Linux Exercise

The following steps will guide you through the most common Linux commands.

1. For a non-linux computer (Windows or Mac) you need to get the linux environment. This step allows you to get the linux environment on computers at Bucknell (including our classroom) and also on your computer. Follow the instructions on the following web page (link on our course web page in Computer Tools section see **FastX**):

`https://bucknell.teamdynamix.com/TDClient/40/LIT/KB/ArticleDet?ID=274`

2. Right-click on the Terminal Icon (black screen icon) on the bottom, select "New Window". This should open a window in which you can write commands. By repeating this step, you may open several terminal windows and arrange them on your screen by clicking on the top of a terminal window and dragging the terminal window as desired.

3. Check in which folder (a folder which contains other folders and/or files is called "directory") you are by typing in this new window

<div align="center">

`pwd`

</div>

and hit "Enter." For all following commands hit "Enter" after each command. Take notes for this command and following command on what each command is doing. So `pwd` means p̲rint w̲orking d̲irectory.

4. To start at a directory, which is at the top of all your linux-space print the command

<div align="center">

`cd ~/`

</div>

and then repeat `pwd`. We call this directory your "home directory". For simplicity you should always whenever you have logged into a linux-machine, start with this command. (On some machines the default for your starting directory is `~/Desktop`, which might even lead your work to be removed once you log out. So just get into the habit to start with `cd ~/`)

5. Create a directory of the name "Phys338_s2025" by typing in this terminal window

```
mkdir Phys338_s2025
```

Draw the tree of the directories and files for this step **and all the following steps**.

6. Check the contents of your current directory (li̱s̱t) with

```
ls
```

7. C̱hange the current ḏirectory. Get into Phys338_s2025

```
cd Phys338_s2025
```

and redo 3.

8. Create a file with filename "linux_logfile" by typing

```
gedit linux_logfile &
```

A new window will open up. gedit is an editor, that means that you can edit files with it (so like Word on windows). In case you are used to vim or emacs or any other editor, feel free to use it instead. (Note: You could have used `gedit linux_logfile` (without `&`) instead, but then your terminal window would be busy and unavailable for further commands. The `&` allows you to use the terminal window for further commands.)
Write into the linux_logfile:

```
Linux commands:
===============

mkdir    create directory
pwd      print current directory
ls       list contents of current directory
```

Save the contents of the file with `Save` (or shorter `Ctrl+S`) and quit the editor with `Quit` which is located in the main menue button to the right of `Save`. You might want to use this file in the future as a reference for linux commands. Add to it new commands whenever you learn them.

9. In this course we will often want to share each others programs (files). You will also hand-in other homework in this environment. Since usually all your files are protected from being read by anyone else but you, you will need to change this permission whenever you would like other people

(your classmates and me) to be able to read your file (see also 20. of this Intro). You do this in this example with:

```
chmod a+r linux_logfile
```

"a" means "all" and "+r" means "add read permission". With `ls -l` you can check the permissions of any file and directory. The first three digits specify your permissions, the last three digits specify the permissions of everybody else. In each case the digits are for executable,reading and writing. Change the reading and writing permissions of the linux_logfile and check after each change with

```
ls -l linux_logfile
```

10. Check again the contents of the current directory.
    answer:

11. Create another file called "tryfile" with content

```
hello
good bye
```

and redo 6.

12. Look at the contents of the tryfile with

```
cat tryfile
```

13. Do the same with the logfile.

14. Next remove (delete) the tryfile with

```
rm -i tryfile
```

You will be asked if you like to remove tryfile. Type `y` for yes. Check again the contents of your current directory. `rm` is a dangerous command! It has together with the wild card '*' the power of removing all your files in a single command! **Think always twice before you remove a file!**

15. Create a directory with name "trydir"

$$\texttt{mkdir trydir}$$

and get into it with

$$\texttt{cd trydir}$$

16. Get back out of trydir (one step higher in the tree of directories) with

$$\texttt{cd ..}$$

Check in which directory you are.

17. Remove trydir with

$$\texttt{rmdir trydir}$$

18. Get back to your home directory either with

$$\texttt{cd}$$

or with

$$\texttt{cd \textasciitilde}$$

or with

$$\texttt{cd } \textasciitilde yourusername$$

(e.g. for me `cd ~kvollmay`). This gets you to anyone's home directory.

19. Look at the contents of your linux_logfile with

```
cat ~/Phys338_s2025/linux_logfile
```

We used here the full path of the linux_logfile, so it would work from any directory.

20. The following guides you through the steps you will need to "hand in" any assignment (including programs) in the course. (A program, more precise "source code," is a file like the linux_logfile.) The following three commands you need to do only once

```
cd ~/
mkdir share.dir
chmod 755 share.dir
```

Check with `ls -l` what the last command did. Then go to the directory where your assigned program is, e.g.

```
cd ~/Phys338_s2025/
```

Then copy the file you want to have accessible, e.g.

```
cp linux_logfile ~/share.dir/
chmod a+r ~/share.dir/*
```

The asterik means that you changed the permission of all files and directories in ~/share.dir/.

21. For logging out of your linux session: Click on the Power Switch Icon on the right top menue bar. Select your username and then select "Log Out".

That's it. Have fun with linux!