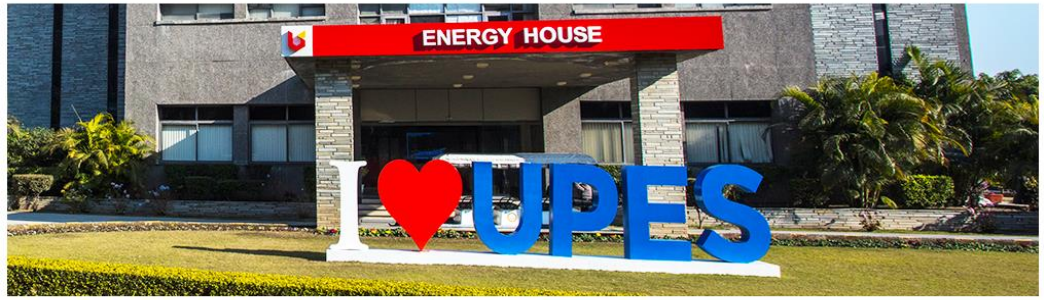

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Minor Project – II

Digitalization of Land Record using Blockchain

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Challenges

Problem with current land record management system:

- Errors in public records affects ownership rights and cause financial strain
- Illegal deeds by not documenting prior titles in the chainage may affect the ownership
- Forged or fabricated documents affect the ownership
- Undiscovered encumbrances (Ongoing Cases)
- Unknown easements affects right to enjoy the property
- Boundary Disputes

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Introduction

Possible Solution:

- Use blockchain to maintain land records
- A peer to peer distributed ledger which can be easily accessible by anyone to check land information.
- Ledger which cannot be changed or altered by anyone once stored in the database.

Objective

Securing Land Records by implementing a distributed ledger over a peer to peer network.

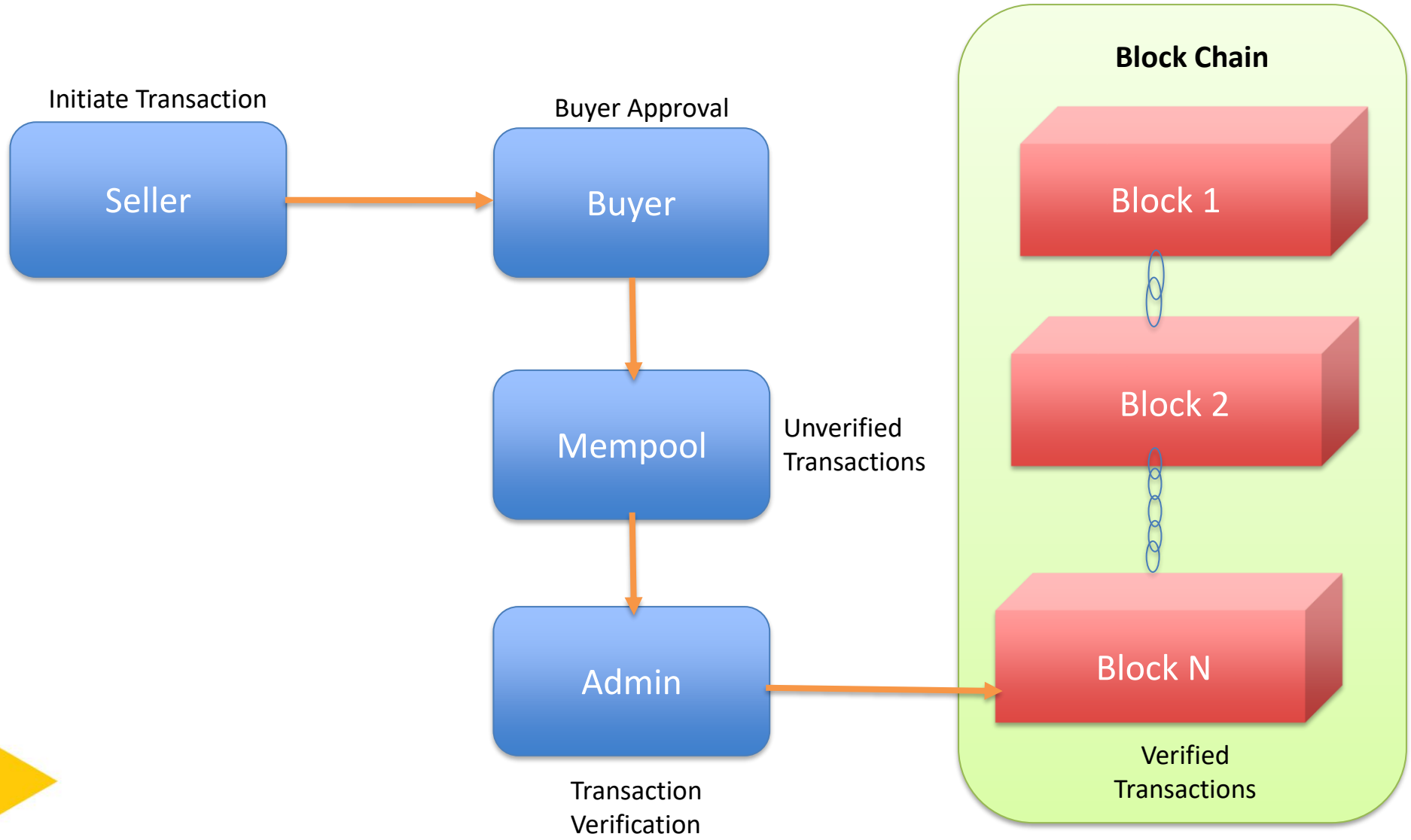
Sub Objectives:

- Buy and Sell ability to all users.
- Implementing Proof Of Authority based Consensus mechanism
- Securing plot transactions using digital signature and hashing techniques.
- Implementing a peer to peer network to enable distributed ledger

Dataset and Input Format

- Project is being prepared for a fictitious small scale area
- A mock data will be created
- Datasets:
  - Users dataset
  - Plot Dataset
  - Transaction Dataset
- Transactions will be stored as blocks in blockchain

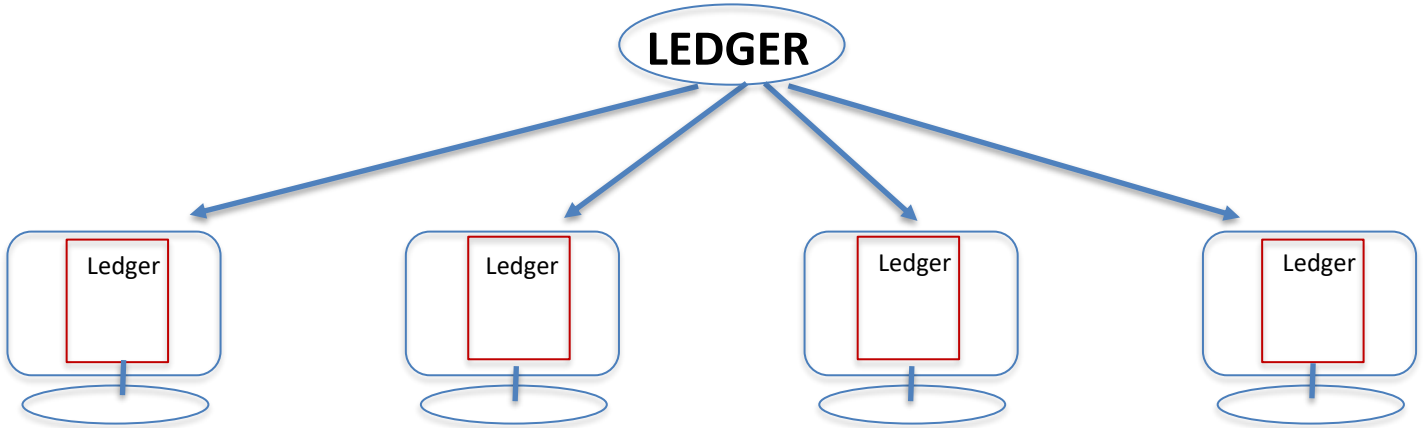
How will it work?



Project Features

- **Distributed Ledger:**

A distributed ledger is a consensus of replicated, shared, and synchronized digital data geographically spread across multiple nodes.



