

Go2Linux

LINUX UBUNTU TRAINING GUIDE

Introduction

This tutorial is about step by step guide on downloading and installing Ubuntu Operating system in Linux using virtual machine (VMware). Some of the features, working and commands of the Ubuntu OS has been described and elaborated in this training guide.

Overview of Ubuntu

Ubuntu OS is Linux-based operating system that is intended to operate in PCs, smartphones, and network servers. A UK based firm known as Canonical Ltd designed Ubuntu OS. The principles for developing and designing the Ubuntu software is particularly based on the codes of Open Source software development.

Features of Ubuntu

Ubuntu has following significant features:

- It supports all the windows softwares such as Chrome, Mozilla Firefox, VLC, etc.
- It has an inbuilt software for email named Thunderbird that gives users the access to open Gmail, Hotmail, etc.
- It supports LibreOffice.
- Free applications to edit and share photos and videos are available in Ubuntu.
- It has a smart searching facility that assists user to find the content easily and fast.
- It is available for free on internet and is backed by open source community.

Ubuntu Environment

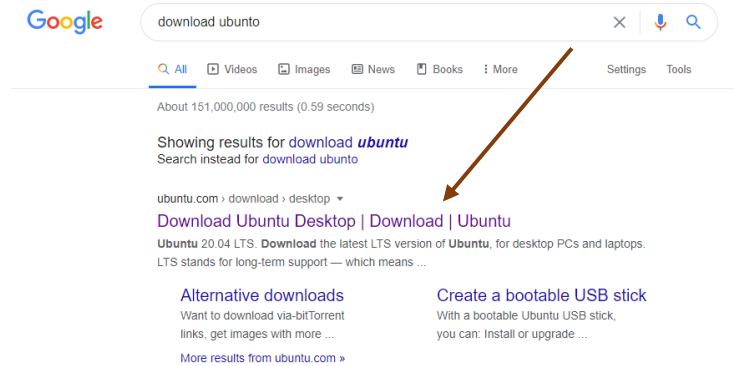
Before installing Ubuntu OS, it must be ensured that system has enough hard disk space available. System requirements for installing Ubuntu are mentioned below:

Disk Space	25 – 30 GB of free disk drive space
Processor	2 GHz dual core processor or better
RAM	Recommended 2 GB
Other Requirements	Fast and continuous internet connection to make download easy

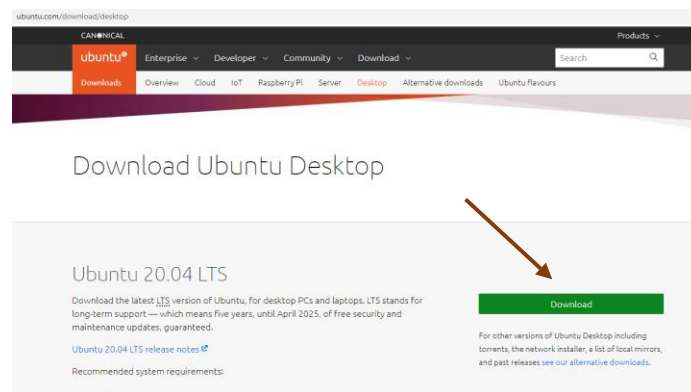
Download Ubuntu OS

Go to Google search engine and write “Download Ubuntu”.

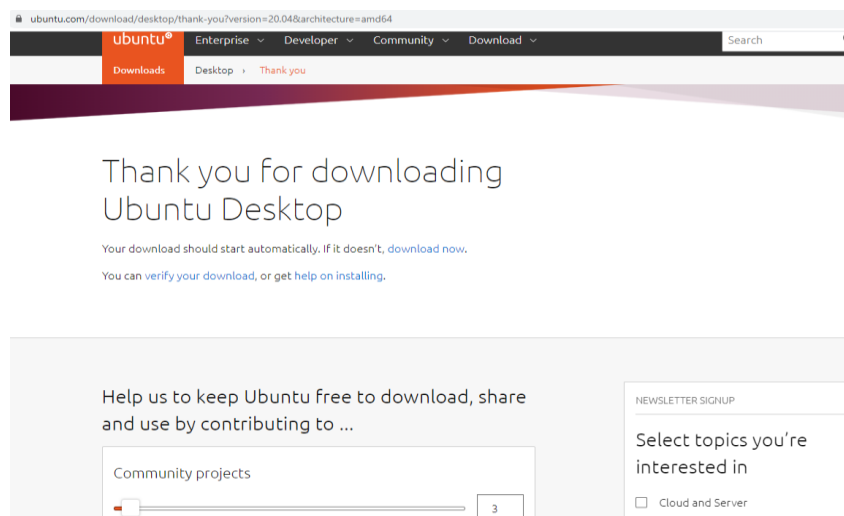
Click on the first search option appearing at the top.



A website for downloading Ubuntu will open up, click on the “Download” button represented in green colored box.



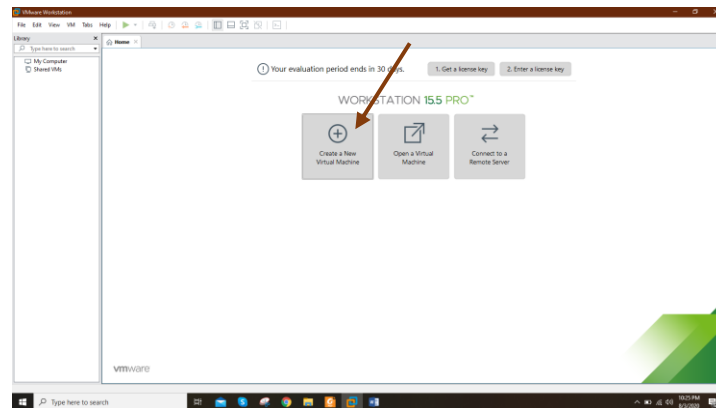
In the next step, downloading of “.iso file” will start in few seconds and following page will appear.



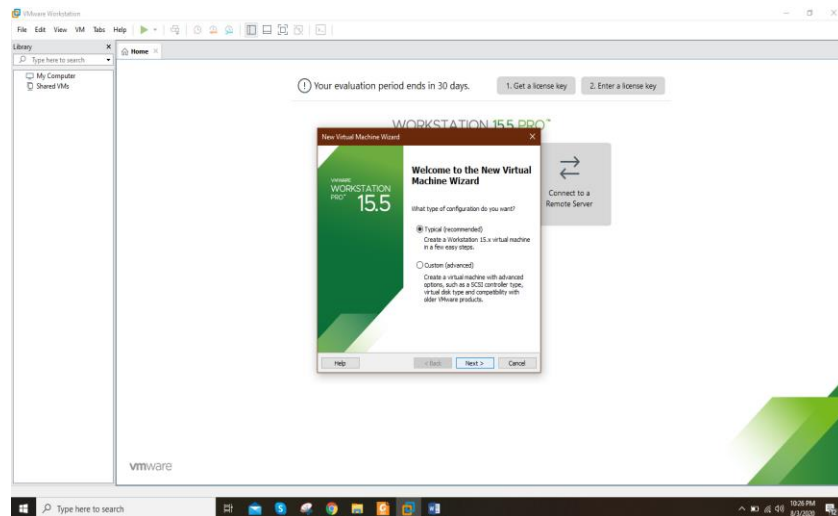
Installation of Ubuntu OS

Before installing Ubuntu OS, make sure that VMware (virtual machine workstation) is already installed in the system because this process of installing and working of Ubuntu is processed through VMware.

