

Final Presentation

Blockchain Experience Lab

Group 1

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Outline

1. Account component
 - CLI client for the blockchain
2. Networking component and bootstrap
 - Communication between nodes and clients
 - Initialization of the blockchain
3. Blockchain viewer
 - Graphical overview of the blockchain
 - Detail view for each block

Account Component

- Features
 - Manage wallet
 - Create transactions
 - Load blocks/transactions
- Challenges
 - Collaborating classes not yet specified/implemented
 - Testing requires writing to stdin

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Main menu

1 - Manage Wallet
2 - Create Transaction
3 - Load Block
4 - Load Transaction
5 - Exit Blockchain Client

Please select a value: 3
^Load Block

1 - Load by number
2 - Load by hash
3 - Exit Load Block Menu

Please select a value: 1
^Please input the block number you are looking for (Blocks are numbered starting at zero): 1
^block number: 1
timestamp: 1531335664.4640253
predecessor hash: eecc00e52ee540a5b009936377a22e9e57bf0fd6d711919bda3d7de40728e287
merkle tree: None
transactions:
nonce: 1230332334559502737
creator: ab79319e-853c-11e8-9b67-8c1645645540

Press any key to go back to the main menu!

```

Networking Component and Bootstrap

- Features

- Exchange of transactions and blocks, bootstrapping
- Communication via JSON-RPC 2.0
- Callback hooks

- Challenges

- Finding a suitable library
- Communicating the callback interface to other teams
- Testing network requests

Request

```
{ "jsonrpc": "2.0", "method":  
  "<method-name>", "params":  
    [<param1, param2, ...>],  
  "id": <request-id>}
```

Response

```
{ "jsonrpc": "2.0", "result":  
  <result-value>, "id": <request-id>}
```

Blockchain Viewer

- Features
 - Observe the blockchain
 - Graphical overview of the blockchain in one view:
 - Branching
 - Links to block details
- Used librarys
 - Plotly, Jinja2
- Challenges
 - Hooking into blockchain events
 - Data transformation



Labchain - Block Viewer

Block

Block ID	43
Block Hash	7fe79e41f67de8e1c518eacc45a2eec0991cfbfd61c65f968c651600f0a76bfc
Timestamp	1530870457.6335568
Nonce	4449378438231566400
Predecessor Block Hash	218d070636e3beaf96c491bb7a6b2eac463ab5c073681dc12e04d7b97cab74ac
Merkle Hash	58e83db0093d69bb2f4f5c1155ee5fa40cfe3c3ac157e6a1aa22d35ab3b342f7

Included Transactions

Sender	LS0tLS1CRUdJTiBQVUJMSUMgS0VZLS0tLS0KTUZRd0V3WUhlb1pJemowQ0FRWUlb1pJemowREFRYORRZ0FFaFJPQzVieEpJaHZON3VSQzhMUnNLVWNSeFA2KwpsRnhPVFM5WTEyNitKLOxndEdsNIJERng1NnhLQWs2WnZWdmpOUWpzcHBGWFBlTzI3NEFkYnVnRDVnPTOKLS0tLS1FTkQgUFVCTEIdiEtFWS0tLS0t
Receiver	The Lannisters send their regards
Payload	A Lannister always pays his debt
Signature	XWxj+ANjHXhXJx73hLuS9p8F5DKDvCnDv3b8QeWUhu+tsrW4nFm8VJJIqQvir4WW404UUaZiAkG17W0kotPw==