DLT 5400: Submission Guidelines

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Deliverables

- ***Google Drive Folder(Clickable)*** - Contains all three parts of the submissions fully.
- ***GitHub Repository(Clickable)*** - Contains all three parts, only modified and main files.
- ***DLT5400_Assign_Balaganapathy.zip*** - The zip file containing all three parts only the main and modified part of the code (Excl the binaries due to size restrictions)

```
DLT_5400_Balaganapathy_Submission
DRIVE LINK - https://drive.google.com/drive/folders/1FdPTbNRZ2Ly5zHsS9HGqOo-rFRQbRFT1?usp=sharing /
├── 5400_Assignment.pdf - ReadMe doc
├── P1_SBB
├── P2_Substrate/
│   ├── P2_Documentation is present here
│   └── Substrate.zip - UnZip this file /
│       ├── substrate-front-end-template/
│       │   └── This contains boiler plate front end for substrate node
│       └── substrate-node-template/
│           ├── Required files for substrate node to run
│           └── pallets - The Folder containing the modfied pallet code/
│               └── template /
│                   └── src/
│                       └── lib.rs - File containing custom pallet code
├── P3_Geth/
│   ├── P3_Documentation is present here
│   └── geth.zip - UnZip this file /
│       ├── blacklistGeth - Geth implemented custom black list/
│       │   └── go-ethereum.zip - UnZip /
│       │       └── core / types - Contains teh Modified file to facilitate Blacklist functionality
│       ├── privateGeth - Private geth network
│       ├── privatePoA - PoA Consensus
│       ├── privatePoS - PoS Consensus Execution Client
│       ├── privatePOW - PoW Consensus (OLD GETH)
│       └── prysm_consensus - PoS Consensus Client
└── ** NOTE - THIS GRAPH MENTIONS ONLY MODIFIED & IMPORTANT FILES
```

Figure 1: File Structure

P1_SBB

This part contains the SBB implementation including the configuration.
GitHub Repo for this section
Files

- ***accountDB.py*** - Implementation of Account Database transaction model.
- ***block.py*** - Implementation of Block Structure and Functions.

- ***blockUtil.py*** - Contains function to validate a block.
- ***chain.py*** - Implementation of the chain data structure containing the Block objects.
- ***configStart.py*** - Starting point of the whole implementaion. Execute the below command to run the implementation.

```
python3 configStart.py
```

- ***miner.py*** - PoW miner implementation.
- ***miner_PoT.py*** - PoT miner implementation.
- ***peers.py*** - Handles peer configuration and broadcasts and receives messages from peers.
- ***protocol.py*** - Handles the protocol creation, processing, and interaction between the peers. Creates a payload message and also processes the incoming message and performs respective actions.
- ***transaction.py*** - Account-based transaction model with functions to handle transactions and balances.
- ***transactionUTXO.py*** - UTXO-based transaction model with functions to facilitate transactions and balances with UTXO structure.
- ***wallet.py*** - Creates ECDSA wallet for the peer node and handles verification of signatures.

P2_Substrate

This part contains the files needed to execute the substrate pallet. The zip file and the GitHub repo contain only the modified pallet configuration. The drive folder contains the substrate node and front-end template files required to run the template locally. The documentation contains the steps and procedures to be followed to successfully run the node.

P3_Geth

In this section, the modified code of the ethereum core that facilitates the blacklist function and the document is submitted through the zip file and the repo. The document contains the procedures and proofs to run all configurations of the geth node that was mentioned in the requirements. The attached Google Drive has a ***geth.zip*** file which contains all the binaries and code base of different configurations and consensus mechanisms mentioned in the requirements.