





# **Minor Project – II**

## **Digitalization of Land Record using Blockchain**

MEMBER'S NAME	ROLL NUMBER	SAP ID	BRANCH
Ishan Agarwal	R103219007	500076372	CSE BAO B1
Sachin Kedia	R103219013	500075932	CSE BAO B1
Sharique Ahmad Khan	R103219016	500075119	CSE BAO B1

**Under the guidance of**  
**Mr. Deepak Kumar Sharma**

# 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

# 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
- All transactional data will be cryptographically secured and immutable

# Objective

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

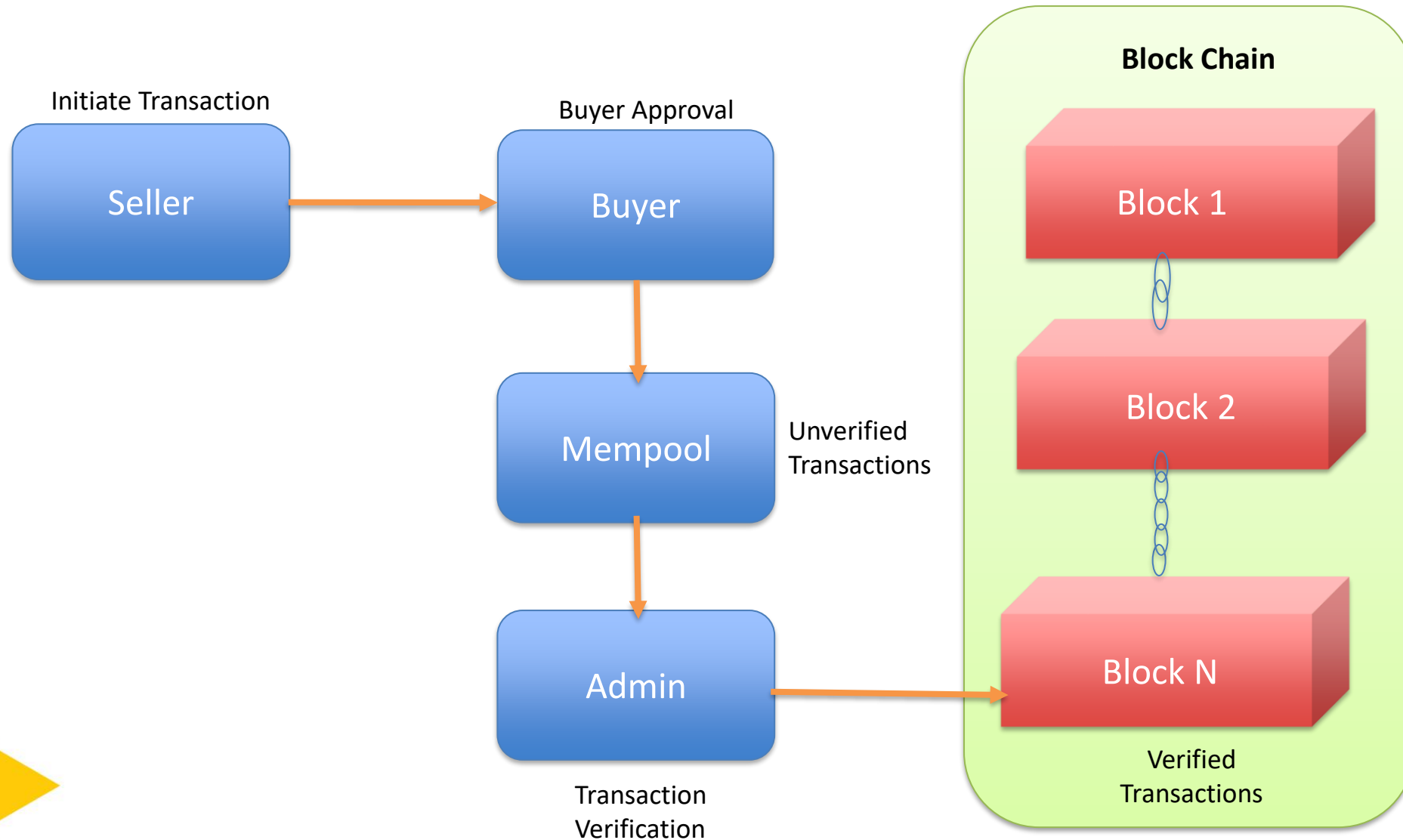
## **Sub Objectives:**

- 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

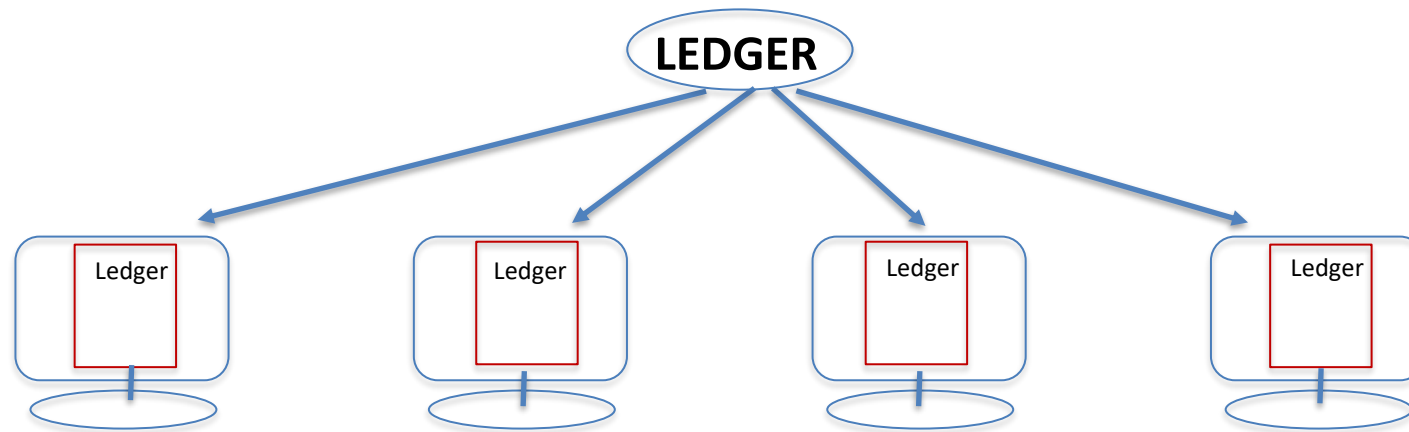
# How will it work?



# Project Features

- **Distributed Ledger:**

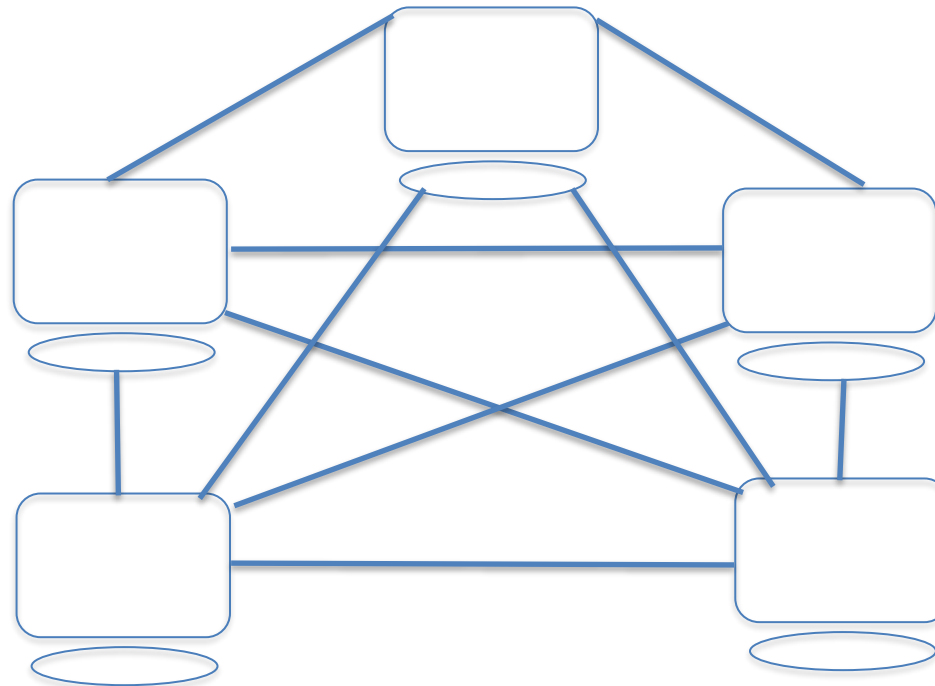
A distributed ledger is a consensus of replicated, shared, and synchronized digital data geographically spread across multiple nodes.