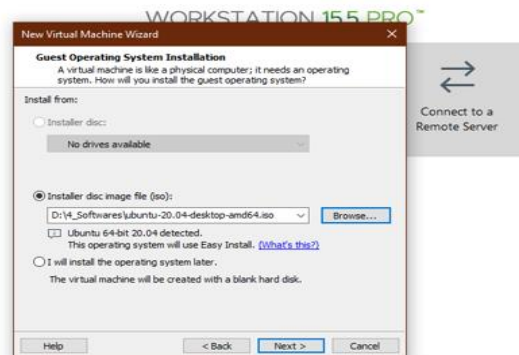
To install Ubuntu OS, open Virtual Machine workstation as shown in figure below and click on “create a new Virtual machine”



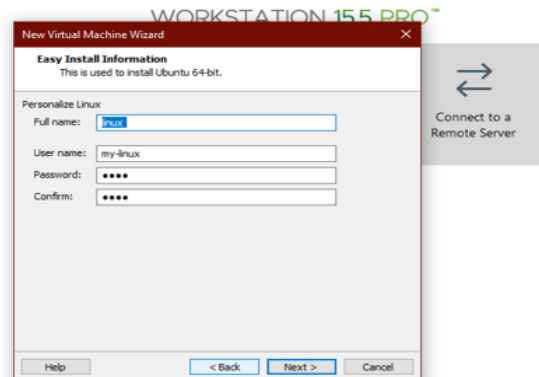
A welcome message with two options will pop-up, select “Typical (Recommended)” and click next.



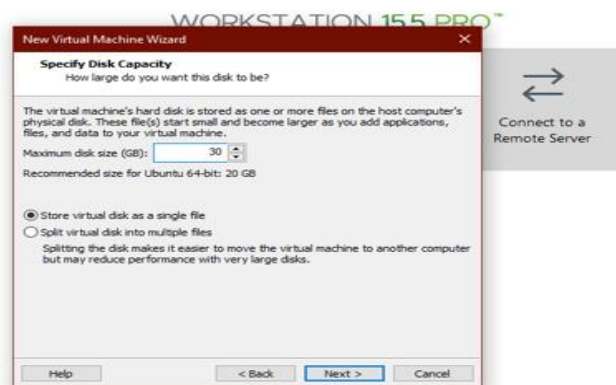
Browse the “.iso” file of Ubuntu from a place where it is downloaded and click Next.



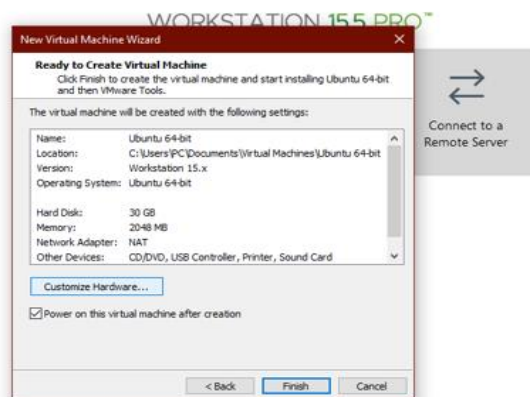
The OS will require “user name” and “password” to personalize and create the default account on Linux. Make sure there is no space between the username you mention and then click Next.



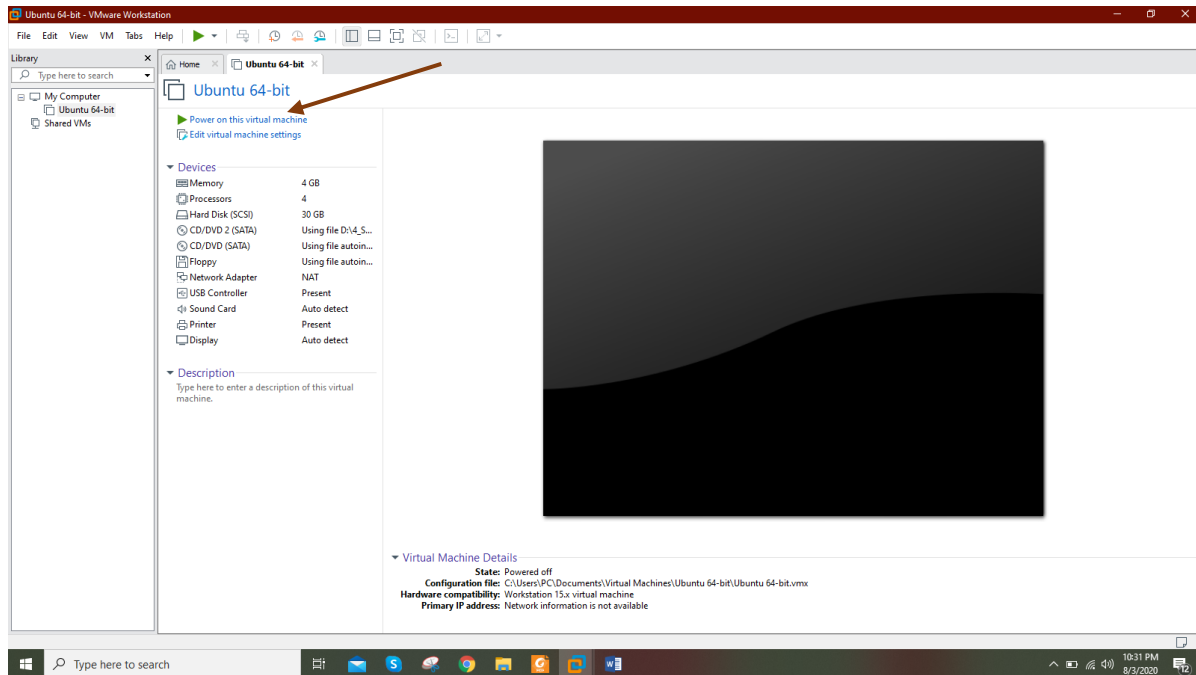
As mentioned in system requirement section that a space of 25 to 30 GB is recommended for system to work, so, disk partitioning pop up will appear. Scroll up the number to 30 GB on “Maximize disk size” block.



In the next step, select the option “Finish”.



Following screen will appear after clicking “finish” in previous step. Click on “Power on this virtual machine” at the upper left corner under Ubuntu 64 bit. Installation of Ubuntu OS will start.



