Exercise 2

A. Blockchain

1. Name the three key properties of the Bitcoin Blockchain according to the lecture and explain them.
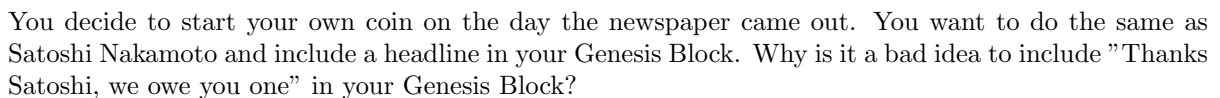
2. Decide if changing the following contents of the block alters the hash of the block header.

   - Transaction ordering (Tx stay the same)
   - Transaction add/removal
   - Difficulty
   - Previous blocks
   - Nonce

3. Explain how chaining is implemented in a Blockchain.

B. Genesis Block

4. Discuss reasons, why Satoshi Nakamoto might have included a message or a newspaper article in the genesis block? In which field did he store the information?

5. 10 years after the first Bitcoin Block the first page of The Times looks like following:

You decide to start your own coin on the day the newspaper came out. You want to do the same as Satoshi Nakamoto and include a headline in your Genesis Block. Why is it a bad idea to include "Thanks Satoshi, we owe you one" in your Genesis Block?

C. Network

6. Name and briefly explain three roles in the Bitcoin network.

7. Explain the function of the memory pool.

8. Alice wants to send 1.0 BTC to Bob. What steps does her transaction take until being completed?

D. Storing Bitcoins

9. What is the difference between a hot storage and cold storage? Give an example for both types. Which type do exchange wallets fit in?