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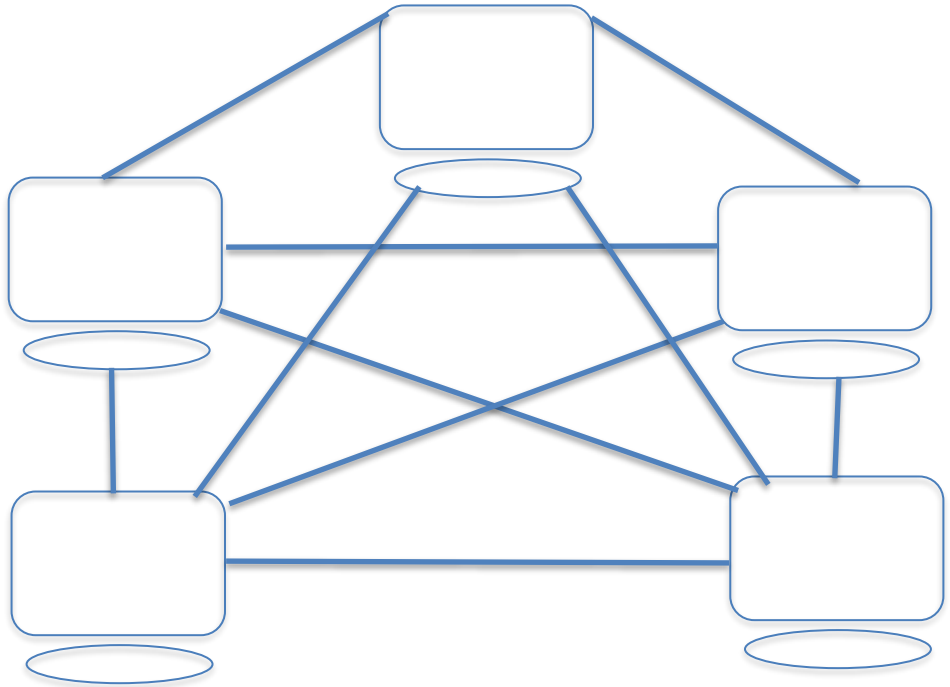
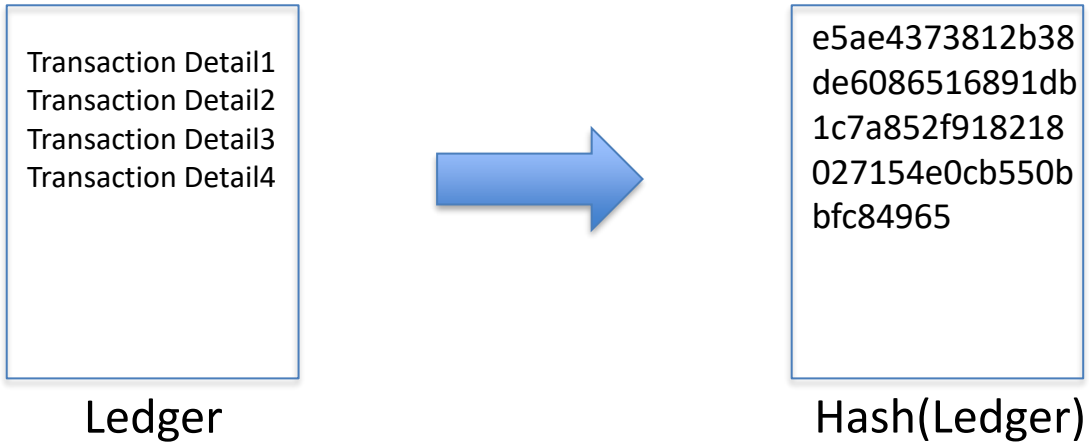
- **Peer to Peer Network:**
  - As the network will be a peer-to-peer network, there will be a direct communication between buyer and seller.
  - No mediator will be present

