COMP6452 Software Architecture for Blockchain Applications
Week 2 Tutorial

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Hands-on sub-session

Deploying contracts and sending transactions via MetaMask

Please refer to Section 5 to 7 in project 1 specs.

Theory sub-session

Quiz format

The quizzes will contain 8 multiple choice questions (1 mark each), 2 fill in the blank questions (1 mark each), 2 true or false questions (1 mark each), and 2 essay questions (4 marks each).

The first quiz will be about blockchain basics, blockchain platform, software architecture basics, and blockchain in software architecture.

Mock quiz

Here is a mock quiz for you to know the format and style of the questions. If you find any questions in the quiz similar to the mock questions, please **read carefully**, because they might be different.

1. **Which one of the following is NOT a blockchain?**

   - Hyperledger Sawtooth

   - Bitcoin

   - **Ether**

   - Hyperledger Fabric

2. **Choose ALL the correct statements**

   - On Ethereum, after receiving a confirmation, the transaction is guaranteed to be included in the Ethereum main network

   - In Bitcoin, miners are rewarded 1 Bitcoin for every block they mined

   - An oracle can be used to feed information from outside world into the blockchain

   - The transactions of a Bitcoin block can be organized as a Merkle tree

3. **Which one of the following is NOT true?**

   - Invoking smart contract functions requires gas

   - `transaction fee = gas limit × gas price`

   - `1 Ether =` 10^{18} `gas`

   - Gas limit is specified in the transaction

4. **Which one of the following is the property that blockchains normally have?**

   - Immutability

   - High availability

   - Integrity

   - All of above

5. **The CAP theorem does not include?**

   - Availability

   - Correctness

   - Partition Tolerance

   - Consistency

   - Atomicity

6. **Signature is created from?**

   - Private key

   - Digest of message

   - Public key

   - Account address

7. What elements can be expected in a diagram of Krutchen's 4+1 view?

- Database

- User

- Blockchain

- CDN

- **All of above**

8. Which statement is TRUE?

- All smart contract programming languages are Turing-complete

- Bitcoin directly stores the account address balance

- **Blockchain can play the role of software connector**

- COMP6452 teaches how to invest in the cryptocurrency market

9. Ethereum PoW consensus provides __eventual__ consistency, while Hyperledger Fabric CFT consensus provides __immediate__ consistency.

10. In Ethereum, the order of transactions sent from one account is guaranteed by the __nonce__ of transactions.

11. TRUE or FALSE: Hyperledger Fabric rewards coins to miners as the incentive to maintain the network.

12. TRUE or FALSE: Anyone can join as a node on public blockchain.

13. Explain how immutability is achieved in blockchain. Replication among nodes; difficulty of creating a chain of blocks that each one contains the hash of the previous one; each transaction is signed

14. Why you can no longer use your account if the private key is lost/forgot? cannot get private key from public key / address; transaction requires signature generated by private key