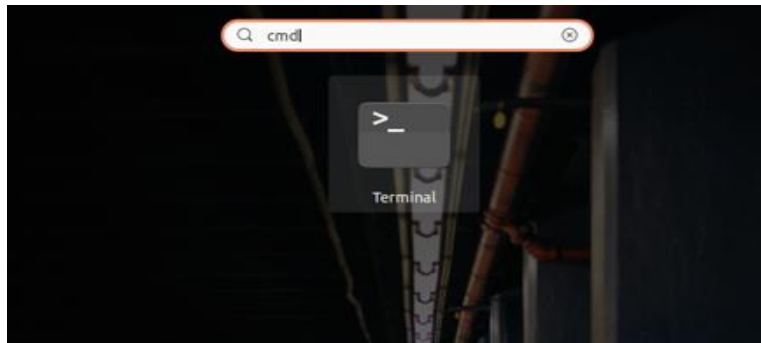
Command Line Operations

- *Listing of files and command line attributes*

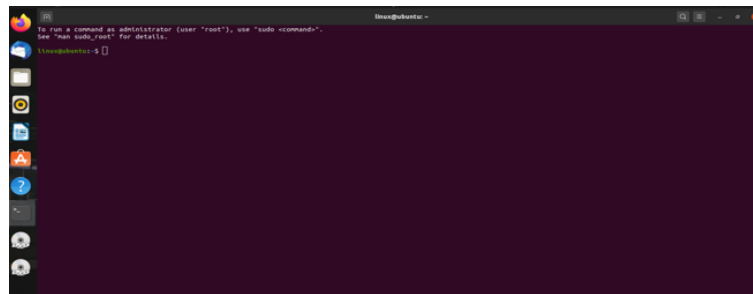
After installation, open Ubuntu OS thru virtual machine. It is because using VMware, any OS can run simultaneously on windows just like any other application runs.

Now, several command line operations will be demonstrated in this training guide ahead.

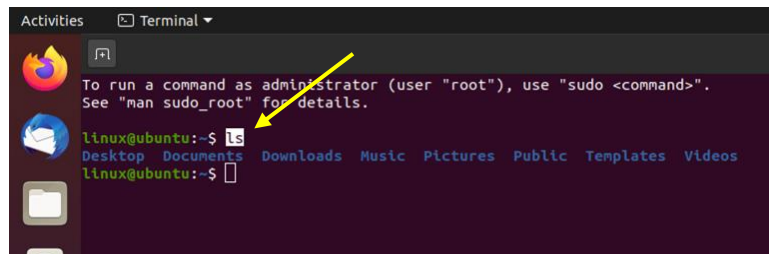
Open a new terminal by writing “cmd” in search box in Ubuntu OS as shown in figure below.



A new terminal window will open where different commands will be given for any action to be done as seen below.

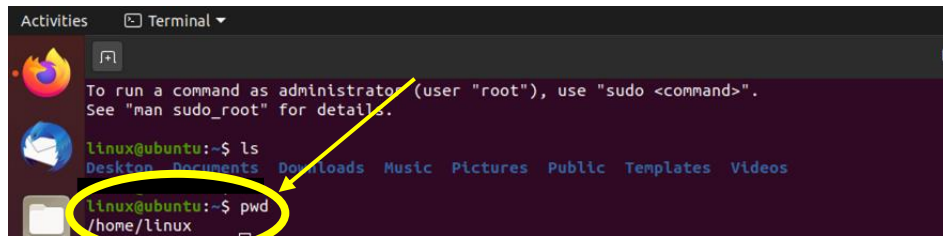


Write “\$ ls” in terminal and press “Enter”. It will show you the list of all the applications present in the current directory as shown in figure below.



- *Current directory*

To know about the current directory (cd) of your work place, type “\$ pwd” in terminal, it will show the current directory. Here it shows that current directory is “Home/linux”.

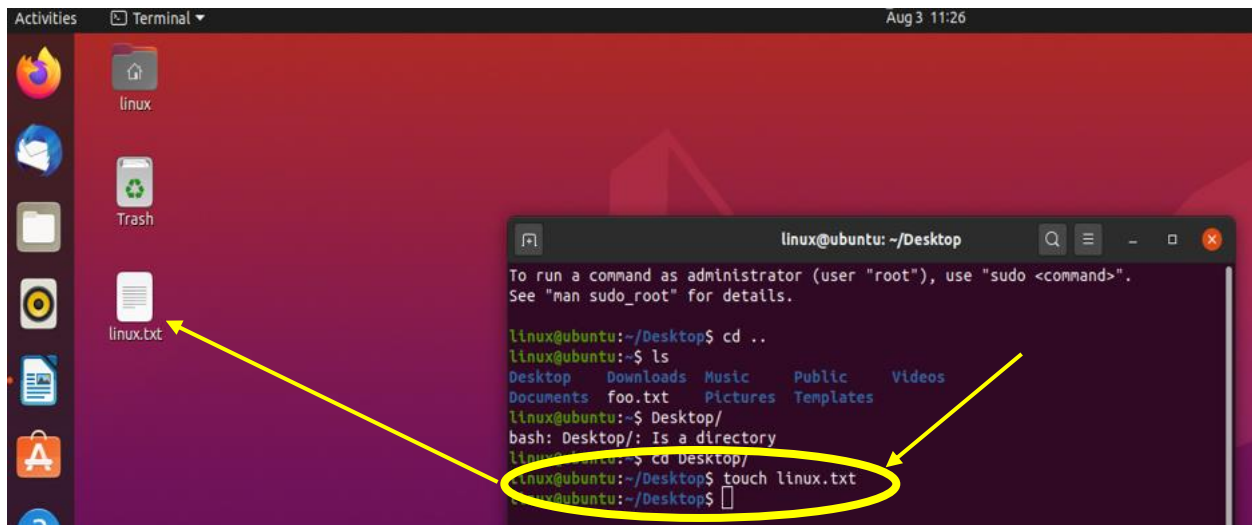


A terminal window titled 'Terminal' showing the command 'pwd' being executed. The output is '/home/linux'. A yellow circle highlights the command and its output. A yellow arrow points from the text 'Creating file and copying it to different directory' to the terminal window.

```
linux@ubuntu:~$ pwd
/home/linux
```

