Date of Performance Date of Submission: -
Name – Roll No: -

Assignment No: - 1

Title: - Naïve Blockchain Construction

Aim and Objective: - To Construction a program for naïve blockchain

Theory: -

Blockchain

A blockchain is a growing list of records, called blocks, that are linked together using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a Merkle tree). The timestamp proves that the transaction data existed when the block was published in order to get into its hash. As blocks each contain information about the block previous to it, they form a chain, with each additional block reinforcing the ones before it. Therefore, blockchains are resistant to modification of their data because once recorded, the data in any given block cannot be altered retroactively without altering all subsequent blocks.

Block Structure

To keep things as simple as possible, the blockchain contains only the most necessary elements: index, timestamp, data, hash and previous hash. Following the blockchain concept, the hash of the previous block must be found in the block to preserve the chain integrity.

Genesis Block

An in-memory JavaScript array is used to store the blockchain. The first block of the blockchain is always a so-called "genesis-block" and is hardcoded. We take it with the function which returns a new Block with usual attributes. The Block index is 0, the "previousHash" don't exist in reality and we give him a string value "0". The current Block hash is hardcoded and data field contains the string "my genesis block".

Calculate the Hashes

When we want to calculate the hash for the block, we will use the calculateHashForBlock function. It will execute the calculateHash function for a given block and return SHA256 hash of a string which is the result of concatenating block.Index, block.previousHash, block.timestamp and block.data.

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Code: -

Output: -

Conclusion: -

I successfully Implement Naïve blockchain Construction using Python.