Exercise – 8



**Published on:** 26.06.2023

**Deadline:** 03.07.2023 – 1:59pm

**Task(s):**

* Download the assignment zip archive here:

<https://sync.academiccloud.de/index.php/s/5khWacwyUlwaV7X>

* Programming language: Python 3.10
* You can use this Virtual Machine for a pre-installed environment: [Link](https://sync.academiccloud.de/index.php/s/0tNJXe2Kqc7Scg4) (Password: 5cnN59dzVEm5atc)
* Please watch the ["Python-Exercise-Tutorial"](https://video.tu-clausthal.de/vorlesung/1336.html" \l "k=6) summarizing how to do the python programming exercises.
* General Instructions
  + Unzip the handout zip archive
  + The handout contains a Pipfile. You can install the dependencies for the exercises by running `pipenv install`. (You might have to install [pipenv](https://github.com/pypa/pipenv/) and [pyenv](https://github.com/pyenv/pyenv" \l "automatic-installer) first)
  + Activate the python virtual environment using `pipenv shell`.
  + In the E08 directory, you will see the following:

1. solution.py

2. driver.py

3. ETCE/blockchain.py

* + **You only need to modify the „solution.py“ file**. More detailed instructions on where you need to insert your code can be found in this file **and in the ETCE/blockchain.py** file. The automated grading mechanism can grade your solution only if you follow the structure provided in the „solution.py“ file.
  + You can use „driver.py“ to verify whether your program would pass the grading: `python3 driver.py`.
  + This file will give you feedback on your solution.
* Create a **zip** file of your submission:  
   zip -r E08-<Your StudIP Username>.zip E08 Makefile Pipfile
  + *Remember that your solution zip file should have* ***exactly*** *the same file format as the handout zip file.*
* To make it easier, you can just run `make zip` in the top-level handout folder to automatically create a zip archive with the correct directory structure.
* Upload your submission to the StudIP folder **„E08-Submissions“** ONLY. We will not accept submissions uploaded to any other folder.

Task Description – Blockchain

You just learned about the basics of a blockchain, e.g., transactions, blocks, and chaining blocks together. Exercise 08 and 09 will help you implement your own simple blockchain. This exercise relies on the three building blocks mentioned above.

Instructions(s):

1. As usual you only have to modify the solution.py file
2. Implement the Ex08Transaction, Ex08Block and Ex08Blockchain classes in the space provided in the **solution.py** file, based on the documentation of the classes given in **ETCE/blockchain.py.**
3. Also implement the scenario function in **solution.py**.