- *Creating file and copying it to different directory*

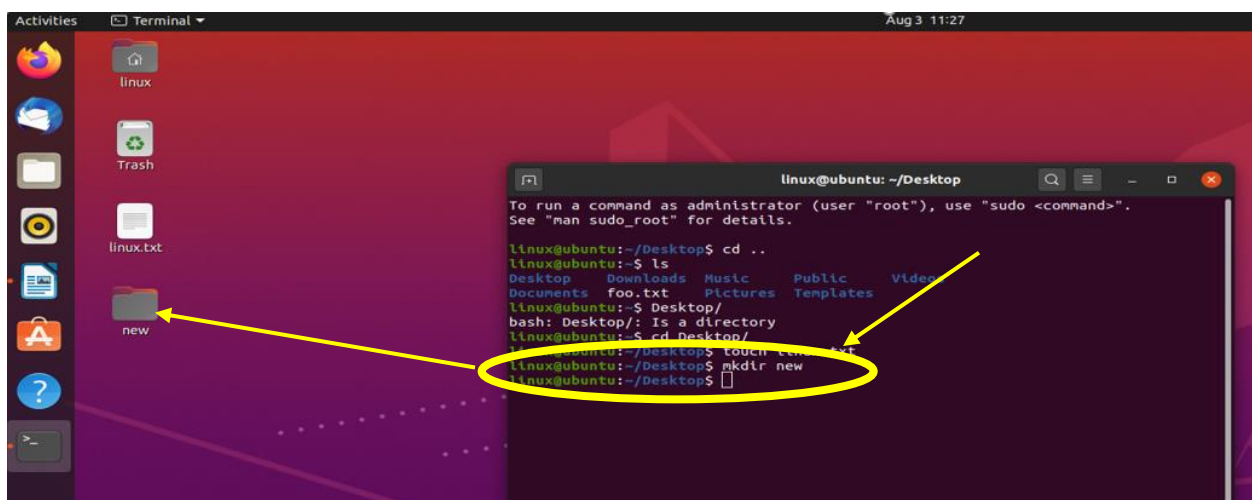
To create a file, use command “touch” and name the file by giving text file extension “.txt”. In this guide, a new file has been created by typing “\$ touch linux.txt” in terminal.



A terminal window titled 'Terminal' showing the command 'touch linux.txt' being executed. The output is 'touch: linux.txt'. A yellow circle highlights the command and its output. A yellow arrow points from the text 'Creating file and copying it to different directory' to the terminal window. Another yellow arrow points from the text 'To copy the created file into different directory, a new directory (folder) is needed for which command “mkdir” is given in terminal and the name of the new folder to be created is provided as done in this tutorial such as “\$ mkdir new” where “new” is the name of the folder created.’ to the terminal window.

```
linux@ubuntu:~/Desktop$ touch linux.txt
touch: linux.txt
```

To copy the created file into different directory, a new directory (folder) is needed for which command “mkdir” is given in terminal and the name of the new folder to be created is provided as done in this tutorial such as “\$ mkdir new” where “new” is the name of the folder created.

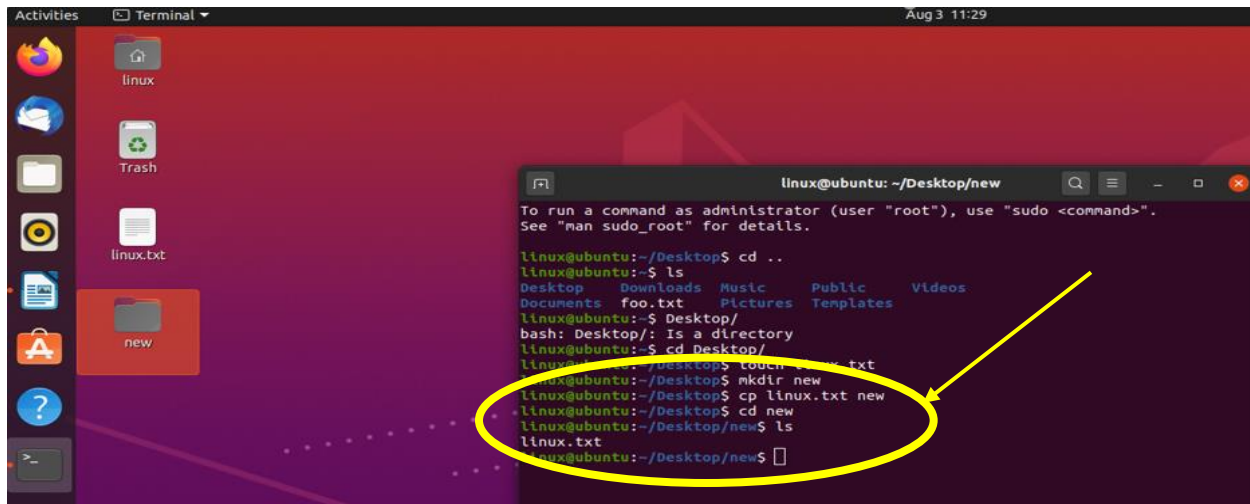


A terminal window titled 'Terminal' showing the command 'mkdir new' being executed. The output is 'mkdir: new'. A yellow circle highlights the command and its output. A yellow arrow points from the text 'Creating file and copying it to different directory' to the terminal window. Another yellow arrow points from the text 'To copy the created file into different directory, a new directory (folder) is needed for which command “mkdir” is given in terminal and the name of the new folder to be created is provided as done in this tutorial such as “\$ mkdir new” where “new” is the name of the folder created.’ to the terminal window.

```
linux@ubuntu:~/Desktop$ mkdir new
mkdir: new
```


Now copy the text file “linux.txt” into “new” directory. Give the command, “\$ cp linux.txt new”, where *cp* is the command used to copy the desired file.

To see if the file has been copied to the new directory or not, go to new directory by typing “\$ cd new” and give command for listing all the files present in this folder, “\$ ls”. It will show the file of “linux.txt” present in new directory.



The screenshot shows a Linux desktop with a terminal window open. The terminal displays the following commands and output:

```
linux@ubuntu: ~/Desktop/new
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

linux@ubuntu:~/Desktop$ cd ..
linux@ubuntu:~$ ls
Desktop  Downloads  Music      Public     Videos
Documents  foo.txt   Pictures  Templates
linux@ubuntu:~$ cd Desktop/
bash: Desktop/: Is a directory
linux@ubuntu:~$ cd Desktop/
linux@ubuntu:~/Desktop$ touch linux.txt
linux@ubuntu:~/Desktop$ mkdir new
linux@ubuntu:~/Desktop$ cp linux.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux.txt
linux@ubuntu:~/Desktop/new$
```

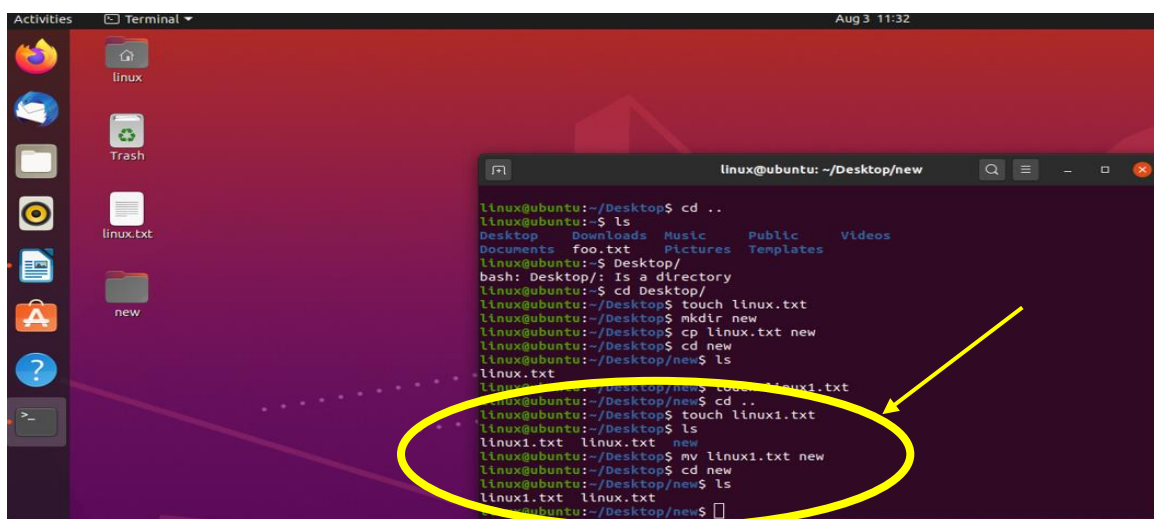
A yellow circle highlights the commands `mkdir new`, `cp linux.txt new`, `cd new`, and `ls` in the terminal output. A yellow arrow points from the circle to the `ls` command's output, which shows `linux.txt`.

