Exercises Python Advanced

Turtle

Draw a polygon with turtle.

- Check out the different methods that you can use with turtle
    - in particular: forward and left
- Import turtle
- End the program with turtle.done()
- Draw a square
- Draw a polygon
    - Calculate the angle of each corner
      https://nl.wikipedia.org/wiki/Regelmatige_veelhoek

BankAccount

Create a Bankaccount class, create serveral Bankaccount objects and demonstrate that you can deposit and withdraw amount to the account.
Tips:

- Create a class Bankaccount
- Add attributes in the **__init__** method. Attributes should be __balance and __holder.
- Add the methods: **deposit** and **withdraw** that take an amount argument and a third method **info** that returns information about the account.

Instantiate serveral bankaccount objects and demonstrate the working of the class

Class Car

- Create a class named **Car**
- Add the __init__ method and set several attributes like **_make**, **_type** and **_color**
- Set the **_mileage** attribute to 0
- Create a method **info** that describes the car and the mileage
- Create a method **drive** that takes an amount of kilometers and adds that to the mileage.

Test you class by instantiating a car and calling the methods

Vector Class

Create a 2d-Vector class. Also add operator overloading for the + sign to add two vectors together.
Tips:

- Build a class called Vector
- Add two attributes: x and y
- Implement the __init__ method that takes two arguments: x and y
- Implement the __str__ and __repr__ methods.
- Implement the __add__ method the define the adding of two vectors.
- Test your class by creating two vectors and adding these together.

sys library

- Get the current version of Python
- Return the message you are currently running Python version …

os library

- Use the os library to get the contents of a directory in a list.

datetime library

- input a date and print the date in another format

re library

- Go to the website https://rubular.com
- Build and test a regular expression to match and e-mail address
- Use the same regular expression in python with the search method in the re library

pickle library

- Create a datastructure and store this in a pickle file. Create a second python script that reads pickle file and restores the data in the data structure.

xml library

Read and parse the Macbeth xml file and generate several overviews.

- The name of the play
- The names of all the personas
- The names of all the scenes

statistics library

Create a function that calculates and returns the mean, median and mode of a list of numbers.
Tips:

- Define a function as **def central_measures(numbers)**
- Calculate the measures:
    - The **mean** is the sum of the values divided by the number of values
    - The **median** is middle value of the sorted list of values
    - The **mode** is the most frequently occuring value
- Return the measures as a tuple with **return mean, median, mode**
- Call the function with a list of arbitrary numbers
- Print the result

doctest library

- Create a function and add a docstring with doctests for the function.

requests library

Use requests to query openweathermap.org for the weather in a specified city.
Tips:

- import **requests**
- build the url (see https://openweathermap.org/current)
  use: **appid=d1526a9039658a6f76950cff21823aff**
- use the following code to get the response:
  response = requests.get(url)
- use json to decode the response into a Python dictionary **response.json()**
- get and print the temperature