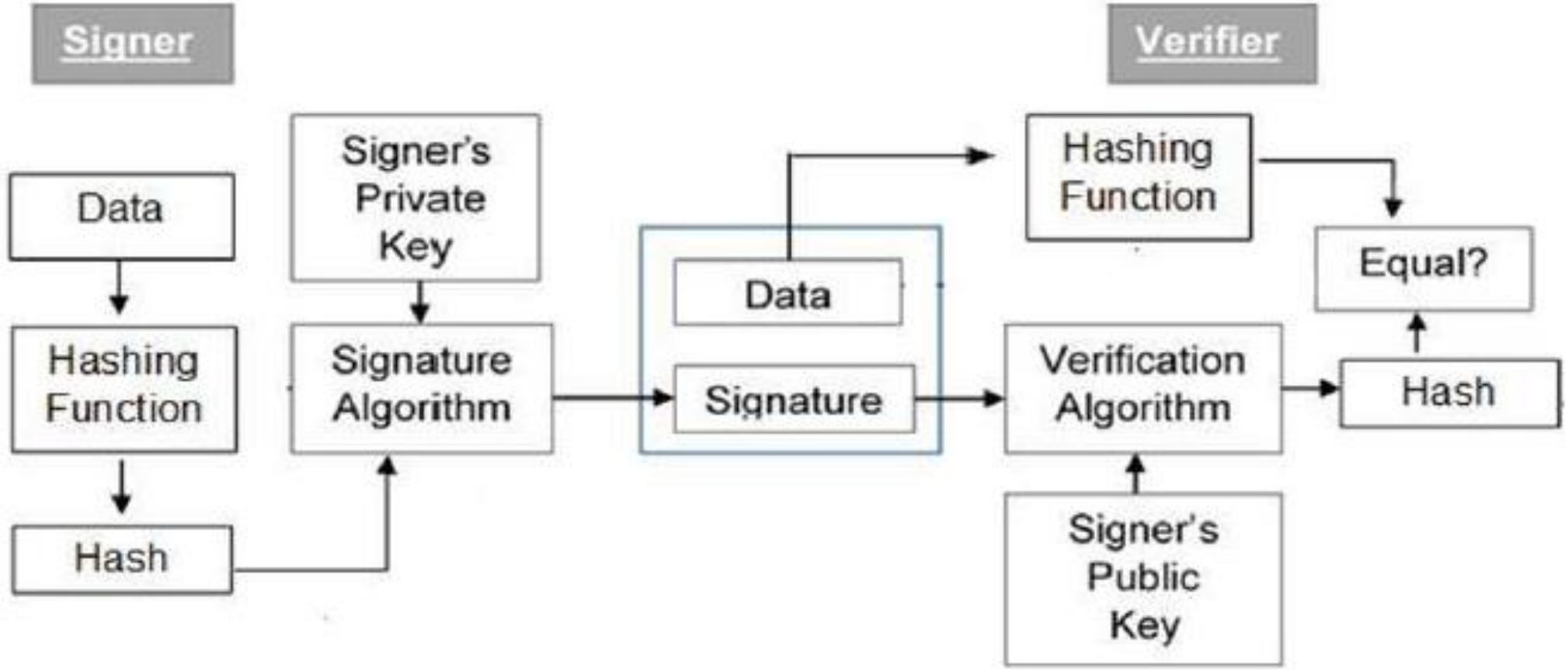


- **Hashing:**

A hash function is any function that can be used to map data of arbitrary size to fixed-size values. The values returned by a hash function are called hash values, hash codes, digests, or simply hashes.



- **Digital Signature:**



Reference: https://www.tutorialspoint.com/cryptography/cryptography_digital_signatures.htm

Implementation Benefits

- Blockchain provides consolidated, consistent dataset and reduces errors
- Provides near real-time access to Land records.
- Increases trust through shared processes and recordkeeping
- Lower cost of audit and regulatory compliance
- Increase the speed of execution with reduced cost
- Reduces risk – Tampering, fraud and cybercrime

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Information Stored

Static fields:

- PropertyId
- Geo-Co-ordinates (latitude/longitude)
- Plot No.
- Dimensions
- Allotted Area
- LandUse
- Boundary Information
- Block

Dynamic field:

- Owner_ID
- Owner2
- Owner3
- Person_Name
- Aadhaar_No
- Contact
- Address
- Mortgage Information
- Litigation status
- Related court case numbers
- Building Approval
- Property IDs