- *Create a second file and move it to a different directory*

As you are present in “new” directory and need to go back, give command “\$ cd ..”. Using this, you will come back to the desktop directory. Here create a second text file by giving command “\$ touch linux1.txt”. Using “\$ ls” command will show the list of all the files present in desktop.

To move the second text file to the new directory, type “\$ mv linux1.txt new” where “mv” is the command used to move the file.

Go to the new directory by using command “\$ cd new” and give command to show the list of all files present in new directory using “\$ ls”. It will show the already copied file of “linux.txt” and moved second file “linux1.txt”.



The screenshot shows a Linux desktop with a terminal window open. The terminal displays the following commands and output:

```
linux@ubuntu:~/Desktop/new
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~$ ls
Desktop  Downloads  Music      Public     Videos
Documents  foo.txt   Pictures  Templates
linux@ubuntu:~$ cd Desktop/
bash: Desktop/: Is a directory
linux@ubuntu:~$ cd Desktop/
linux@ubuntu:~/Desktop$ touch linux.txt
linux@ubuntu:~/Desktop$ mkdir new
linux@ubuntu:~/Desktop$ cp linux.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux.txt
linux@ubuntu:~/Desktop/new$ touch linux1.txt
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~/Desktop$ touch linux1.txt
linux@ubuntu:~/Desktop$ ls
linux1.txt  linux.txt  new
linux@ubuntu:~/Desktop$ mv linux1.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux1.txt  linux.txt
linux@ubuntu:~/Desktop/new$
```

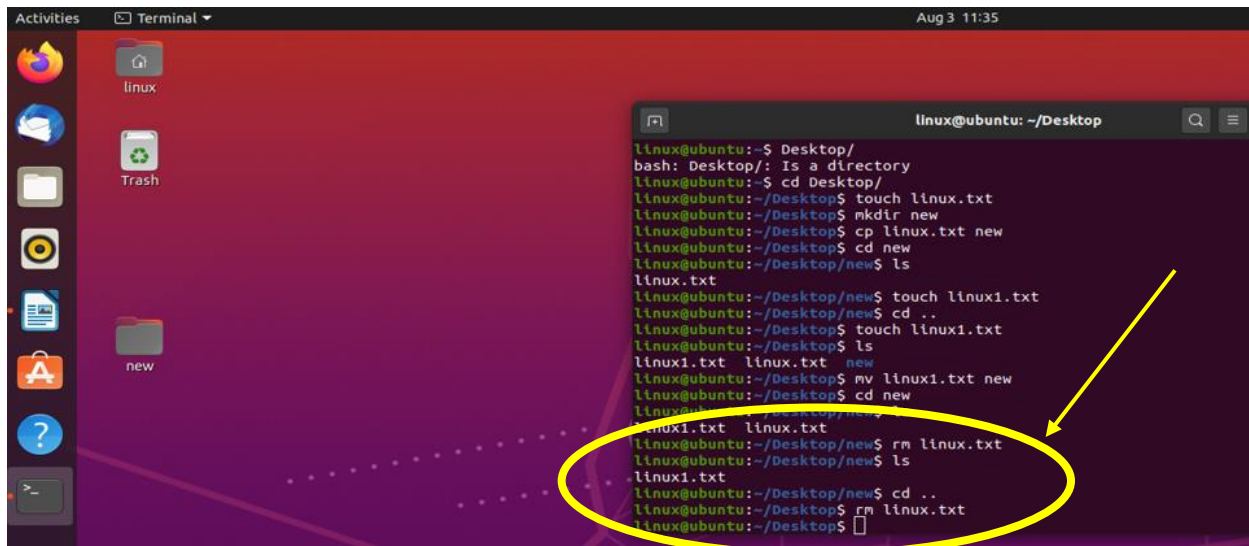
A yellow circle highlights the commands `touch linux1.txt`, `cd ..`, `touch linux1.txt`, `ls`, and `mv linux1.txt new` in the terminal output. A yellow arrow points from the circle to the `ls` command's output, which shows `linux1.txt` and `linux.txt`.

- *Remove the first file as well as the copy created*

While being in new directory, copied file will be removed from here first by using command “\$ rm linux.txt”.

To check if the file has been removed or not, type command “\$ ls”, it will show only second file (linux1.txt).

We need to remove the first file from the desktop also, so go back to the desktop directory using command “\$ cd .” and again write “\$ rm linux.txt” to remove. First file will be removed from desktop too.



```

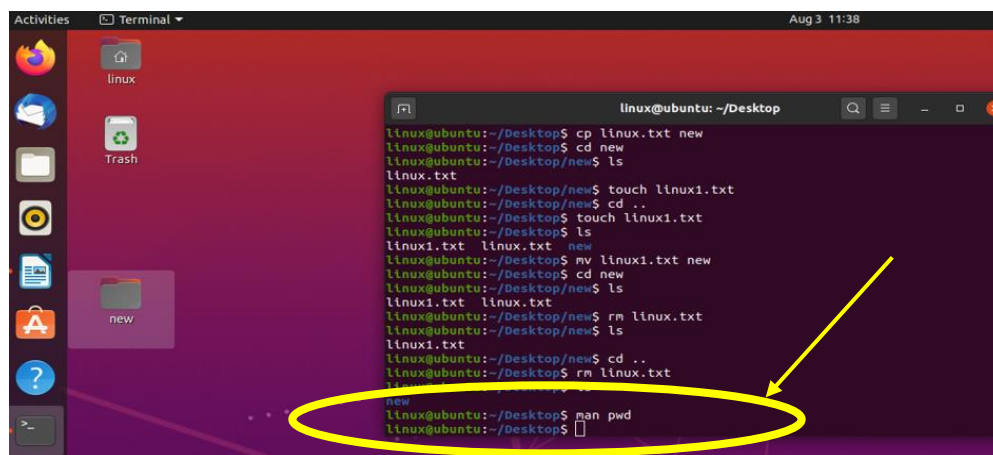
linux@ubuntu:~$ Desktop/
bash: Desktop/: Is a directory
linux@ubuntu:~$ cd Desktop/
linux@ubuntu:~/Desktop$ touch linux.txt
linux@ubuntu:~/Desktop$ mkdir new
linux@ubuntu:~/Desktop$ cp linux.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux.txt
linux@ubuntu:~/Desktop/new$ touch linux1.txt
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~/Desktop$ touch linux1.txt
linux@ubuntu:~/Desktop$ ls
linux1.txt  linux.txt  new
linux@ubuntu:~/Desktop$ mv linux1.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ rm linux.txt
linux@ubuntu:~/Desktop/new$ ls
linux1.txt
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~/Desktop$ rm linux.txt
linux@ubuntu:~/Desktop$

```

- *The manual page for a given command*

“man command” in Ubuntu displays user manual of any command provided to run on the terminal. Using this command, a detail of that specific command displays such as Name, Synopsis, Description, Author, Bugs, Copyright and See also.