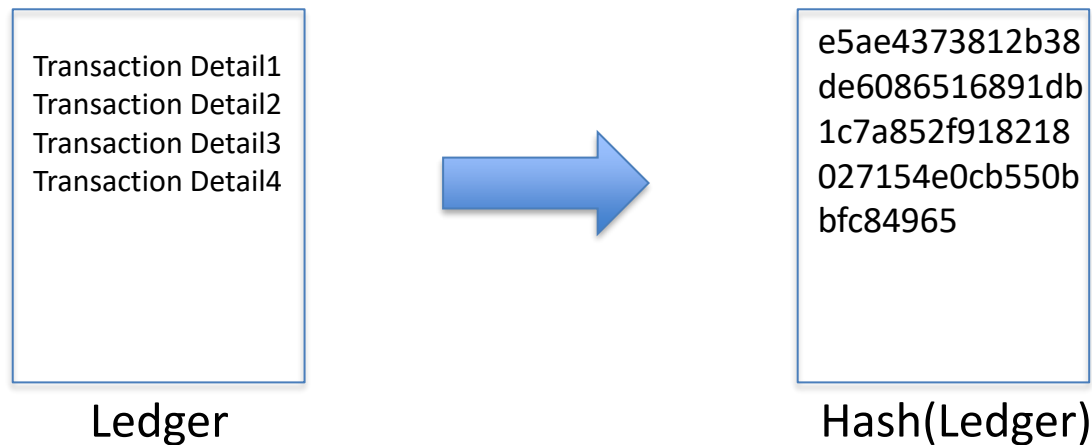
- **Peer to Peer Network:**

- 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

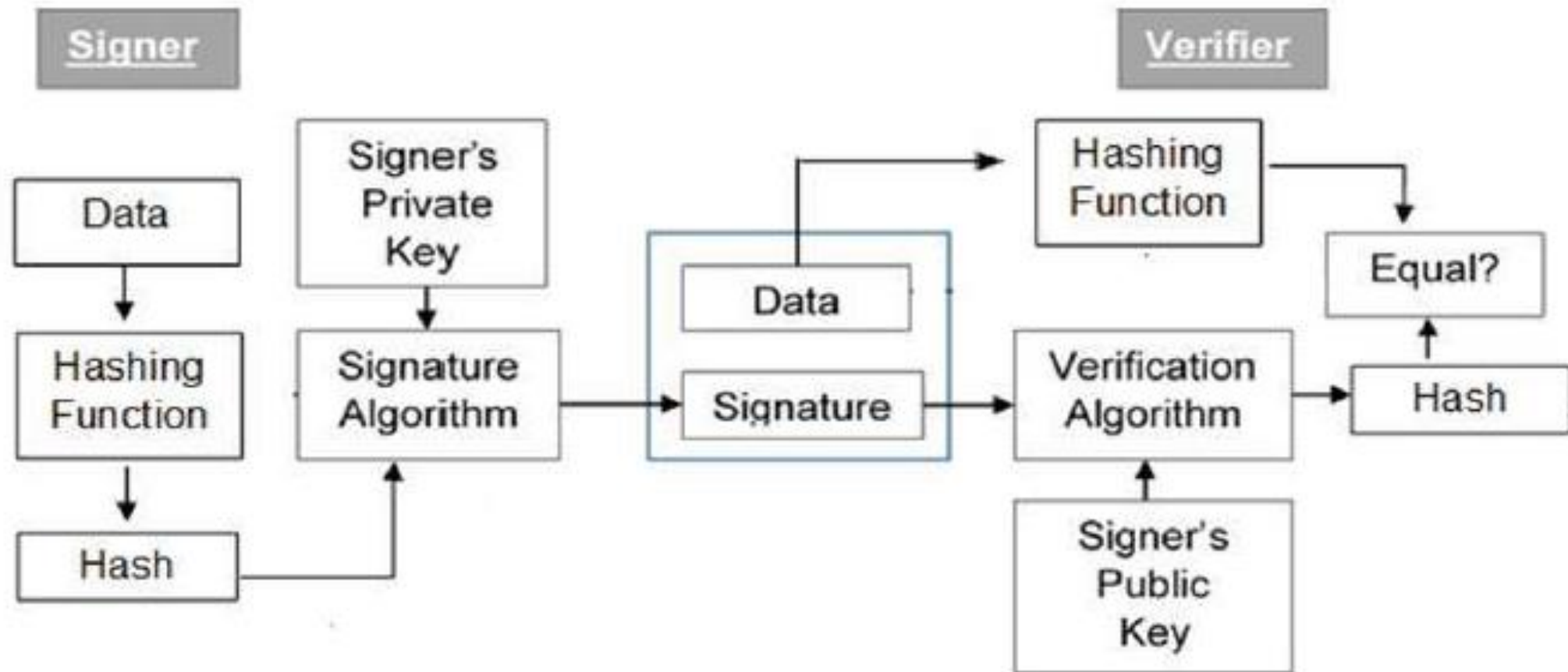


- **Hashing:**

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:**



# 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

# Information Stored

## □ User Database

- Username
- User ID
- Aadhar Number