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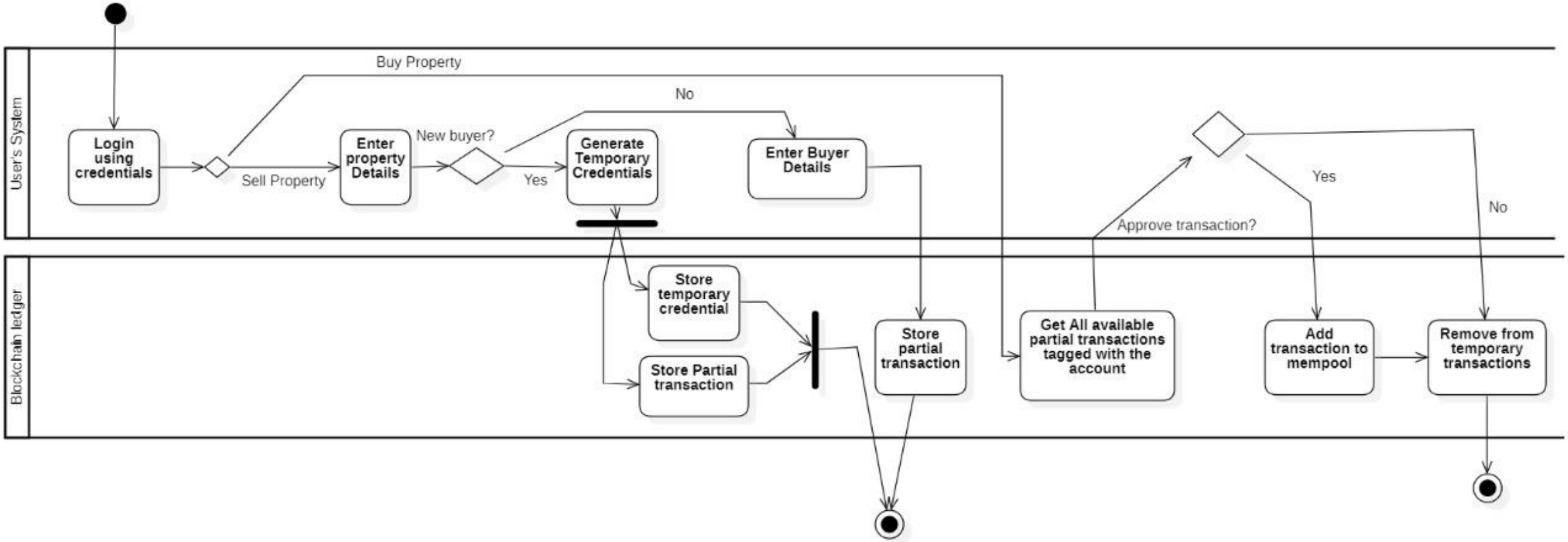
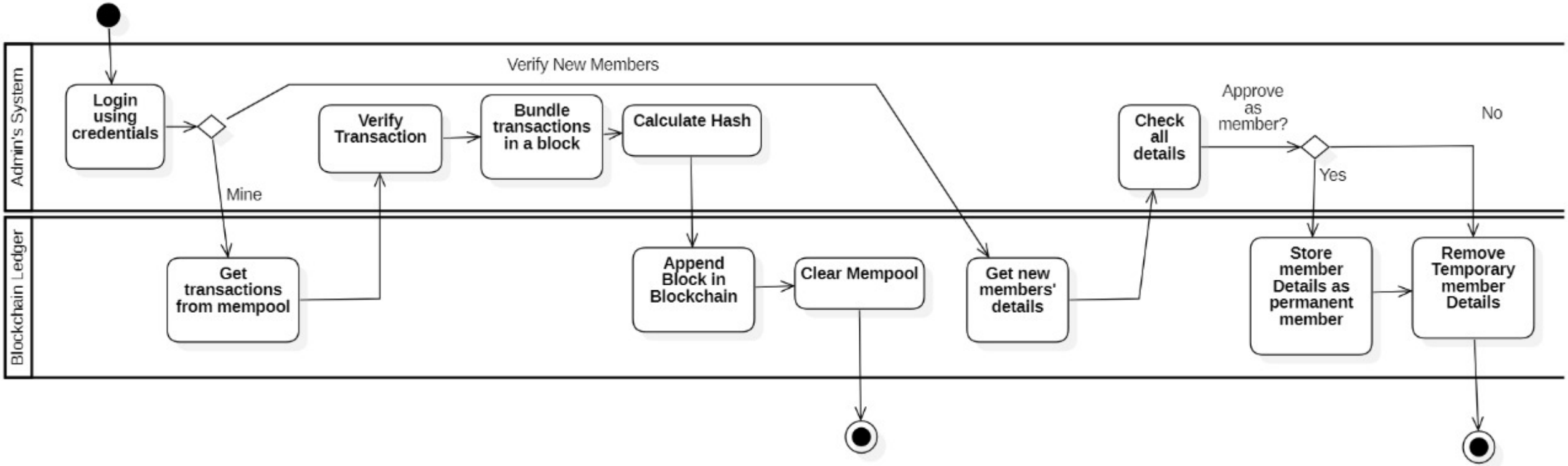
flowchart

