

Practical Work For Lesson 2 - Basic Tools

This is a short report of the commands used for each exercises in the session (lecture 2).

Basic Tools:

1. 2.

```
> cd 'Programming/UCA/MSc 1 Refreshers/Basic Tools'
> mkdir lecture_1
> mv ./copyme ./lecture_1/copyme
```

3.

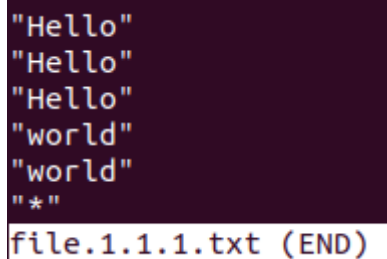
```
> cd lecture_2
> mv ./test_script.sh ./exercise/test_script.sh
```

4. 5.

```
> cd exercise
> touch file.1.1.1.txt
> vim file.1.1.1.txt
> cat file.1.1.1.txt
```

```
"Hello"
"Hello"
"Hello"
"world"
"world"
"*"
```

```
> less file.1.1.1.txt
```



```
"Hello"
"Hello"
"Hello"
"world"
"world"
"*"
file.1.1.1.txt (END)
```

6. 7. 8.

```
> tree ~/
```

```
Command 'tree' not found, but can be installed with:
```

```
sudo snap install tree # version 1.8.0+pkg-3fd6, or
sudo apt install tree # version 1.8.0-1
```

```
See 'snap info tree' for additional versions.
```

```
> sudo apt install tree
```

```
[sudo] password for quentin:
```

```
Reading package lists... Done
```

```
Building dependency tree
```

```
Reading state information... Done
```

```
The following packages were automatically installed and are no longer required:
```

```
libfprint-2-tod1 libllvm9 python3-click python3-colorama
```

```
Use 'sudo apt autoremove' to remove them.
```

```
The following NEW packages will be installed:
```

```
tree
```

```
0 upgraded, 1 newly installed, 0 to remove and 49 not upgraded.
```

```
Need to get 43,0 kB of archives.
```

```
After this operation, 115 kB of additional disk space will be used.
```

```
Get:1 http://fr.archive.ubuntu.com/ubuntu focal/universe amd64 tree amd64 1.8.0-1 [43,0 kB]
```

```
Fetch: 43,0 kB in 0s (229 kB/s)
```

```
Selecting previously unselected package tree.
```

```
(Reading database ... 196427 files and directories currently installed.
```

```
)
```

```
Preparing to unpack .../tree_1.8.0-1_amd64.deb ...
```

```
Unpacking tree (1.8.0-1) ...
```

```
Setting up tree (1.8.0-1) ...
```

```
Processing triggers for man-db (2.9.1-1) ...
```

```
> tree ~/
```

```

displays the full tree of directories and files under ~/
> tree /etc > tree_folder_structure
> less tree_folder_structure
/etc
├── acpi
│   ├── asus-keyboard-backlight.sh
│   ├── asus-wireless.sh
│   ├── events
│   │   ├── asus-keyboard-backlight-down
│   │   ├── asus-keyboard-backlight-up
│   │   ├── asus-wireless-off
│   │   ├── asus-wireless-on
│   │   ├── ibm-wireless
│   │   ├── lenovo-undock
│   │   ├── thinkpad-cmos
│   │   └── tosh-wireless
│   ├── ibm-wireless.sh
│   ├── tosh-wireless.sh
│   └── undock.sh
├── adduser.conf
├── alsa
│   └── conf.d
│       ├── 10-samplerate.conf -> /usr/share/alsa/alsa.conf.d/10-samplerate.conf
│       ├── 10-speexrate.conf -> /usr/share/alsa/alsa.conf.d/10-speexrate.conf
│       ├── 50-arcam-av-ctl.conf -> /usr/share/alsa/alsa.conf.d/50-arcam-av-ctl.conf
│       ├── 50-jack.conf -> /usr/share/alsa/alsa.conf.d/50-jack.conf
│       ├── 50-oss.conf -> /usr/share/alsa/alsa.conf.d/50-oss.conf
│       ├── 50-pulseaudio.conf -> /usr/share/alsa/alsa.conf.d/50-pulseaudio.conf
│       ├── 60-upmix.conf -> /usr/share/alsa/alsa.conf.d/60-upmix.conf
│       ├── 60-vdownmix.conf -> /usr/share/alsa/alsa.conf.d/60-vdownmix.conf
│       ├── 98-usb-stream.conf -> /usr/share/alsa/alsa.conf.d/98-usb-stream.conf
│       ├── 99-pulseaudio-default.conf.example
│       └── 99-pulse.conf -> /usr/share/alsa/alsa.conf.d/pulse.conf
└── alternatives

