

REPORT ASSIGNMENT
OPERATING SYSTEM A CLASS



Linux Bash Introduction

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- **pwd**

Stand for print working directory. It displays the path to the current directory that we access. The picture down here shows that the user currently in the home directory.

```
litaa@litaa-VirtualBox:~$ pwd
/home/litaa
```

- **ls**

Stand for list. It displays a directory listing that we have in our Linux. The picture down here listing some directory such as Documents, Music, Desktop, etc.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop
Documents Music      Public    trialday1.py Videos
```

- **ls -l**

This command having the exact same action with ls, use the “-l” to get additional access information of the files and directories.

```
litaa@litaa-VirtualBox:~$ ls -l
total 40
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Desktop
drwxr-xr-x 2 litaa litaa 4096 Sep 10 17:14 Documents
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Downloads
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Music
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Pictures
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Public
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Templates
-rw-rw-r-- 1 litaa litaa  20 Sep  7 14:14 trialday1.py
drwxrwxr-x 2 litaa litaa 4096 Sep  7 14:39 Tugas-Sisop
drwxr-xr-x 2 litaa litaa 4096 Sep  7 07:52 Videos
```

- **cd**

Stand for change directory to a specific directory that we want to access.

Use cd directory_name and you will be in to the directory, to get know what files in that directory is, use ls and it will shows list of the files. The picture down here shows that the users been in the Documents directory and it shows the list of the file that Documents directory had such as note.txt and percobaan.txt. We can also use cd command to go back to the main directory (home).

```
litaa@litaa-VirtualBox:~$ cd Documents
litaa@litaa-VirtualBox:~/Documents$ ls
note.txt  percobaan.txt
```

- **cat**

To access or open a file, use cat command and it will shows what’s inside the file. Cat is short for concatenate. The picture down here shows percobaan.txt file contain a text said “halo, saya sedang belajar linux”.

```
litaa@litaa-VirtualBox:~/Documents$ cat percobaan.txt
halo, saya sedang belajar linux
```

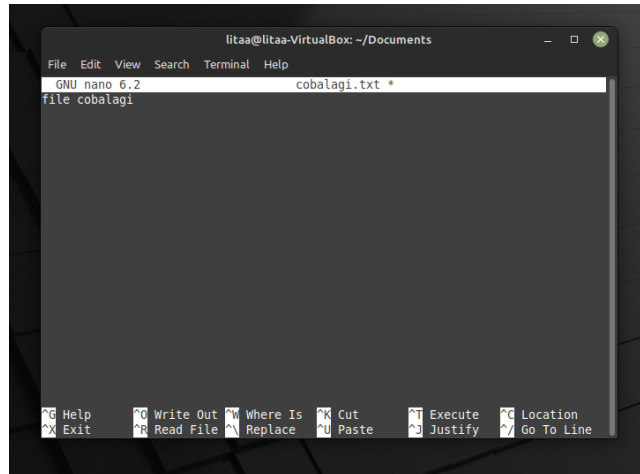
- **nano**

This command work for make a file with any kind of file type such as .txt, .py, etc.

We’re going to try add a new file in Documents directory named with “cobalagi.txt”.

```
litaa@litaa-VirtualBox:~/Documents$ nano cobalagi.txt
```

After run the nano command, a text editor will pop up and you can start write anything there like it shows in the picture below:



After write something there, click ctrl + x to go out, then click Y, last click Enter. Run ls command again to make sure that the new files are added, then we can see the new file called “cobalagi.txt” there.

```
litaa@litaa-VirtualBox:~/Documents$ nano cobalagi.txt
litaa@litaa-VirtualBox:~/Documents$ ls
cobalagi.txt  note.txt  percobaan.txt
```

- **mkdir**

Stand for make a new directory, use mkdir new_directory_name and new directory will be made like the picture below shows, we successfully added new directory called “TugasSisop”.

```
litaa@litaa-VirtualBox:~$ mkdir TugasSisop
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop  Videos
Documents Music      Public   trialday1.py TugasSisop
```

- **rm**

Stand for remove. This command work for only if we want to remove a file. The picture below shows we have file called “untukdihapus.txt” and we’re going to try delete it use rm untukdihapus.txt. Run ls command again and we can see that the “untukdihapus.txt” file successfully deleted.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop  untukdihapus.txt
Documents Music      Public   trialday1.py TugasSisop  Videos
litaa@litaa-VirtualBox:~$ rm untukdihapus.txt
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop  Videos
Documents Music      Public   trialday1.py TugasSisop
```