In this guide, the user manual of current directory is displayed by giving command “\$ man pwd” to the terminal.

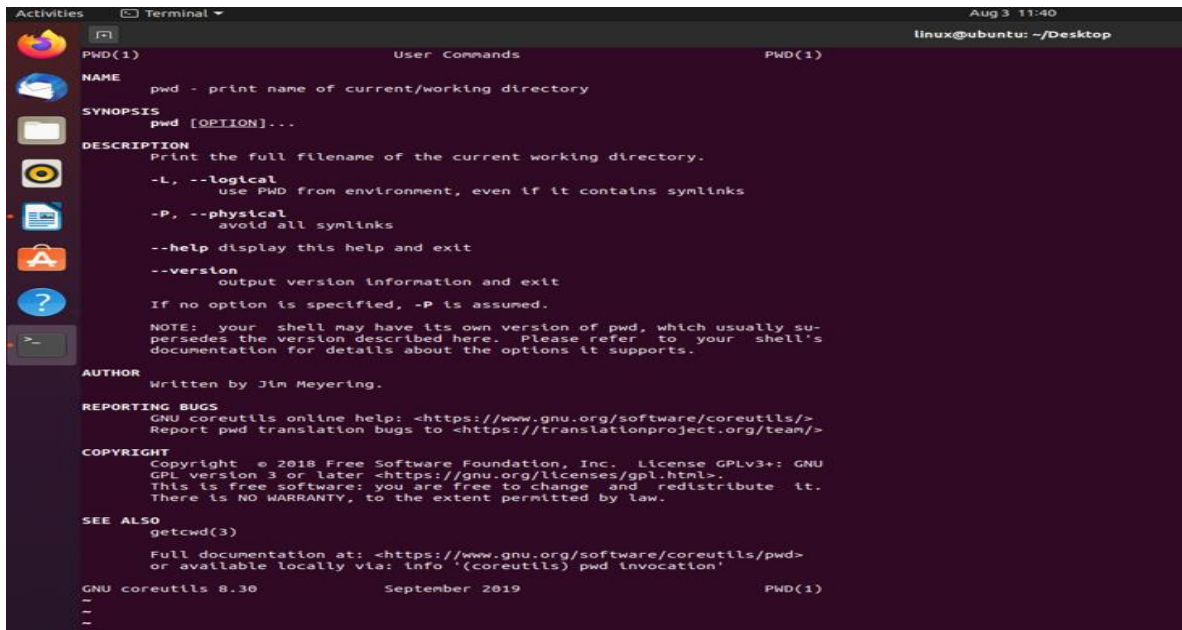


```

linux@ubuntu:~/Desktop$ cp linux.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux.txt
linux@ubuntu:~/Desktop/new$ touch linux1.txt
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~/Desktop$ touch linux1.txt
linux@ubuntu:~/Desktop$ ls
linux1.txt  linux.txt  new
linux@ubuntu:~/Desktop$ mv linux1.txt new
linux@ubuntu:~/Desktop$ cd new
linux@ubuntu:~/Desktop/new$ ls
linux1.txt  linux.txt
linux@ubuntu:~/Desktop/new$ rm linux.txt
linux@ubuntu:~/Desktop/new$ ls
linux1.txt
linux@ubuntu:~/Desktop/new$ cd ..
linux@ubuntu:~/Desktop$ rm linux.txt
linux@ubuntu:~/Desktop$ man pwd
linux@ubuntu:~/Desktop$

```

Following information appears regarding current directory.



```
Activities  Terminal  Aug 3 11:40
linux@ubuntu: ~/Desktop

PWD(1)                                User Commands                                PWD(1)

NAME
  pwd - print name of current/working directory

SYNOPSIS
  pwd [OPTION]...

DESCRIPTION
  Print the full filename of the current working directory.

  -L, --logical          use PWD from environment, even if it contains symlinks
  -P, --physical         avoid all symlinks
  --help                display this help and exit
  --version              output version information and exit

  If no option is specified, -P is assumed.

  NOTE: your shell may have its own version of pwd, which usually supersedes the version described here. Please refer to your shell's documentation for details about the options it supports.

AUTHOR
  Written by Jim Meyering.

REPORTING BUGS
  GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
  Report pwd translation bugs to <https://translationproject.org/team/>

COPYRIGHT
  Copyright © 2018 Free Software Foundation, Inc. License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
  This is free software: you are free to change and redistribute it.
  There is NO WARRANTY, to the extent permitted by law.

SEE ALSO
  getcwd(3)

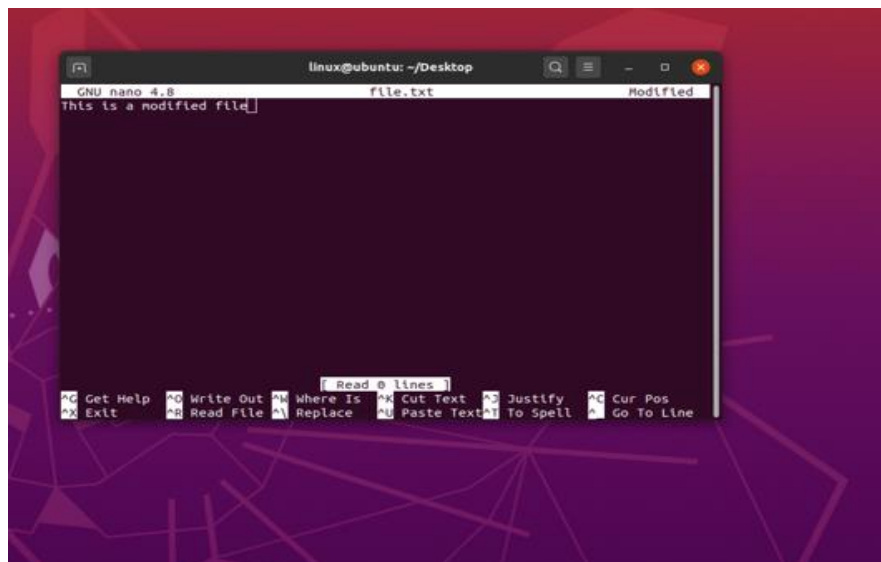
  Full documentation at: <https://www.gnu.org/software/coreutils/pwd>
  or available locally via: info '(coreutils) pwd invocation'

GNU coreutils 8.30          September 2019          PWD(1)
--
--
--
```

- *Create a text file, then use an editor to modify the content. Then display the content of the modified file*

To create a new text file, type “\$ touch file.txt” in terminal window. As it will be an empty file, to modify it, use “nano” command. Nano is an editor to modify the content in file.