```

Zip files:

9. vim is used; zip is already installed

10.

```

> wget http://download.geonames.org/export/zip/FR.zip
--2020-09-24 15:13:36-- http://download.geonames.org/export/zip/FR.zip
Resolving download.geonames.org (download.geonames.org)... 188.40.33.19
Connecting to download.geonames.org (download.geonames.org)|188.40.33.19|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 656006 (641K) [application/zip]
Saving to: 'FR.zip'

FR.zip          100%[=====>] 640,63K   820KB/s   in 0,8s

2020-09-24 15:13:44 (820 KB/s) - 'FR.zip' saved [656006/656006]

> ls
file.1.1.1.txt  FR.zip  test_script.sh  tree_folder_structure
> unzip FR.zip -d ./
Archive:  FR.zip
  inflating: ./readme.txt
  inflating: ./FR.txt
> less FR.zip
Archive:  FR.zip
Length   Method    Size  Cmpr   Date      Time    CRC-32   Name
-----
  2734   Defl:N    1116   59%  2020-09-24 03:22  542665e1  readme.txt
5342316  Defl:N   654652  88%  2020-09-24 03:22  bda7faba  FR.txt
-----
5345050             655768  88%
-----
2 files
Less <file>.zip seems to describe the content of the .zip file without having to extract
its content. It is likely accessing a registry of the .zip content.
> rm -f FR.zip

```

11.

```

> less FR.txt
This file seems to contain tabular data. Which is proven by opening the readme.txt
> less readme.txt
Contains a description of the file: "This readme describes the GeoNames Postal Code
dataset.
The main GeoNames gazetteer data extract is here:

```

<http://download.geonames.org/export/dump/>

"The data format is tab-delimited text in utf8 encoding, with the following fields :

country code	: iso country code, 2 characters
postal code	: varchar(20)
place name	: varchar(180)
admin name1	: 1. order subdivision (state) varchar(100)
admin code1	: 1. order subdivision (state) varchar(20)
admin name2	: 2. order subdivision (county/province) varchar(100)
admin code2	: 2. order subdivision (county/province) varchar(20)
admin name3	: 3. order subdivision (community) varchar(100)
admin code3	: 3. order subdivision (community) varchar(20)
latitude	: estimated latitude (wgs84)
longitude	: estimated longitude (wgs84)
accuracy	: accuracy of lat/lng from 1=estimated, 4=geonameid, 6=centroid of addresses or shape"

12.

```
> grep -rnw ./FR.txt -e '01000'
```

```
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/zip_codes$ grep -rnw ./french_zipcodes.txt -e '01000'
```

43116:FR	01000	Bourg-en-Bresse	Auvergne-Rhône-Alpes	84
Ain	01	Arrondissement de Bourg-en-Bresse		012 4
6.2057	5.2258	5		
43117:FR	01000	Saint-Denis-lès-Bourg	Auvergne-Rhône-Alpes	
84	Ain	01	Arrondissement de Bourg-en-Bresse	012

13.

```
> grep -rnw ./FR.txt -e 'Nice' > nice.txt
```

```
> wc -l nice.txt
231 nice.txt
```

Files administration:

14.

```
> mv ./FR.txt ./french_zipcodes.txt
```

15.

```
> ls -l french_zipcodes.txt
-rw-rw-r-- 1 quentin quentin 5342316 sept. 24 03:22 french_zipcodes.txt
```