- Address
- Contact
- Pan Card
- Father's Name

## • Blockchain headers:

- Block Height
- Transactions
- Prev Hash
- Current Hash
- Timestamp
- No. Of transactions

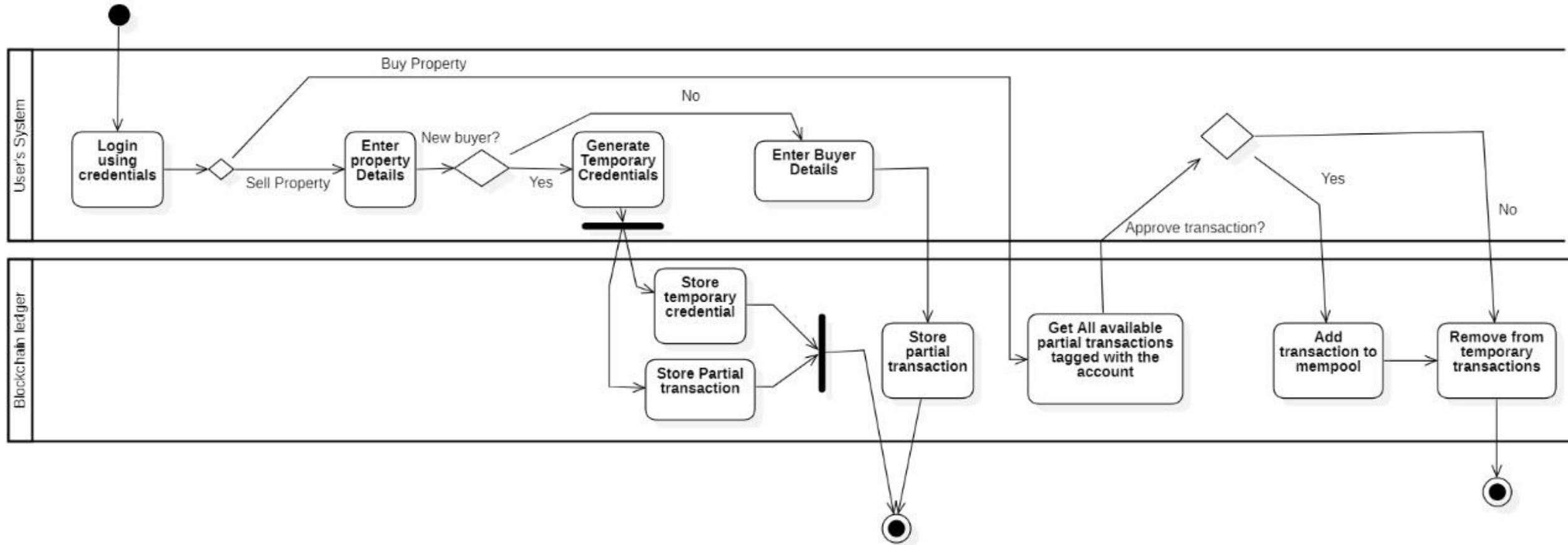
## □ Property Details database

- Property Id
- Geo-Co-ordinates (latitude/longitude)
- Plot No.
- Dimensions
- Allotted Area
- Land Use
- Boundary Information
- User ID