- **rmdir**

Stand for remove directory, this command does the exact same things as rm but it works for deleting a directory with no files or an empty directory. The picture below shows that we have a directory called “TugasSisop” and we’re going to delete it with rmdir TugasSisop command, run the ls command and we can se that we have no “TugasSisop” directory anymore.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop  Videos
Documents Music      Public   trialday1.py  TugasSisop
litaa@litaa-VirtualBox:~$ rmdir TugasSisop
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop
Documents Music      Public   trialday1.py  Videos
```

- **rm -rf directory_name**

This command work for deleting a directory that contain files in it. The picture below shows that we have a directory called “FolderIsi” that contain a files, delete it with rm -rf FolderIsi and after run that we can see that we deleted that directory.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Music  Public  trialday1.py  Videos
Documents FolderIsi  Pictures  Templates  Tugas-Sisop
litaa@litaa-VirtualBox:~$ rm -rf FolderIsi
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop
Documents Music      Public   trialday1.py  Videos
```

- **mv**

Stand for move, this command work to move files or directories with cut-paste operation. As the picture below shows, we’re going to try move the “trialday1.py” from the main directory to Tugas-Sisop directory.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop
Documents Music      Public   trialday1.py  Videos
```

Use mv trialday1.py Tugas-Sisop and click enter, the run the ls command so that we can see we successfully moving the files to the destination directory. To make sure that the file already in Tugas-Sisop directory, check it with cd and ls as the picture below shows.

```
litaa@litaa-VirtualBox:~$ mv trialday1.py Tugas-Sisop
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Videos
Documents Music      Public   Tugas-Sisop
litaa@litaa-VirtualBox:~$ cd Tugas-Sisop
litaa@litaa-VirtualBox:~/Tugas-Sisop$ ls
trialday1.py  Tugas-1.py
```

- **cp**

Stand for copy paste, work as what it called, it moves a file or directory with copy paste operation. The picture below shows list of directories and files, we’re going to execute the “copyme.txt” as the example, move it to Tugas-Sisop directory. Run the cp copyme.txt Tugas-Sisop.

```
litaa@litaa-VirtualBox:~$ ls
copyme.txt  Documents  Music  Public  Tugas-Sisop
Desktop    Downloads  Pictures  Templates  Videos
litaa@litaa-VirtualBox:~$ cp copyme.txt Tugas-Sisop
```

As we can see we still have the “copyme.txt” in the main directory and after change directory to Tugas-Sisop we can also see that the “copyme.txt” successfully pasted.

```
litaa@litaa-VirtualBox:~$ ls
copyme.txt  Documents  Music  Public  Tugas-Sisop
Desktop    Downloads  Pictures  Templates  Videos
litaa@litaa-VirtualBox:~$ cd Tugas-Sisop
litaa@litaa-VirtualBox:~/Tugas-Sisop$ ls
copyme.txt  trialday1.py  Tugas-1.py
```

- **df**

Stand for disk free, this command shows the remaining space of the mounted partition.

```
litaa@litaa-VirtualBox:~$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
tmpfs            196320      1136    195184   1% /run
/dev/sda2       19948144  8438864  10470640  45% /
tmpfs           981584        0    981584   0% /dev/shm
tmpfs            5120         4     5116   1% /run/lock
/dev/sda1       523244    5364    517880   2% /boot/efi
tmpfs           196316      96    196220   1% /run/user/1000
```

- **top**

Shows information about current running process and threads by the Linux kernel

```
top - 19:27:25 up 48 min, 1 user, load average: 0,00, 0,00, 0,00
Tasks: 158 total, 1 running, 157 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1,5 us, 0,0 sy, 0,0 ni, 98,5 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st
MiB Mem : 1917,2 total, 457,4 free, 642,6 used, 817,2 buff/cache
MiB Swap: 923,3 total, 923,3 free, 0,0 used. 1100,5 avail Mem
```

| PID | USER | PR | NI | VIRT | RES | SHR | S | %CPU | %MEM | TIME+ | COMMAND |
|------|-------|----|-----|---------|--------|--------|---|------|------|---------|--------------------|
| 1307 | litaa | 20 | 0 | 3604520 | 224808 | 134064 | S | 1,3 | 11,5 | 0:49.85 | cinnamon |
| 6 | root | 20 | 0 | 0 | 0 | 0 | I | 0,3 | 0,0 | 0:02.27 | kworker/0:0-events |
| 2269 | litaa | 20 | 0 | 13080 | 3992 | 3396 | R | 0,3 | 0,2 | 0:04.29 | top |
| 1 | root | 20 | 0 | 100728 | 11576 | 8220 | S | 0,0 | 0,6 | 0:00.59 | systemd |
| 2 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.00 | kthreadd |
| 3 | root | 0 | -20 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.00 | rcu_gp |

- **free**

free command displays detail information of the memory related to the system

-g : displays the amount in gigabytes

-m : displays the amount in megabytes

