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.

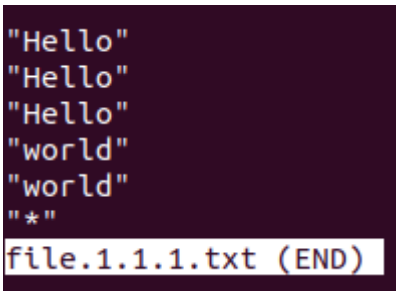
```
> cd 'Programming/UCA/MSc 1 Refreshers/Basic Tools'
> mkdir lecture_1
> mv ./copyme ./lecture_1/copyme
```

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
```



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]
        Fetched 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 Too
ls/lecture_2/exercise/zip_codes$ grep -rnw ./french_zipcodes.txt -e '01
000'
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 Refreshe
ls/lecture_2/exercise$ ./file_maker.sh 5 hello testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshe
ls/lecture_2/exercise$ cd testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshe
ls/lecture_2/exercise/testfolder$ ls
create50.sh  hello2  hello4  renamedtestfile.txt
hello1       hello3  hello5
```

27.b

```
> cd 'lecture_2/exercise/testfolder'
> vim create50.sh
```

```
#!/bin/bash

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

```
> ./create50.sh
> ls
```

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

```
> cd ..
> vim file_renamer.sh
```

```
#!/bin/bash
counter=0
for file in ./$2/*
do
        if [ ${file:-4} != ".txt" ]; then
                mv "$file" "$file.txt"
                ((counter++))
                echo "edited $counter file(s)"
        fi
        if [ $counter -ge $1 ]; then
                break
        fi
done
```

```
> chmod u+x file_renamer.sh
> ./file_renamer.sh 10 testfolder
```

```
e_2/exercise$ ./file_renamer.sh 10 testfolder
edited 1 file(s)
edited 2 file(s)
edited 3 file(s)
edited 4 file(s)
edited 5 file(s)
edited 6 file(s)
edited 7 file(s)
edited 8 file(s)
edited 9 file(s)
edited 10 file(s)
```

```
> cd testfolder
> ls
```

```
e_2/exercise/testfolder$ ls
create50.sh.txt  file57.txt  file65  file73  file81  file89  file97
file50.txt       file58.txt  file66  file74  file82  file90  file98
file51.txt       file59      file67  file75  file83  file91  file99
file52.txt       file60      file68  file76  file84  file92  secondtestfolder
file53.txt       file61      file69  file77  file85  file93
file54.txt       file62      file70  file78  file86  file94
file55.txt       file63      file71  file79  file87  file95
file56.txt       file64      file72  file80  file88  file96
```

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 Too
ls/lecture_2/exercise$ cd testfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Too
ls/lecture_2/exercise/testfolder$ ls
create50.sh  secondtestfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Too
ls/lecture_2/exercise/testfolder$ cd secondtestfolder
quentin@quentin-ubuntu-UCA:~/Programming/UCA/MSc 1 Refreshers/Basic Too
ls/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 Too
ls/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"

> [ 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
```