16.

```
> chmod u+rwX french_zipcodes.txt
> chmod u-x french_zipcodes.txt
> chmod u-w french_zipcodes.txt
```

17.

```
> chmod u=rwx,g=r,o-r french_zipcodes.txt
```

18.

```
> chmod g=r '/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise'
> chmod g=r french_zipcodes.txt
```

For the group users to delete the file, we need to give write access to the directory to group users

Shell Script:

19.

```
> hello="Hello World!"
> echo $hello
Hello World!
```

20.

```
> LONG_FILES_LIST="ls"
> $LONG_FILES_LIST
file_err.txt msg_err.sh user_reply.txt
```

```

    hello.sh      other_files  zip_codes
> cd ..
> cd ..
> cd lecture_1
> $LONG_FILES_LIST
    copyme

```

21.

```

> read -p "What is your name? " user_name; echo "$user_name" > user_reply.txt
    What is your name? Quentin

```

22.

```

> vim hello.sh

```

```

#!/bin/bash

echo "What is your name";
read name;
echo "Hello $name!"

```

```

> chmod u+w hello.sh
> ./hello.sh

```

23.

```

> vim msg_err.sh

```

```

#!/bin/bash
echo "Normal Message"
echo "Error Message" > $1

```

```

> chmod u+x ./msg_err.sh
> ./msg_err.sh "file_err.txt"
    Normal Message
> vim file_err.txt

```

```

Error Message

```

24.

```

> touch testfile.txt
> mkdir testfolder
> vim copy.sh

```

```

#!/bin/bash
echo "Name of this program $0"
echo "Number of arguments passed to the script: $# "
echo "The arguments passed as input and retained are: $1, $2, $3"
mv $1 $2
cp $2 "$3/$2"

```

```

> chmod u+x copy.sh
> ./copy.sh testfile.txt renamedtestfile.txt testfolder

```

```

ls/lecture_2/exercise$ ./copy.sh testfile.txt renamedtestfile.txt testf
older
Name of this program ./copy.sh
Number of arguments passed to the script: 3
The arguments passed as input and retained are: testfile.txt, renamedte
stfile.txt, testfolder

```

```

> ls

```

```

ls/lecture_2/exercise$ ls
copy.sh      msg_err.sh      testfolder
file_err.txt other_files      user_reply.txt

```

```
> cd testfolder
> ls
```

```
ls/lecture_2/exercise/testfolder$ ls
renamedtestfile.txt
```

25.

```
> vim create50.sh
```

```
#!/bin/bash

for i in $(seq 50 99)
do
    touch "file$i.txt"
done
```

```
> chmod u+x create50.sh
> ./create50.sh
```

```
ls/lecture_2/exercise/testfolder$ ls
create50.sh  file60.txt  file71.txt  file82.txt  file93.txt
file50.txt   file61.txt  file72.txt  file83.txt  file94.txt
file51.txt   file62.txt  file73.txt  file84.txt  file95.txt
file52.txt   file63.txt  file74.txt  file85.txt  file96.txt
file53.txt   file64.txt  file75.txt  file86.txt  file97.txt
file54.txt   file65.txt  file76.txt  file87.txt  file98.txt
file55.txt   file66.txt  file77.txt  file88.txt  file99.txt
file56.txt   file67.txt  file78.txt  file89.txt  renamedtestfile.txt
file57.txt   file68.txt  file79.txt  file90.txt
file58.txt   file69.txt  file80.txt  file91.txt
file59.txt   file70.txt  file81.txt  file92.txt
```

26.

```
> rm $(ls | grep -P "^file[5-9][0-9]*")
> ls
```

```
ls/lecture_2/exercise/testfolder$ ls
create50.sh  renamedtestfile.txt
```

27.a

```
> vim file_maker.sh
```

```
#!/bin/bash

for i in $(seq 1 $1)
do
    touch "$2/$1$i"
done
```

```
> chmod u+x file_maker.sh
```

```
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshing$ 
ls/lecture_2/exercise$ ./file_maker.sh 5 hello testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshing$ 
ls/lecture_2/exercise$ cd testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshing$ 
ls/lecture_2/exercise/testfolder$ ls
create50.sh  hello2  hello4  renamedtestfile.txt
hello1       hello3  hello5
```

