Blockchain Solution to Healthcare Record System using Hyperledger Fabric

Jathin Sreenivas, Kshitij Yelpale, Varsha Vasudev Kamath

Agenda

Abstract

- Medical care is not taking care of patient's information.
- Medical practitioners do not have a clear and complete understanding of a patient's medical history.
- To solve this problem, blockchain technology using Hyperledger Fabric framework can be used.
- By creating a distributed database of the patient's medical data records, the patient can switch hospitals without having to bother about the medical records.
- It makes easier for the doctor to track a patient's medical history.

Project Scenario

- The two organizations in the network are two different hospitals.
- The distributed database will contain the patient's medical records.
- Peers are the doctors.
- Admin - Among all hospitals there will be an admin from any one hospital for adding doctors in the blockchain network.
- Doctors - Only doctors can add patients into the blockchain network as well as create records of the patients and can view the entire record of the patient. Doctors can edit only medical records, but cannot edit the personal details of the patient.
- Patients - Patients can view all the medical records, but can edit only the personal data.
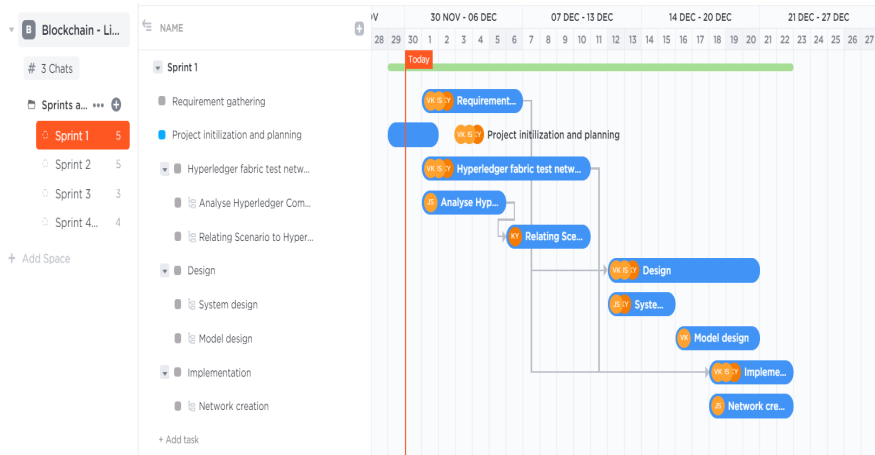
Pros

- Patient's records should be secure (Cryptographically encrypted)
- Verification and validation of identities of hospitals, doctors, and client by CA and MSP.
- Confidentiality of patient's records (Permissioned blockchain)
- Accessiblity of patient's records for all hospitals peers (Distributed ledger).
- Availability of data.
- Integrity of patient's records (Blockchains are immutable)
- Audit of patient's records (Blockchain's transaction log)
- Scalability

Cons

- Every hospital needs to maintain the same data format. There are different types of Healthcare data format standards such as Health Level 7 (HL7), Fast Healthcare Interoperability Resources (FHIR), etc., to store data.
- More hardware for hospitals to maintain

Project Plan
Gantt Chart

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