Session 1 Assignment Hand-in

For this exercise session you do not have to hand-in anything. However, make sure that you take notes for everything that you do and that you have an answer in your notes for each of the following questions. If in doubt about anything ask the TAs and the lecturers during the workshop session or on learnIT.

For this exercise, you will need the example data as used in the lecture. In case you did not download it so far, get it via:

- Download and uncompress the ZIP file `filesystem_exercise.zip` from https://github.com/itu-qsp/2019-summer/raw/master/session-1/filesystem_exercise.zip (https://github.com/itu-qsp/2019-summer/raw/master/session-1/filesystem_exercise.zip) (shortlink: https://tinyurl.com/yygbqln7 (https://tinyurl.com/yygbqln7))
- Navigate to the `data` directory that was uncompressed from the file

```
cd <path_to_uncompressed>/data
```

Exercise A:

a) Finding files in a directory

- Verify that you are within the `data` directory from the archive that you downloaded earlier.
- List all text files (those with the ending/suffix `.txt`) are located in the subdirectory `books`.
- How many of such files are there?

Hints:

- The command you want to use is not called `find`
- You want to make use of wildcards

b) Finding files in multiple directories

- List all text files (those with the ending/suffix `.txt`) are located in any of the subdirectories in the `data` directory?
- Can you find a single command to list them all?

Hints:

- The command you want to use is not called `find`
- You want to make use of one or more wildcards

c) Moving multiple files from multiple directories

- Create a new directory called `texts` and
- move all the text files that you found in the previous step there and
- verify that the text files are now really in the `texts` directory and no longer where they were before.

Exercise B:

- Find all files within the `data` directory that contain the word `beautiful` in the filename.
- Create a list of the paths of these files.
- How many of such files are there?

Hints:

- The command you want to use is not called `find`
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Exercise C, Meta reflection:

- Why are the previous two exercises (Exercise A and B) written in short bullets? Why not just write prose?
- What is the relation in between the bullet points and your actions on the command line?

Can you create a bullet point list similar to the one above for the following high-level task description?

> We need to have all beaver images backed-up to a directory called `beaver_bkp`.

Exercise D, Two new commands:

So far, you were only working with files. Now, you will create text files directly from the command line with help of the `echo` program. Additionally, you will write your first small Python program like that and run it.

- Create a new directory in data that is called `first_code`.
- Change your current directory to `first_code`, the one that you just created.

Now, we are doing something new, i.e., we did not talk about it in the lecture. We create a new text file containing a single line.

- In the directory `first_code`, create a file with the name `hej.py` and a single Python statement. Do it by running this command:

```
echo "print('Hej, you!')" > hej.py
```

To run the small Python program in that new text file you can use the `python` command. That should work for all of you after the installation session.

- Now, run the newly created Python file with this command:

```
python hej.py
```

- What happens? Can you describe to your friends/classmates what the two last commands were doing?
- Now, append a new line of Python code to your text file by running:

```
echo "print('Hola, I am talking to you...')" >> hej.py
```

- Run the program again (with `python hej.py`)

- How did the behavior of your first Python program change?

Exercise E, what is a program?

- Watch the video under: https://archive.org/details/ComputerAndTheMindOfManP3TheUniversalMachine (https://archive.org/details/ComputerAndTheMindOfManP3TheUniversalMachine)
- Thinking exercises (*don't write too much for this, take notes instead*):
  - Describe what a computer is and what its purpose is.
  - What is a program?
  - What is the role of humans in relation to computers?
  - What is a programming language?

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