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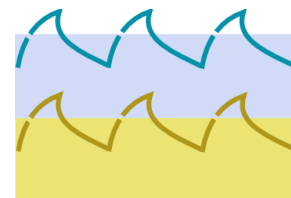


UNIVERSITÀ
DEGLI STUDI
DI PADOVA



SIGNET

signet.dei.unipd.it



DESERT Underwater: tcl basics

UNWis - Padova (Italy)

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Linux basic commands

- **pwd** [print working directory]: where am I?

```
filippo@lenovo-signet:~$ pwd
/home/filippo
```

- **ls** [list]: lists files and directories in the current location

```
filippo@lenovo-signet:~$ ls
2223                Desktop      Downloads  Pictures    Templates  mail
DESERT_Underwater_private  Documents  Music      Public      Videos    ns2
```

- **mkdir <dir>** [make directory]: create the directory <dir>

```
filippo@lenovo-signet:~$ mkdir test
filippo@lenovo-signet:~$ ls
2223                Desktop      Downloads  Pictures    Templates  mail  test
DESERT_Underwater_private  Documents  Music      Public      Videos    ns2
```

- **rm <file>** [remove]: erase <file> (add -r if recursive)

```
filippo@lenovo-signet:~$ rm -r test/
filippo@lenovo-signet:~$ ls
2223                Desktop      Downloads  Pictures    Templates  mail
DESERT_Underwater_private  Documents  Music      Public      Videos    ns2
```

Linux basic commands

- **cd <dir>** [change directory]: change position of the working directory to <dir>

```
filippo@lenovo-signet:~$ cd DESERT_Underwater_private/
filippo@lenovo-signet:~/DESERT_Underwater_private$
```

- **cd ..** : go to top dir

```
filippo@lenovo-signet:~/DESERT_Underwater_private$ cd ..
filippo@lenovo-signet:~$
```

- **mv <source> <destination>** [move]: from <source> to <destination>

```
filippo@lenovo-signet:~$ ls Desktop/
ns2
filippo@lenovo-signet:~$ ls
2223 Desktop Downloads Pictures Templates mail
DESERT_Underwater_private Documents Music Public Videos
```

- **man <cmd>**: manual of the comand <cmd>

- ```
filippo@lenovo-signet:~$ cp -r Documents/ doc1
filippo@lenovo-signet:~$ ls
2223 Desktop Downloads Pictures Templates doc1
DESERT_Underwater_private Documents Music Public Videos mail
```

- [illegible]

# Linux basic commands

- **source <script>**: runs the script in the current shell (and keeps the changes to the environmental variables)

```
filippo@lenovo-signet:~/DESERT_Underwater_private/DESERT_buildCopy_LOCAL$ source environment
```

- **chmod <param> <file>** [change permission to file]: change read/write/executable permission to <file>. E.g., *chmod +x <file>* makes <file> becoming an executable

```
filippo@lenovo-signet:~/DESERT_Underwater_private/DESERT_buildCopy_LOCAL$ ls -l environment
-rw-r--r-- 1 filippo filippo 196 May 10 2023 environment
filippo@lenovo-signet:~/DESERT_Underwater_private/DESERT_buildCopy_LOCAL$ chmod +x environment
filippo@lenovo-signet:~/DESERT_Underwater_private/DESERT_buildCopy_LOCAL$ ls -l environment
-rwxr-xr-x 1 filippo filippo 196 May 10 2023 environment
```

- **ctr+c** [sigterm] terminate the process running in the terminal
- **date** : current date time

# Linux other basic commands

- **cat <files>** [concatenate]: concatenate (and print) files to standard output
- **head/tail -<N> <file>**: print the first/last N lines of a file
- **touch <file>**: creates a new empty file
- **A=ciao**: create the variable a with the string ciao
- **echo \$A**: print the variable A (ciao is printed)
- **A=ls** : string ls is saved inside A
- **\${A}** the command saved in A is executed (ls is executed)
- **sleep 5** sleeps 5 seconds (**usleep** for microseconds)

# Linux other basic commands

- **bc** [calculator]: shell calculator
- **<command1> | <command2>** [pipe]: output of command1 is redirected as input of command2
  - echo 10+5 | bc → gives 15
- **grep <string/regex> <file>**: look for a string or a regular expression inside a file and returns all lines that match (parses lines)
- **awk <format> <file>** : parses columns: more on this later
- **<command> > <file>** : redirect standard output to a file
- **<command> > <file> 2>&1** : redirect standard error to standard output and standard output to a file

# Linux for and while loop

```
for i in $(seq 1 10);
do
 echo $i
done
```

```
for ((i = 0 ; i < max ; i++))
do
 echo "ciao$i"
done
```

```
while true
do
 sleep 1
 echo 1
done
```

```
while [$i -le 2]
do
 echo Number: $i
 ((i++))
done
```

# Linux Exercise

- Create the directory ex1 (mkdir ex1)
- Navigate inside ex1 (cd ex1)
- Create an empty file named ex1.sh (touch ex1.sh)
- Open it in a text editor
- Add the lines in the right:
- Save and close the file
- Give +x permission  
(chmod +x ex1.sh)
- Execute the script (./ex1.sh)
- Execute it again redirecting stdo to file (./ex1.sh > log)
- Check the log file content (cat log)

```
#!/bin/bash
A=ls
${A}
ls
for((i = 0 ; i < 10 ; i++))
do
 echo "ciao$i"
 sleep 1
done
```