



Informatics I – HS18

Exercise 1

Submission Details

- **Submission Format:** PDF File
- **Submission Deadline:** 12:00, Tuesday 25th September
- The name of the PDF file should have the following format: `olatusername_info1_exercise_<number>.pdf`, e.g. *example_info1_exercise_1.pdf*. **Please note:** make sure you follow this file naming convention, otherwise we will not assign any points.
- Please write in the PDF file your first- and lastname, as well as your student identification number (Matrikelnummer).
- For this exercise any Python code you are required to write can be included in the PDF file. You do not need to submit any Python files. submission. This cannot be modified afterwards.

1 Task: Hello World

(4.0 Points)

1.1 Assignment

a) Install python 3

(2.0 Points)

We are using Python 3 for this lecture. So first we have to make sure that our machine is running the correct version of python. For checking which python version is installed please open a terminal on your operating system and execute the command `python --version`. Figure 1 shows what a terminal might look like and how this command is executed. If you don't know how to open a terminal, please look it up on Google. There are many tutorials for every operating system. If the previous command returns `Python 3.x.xx`¹ we are fine.

If the `python --version` command did not return `Python 3.x.xx` it may be because a different Python version is your default. In this case, try `python3 --version`². If this does not work either, you have to install a different version of Python. The latest Python 3 version can be downloaded from <https://www.python.org/downloads/>. If you have some troubles please refer to the internet, ask a question on the OLAT forum or ask your tutor during the first tutor session.

Now your computer should be running Python 3 and you are ready to go.

Your task: Include a screenshot of your terminal which shows your current Python version in the PDF you submit.

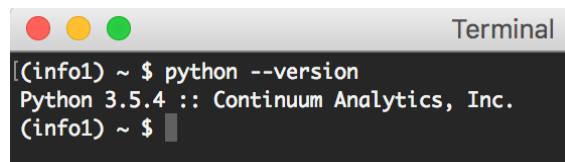


Figure 1: Checking your current Python version

b) First Commands and Program

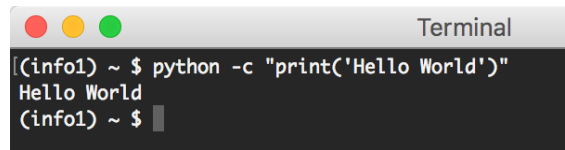
(1.0 Points)

There are three different ways of executing code in Python from the terminal. Now, we are going to execute the same command with all three methods.

First, we take a look at the command mode. Here you enter a statement of the form `python -c "<command>"` and the command between the quotation marks gets executed. Try this by entering `python -c "print('Hello World')"`. You should get a result which looks like the one shown in figure 2. Remember to use `python3` if your default is not Python 3.

¹xx stands for some numbers. The exact version doesn't matter as long it's 3

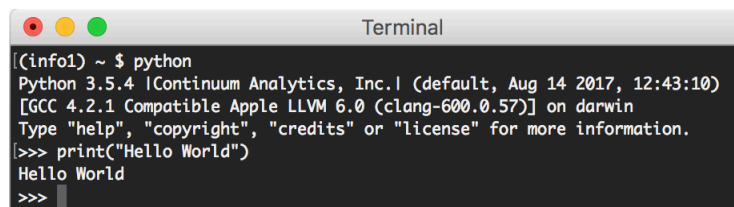
²if this works, you can either call all your programs using `python3` or you can change your default version of Python - to do this please ask your tutor for help in the first tutorial

A terminal window titled "Terminal" with a dark background. It shows the command `python -c "print('Hello World')"` being executed, followed by the output `Hello World`. The prompt `(info1) ~ $` is visible at the end of the line.

```
(info1) ~ $ python -c "print('Hello World')"  
Hello World  
(info1) ~ $
```

Figure 2: "Hello World" version 1

Second, we explore the interpreter mode. In this mode, similar to the terminal, you can insert a statement and execute it by pressing enter. You can start the python interpreter by typing `python`. Next, you can enter `print("Hello World")` and you will get the same result as in the previous example. The result should look like in figure 3.