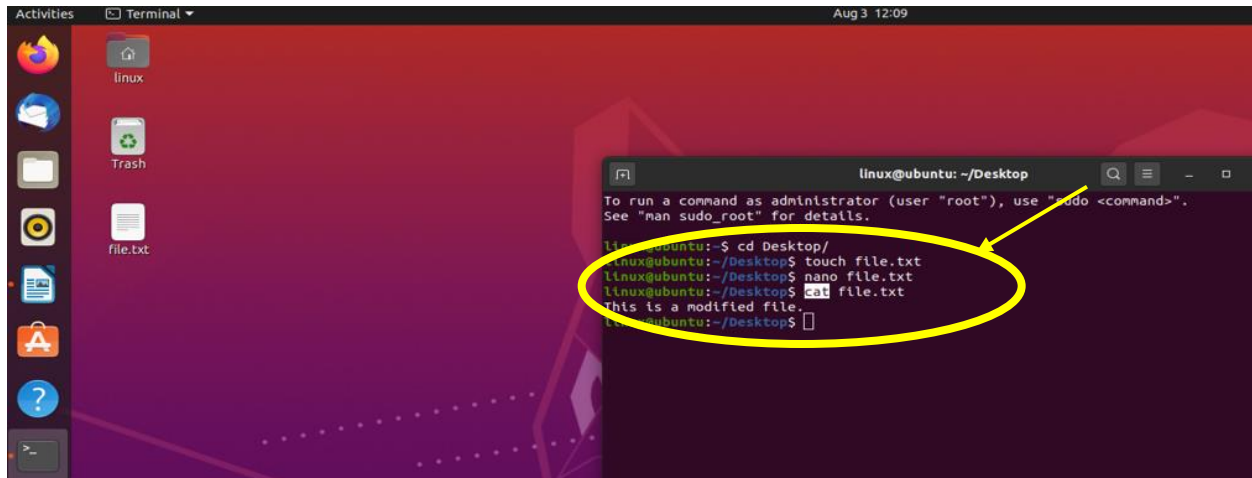
Type “\$ nano file.txt” to modify the file and press enter. Following window will appear.



To modify the file, press “^o” to write out something in the file as here “this is a modified file” is written as shown in figure above.

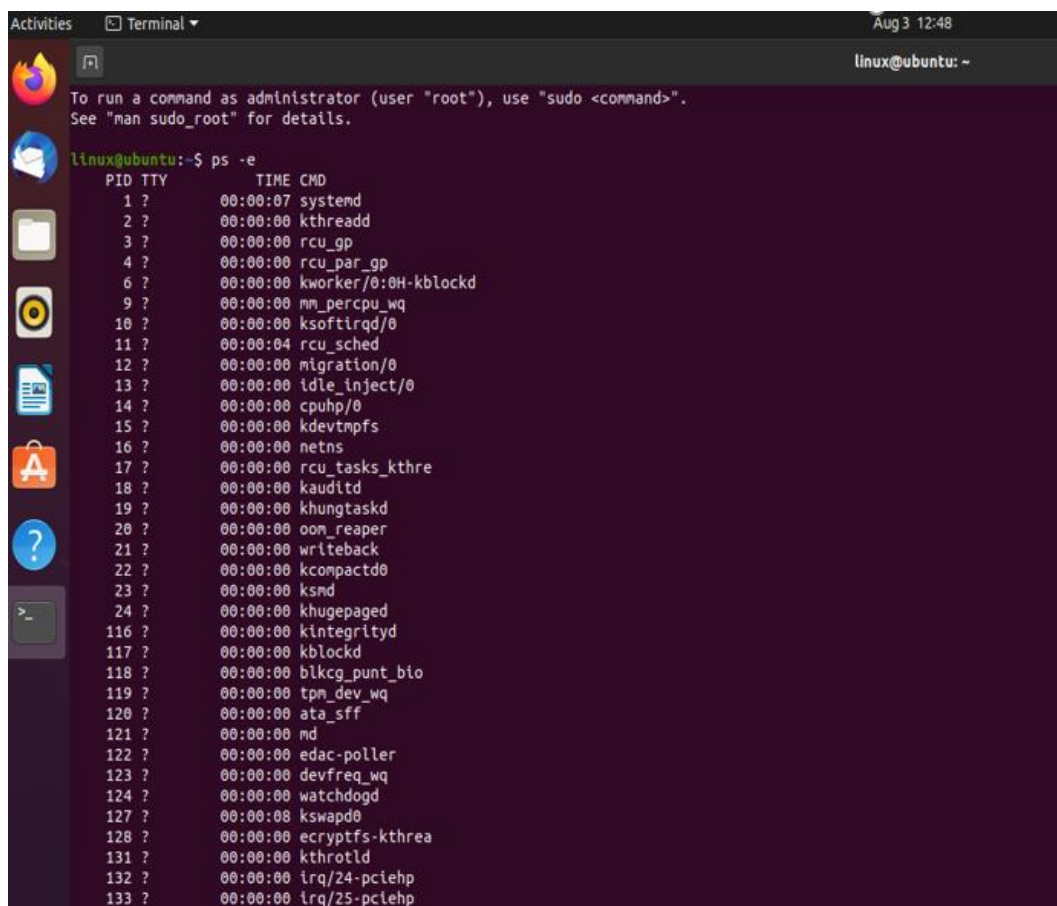
To exit from this screen, press “^x”.

In the next step, to display the modified content give command “\$ cat file.txt” in terminal window and it will show the content of the file.



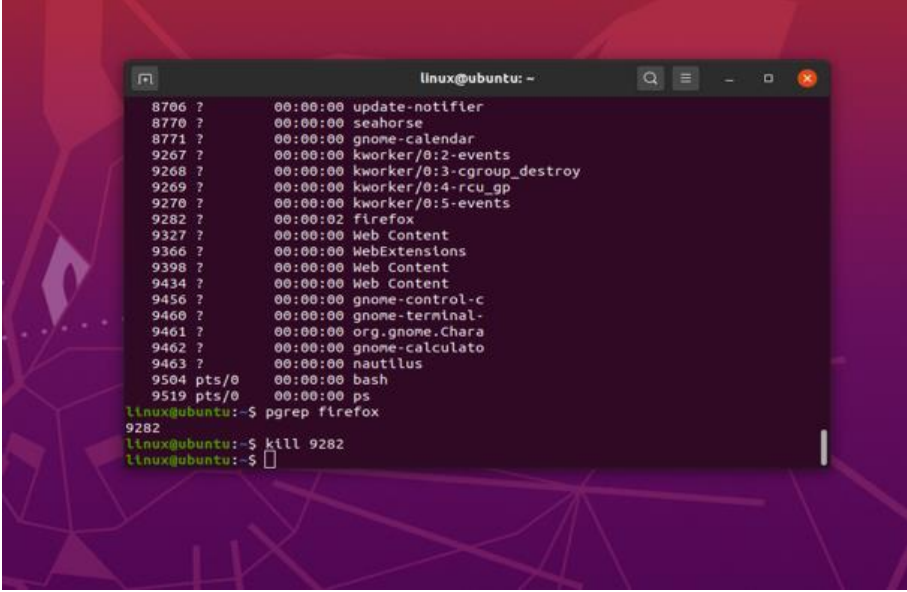
- *Show running process on the system. Demonstrate how to search for a specific process*

To show the running process in the system, write “\$ ps” in the terminal window. “ps” command is used to provide all the information regarding running processes in the system with their identification numbers.



