Exercise sheet 4

Exercise 4.1: BlockChain
    I.   What is a "Block" in BlockChains
   II.   What is "Proof of Work" and are there alternatives
  III.   How are private and public keys used in BlockChains

Exercise 4.2: BlockChain Transactions with Chain.com

    I.   Install and Configure the Chain.com Chain Core. Go through the Documentation (https://chain.com/docs/core/get-started/introduction) to learn about the Core and how to program Applications
   II.   Get the "Five Minute Guide" running. Expand the Five Minute Guide example, so it will start invalid transactions.
  III.   Create a Surfboard rental example using Multi-asset Transactions. Surfboards should be rented by paying an amount of money, including a pledge. Once the surfboard is returned, the pledge is repaid. Write an application, that takes account name and the number of surfboards as input, and creates an transaction. Think about meaningful failure handling.

Exercise 4.3: Ethereum Smart Contracts
    I.   Take a look into the Ethereum Project (https://www.ethereum.org/).
   II.   Create a "Magic Eight Ball" Application using smart contracts.
  III.   What is "gas" in Ethereum and why is it used?

Additional notes and assessment:
- important parts of the implementation have to be annotated with comments
- each exercise has to be completed handled in teams of 3-4 students
- the exercise sheet is successfully completed, if exercise 1 was presented and the solution was explained satisfactorily