A terminal window titled "Terminal" with a dark background. It shows the command `python` being executed, which starts the Python 3.5.4 interpreter. The prompt `>>>` is visible, followed by the command `print("Hello World")` and the output `Hello World`. The prompt `>>>` is visible at the end of the line.

```
(info1) ~ $ python  
Python 3.5.4 |Continuum Analytics, Inc.| (default, Aug 14 2017, 12:43:10)  
[GCC 4.2.1 Compatible Apple LLVM 6.0 (clang-600.0.57)] on darwin  
Type "help", "copyright", "credits" or "license" for more information.  
>>> print("Hello World")  
Hello World  
>>>
```

Figure 3: "Hello World" version 2

Third, you can write your code into a file and then execute the contents of that file. First you need to open a text file in any text editor ³.

Create a file with name `hello_world.py`, write the following code and save the file.

```
1 print("Hello World")
```

Listing 1: `hello_world.py`

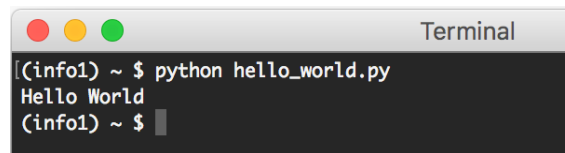
Now execute the file with `python hello_world.py`. You should get a result like in Figure 4. But make sure you are in the same directory as the file is. If you do not know in what directory you are in, type in your terminal `cd` on Windows or `pwd` on Linux or Mac. Here is a guide on how to navigate in the terminal for Windows⁴, Mac OS⁵ and Ubuntu⁶.

³Use plain text editors which don't format the text. Hence, don't use Word etc. You can try the Atom (<https://atom.io/>) text editor or Notepad++ (<https://notepad-plus-plus.org/>).

⁴<http://www.watchingthenet.com/how-to-navigate-through-folders-when-using-windows-command-prompt.html>

⁵<https://computers.tutsplus.com/tutorials/navigating-the-terminal-a-gentle-introduction--mac-3855>

⁶<https://askubuntu.com/questions/232442/how-do-i-navigate-between-directories-in-terminal>

A screenshot of a macOS Terminal window. The title bar says "Terminal". The prompt is "(info1) ~ \$". The user has entered the command "python hello_world.py". The output is "Hello World". The prompt is now "(info1) ~ \$" with a cursor.

```
(info1) ~ $ python hello_world.py
Hello World
(info1) ~ $
```

Figure 4: "Hello World" version 3

Your task: Take a screenshot of your terminal where you use the command mode to print your name and include it in the PDF you submit.

c) Install PyCharm (1.0 Points)

In the previous task you learned how to execute python code. You also learned how to write code in a file and then execute this file. When developing real software you end up having a project with many files. When using a traditional text editor it's hard to keep track of all these files. Therefore during software development, one often uses an integrated development environment (IDE). IDEs are very useful for organising code and offer a wide range of functionalities like syntax highlighting, debugging, refactoring, etc. A popular IDE for Python is PyCharm. You can download it at <https://www.jetbrains.com/pycharm/download/>.

Next, you have to create a new project. Make sure you create a **pure python** project and select the correct python version (as before it does not have to be the exact same version of Python, as long as it is Python 3.X.X). Take a look at figure 5 where to look for these options.

