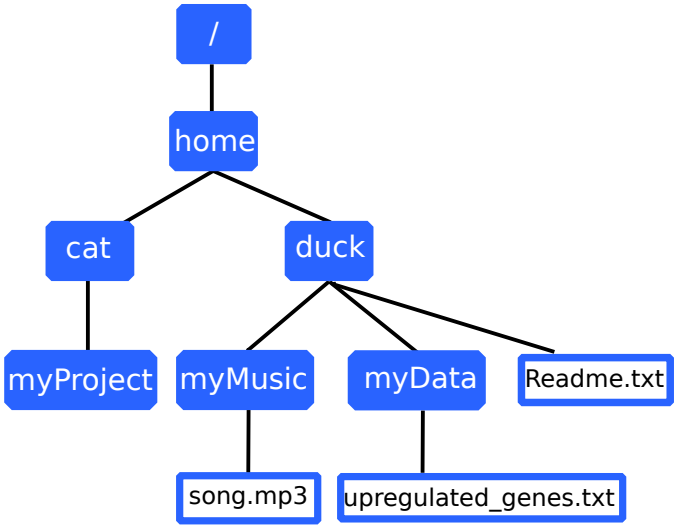
Unix/Linux Tutorial for Beginners
Session II – The Filesystem

Mandatory exercises

1. If **pwd** displays */home/duck*, what will **ls myMusic** display?



   (a) ls: ../myMusic: No such file or directory
   (b) song.mp3
   (c) upregulated_genes.txt
   (d) Readme.txt

2. When you use the ls command, which of the following occurs?

   (a) A new file is created.
   (b) The content of the current working directory is displayed.
   (c) All files in the current working directory are deleted.
   (d) It displays only the directories contained in the current working directory.

3. Which command is used to remove a directory and its content?

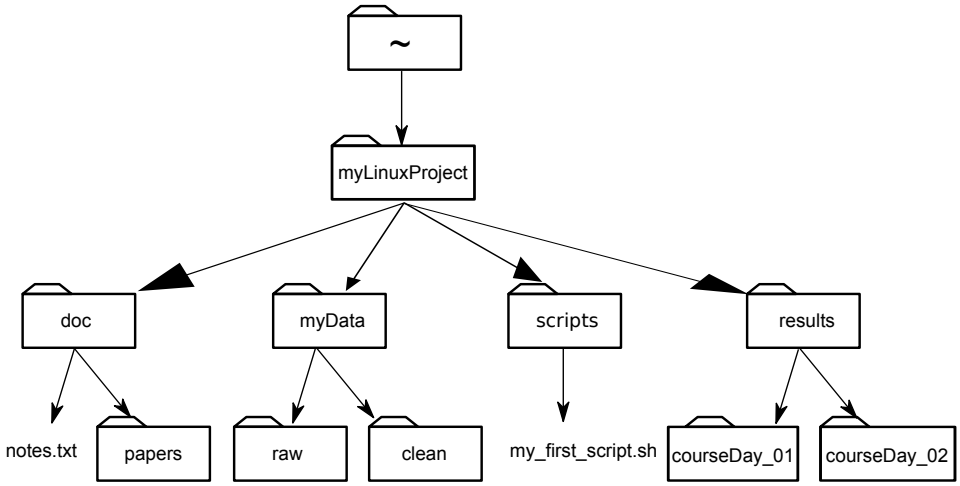
(a) rdir

(b) rmdir

(c) remove

(d) rm -r

4. Create the directory hierarchy that matches the diagram given below. Use as working directory the home folder (∼). The home directory already contains the folder 'data', which is not displayed in this diagram. **OMIT** the 2 files at this point. Use the commands pwd, cd, tree, and/or ls to check the correctness of the generated paths.



5. Which command is used to rename a file?

(a) rename

(b) mv

(c) cp

(d) vm

6. Which command lists the entire content of the current working directory?

(a) ls -complete

(b) ls all

(c) ls -a

7. What is the output of the closing **ls** command in the sequence shown below?

```
$ pwd
/home/mihaelmr/myData
$ ls
proteins.fa
$ mkdir recombine
$ mv proteins.fa recombine
$ cp recombine/proteins.fa ../proteins-saved.fa
$ ls
```

(a) proteins-saved.fa recombine

(b) recombine

(c) proteins.fa recombine

(d) proteins-saved.fa

8. Which command can be used to create a new directory?

   - mkdir
   - createdir
   - newdir

9. Find out which directory is your current working directory using pwd. Go to your home directory using the change directory (cd) command. Your home directory contains 2 subfolders, named **data** and **myLinuxProject**. Which commands could you use to change to the subdirectory *data*, using both absolute and relative paths, assuming that *user* corresponds to your own user name?

