```
#########################################################
#                                                       #
#              USEFUL LINUX BASH COMMANDS               #
#              ~~~~~~~~~~~~~~~~~~~~~~~~~~               #
#                    Version 0.0.1                      #
#                                                       #
#        ~~~~~~~~~~~~~~~~~~~~~~~~~                      #
#        | HOST USED FOR EXAMPLES:  * ralice.xyz *      #
#        ~~~~~~~~~~~~~~~~~~~~~~~~~  ~~~~~~~~~~~~~      #
#                                                       #
#                 By: Alexis Leclerc                    #
#                 Created: 07/23/2024                   #
#                 Updated: 07/23/2024                   #
#            DWistled Knows The Current Chapter         #
#########################################################
```

SSH: Use Putty SSH Client [Port 22]
User: Alexis
Pass: Toor5access
host used for examples

#1 pt r
. X X
. X X
. . X
. . X
. . X
. . .

#1apter

Bash Terminal Commands

File & Filepath Commands

Show The Current Directory:

```
ls
```

Home or root Directory:

```
cd
```

OR,

```
cd ~/
```

'~' Represents The Current user's home Directory.

Clear Terminal Screen:

```
clear
```

Create A New File & Save W/ Any Extension:

To Create the File/Script:

```
nano CreateDB&Tables.sql
<Write Or Copy+Paste Script>
```

```
-------------------------------------------              |                        To Save the File/Script:
| Change Directory:                         |            |                        ~~~~~~~~~~~~~~~~~~~~~~~~
-------------------------------------------              |
                                                         |                            Ctrl-x   -->   hit 'y' on your keyboard   -->  hit 'ENTER' on your
keyboard
Subdirectory of home/:      cd ~/subdirectory/           |
~~~~~~~~~~~~~~~~~~~~~                                    |
                                                         |                        -------------------------------------------
                                                         |                        | Resource Monitor In Bash Terminal:      |
      Any Directory /:      cd /path/to/folder/file.csv  |                        -------------------------------------------
      ~~~~~~~~~~~~~~~                                    |
                                                         |                        Less Resource Intensive:    top
              Example:      cd /usr/lib or cd /home/Alexis  |                     ~~~~~~~~~~~~~~~~~~~~~~~~
              ~~~~~~~                                    |
                                                         |            More Detailed & Resource Intensive:    htop
                                                         |           ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-------------------------------------------              |
| Create A New Folder (Directory):          |            |
-------------------------------------------              |                        -------------------------------------------
                                                         |                        | :                                       |
    mkdir <folder_name>                                  |
    -------------------------------------------
                                                         |
                                                         |
                                                         |
                                                         |
                                                         |
`````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````

                                 **********NEED TO EDIT**********
                         ##
                         #   File & Folder Permissions   #
                         ##

                                                         |
--- | ---
| Show The Current Directory: | | | Clear Terminal Screen: |
--- | ---
                                                         |
    ls | clear
                                                         |
                                                         |
--- | --
| Home or root Directory: | | | Create A New File & Save W/ Any Extension: |
--- | --
                                                         |
    cd | To Create the File/Script:
                                                         | ~~~~~~~~~~~~~~~~~~~~~~~~~~
        OR, |
                                                         | nano CreateDB&Tables.sql
    cd ~/   '~' Represents The Current user's home Directory. |
                                                         | <Write Or Copy+Paste Script>
                                                         |
--- | To Save the File/Script:
| Change Directory: | | ~~~~~~~~~~~~~~~~~~~~~~~~
--- |
                                                         | Ctrl-x   -->   hit 'y' on your keyboard   --> hit 'ENTER' on your
keyboard
Subdirectory of home/:   cd ~/subdirectory/ |
~~~~~~~~~~~~~~~~~~~~~ |
```
~~~~~~~~~~~~~~~~~~~~~

```
                                                                              |
                                                                              | --
         Any Directory /:   cd /path/to/folder/file.csv | | Resource Monitor In Bash Terminal: |
         ~~~~~~~~~~~~~~~ | --
                                                                              |
                 Example: cd /usr/lib or cd /home/Alexis | Less Resource Intensive: top
                 ~~~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~
                                                                              |
                                                                              | More Detailed & Resource Intensive: htop
     -- | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
     | Create A New Folder (Directory): | |
     -- |
                                                                              | --
        mkdir <folder_name> | | : |

                                                                              |
                                                                              |
                                                                              |
                                                                              |
                                                                              |
`````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````
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===
| Running Tasks/Processes |
===

