

Exercise - 9

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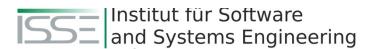
Deadline: 10.07.2023 - 1:59pm

Task(s):

 Download the assignment zip archive here: https://sync.academiccloud.de/index.php/s/yKQzLTnmkVjmlJz

• Programming language: Python 3.10

- You can use this Virtual Machine for a pre-installed environment: Link (Password: 5cnN59dzVEm5atc)
- Please watch the <u>"Python-Exercise-Tutorial"</u> 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 and pyenv first)
 - Activate the python virtual environment using `pipenv shell`.
 - In the E09 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 E00 Zour StudIP Username > zip E00 Makefi
 - zip -r E09-<Your StudIP Username>.zip E09 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 "E09-Submissions" ONLY. We will not accept submissions uploaded to any other folder.

Task Description - Blockchain Consensus

In E08, you implemented the basic data structures of a blockchain, e.g., transactions, blocks, and chaining blocks together. However, so far, you have not implemented any consensus mechanism; one of the most important parts of any blockchain. In this exercise, you are supposed to implement a Proof-of-Work consensus mechanism.

This assignment extends E08 by adding a consensus mechanism. However to make sure we only grade E09 based on the tasks of E09, we have "correctly" implemented the E08 tasks in the ETCE/blockchain.py file. Hence, even If your solution for E08 did not get a perfect score, E09 by default uses the correct solution for E08.

Task(s):

Implement the classes where indicated in the space provided in the **solution.py** file.

Also implement the scenario() function in **solution.py**.

