

## Exercise sheet 1

Points: 

/ 20
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## Python Introduction 2022

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### Exercise 1:

In this exercise some basic knowledge will be asked. Answer the questions with a few sentences!

- (a) Which programs and resources do you need, to write and execute python code?
- (b) Which type of language is python and what are the differences to C++ for example?
- (c) How do you define variables in python? (Check answer (b))
- (d) What's the difference between tuples, lists, sets and dictionaries?
- (e) What are modules and how can you import and use them?
- (f) What loops and statements are there in python?

### Exercise 2:

Here you have to code in python. The files *Exercise\_1.py* and *resources.py* are given to you. Complete the code with the following instructions!

- (a) Import the *factorial* function from the *math* module
- (b) Import the variables *ARR* and *NUMBERS* from the *resources.py* file. What makes these variables special? (It has to do with the UPPERCASE)
- (c) Code a function called *isValid* where an argument is given. The function should check if all contents of the string are characters. If not, then a *ValueError* should be raised with the phrase "*x is not a character type!*" where x is the data, that isn't a character. Check out formatted strings for this exercise!
- (d) Code the main function, so the code runs as a script! Check out this resource for further information!

**(e)** Code a loop function, that loops through *NUMBERS* and calculates the factorial for each number. Let the factorial and the number print out in the console like this:  
*"The factorial of number x is: factorial(x)"*