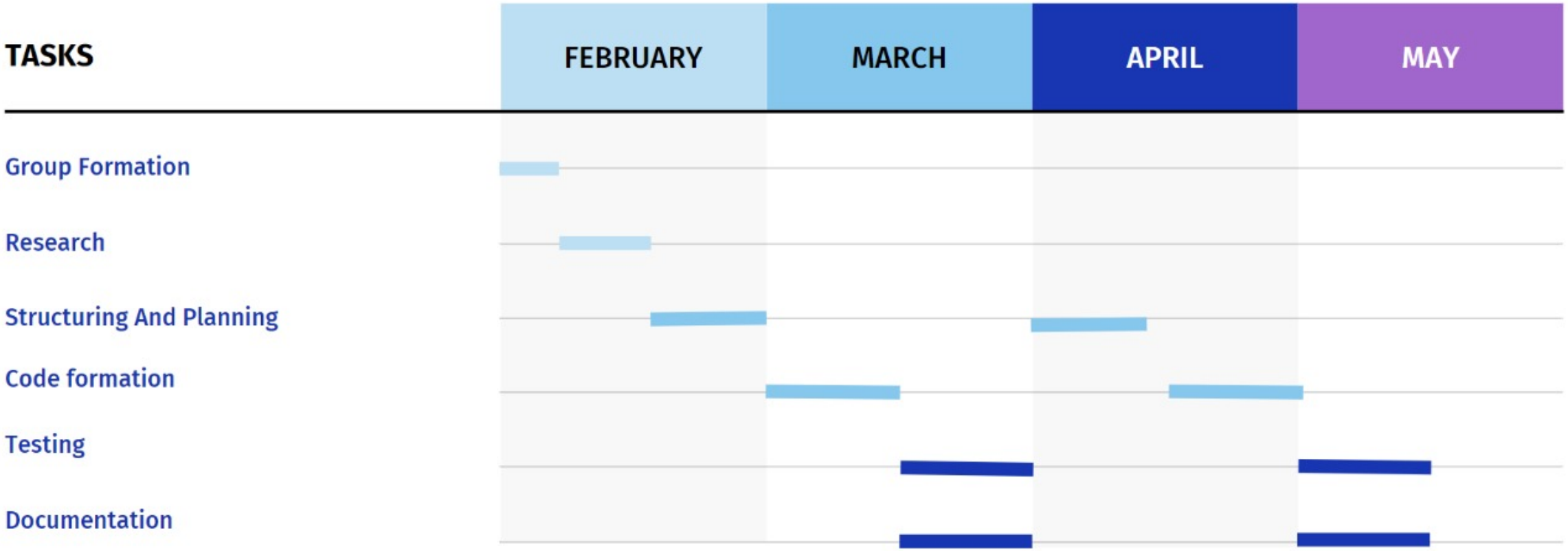
Interaction between User and Blockchain:



Interaction Between Admin and Blockchain:



Plan of Work



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Future Scopes & Application

- Blockchain for maintaining land records can be used Nationwide which will ultimately help in reducing Land disputes.
- Smart Contracts can be introduced in blockchain which can automate the task of Agreement between Seller and Buyer.
- Government can easily monitor and audit the Land Ownership through blockchain.
- Buyer can easily verify the land status with the help of blockchain without any brokerage.

References

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THANK YOU

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