27.b

> vim file_renamer.sh

```
#!/bin/bash

for i in $(seq 1 $1)
do
    mv "$2/hello$i" "$2/hello$i.txt"
done
```

> chmod u+x file_renamer.sh

```
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise$ ./file_renamer.sh 5 testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise$ cd testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/testfolder$ ls
create50.sh  hello2.txt  hello4.txt  renamedtestfile.txt
hello1.txt  hello3.txt  hello5.txt
```

27.c

> vim file_mover.sh

```
#!/bin/bash

if [ -d $1 ] && [ -d $2 ]; then
    mv $1/*.txt $2
fi
```

> chmod u+x file_mover.sh

> cd testfolder

> mkdir secondtestfolder

> cd ..

> ./file_mover.sh ./testfolder ./testfolder/secondtestfolder

```
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise$ cd testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/testfolder$ ls
create50.sh  secondtestfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/testfolder$ cd secondtestfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/testfolder/secondtestfolder$ ls
hello1.txt  hello3.txt  hello5.txt
hello2.txt  hello4.txt  renamedtestfile.txt
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2/exercise/testfolder/secondtestfolder$
```

Notes Taken Before The Practical Work

```
> cd 'Programming/UCA/MSc 1 Refreshers/Basic Tools/lecture_2'
> ls -l
-rw-rw-r-- 1 quentin quentin 439137 sept. 24 13:15 'Lecture_2_Basic tools.pdf'
-rw-rw-r-- 1 quentin quentin 108 sept. 24 13:44 practical_work.txt
> touch test_file.txt
> vim test_file.txt
Wrote some stuff
> ls -la
drwxrwxr-x 2 quentin quentin 4096 sept. 24 13:51 .
drwxrwxr-x 3 quentin quentin 4096 sept. 24 13:43 ..
-rw-rw-r-- 1 quentin quentin 439137 sept. 24 13:15 'Lecture_2_Basic tools.pdf'
-rw-rw-r-- 1 quentin quentin 88 sept. 24 13:51 ~/.lock.practical_work.txt#
-rw-rw-r-- 1 quentin quentin 396 sept. 24 13:51 practical_work.txt
-rw-rw-r-- 1 quentin quentin 84 sept. 24 13:49 test_file.txt
> chmod o+w 'test_file.txt'
> ls -l
-rw-rw-r-- 1 quentin quentin 439137 sept. 24 13:15 'Lecture_2_Basic tools.pdf'
-rw-rw-r-- 1 quentin quentin 396 sept. 24 13:51 practical_work.txt
-rw-rw-rw- 1 quentin quentin 84 sept. 24 13:49 test_file.txt
> chmod o-r 'test_file.txt'
> myVar="Hello World!"
> echo $myVar
Hello World!
> read user_name
Quentin
> read -p "What is your name?" other_user_name
What is your name?Quentin
> echo $user_name
Quentin
> echo $other_user_name
Quentin
> myVar="a"
> case $myVar in "a")
> echo "a"
> ;;
> "b")
> echo "b"
> ;;
> esac
a
> [ 2 -eq 3 ] && echo "smth"
smth
> [ 2 -eq 3 ] || echo "smth"
smth
> echo $( 3 + 2 )
3: command not found
> echo $(( 3 + 2 ))
5
> x=1;y=0
> [ ! $x -eq 1 ] || echo "number is not null"
number is not null
> myfunc()
> {
> echo "myfunc was called as: $@"
> x=2
> }
> x=1
> echo "x is $x"
```

```
x is 1
> myfunc 1 2 3
    myfunc was called as: 1 2 3
> touch test_script.sh
> vim test_script.sh
> chmod a+x test_script.sh
> ./test_script.sh "HELLO" 10
    HELLO 1 time
    HELLO 2 time
    HELLO 3 time
    HELLO 4 time
    HELLO 5 time
    HELLO 6 time
    HELLO 7 time
    HELLO 8 time
    HELLO 9 time
    HELLO 10 time
```