پروژه ی نرم افزار دوره کارشناسی

گزارش شماره ۴ - نقشه راه پیاده سازی

آریا رادمهر - ۹۷۴۶۳۱۲۵

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Roadmap for creating and implementing Final Project:

Part 1: *Blocks*

1.1. Set up the whole application.

1.2. Create block

1.3. Create the genesis block.

1.4. Mine blocks.

1.5. Config crypto hash and SHA-256.

1.6. Hash in mineBlock.

1.7. Pass tests.

Part 2: *Blockchain*

1.1. Create Blockchain class.

1.2. Make blockchain a real chain connected to eatch other.

1.3. Ensure about chain validation.

1.4. Ensure about chain replacement.

1.5. Pass tests.

1.6. Stub console output after running each test.

Part 3: *Proof-of-work*

3.1. Create difficulty and nonce for a block.

3.2. Create Proof-of-work structure and architecture.

3.3. Make sure if proof-of-work is the best way for Tyche or other options.

3.4. Set difficulty and nonce value.

3.5. Dynamic difficulty and mine rate.

3.6. Adjust the difficulty in mineBlock.

3.7. Config average work script and binary hashes.

3.8. Prevent difficulty jumps.

3.9. Pass tests.

Part 4: *API and networks*

4.1. Setup API and express API.

4.2. Post requests to mine a block.

4.3. PubSub _still no idea what it is, i should read more letters._

4.4. Setup a mini database.

4.5. Broadcasting chain on API.

4.6. Make peers and start broadcasting chain.

4.7. Sync chain on connect.

4.8. Avoid redundant interactions.

4.9. Pass tests.

Part 5: *Wallet, Keys and Transactions*

5.1. Create wallet class.

5.2. Create key pair and public key.

5.3. Assigning data and verifying signatures.

5.4. Make transaction objects and the output map.

5.5. Make transaction inputs.

5.6. Validate transactions.

5.7. Create wallets and wallet transactions.

5.8. Handling transactions with multiple outputs.

5.9. Handling transaction cases.

5.10. Pass tests.

Part 6: *Transaction Pool*

6.1. Create transaction pool class and set transactions.

6.2. API transactions and mine them.

6.3. Handeling invalid transactions.

6.4. Transaction updates in real-time.

6.5. Getting transaction pool map.

6.6. Broadcasting transactions.

6.7. Sync transaction pool map on connect.

6.8. Pass tests.

Part 7: *Mining Transactions*

7.1. Create Transaction miner class.

7.2. Grab valid transactions.

7.3. Configuring about reward transactions.

7.4. Mine transactions endpoint.

7.5. Clear recorded transactions on successful replace.

7.6. Make sure about blockchain balance.

7.7. Calculating the balance before each transaction.

7.8. Create wallet-info request.

7.9. Validating transaction data.

7.10. Validating input balances.

7.11. Prevent duplicate transactions in block.

7.12. Validating transaction chain.

7.13. Pass tests.

Part 8: *Blockchain Front-End*

8.1. Create all front-end with React.

[ ] ...

Part 9: *Cryptocurrency Front-End*

9.1. Create all front-end with React.

[ ] ...

Part 10: *Other and Non-categorized ones*

10.1. Set new ideas and features for Tyche.

10.2. Make implementations and discuss about private or public architecture.

10.3. Make GUI for blockchain.

10.4. Make GUI for Tyche coin.

10.5. Change proof-of-work to proof-of-stake.

10.6. Collecting libraries and data for installation guide.

10.7. Write Tyche White-paper.

10.8. Publish Tyche Blockchain in papers and Iran blockchain organization.

10.9. Publish documents and White-paper in linkedIn.

10.10. Collect all documents for Tyche essay.