

2. The gossip protocol used in the blockchain implementation is similar to that of Bitcoin, stopping a node halfway through the execution and restarting it at the end may cause the node to be out of sync with the rest of the network. This is because the node missed some of the blocks that were generated during the period it was offline. To address this issue, the gossip protocol can be improved to allow nodes to request missing blocks from their peers when they come back online. This is similar to the "headers-first" syncing approach used in Bitcoin, where nodes first download block headers and then request the corresponding blocks.

3. Yes, the fact that the list of peers is hard-coded in the config file suggests that the blockchain implementation is currently not fully decentralized and is lacking the ability to discover and connect to new peers in a permissionless manner. One way to achieve this is through the use of a peer discovery protocol, such as the one used in Bitcoin. The Bitcoin peer discovery protocol is based on a combination of DNS seeds, which provide a list of initial nodes to connect to, and peer-to-peer discovery, where nodes exchange information about other nodes they are aware of in the network. The closest analogous message type in the Bitcoin p2p protocol documentation for peer discovery is the "getaddr" message. Nodes can send a "getaddr" message to their peers to request a list of known addresses of other nodes in the network. The peers respond with an "addr" message containing the list of addresses.