

Exercise – 10

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Deadline: 17.07.2023 – 1:59pm

Task(s):

- Create a file <smartcontractname>.sol that contains the smart contract you created for Ex10
- Create a file [token.txt](#) containing the token name and symbol that you used to create and send us tokens.
- Create a file abi.json containing the abi generated after compiling your smart contract.
- Create a zip file “Ex10-<Your StudIP Username>.zip” containing these three files
- To submit your solution zip file, “lab09-<Your StudIP Username>.zip” in the timed submission folder in StudIP named „**E10-Submissions**“

Task Description – Blockchain Smart Contract Token

In E08 and E09, you implemented your own simple blockchain with simple transactions. However, neither smart contracts nor tokens are part of your chain yet. Creating a complete virtual machine for smart contracts is quite time-consuming. Thus, we skip that step and go straight to implementing your own token on an existing smart contract blockchain, i.e., Ethereum. In this exercise, you will implement your own token and send a certain amount of your tokens to us.

Task(s):

1. You need to create wallet on the Sepolia Ethereum test network, we recommend to do that using the browser plugin Metamask (<https://metamask.io/>)
2. Creating a token is achieved by executing a smart contract on the Ethereum blockchain (in this case, the Sepolia testnet). Therefore, you need ETH to pay for the execution. No real ETH is required for the Ethereum test network Sepolia. Instead, you can request ETH from a faucets. A list of faucets is available on <https://ethereum.org/en/developers/docs/networks/>. If you are unable to get ETH from this faucet or any other faucets, we will send you ~0.001 ETH upon request ([Click Here](#)). Also include your newly created Ethereum address.
3. Create your own token based on the ERC20 token standard. Your token should have the following properties:
 - Token symbol with a length of three characters
 - Token name – be creative but make sure that it is not too long
 - You should create at least 10,000,000 tokens
 - Decimals → at least four digitsWe recommend to use the Remix online IDE ([Link](#)) and a recent Solidity version, e.g., v0.8.4 (at least v0.8 or later), however you do not have to.
4. Send 10,000 of those ERC20 tokens to our Ethereum address on the Sepolia testnet: `0x106D3CaD185E45b1AE4Be885E1B68A07F14444Fd`
5. Submit the source code and token information via StudIP according to the instructions on the first page.