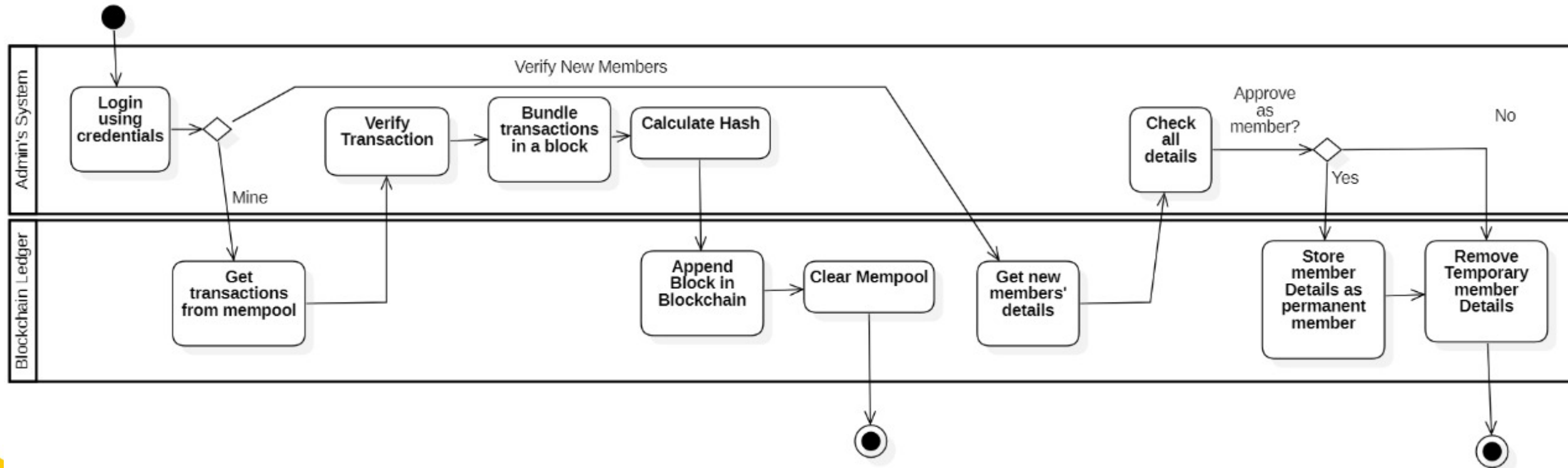


# flowchart

## Interaction between User and Blockchain:

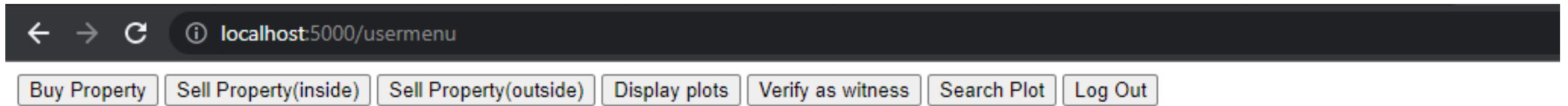


## Interaction Between Admin and Blockchain:



# Working Model

## User Menu



## Admin Menu



## New member Interface



← → ↻ ⓘ localhost:5000/newusermenu

Enter new username:

Enter new password:

Enter temp username:

Enter Name:

Enter Aadhar no:

Enter Address:

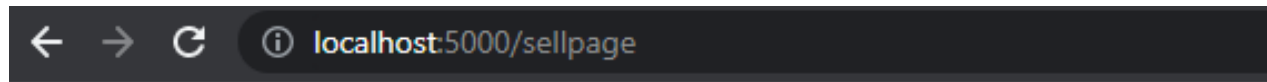
Enter Contact:

Enter PAN Card:

Enter Father Name:



## Sell Page



### Available plots:

Plot no. 3, Plot no. 5, Plot no. 10, Plot no. 8,


Plot no:

Enter buyerID:

Enter Witness ID1:

Enter Witness ID2:

## Buy page

    localhost:5000/buypage

# Available plots:

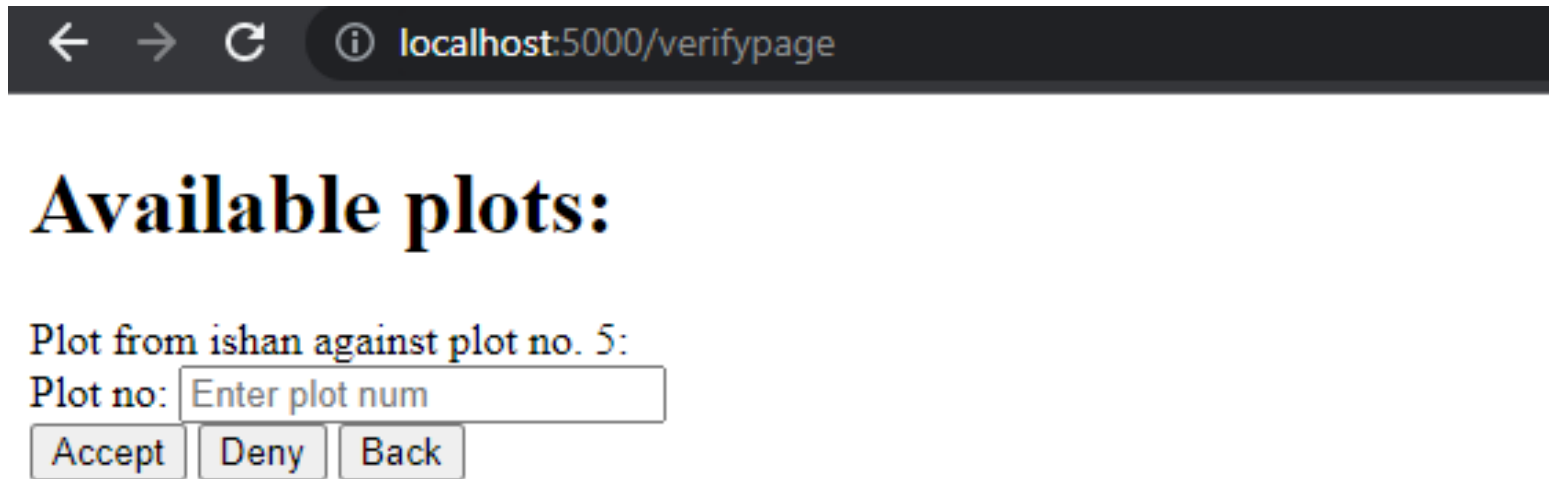
Plot from rishabh against plot no. 3: Plot from rishabh against plot no. 6:

Plot no:

Enter Witness ID1:





Enter Witness ID2:

## Witness interface



The screenshot shows a web browser window with the address bar displaying "localhost:5000/verifypage". The main content area has the heading "Available plots:" in a large, bold, serif font. Below this, the text "Plot from ishan against plot no. 5:" is displayed. Underneath, the label "Plot no:" is followed by a text input field containing the placeholder text "Enter plot num". At the bottom of the form, there are three buttons: "Accept", "Deny", and "Back".

