SHELL PROGRAMMING

**Introduction**

Unix: operating system and set of tools

command line == shell == console

Bash is default shell program on Mac and Ubuntu

**Command structure**

**command options arguments 🡪** options proceed “-“

**Directory structure**

**Absolute path**: exact location within the computer which starts at “/” known as the **root**

**Relative path**: relative location to current directory

**cd** 🡪 change directory

.. 🡪 parent . 🡪current ~🡪home / 🡪 root

* Tip: you can push tab to autofill the names
* Tip: accessing drives cd /mnt/c

**Data and Directories**

**Data**🡪 file, **directory**🡪folder

**pwd** 🡪 print working directory

**ls** 🡪 list of available files and folders

**ls \*2017** 🡪 wild card all files end with 2017

**ls -R 🡪** all directories and their directories

**ls -R -F 🡪** adds a “\*” after each executable

**ls -l** 🡪 detailed info and permission of files and dir (d)

**mkdir**🡪 making a folder

**cut -f 2-5,8 -d , data.csv** 🡪 getting columns from a csv file, f(filed), 2-5,8(colums), -d (delim), ,(comma)

**Migration and destruction**

**cp file\_copy file\_paste 🡪** getting a copy in the same dir

**cp file folder** 🡪copying a file to another dir

**cp -r folder folder** 🡪 recursive copy (move all content)

**mv source\_file destination** 🡪 move file to dest

**mv file\_old file\_new** 🡪 renaming files

**mv file1 file2 destination**🡪 moving several files

**mv folder1 folder2** 🡪moves folder1 inside folder2

**rm file** 🡪 removes the file

**rm -r directory** 🡪removing directory

**rmdir**🡪 removing folder

**Getting help**

**man command** 🡪 getting help on the command

**apropos function 🡪** find all the commands that does something with function

**Verifying the content**

**cat file 🡪** viewing the content in the command line

**cat file1 file2** 🡪 concatenates them

**less file** 🡪 for larger files, you can go inside and go back and forth inside it using : p , :n

**head -num files** 🡪 gives n higher lines

**head file** 🡪 gives the 10 line headers

**tail file** 🡪 exactly the same as head just from bottom

**wc file** 🡪 gives word count of a file (lines, words, char)

**touch filename** 🡪 creates a new file

**nano file** 🡪 creating/opening a file to edit

**Writing outputs**

**echo “hi” 🡪** writes hi on the shell

**echo “hi” >file 🡪** create a new file and print hi in it

**echo “hi” > file 🡪** append hi to the end of the file

**Regular expressions**

**grep ‘re’ string 🡪** looks for re patterns in string

**egrep ‘re’ string** 🡪 same as grep dealing with methachars

**egrep -n ‘re’ string** 🡪gives the line number of matches

**RegEx refresher**:

+🡪one or more, \*🡪 zero or more, {n}🡪 exact n times, ^🡪complement of expression, (group)🡪capturing group, \w🡪all words, \d🡪all numbers, \s🡪space, |🡪or

**Accessories**

**~/.bash\_history 🡪** history of the commands

~/.bash\_profile 🡪 runs on start (use foe alas creation)

**alias sth = ‘some command’🡪** alias creation

**source ~/.bash\_profile**🡪 activates the bash profile

**diff file1 file2** 🡪 shows different lines in a file

**sdiif file1 file 2**🡪 shows differences side by side

**md5** 🡪 generates the hash of the file

**|**🡪pipe operator: takes the output of one command and use it as the input to the next

**Make files**

**Used for running programs**

**Iteration**

**for number in {1..9..2}**

**do**

**echo $number**

**done**