   (a) cd ../data

   (b) cd /home/user/data

   (c) cd ~/data

   (d) cd ./data

   (e) cd data

10. Suppose that your working directory is ~/myLinuxProject and you want to list the content of all subfolders that contain a '0' in the name. What command and wildcards covered in this lesson does you need to run so that the following output will be produced?

```
results/courseDay_01:

results/courseDay_02:
```

Optional exercises

1. You need more information regarding the options of the 'ls' command. How do you get help using the command line?

- ls --help
- ls?
- man ls

2. What does the command **cd** without a directory name do?

   (a) It has no effect.

   (b) It changes the working directory to **/**.

   (c) It changes the working directory to the user's home directory.

   (d) It produces an error message.

3. The **ls** command lists the content of a directory in ascending alphabetical order. Are there other sorting options available? Which arguments could be used? Use **ls --help** to get a short help about available options.

4. What does the command **ls** do when used with the **-s** and **-h** arguments?

   (a) It returns the human readable file sizes.

   (b) It sorts the files as a human would do it.

   (c) The option '-h' provides information about the option '-s'.

5. Suppose that you created a .txt file in your current directory to contain a list of the statistical tests you will need to do to analyze your data, and named it statstics.txt. After creating and saving this file you realize you misspelled the filename! You want to correct the mistake, which of the following commands could you use to do so?

   (a) cp statstics.txt statistics.txt

   (b) mv statstics.txt statistics.txt

   (c) mv statstics.txt .

   (d) cp statstics.txt .

6. What does the command **ls** do when used with the **-l** argument? How can you print the allocated sizes in human readable format?

   (a) It returns the full name of the files listed in the users home directory.

   (b) It returns the content listed as a list. The allocated sizes are printed in human readable format using the option '-h'

   (c) The option '-h' displays all hidden files, while '-l' returns the content listed as a list.

7. Suppose that your working directory is a mixture of files and directories, which aren't very well organized:

```
$ pwd
~/myLinuxProject/myData
$ ls -F
clean/ fructose.dat raw/ sucrose.dat
```

The fructose.dat and sucrose.dat files contain output from your data preprocessing. What command(s) covered in this lesson does you need to run so that the commands below will produce the output shown?

```
$ ls -F
clean/ raw/

$ ls clean
fructose.dat     sucrose.dat
```

8. If **pwd** displays */home/duck* (see figure from exercise 1, mandatory exercises), and **-r** tells **ls** to display things in reverse order, which command will NOT display:

   Readme.txt myMusic/ myData/

   (a) ls pwd

   (b) ls -r -F

   (c) ls -r -F /home/duck

   (d) ls -rF

9. Go to your home directory using the tilde extension '~'. Create a new directory named *'flower_power'* and copy the file *~/data/poetry/rosesRobertBurns.txt* to your new created directory. In a next step rename your file to *robertBurns_roses.txt*. Assuming you are now in your new created folder and lists its content using the command ls -a. Which of the following output is correct.

   (a) . .. rosesRobertBurns.txt

   (b) . .. robertBurns_roses.txt

   (c) robertBurns_roses.txt

   (d) . ..

10. What does **cp** do when given several filenames and a directory name, as in:

```
$ mkdir backup
$ cp thesis/citations.txt thesis/quotations.txt backup
```

   (a) It copies the content of the file *citations.txt* to *quotations.txt* and moves both to the directory *backup*.

   (b) It copies both files to the directory *backup*.

(c) It moves both files to the directory *backup*.

11. What does **cp** do when given three or more filenames, as in:

```
$ ls -F
intro.txt     methods.txt     survey.txt
$ cp intro.txt methods.txt survey.txt
```

(a) It copies the content of the file *intro.txt* into the file *methods.txt* and this new content to the file *survey.txt*

(b) It returns the error message: *cp: target 'survey.txt' is not a directory*

(c) It copies the content of the second file into the third file.

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