Blockchain Technology (CS17143)

LECTURE 16

Module 3

Design a Simple Blockchain Application

- Write a (C++/JAVA/Python) program for to create your own Blockchain:

(a) Add five nodes.

(b) Build a ledger of transaction.

(c) Do some transactions between five nodes (Credit or Debit between the nodes) (Note: Consider 10 transactions for the creation of each block).

(d) Make it verifiable and permanent.

(e) Show final account balance.

Ledger of Transactions

Account Holder	Balance
Rajesh	100
Rohan	200
Gauri	300
Tez	500
Mohit	600

But it not actually ledger

A ledger record transactions

Debit Account	Credit Account	Balance
Initial deposit	Rajesh	100
Initial deposit	Rohan	200
Initial deposit	Gauri	300
Initial deposit	Tez	500
Initial deposit	Mohit	600

Now let Rohan pays Tez 100

Debit Account	CreditAccount	Balance
Initial deposit	Rajesh	100
Initial deposit	Rohan	200
Initial deposit	Gauri	300
Initial deposit	Tez	500
Initial deposit	Mohit	600
Rohan	Tez	100

Now let Rohan pays Tez 100

Debit Account	Credit Account	Balance
Initial deposit	Rajesh	100
Initial deposit	Rohan	200
Initial deposit	Gauri	300
Initial deposit	Tez	500
Initial deposit	Mohit	600
Rohan	Tez	100 (200-100)
Rohan	Tez	600
Tez	Gauri	600 (600-150)
Tez	Gauri	**450**

All transactions are recorded by appending the ledger

Definition of Transaction Validity

Transaction valid if sender's balance >= amount being sent to receiver

Definition Ledger Validity

- Ledger is valid only if all transactions are valid.
- Every sender has appropriate balance to do the transactions.

Blockchain: Ledger of transaction