Today is \$(date) Today is Fri Oct 24 03:03:42 +08 2025</pre>	Does the same as the previous command. The \$( ) syntax is another way to insert command output inside a line.	
23. echo This is the command "date"	<pre>angel@angel-VirtualBox:~\$ echo This is the command ' date' This is the command 'date'</pre>	Prints the text literally, showing the backticks instead of running the command.	
24. echo This is the command \'date\'	<pre>angel@angel-VirtualBox:~\$ echo This is the command \'date\' This is the command 'date'</pre>	Displays the text with the backticks shown as characters, not as command substitution.	
25. echo This is the command ""date""	<pre>angel@angel-VirtualBox:~\$ echo This is the command ""date"" This is the command Fri Oct 24 03:04:47 +08 2025</pre>	Prints the backticks inside quotation marks as part of the text.	
26. echo D*	<pre>angel@angel-VirtualBox:~\$ echo D* Desktop Documents Downloads</pre>	Shows all file or folder names in the current directory that start with the letter "D".	
27. echo "D*"	<pre>angel@angel-VirtualBox:~\$ echo "D*" D*</pre>	Prints the literal text "D*" instead of expanding it to file names, because it's inside quotes.	
28. echo Hello; echo Linux; echo Student	<pre>angel@angel-VirtualBox:~\$ echo Hello; echo Linux; echo Student Hello Linux Student</pre>	Runs three echo commands in one line, separated by semicolons, printing all messages one after another.	
29. false; echo Not; echo Conditional	<pre>angel@angel-VirtualBox:~\$ false; echo Not; echo Conditional Not Conditional</pre>	Runs the command false (which always fails), but still continues to run the next commands since semicolons ignore command results.	
30. echo Start && echo Going && echo Gone	<pre>angel@angel-VirtualBox:~\$ echo Start &amp;&amp; echo Going &amp;&amp; echo Gone Start Going Gone</pre>	Uses && to run the next command only if the previous one	