                                                  ##
                                                  #   I/O Priority   #
                                                  ##

| Set I/O Priority for a New Process: |
----

ionice -c <class> -n <priority> command

| Change I/O Priority of an Existing Process: |
----

ionice -c <class> -n <priority> -p <PID>

ionice -c 2 -n 0 -p

| <class>: The I/O scheduling class. Options are: |
| I)   1 for real-time |
| II) 2 for best-effort ***USE |
| III) 3 for idle |
| |
| <priority>: The priority level. For classes 2 and 3, the priority ranges from 0 (highest) to 7 (lowest). |

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                                                  ####################################################
                                                  #                   CPU Priority                   #
```
```

~~~
                                                  ####################################################

---------------------------------------------------
| Start a New Process with a Specific Nice Level: |
---------------------------------------------------

nice -n <nice_value> command

---------------------------------------------------
| Change the Nice Level of an Existing Process:   |
---------------------------------------------------

renice -n <nice_value> -p <PID>

renice -n -20 -p


----------------------------------------------------------------------------------------------------------------

| <nice_value>: The CPU Priority . Options are:                                                                |
| I)   -20 for Highest Priority (Not Nice To Other Tasks)                                                      |
| II)    0 for Normal  Priority                                                                                |
| III)  20 for Lowest  Priority (Nice To Other Tasks)
|
----------------------------------------------------------------------------------------------------------------

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                                                  ##
                                                  #   Using Both   #
                                                  ##

| Using Both To Create A New Process and Modify It Process: |
----
nice -n <nice_value> command
ionice -c 2 -n 0 -p <PID>

| Using Both To Create A Modify An Existing Process: |
----
renice -n -20 -p
ionice -c 2 -n 0 -p

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                                                 #####################################################
                                                 #       Running A Process In The Background         #
                                                 #####################################################

                                                                  |
    ------------------------------------------                    |                            ------------------------------------------
    | Starting A New Screen:                 |                    |                            | Kill a Screen Session:                 |
    ------------------------------------------                    |                            ------------------------------------------
                                                                  |
    screen -S <Session_Name>                                      |                                exit
                                                                  |
                                                                  |                                screen -X -S <session_id> quit
~~~

~~~
                                                                 |
    ------------------------------------------                   |                           ------------------------------------------
    | List All Screens:                      |                   |                           | :          |
    ------------------------------------------                   |                           ------------------------------------------
                                                                 |
    screen -ls                                                   |
                                                                 |
    ------------------------------------------                   |                           ------------------------------------------
    | Detach from a Screen Session:          |                   |                           | :          |
    ------------------------------------------                   |                           ------------------------------------------
                                                                 |
    screen -r <session_id>                                       |
                                                                 |
    screen -r <session_name>                                     |
                                                                 |
                                                                 |
    ------------------------------------------                   |                           ------------------------------------------
    | Detach from a Screen Session:          |                   |                           | :          |
    ------------------------------------------                   |                           ------------------------------------------
                                                                 |
    Ctrl-a d                                                     |
                                                                 |
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========================================================================================================================================================================
|                                                               Setting Up Bash Aliases                                                                                |
========================================================================================================================================================================


    ------------------------------------------
    | Creating Shortcuts For 'root' User:    |
    ------------------------------------------
    -----------
    | Step 1: |
    -----------

    cd

    -----------
    | Step 2: |
    -----------

    nano .bashrc

    -----------
    | Step 3: |
    -----------                         ###########################
                                        #                         #
                                        #   ADD    OR    MODIFY:  #
                                        #                         #
                                        ###########################
                    -----------------------------------------------------------------------------
                    |                                                                           |
                    |       alias m='mysql -u root -pAL\@12345'                                 |
                    |                                                                           |
                    |       alias mvar='mysql -u root -pAL\@12345 Variables'                    |
                    |                                                                           |
                    |       alias largepipe='mysql -u root -pAL\@12345 FinalPipe'               |