To search for a specific running process e.g if anyone needs to find the “firefox process”, type command “\$ pgrep firefox” and press enter. Its process identification number (PID) will display in the terminal window.

To forcibly stop that running process, use “kill” command and write PID of that specific process. As shown in figure below that command “\$ kill 9282” has been used to stop the firefox process forcibly.

A terminal window titled 'linux@ubuntu: -' with standard window controls. It displays the output of the 'ps' command, listing various system and user processes. The 'firefox' process is listed with PID 9282. Below the list, the user enters the command 'pgrep firefox', which returns '9282'. Then, the user enters 'kill 9282', and the prompt returns without further output, indicating the command was executed successfully.

```
linux@ubuntu: -
8706 ?      00:00:00 update-notifier
8770 ?      00:00:00 Seahorse
8771 ?      00:00:00 gnome-calendar
9267 ?      00:00:00 kworker/0:2-events
9268 ?      00:00:00 kworker/0:3-cgroup_destroy
9269 ?      00:00:00 kworker/0:4-rcu_gp
9270 ?      00:00:00 kworker/0:5-events
9282 ?      00:00:02 firefox
9327 ?      00:00:00 Web Content
9366 ?      00:00:00 WebExtensions
9398 ?      00:00:00 Web Content
9434 ?      00:00:00 Web Content
9456 ?      00:00:00 gnome-control-c
9460 ?      00:00:00 gnome-terminal-
9461 ?      00:00:00 org.gnome.Chara
9462 ?      00:00:00 gnome-calculato
9463 ?      00:00:00 nautilus
9504 pts/0    00:00:00 bash
9519 pts/0    00:00:00 ps

linux@ubuntu:~$ pgrep firefox
9282
linux@ubuntu:~$ kill 9282
linux@ubuntu:~$
```

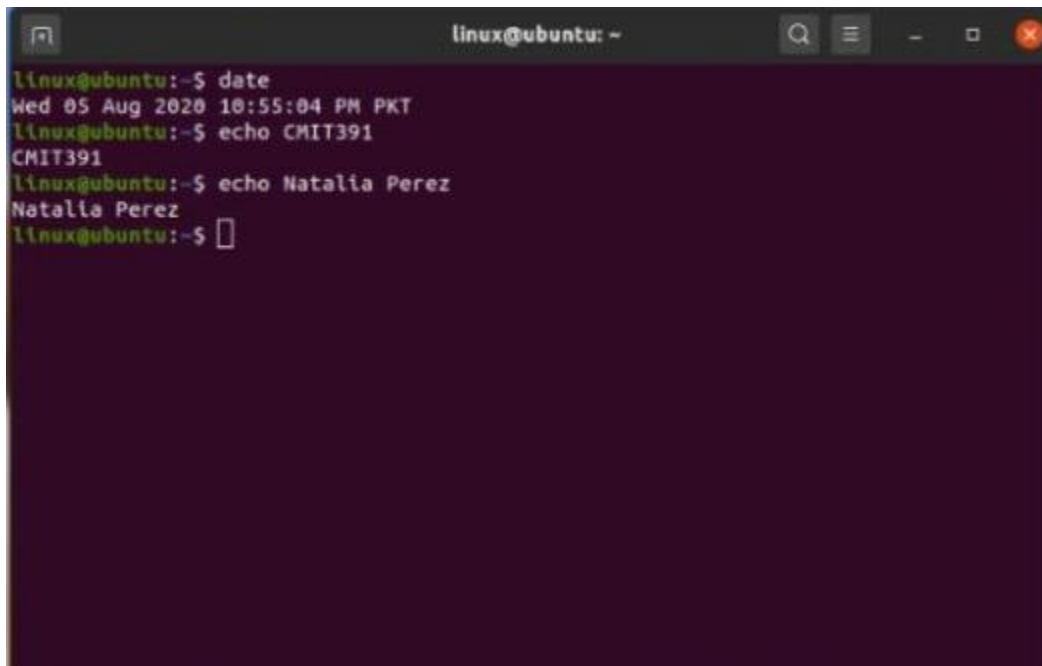

Submission Uniqueness

To show the uniqueness of the submission, following commands have been written in the terminal window.

“\$ date” then press enter.

“\$ echo CMIT391” then press enter.

“\$ echo name” then press enter.

A screenshot of a Linux terminal window with a dark purple background. The window title is 'linux@ubuntu: ~'. The terminal shows the following sequence of commands and outputs: 1. Command: 'date', Output: 'Wed 05 Aug 2020 10:55:04 PM PKT'. 2. Command: 'echo CMIT391', Output: 'CMIT391'. 3. Command: 'echo Natalia Perez', Output: 'Natalia Perez'. 4. The prompt 'linux@ubuntu:~\$' is shown with a cursor, indicating the next command to be entered.

```
linux@ubuntu:~$ date
Wed 05 Aug 2020 10:55:04 PM PKT
linux@ubuntu:~$ echo CMIT391
CMIT391
linux@ubuntu:~$ echo Natalia Perez
Natalia Perez
linux@ubuntu:~$
```

Summary

Linux is the most secure operating system to perform managerial tasks. It has stronger built in data encryption system than other operating systems. Administration tasks are usually time consuming, monotonous and difficult to perform but by implementing Linux system, it can be done easily even from remote location. As Linux is the open source system, therefore several softwares are available here for free. Linux provides the choice for softwares under company’s use. Tasks in Linux like MS word and MS Excel have a huge amount of built in programs. This unique feature helps the employees to look for the best solution that will ensure them to get results according to the compatibility of the whole office or company.

In this guide, a complete training of using Ubuntu OS is summarized. A step by step process of downloading and Installation of Ubuntu OS using VMware has been elaborated in detail with the help of picture. The advantage of installing Ubuntu through VMware is that Ubuntu can be run on Windows just like all other applications. Command line interference (CLI) operations has been described and how to give command in terminal window of Linux is discussed. Commands like creating file, copy, move, remove and edit the file has been deliberately presented in this guide with pictures. To check the running processes and how to halt them forcibly has been described in detail in this training guide. This training guide will prove to be of a great help to the beginners of Ubuntu OS users.

References

- [1] https://www.tutorialspoint.com/ubuntu/ubuntu_tutorial.pdf
- [2] <https://www.ubuntutor.com/ubuntu18eng/Ubuntu%201804%20english.pdf>
- [3] <https://wiki.ubuntu.com/Training?action=AttachFile&do=get&target=DesktopCourseStudentGuide.pdf>
- [4] <https://rmonnetworks.com/4-benefits-of-using-linux-for-business/>