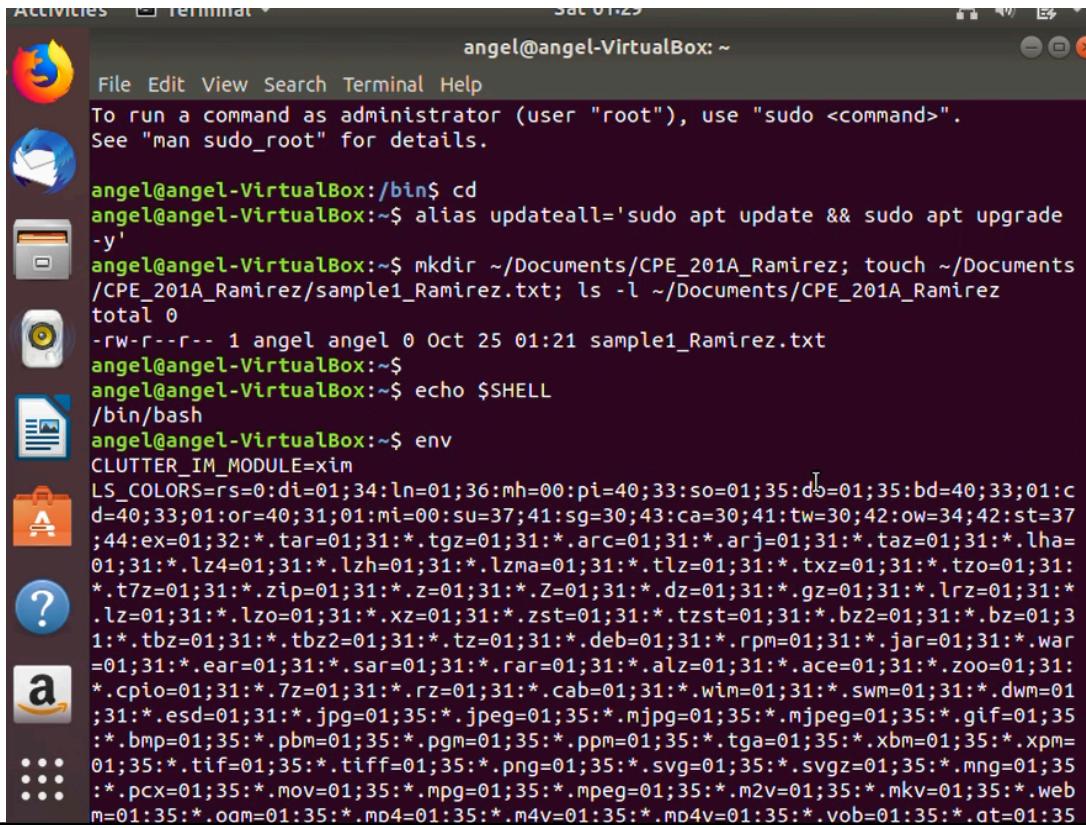


37. env

```
angel@angel-VirtualBox:~$ env
CLUTTER_IM_MODULE=xim
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33:01:c
d=40;33:01:or=40;31:01:mi=00:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37
;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:*.lha=
01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:
*.t7z=01;31:*.zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*
.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;3
1:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war
=01;31:*.ear=01;31:*.sar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:
*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01
;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpeg=01;35:*.mjpeg=01;35:*.gif=01;35
:*.bmp=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=
01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:*.svg=01;35:*.svgz=01;35:*.mng=01;35
:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.web
m=01;35:*.odm=01;35:*.md4=01;35:*.m4v=01;35:*.md4v=01;35:*.vob=01;35:*.at=01:35
*.XDG_MENU_PREFIX=gnome-
LANG=en_PH.UTF-8
DISPLAY=:0
SESSIONTYPE=GNOME-SESSION_MODE_ubuntu
COLORTERM=truecolor
USER=angel
XDG_VTNR=1
XDG_RUNTIME_DIR=/tmp/user/1000/keyring/ssh
XDG_SESSION_ID=1
USER=angel
DESKTOP_SESSION=ubuntu
TEXTDOMAIN=gnome-terminal
TEXTDOMAIN_DIRS=/usr/share/locale/
GNOME_TERMINAL_SCREEN=/org/gnome/Terminal/screen/4ac974aa_7f26_400e_b2a3_f9cfb6
d3db3f
PWD=/home/angel
HOME=/home/angel
TEXTDOMAIN=gnome-terminal
SSH_AGENT_PID=85
SSH_AGENT_SOCK=/tmp/ssh-angel-1000/agent.188
XDG_SEAT=seat0
SHLVL=1
GNOME_DESKTOP_SESSION_ID=gnome-terminal
GNOME_DESKTOP_SESSION_ID=this-is-deprecated
LOGNAME=angel
DBUS_SESSION_BUS_ADDRESS=unix:path:/run/user/1000/bus
XDG_RUNTIME_DIR=/tmp/user/1000/keyring/ssh
XAUTHORITY=/run/user/1000/xdg/xauthority
XDG_CONFIG_DIRS=/etc/xdg:/xdg/ubuntu:/etc/xdg
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/bin:/usr/games:/u
sr/local/games:/snap/bin
XDG_DEBUG_TOPICS=35 ERROR:35 LOG
SESSION_MANAGER=local:angel-VirtualBox:@tmp/.ICE-unix/756.unix/angel-VirtualBo
top
```