```
litaa@litaa-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:           1963172       644068       496616        14232       822488       1152600
Swap:          945464           0       945464

litaa@litaa-VirtualBox:~$ free -m
              total        used        free      shared  buff/cache   available
Mem:           1917         628         484          13         803         1125
Swap:           923           0         923

litaa@litaa-VirtualBox:~$ free -g
free-g: command not found
litaa@litaa-VirtualBox:~$ free -g
              total        used        free      shared  buff/cache   available
Mem:              1           0           0           0           0           1
Swap:             0           0           0
```

- **python3**

We can just call the name of the software to get access to open the software. After entered to the software, the ">>>" is a symbol that you are in and u can use it already. If the python not installed yet, use sudo apt-get install python3 command to install the software.

```
litaa@litaa-VirtualBox:~$ python3
Python 3.10.4 (main, Jun 29 2022, 12:14:53) [GCC 11.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print ("step out")
step out
>>> exit()
```

- **version**

Use `Software_name --version` to get know the version information of the software.

```
litaa@litaa-VirtualBox:~$ python3 --version
Python 3.10.4
```

- **whereis**

Used for find out the directory of the software files are saved.

```
litaa@litaa-VirtualBox:~$ whereis python3
python3: /usr/bin/python3 /usr/lib/python3 /etc/python3 /usr/share/python3 /usr/share/man/man1/python3.1.gz
```

- **which**

To show the main directory that stores the file of the software.

```
litaa@litaa-VirtualBox:~$ which python3
/usr/bin/python3
litaa@litaa-VirtualBox:~$ which firefox
/usr/bin/firefox
```

- **whatis**

Work to show us the definition of a software.

```
litaa@litaa-VirtualBox:~$ whatis python3
python3 (1)          - an interpreted, interactive, object-oriented programmi...
```

- **locate & find**

find

```
litaa@litaa-VirtualBox:~$ find ~/ -iname copyme.txt
/home/litaa/copyme.txt
/home/litaa/Tugas-Sisop/copyme.txt
```

Both of locate and find have the same act is to search a file and show the directory track. The different is, locate is faster than find command because locate command searches the prebuilt database while find command searches the entire file.

- **ping**

This command used for check the internet connection with showing the IP Address, website, etc.

```
litaa@litaa-VirtualBox:~$ ping google.com
PING google.com (172.253.118.100) 56(84) bytes of data.
64 bytes from sl-in-f100.1e100.net (172.253.118.100): icmp_seq=1 ttl=56 time=101 ms
64 bytes from sl-in-f100.1e100.net (172.253.118.100): icmp_seq=2 ttl=56 time=37.7 ms
64 bytes from sl-in-f100.1e100.net (172.253.118.100): icmp_seq=3 ttl=56 time=51.0 ms
64 bytes from sl-in-f100.1e100.net (172.253.118.100): icmp_seq=4 ttl=56 time=34.4 ms
```

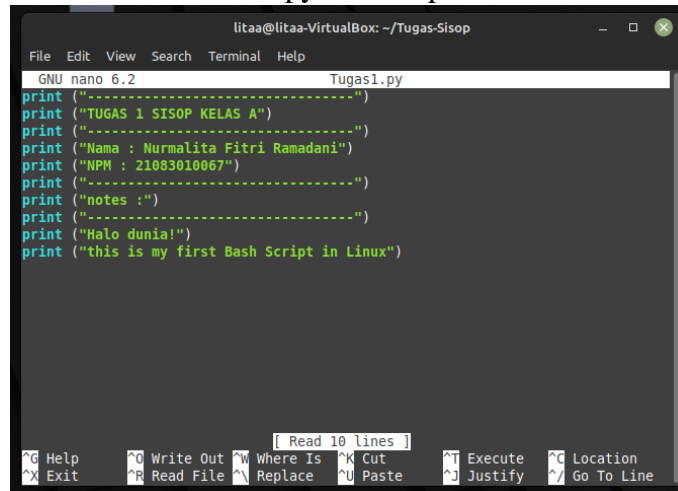
- **poweroff**, Command for shutdown the system.
- **reboot**, Command for restart the system.
- **systemctl suspend**, Command for make the system in sleep condition.

- **Tugas 1 Sistem Operasi A (.py)**

First we're going to make the .py file in Tugas-Sisop directory.

