**For the teams A and B, the following assignment is given**

In chapter 2 (the blockchain network) of the hyperledger fabric documentation, the blockchain network is introduced in a student-friendly way. You and your team are asked to do the following. Provide a conceptual schema including elementary fact types, fact type forms, integrity rules, derivation rules and a list of concept definitions for the universe of discourse that consists of the diagrams on pages 26 and 44. use the other diagrams to validate integrity rules .

A lot of domain information is available in this chapter 2 of the documentation. Also use the other material that is made available to you if necessary.

Participants must be identified/identifiable

Networks need to be permissioned

many smart contracts run concurrently in the network

they may be deployed dynamically (in many cases by anyone)

application code should be treated as untrusted, potentially even malicious

execute a transaction and check its correctness, thereby endorsing it

order transactions via a (pluggable) consensus protocol

validate transactions against an application-specific endorsement policy before committing them to the ledger

A Fabric network can have multiple ordering services supporting different applications or application requirements.

There is one ledger per channel.

A channel’s ledger contains a configuration block defining policies, access control lists, and other pertinent information

Channels contain Membership Service Provider instances allowing for crypto materials to be derived from different certificate authorities’

chaincode can be installed only on peers that need to access the asset states to perform reads and writes (in other words, if a chaincode is not installed on a peer, it will not be able to properly interface with the ledger).

When a subset of organizations on that channel need to keep their transaction data confidential, a private data collection (collection) is used to segregate this data in a private database, logically separate from the channel ledger, accessible only to the authorized subset of organizations.

Thus, channels keep transactions private from the broader network whereas collections keep data private between subsets of organizations on the channel.

Public Key Infrastructure is used to generate cryptographic certificates which are tied to organizations, network components, and end users or client applications. As a result, data access control can be manipulated and governed on the broader network and on channel levels

The process of keeping the ledger transactions synchronized across the network — to ensure that ledgers update only when transactions are approved by the appropriate participants, and that when ledgers do update, they update with the same transactions in the same order — is called consensus.

Hyperledger Fabric also offers the ability to create channels, allowing a group of participants to create a separate ledger of transactions. This is an especially important option for networks where some participants might be competitors and not want every transaction they make — a special price they’re offering to some participants and not others, for example — known to every participant. If two participants form a channel, then those participants — and no others — have copies of the ledger for that channel.

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