Lists all environment variables and their current values, similar to printenv.v

## 6. Supplementary Activity:

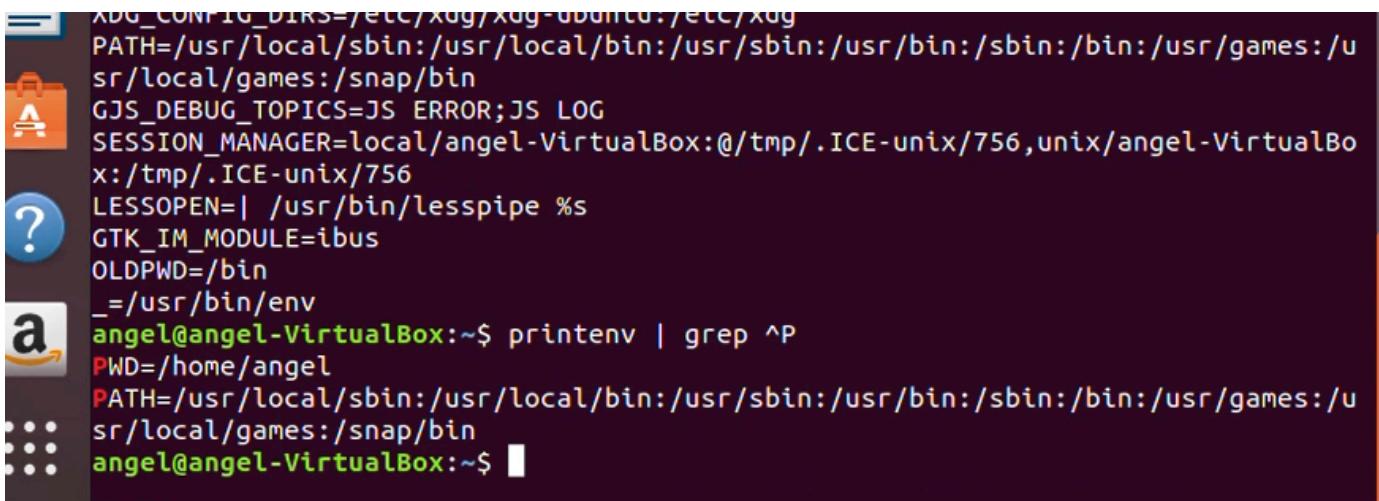


```
File Edit View Search Terminal Help
angel@angel-VirtualBox: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

angel@angel-VirtualBox:~/bin$ cd
angel@angel-VirtualBox:~$ alias updateall='sudo apt update && sudo apt upgrade -y'
angel@angel-VirtualBox:~$ mkdir ~/Documents/CPE_201A_Ramirez; touch ~/Documents/CPE_201A_Ramirez/sample1_Ramirez.txt
total 0
-rw-r--r-- 1 angel angel 0 Oct 25 01:21 sample1_Ramirez.txt
angel@angel-VirtualBox:~$
angel@angel-VirtualBox:~$ echo $SHELL
/bin/bash
angel@angel-VirtualBox:~$ env
CLUTTER_IM_MODULE=xim
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33:01:c
d=40;33:01:or=40;31:01:mi=00:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37
;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:*.lha=
01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:
*.t7z=01;31:*.zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*
.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;3
1:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war
=01;31:*.ear=01;31:*.sar=01;31:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:
*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01
;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpeg=01;35:*.mjpeg=01;35:*.gif=01;35
:*.bmp=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=
01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:*.svg=01;35:*.svgz=01;35:*.mng=01;35
:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.web
m=01;35:*.odm=01;35:*.md4=01;35:*.m4v=01;35:*.md4v=01;35:*.vob=01;35:*.at=01:35
```

```
angel@angel-VirtualBox: ~
File Edit View Search Terminal Help
.*.nuv=01;35:*.wmv=01;35:*.asf=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=
01;35:*.fli=01;35:*.flv=01;35:*.gl=01;35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.y
uv=01;35:*.cgm=01;35:*.emf=01;35:*.ogg=01;35:*.ogx=01;35:*.aac=00;36:*.au=00;36
:*.flac=00;36:*.m4a=00;36:*.mid=00;36:*.midi=00;36:*.mka=00;36:*.mp3=00;36:*.mp
c=00;36:*.ogg=00;36:*.ra=00;36:*.wav=00;36:*.oga=00;36:*.opus=00;36:*.spx=00;36
:*.xspf=00;36:
LESSCLOSE=/usr/bin/lesspipe %s %s
XDG_MENU_PREFIX=gnome-
LANG=en_PH.UTF-8
DISPLAY=:0
GNOME_SHELL_SESSION_MODE=ubuntu
COLORTERM=truecolor
USERNAME=angel
XDG_VTNR=1
SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
XDG_SESSION_ID=1
USER=angel
DESKTOP_SESSION=ubuntu
QT4_IM_MODULE=xim
TEXTDOMAINDIR=/usr/share/locale/
GNOME_TERMINAL_SCREEN=/org/gnome/Terminal/screen/f3d34cc6_5e99_4ae2_923c_b10511
c4b7c3
PWD=/home/angel
HOME=/home/angel
TEXTDOMAIN=im-config
SSH_AGENT_PID=855
QT_ACCESSIBILITY=1
XDG_SESSION_TYPE=x11
```

```
angel@angel-VirtualBox: ~
File Edit View Search Terminal Help
XDG_SESSION_TYPE=x11
XDG_DATA_DIRS=/usr/share/ubuntu:/usr/local/share:/usr/share:/var/lib/snapd/desk
top
XDG_SESSION_DESKTOP=ubuntu
GJS_DEBUG_OUTPUT=stderr
GTK_MODULES=gail:atk-bridge
WINDOWPATH=1
TERM=xterm-256color
SHELL=/bin/bash
VTE_VERSION=5201
QT_IM_MODULE=xim
XMODIFIERS=@im=ibus
IM_CONFIG_PHASE=2
XDG_CURRENT_DESKTOP=ubuntu:GNOME
GPG_AGENT_INFO=/run/user/1000/gnupg/S.gpg-agent:0:1
GNOME_TERMINAL_SERVICE=:1.108
XDG_SEAT=seat0
SHLVL=1
GDMSESSION=ubuntu
GNOME_DESKTOP_SESSION_ID=this-is-deprecated
LOGNAME=angel
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus
XDG_RUNTIME_DIR=/run/user/1000
XAUTHORITY=/run/user/1000/gdm/Xauthority
XDG_CONFIG_DIRS=/etc/xdg/xdg-ubuntu:/etc/xdg
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/u
sr/local/games:/snap/bin
GJS_DEBUG_TOPICS=JS_ERROR;JS_LOG
SESSION_MANAGER=local/angel-VirtualBox:@/tmp/.ICE-unix/756.unix/angel-VirtualBo
```



```
ADO_CONFIG_DIRS=/etc/xorg/xorg-ubuntu:/etc/xorg
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
GJS_DEBUG_TOPICS=JS ERROR;JS LOG
SESSION_MANAGER=local/angel-VirtualBox:@/tmp/.ICE-unix/756,unix/angel-VirtualBo
x:/tmp/.ICE-unix/756
LESSOPEN=| /usr/bin/lesspipe %s
GTK_IM_MODULE=ibus
OLDPWD=/bin
_=~/usr/bin/env
angel@angel-VirtualBox:~$ printenv | grep ^P
PWD=/home/angel
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/u
sr/local/games:/snap/bin
angel@angel-VirtualBox:~$
```