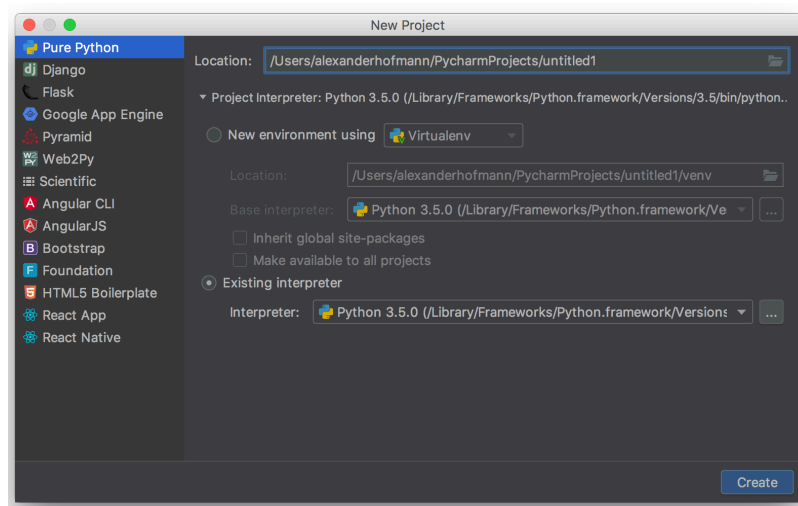


Figure 5: Setup of new project

Next you have to create a new file and write the code `print("Hello PyCharm")` into it. In order to do this, right click the project name and select New and then Python file. Name the new file "hello_pycharm.py". Now, write the code `print("Hello PyCharm")` in the python file and then right click the name of the file and select "Run 'hello_pycharm'". After that you can see the

output in the lower area of the window. In the upper right part of the screen there is a 'Play' button (green arrow pointing to the right) which will execute the python file shown to the left of it. It's usually the last executed file.

Your task: Take a screenshot showing your PyCharm file with a print statement that prints your name and include it in the PDF you submit .

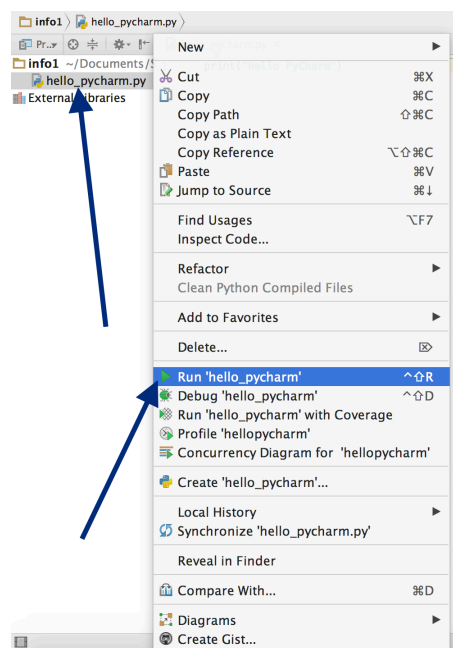


Figure 6: Run file

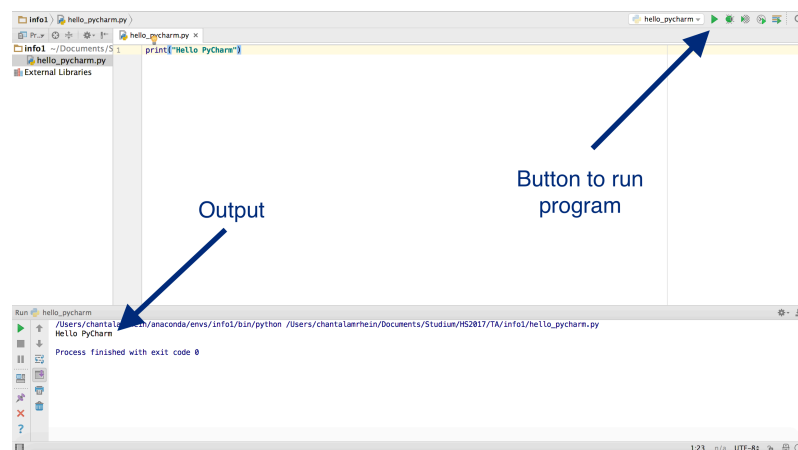


Figure 7: Output and run button

1.2 Remarks

1. You can apply for a free full version of PyCharm at <https://www.jetbrains.com/student/>.