                    |                                                                           |
                    |       alias vars='cd /home/Alexis/FilesToCreateDatabase/9Variables'       |
~~~

~~~
                    |                                                                           |
                    |       alias a='cd /home/Alexis'                                           |
                    |                                                                           |
                    -----------------------------------------------------------------------------


                        ##############################
                        #       Bash Commands        #
                        #      ---------------       #
                        #      Host: ralice.xyz      #
                        #                            #
                        #  LAST UPDATED: 07/24/2024  #
                        ##############################
---------------------------------------------------------------------------
                                                                          |
alias m='mysql -u root -pAL\@12345'                                       |
alias mvars='mysql -u root -pAL\@12345 Variables'                         |
alias laylargepipe='mysql -u root -pAL\@12345 FinalPipe'                  |
alias vars='cd /home/Alexis/FilesToCreateDatabase/9Variables'             |
alias alexis='cd /home/Alexis'                                            |
alias rserver='cd /home/rserver'                                          |
                                                                          |
---------------------------------------------------------------------------

    -----------
    | Step 4: |
    -----------

    ctrl-x

    <wait for menu at the bottom of the screen>

    Y

    <Save file with filename (either rename or dont touch it i.e. let it be)>

    *Press ENTER

    -----------
    | Step 5: |
    -----------

    SOURCE/"UPDATE" THE BASH COMMANDS
   ------------------------------------

In Terminal copy paste by right clicking:
--------------------------------------
                                     |
    if [ -f /etc/bashrc ]; then      |
    . /etc/bashrc                    |
    fi                               |
                                     |
--------------------------------------

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#2 pt r
. X  X
~~~

```
. X  X
. .  X
. .  X
. .  X
. .  .

#2apter

================================================================================================================================================================
|                                                                    Automating A Bash Script                                                                  |
================================================================================================================================================================

    ------------------------------------------
    | Using A Batch Script:                  |
    ------------------------------------------
-------------------------------------------------------------
|       Command              |            Example             |
|----------------------------|--------------------------------|
|chmod +x <file_name>.sh     |   chmod +x manage_tasks.sh     |
|----------------------------|--------------------------------|
|./<file_name>.sh            |   ./manage_tasks.sh            |
-----------------------------|---------------------------------

This script can be used to:
1) Login to MySQL with a. No DB selected OR b. Login to Variables DB
2) Run a python3 script with a selected filepath
3) Run an R script with a selected filepath

##############################################___START__OF__BASH__SCRIPT___#########################################################################
#!/bin/bash

# Function to handle MySQL login
mysql_login() {
    echo "Choose database option:"
    echo "1) No DB"
    echo "2) Variables DB"
    read -p "Enter choice [1-2]: " db_choice

    case $db_choice in
        1)
            echo "Logging into MySQL with no database..."
            echo "Enter your custom PID or press Enter to use default:"
            read custom_pid
            if [ -z "$custom_pid" ]; then
                mysql -u root -pAL\@12345
            else
                nice -n -20 mysql -u root -pAL\@12345 &
                pid=$!
                if [ -n "$custom_pid" ]; then
                    ionice -c 2 -n 0 -p $custom_pid
                else
                    ionice -c 2 -n 0 -p $pid
                fi
            fi
            ;;
        2)
            echo "Logging into MySQL with Variables DB..."
            echo "Enter your custom PID or press Enter to use default:"
            read custom_pid
            if [ -z "$custom_pid" ]; then
```

```
                mysql -u root -pAL\@12345 Variables
            else
                nice -n -20 mysql -u root -pAL\@12345 Variables &
                pid=$!
                if [ -n "$custom_pid" ]; then
                    ionice -c 2 -n 0 -p $custom_pid
                else
                    ionice -c 2 -n 0 -p $pid
                fi
            fi
            ;;
        *)
            echo "Invalid choice."
            ;;
    esac
}

# Function to run a Python script
run_python_script() {
    read -p "Enter the filepath of the Python script: " python_file
    echo "Running Python script..."
    echo "Enter your custom PID or press Enter to use default:"
    read custom_pid
    if [ -z "$custom_pid" ]; then
        python3 "$python_file"
    else
        nice -n -20 python3 "$python_file" &
        pid=$!
        if [ -n "$custom_pid" ]; then
            ionice -c 2 -n 0 -p $custom_pid
        else
            ionice -c 2 -n 0 -p $pid
        fi
    fi
}

# Function to run an R script
run_r_script() {
    read -p "Enter the filepath of the R script: " r_file
    echo "Running R script..."
    echo "Enter your custom PID or press Enter to use default:"
    read custom_pid
    if [ -z "$custom_pid" ]; then
        Rscript "$r_file"
    else
        nice -n -20 Rscript "$r_file" &
        pid=$!
        if [ -n "$custom_pid" ]; then
            ionice -c 2 -n 0 -p $custom_pid
        else
            ionice -c 2 -n 0 -p $pid
        fi
    fi
}

# Main menu
echo "Choose an option:"
echo "1) Login to MySQL"
echo "2) Run a Python script"
echo "3) Run an R script"
```

~~~
read -p "Enter choice [1-3]: " choice

case $choice in
    1)
        mysql_login
        ;;
    2)
        run_python_script
        ;;
    3)
        run_r_script
        ;;
    *)
        echo "Invalid choice."
        ;;
esac
##############################################___END__OF__BASH__SCRIPT___####################################################################

```````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````````



#3 pt r
. X  X
. X  X
. .  X
. .  X
. .  X
. .  .

#3apter

=======================================================================================================================================================================
|                                                               Default Placeholder Text                                                                              |
=======================================================================================================================================================================
~~~