**1. An alias can be used to map longer commands to shorter key sequences. Use an alias to represent a very long command.**

For this task, I used the command `is alias updateall='sudo apt update && sudo apt upgrade -y'` I learned this by watching a YouTube tutorial on how to make shortcuts in Linux. The alias command is used to create a short name for a long command, so it's easier to remember and faster to type. In my case, I made "updateall" as the shortcut for updating and upgrading all my system packages. It's really helpful because instead of typing the whole command every time, I just type updateall and it does everything automatically.

**2. Create a new directory in the Documents directory. Rename the directory as CPE\_201A\_(lastname). Create a new file inside the CPE\_201A\_(lastname) directory. Rename the file as sample1\_lastname.txt. Display the content of the CPE\_201A\_(lastname) directory by executing one line of command only.**

The command I used was `mkdir ~/Documents/CPE_201A_Ramirez; touch ~/Documents/CPE_201A_Ramirez/sample1_Ramirez.txt; ls -l ~/Documents/CPE_201A_Ramirez` as im not really familiar on how to create this I also searched on YouTube how to create directories and files using one line of command. The first part mkdir creates a folder inside the Documents directory named CPE\_201A\_Ramirez. The second part touch makes a new empty file called sample1\_Ramirez.txt inside that folder. The last part ls -l lists everything inside the folder, showing the file that I created. It was really cool to see how all three commands can be combined using a semicolon so they run one after another.

**3. Execute a command to display the working shell.**

For this one, I typed `echo $SHELL`, The \$SHELL variable shows what kind of shell I'm currently using. When I ran the command, it displayed something like /bin/bash, which means I'm using the Bash shell. The echo command just prints the value of that variable. It's simple but useful to know because Linux can have different shell types and this helps identify which one is active.

**4. Shell variables, called environment variables, have the string data type and typically are named with capital letters and the \_ (underline) character. Names are case sensitive. The env command will list all the environment variables. The printenv command will list all or will list only the names on its command line. List all environment variables. Which start with P?**

The command I used was `printenv | grep ^P`. The `printenv` command lists all environment variables in the system, and by adding `| grep ^P`, it filters the list to only show variables that start with the letter "P". The `^` means "starts with." When I tried it, I saw variables like `PATH` and `PWD`. This helps me understand how Linux stores system information and how we can filter it using the pipe `|` symbol.

### **7. Conclusion:**

In this activity, I learned a lot about how to use the Linux command line. At first I was confused and kind of scared to type commands because I thought I might break something. But after watching and searching online, I understand now that the terminal is actually easy to use once you get used to it. I learned how to make an alias to shorten long commands and it really saves a lot of time. It made me realize that Linux is very customizable and efficient if you know what you're doing.

I also learned how to create folders and files using only one line of command. Before, I only knew how to do that by right clicking on the desktop, but now I can do it a little better in the terminal. I also learned that `echo $SHELL` tells what shell I'm using, and it's nice to know because different Linux systems can use different shells. When I typed those commands, I started to feel more confident and familiar with how Linux works behind the scenes.

Lastly, I learned how to display environment variables and filter them using pipes and grep. It was interesting to see how many system settings are stored as variables that we can access easily. Doing this activity made me understand more why Linux users prefer command line because it's much faster. I realize that learning these commands is very important for me as a Computer Engineering student, because it's the foundation of how systems and servers are managed. Overall, I really enjoyed doing this and I'm proud that I was able to make it work by myself with the help of Google and YouTube.

### **8. Assessment (Rubric for Laboratory Performance):**