**DOCVER**

**PROJECT GROUP MEMBERS**

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**Abstract**

We are aim to create a new secure way for certificate generation and verification by putting all details into private permissioned blockchain. Our system DOCVER can be used for generating, searching and verifying certificates at any point of time without any failure. This project aims to create a web application- to keep of track organ donation with blockchain technology. To achieve this we are using Hyperledger Sawtooth v1.0 which is a blockchain framework with private and permissioned property.

**Introduction**

This project involves the use of permissioned blockchain Sawtooth under the hyperledger umbrella on the use case relating to certificate generation and to verify the authenticity of certificates. We can search certificates by giving its details at any point of time. In this system officials is the validator. This validator can do all these features provided by the system. A validator can perform birth registration, death registration, search and verification.

**Problems in current system**

* Record keeping practices differ between institutions, reconciling ledgers is often difficult,expensive and time consuming.
* Centralised data management solutions have monopolised their offerings.
* Data can be altered retroactively leading to financial fraud.
* Centralised systems risk single system failure.

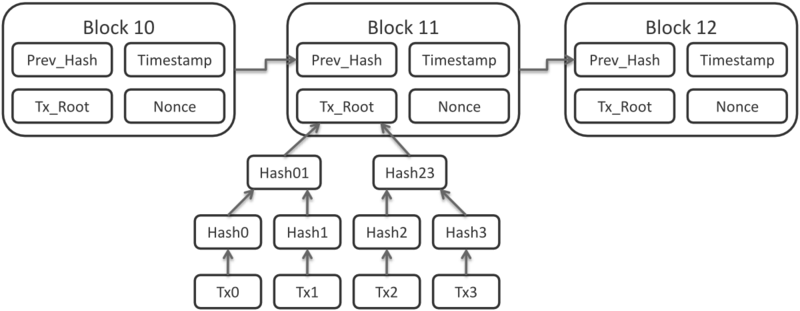
**Proposed system**

We are proposing a system in which official is the validator. Validator can login into the system. The validator can perform different functions like register, search and verify for birth/death certificate at any point of time. We can avoid fraudulent registration for certificates and all vulnerabilities available through this system. Here we use all the features of a private permissioned blockchain like immutability, scalability, permissioning and PoET.

**Project life cycle**

* Validator can register through Sawtooth API
* Validator can search through Sawtooth API
* Validator can verify through Sawtooth API

**What is blockchain?**

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Blockchain is also called systems of proof, and it is basically a distributed ledger which records all the transactions that take place of the network. Blockchain has the characteristic of decentralized, collaborative and immutable.

**Why hyperledger?**

Hyperledger Sawtooth is an enterprise solution for building, deploying, and running distributed ledgers (also called blockchains). It provides an extremely modular and flexible platform for implementing transaction-based updates to shared state between untrusted parties coordinated by consensus algorithms.

**The followings are the core ideas.**

**●** Smart contracts: computer programs that execute predefined actions when certain conditions within the system are met and they provide controlled access to the ledger.

● Consensus: the process of keeping the ledger transactions synchronized across the network, and ensuring that parties agree to a certain state of the system as the true state.

● Timestamping: each block is timestamped, with each new block referring to the previous block. Combined with cryptographic hashes, this time stamped chain of blocks provides an immutable record of all transactions in the network, from the very first block.

**Technologies Used**

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**Program flow diagram**

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