```
litaa@litaa-VirtualBox:~$ ls
Desktop  Downloads  Pictures  Templates  Tugas-Sisop
Documents Music      Public    trialday1.py Videos
litaa@litaa-VirtualBox:~$ cd Tugas-Sisop
litaa@litaa-VirtualBox:~/Tugas-Sisop$ nano Tugas-1.py
```

Run the nano command and write the python script in the text editor as assigned.



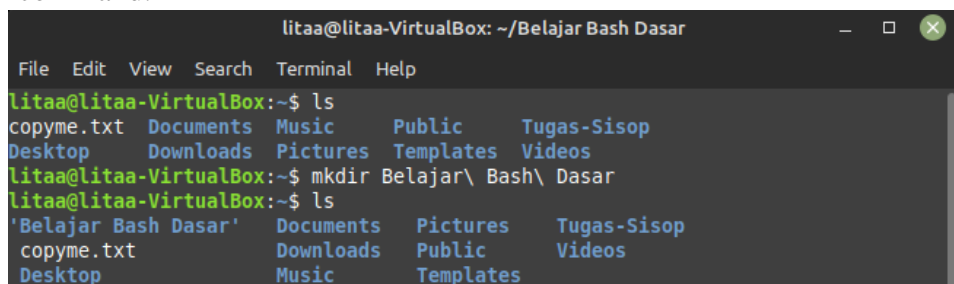
```
litaa@litaa-VirtualBox: ~/Tugas-Sisop
File Edit View Search Terminal Help
GNU nano 6.2 Tugas1.py
print ("-----")
print ("TUGAS 1 SISOP KELAS A")
print ("-----")
print ("Nama : Nurmalita Fitri Ramadani")
print ("NPM : 21083010067")
print ("-----")
print ("notes :")
print ("-----")
print ("Halo dunia!")
print ("this is my first Bash Script in Linux")
[ Read 10 lines ]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^_ Replace ^U Paste ^J Justify ^_ Go To Line
```

After make the file with the script in it, we're going to open the file use python3 Tugas1.py command so that we can see how it shows.

```
litaa@litaa-VirtualBox:~/Tugas-Sisop$ python3 Tugas1.py
-----
TUGAS 1 SISOP KELAS A
-----
Nama : Nurmalita Fitri Ramadani
NPM : 21083010067
-----
notes :
-----
Halo dunia!
this is my first Bash Script in Linux
litaa@litaa-VirtualBox:~/Tugas-Sisop$
```

- **Tugas 1 Sistem Operasi A (.sh)**

First we're going to make new directory with "Belajar Bash Dasar" as the name with mkdir command.

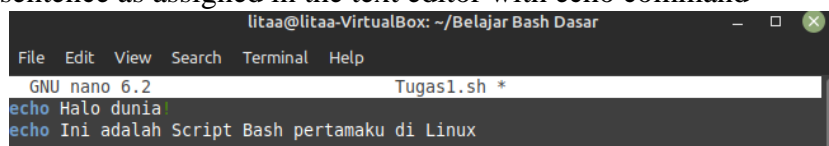


```
litaa@litaa-VirtualBox: ~/Belajar Bash Dasar
File Edit View Search Terminal Help
litaa@litaa-VirtualBox:~$ ls
copyme.txt Documents Music Public Tugas-Sisop
Desktop Downloads Pictures Templates Videos
litaa@litaa-VirtualBox:~$ mkdir Belajar\ Bash\ Dasar
litaa@litaa-VirtualBox:~$ ls
'Belajar Bash Dasar' Documents Pictures Tugas-Sisop
copyme.txt Downloads Public Videos
Desktop Music Templates
```

Second, change directory to Belajar Bash Dasar with cd command, and we're going to make a new file with nano command and .sh as the type of the file.

```
litaa@litaa-VirtualBox:~$ cd Belajar\ Bash\ Dasar
litaa@litaa-VirtualBox:~/Belajar Bash Dasar$ nano Tugas1.sh
```

Write the sentence as assigned in the text editor with echo command



```
litaa@litaa-VirtualBox: ~/Belajar Bash Dasar
File Edit View Search Terminal Help
GNU nano 6.2 Tugas1.sh *
echo Halo dunia
echo Ini adalah Script Bash pertamaku di Linux
```


Next use `chmod +x Tugas1.sh`, this command work to add permission, the + x symbol means to add execution(x) privilege to the current owner user of the specified file. Last, to make the file shows what's content inside we use `./Tugas1.sh` command and click enter.

```
litaa@litaa-VirtualBox:~/Belajar Bash Dasar$ chmod +x Tugas1.sh
litaa@litaa-VirtualBox:~/Belajar Bash Dasar$ ./Tugas1.sh
Halo dunia!
Ini adalah Script Bash pertamaku di Linux
```