

Lecture 9 -

Feb 7 2022

Blocks in our Go Code

Transactions in Blockchain

Data Structure from .../block/block.go:

```
// BlockType is a single block in the block chain.
type BlockType struct {
    Index      int                // position of this
                                // block in the
                                // chain, 0, 1, ...
    Desc       string           // if "genesis" str.
                                // then this is a
                                // genesis block.
    ThisBlockHash hash.BlockHashType //
    PrevBlockHash hash.BlockHashType // This is 0 len.
                                // if this is a
                                // "genesis" block
    Nonce       uint64           //
    Seal        hash.SealType //
    MerkleHash  hash.MerkleHashType // Hw 03
    Tx          []*transactions.TransactionType // Tx for Block
}
```

Data Structure from .../transactions/tx.go:

```

type TransactionType struct {
    TxOffset      int           // The pos. of this in the block.
    Input         []TxInputType // Set of inputs to a transaction
    Output        []TxOutputType // Set of outputs to a transaction
    SCOwnerAccount addr.AddressType // ... for SmartContracts ...
    SCAddress      addr.AddressType // ... for SmartContracts ...
    SCOutputData   string         // ... for SmartContracts ...
    Account        addr.AddressType //
    Signature      lib.SignatureType // Used in HW 5 - Signature
    Message        string         // Used in HW 5 - Message
    Comment        string         //
}

type TxInputType struct {
    BlockNo      int // Which block is this from
    TxOffset     int // The transaction in the block.
                // In the block[BlockHash].Tx[TxOffset]
    TxOutputPos int // Position of the output in the transaction.
                // In the block[BlockHash].Tx[TxOffset].
                // Output[TxOutputPos]
    Amount       int // Value $$
}

type TxOutputType struct {
    BlockNo      int // Which block is this in
    TxOffset     int // Which transaction in this block.
                // block[this].Tx[TxOffset]
    TxOutputPos int // Pos. of the output in this block.
                // In the block[this].Tx[TxOffset].
                // Output[TxOutputPos]
    Account      addr.AddressType // Acctount funds go to (If this is
                // ""chagne"" then this is the same
                // as TransactionType.Account
    Amount       int // Amoutn to go to accoutn
}

```