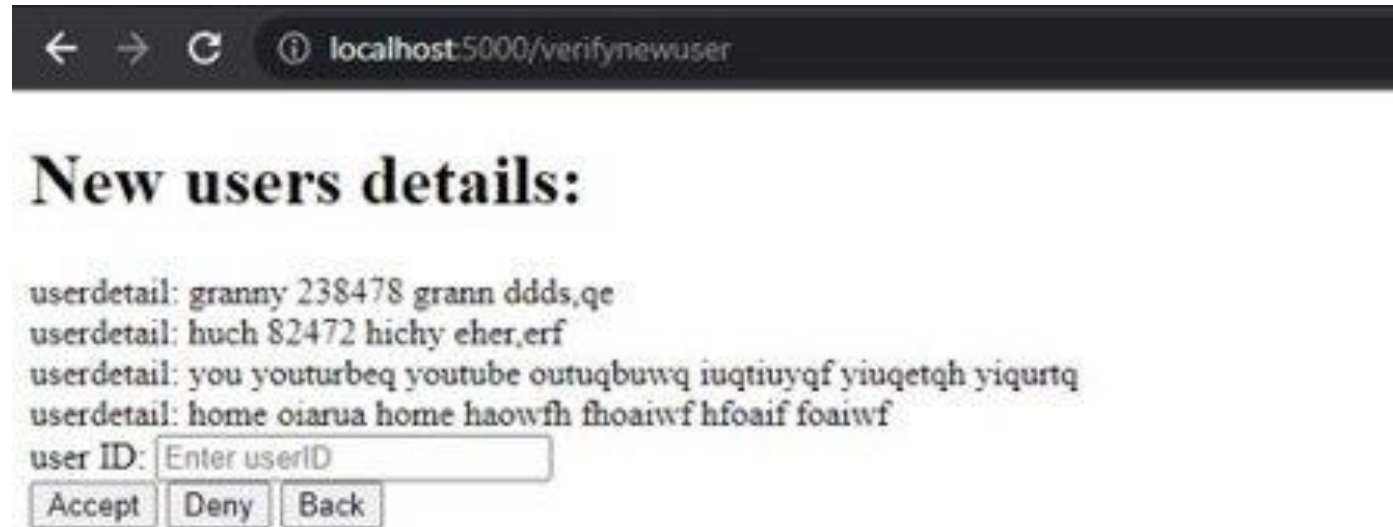
## Mining Interface

    localhost:5000/adminusermenu

transaction 0 details: ['ishan', 'sachin', '5', 'rishabh', '0', 'alok', '0', '0', 'dany', '0', 'yash', '0'] ☐

transaction 1 details: ['sachin', 'rishabh', '10', 'ishan', '0', 'alok', '0', '0', 'james', '0', 'dany', '0'] ☐

## New User Verification



← → ↻ ⓘ localhost:5000/verifynewuser

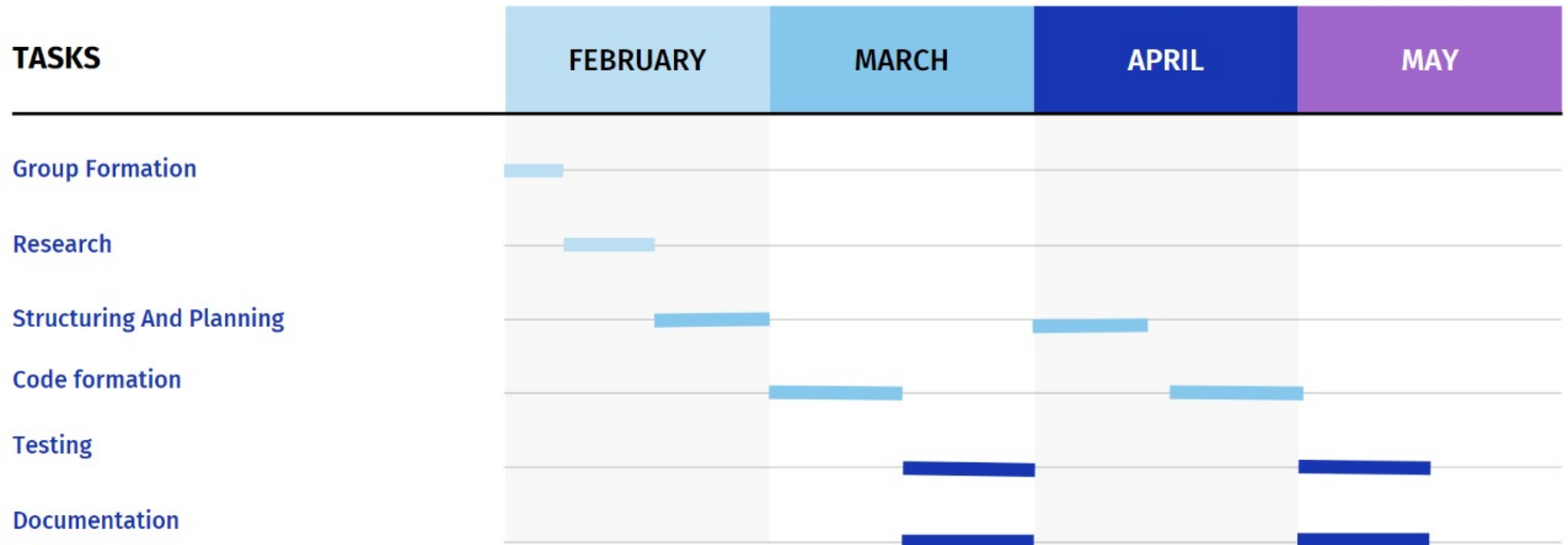
### New users details:

userdetail: granny 238478 grann ddds,qe  
userdetail: huch 82472 hichy eher,erf  
userdetail: you youturbeq youtube outuqbuwq iuqtiuyqf yiuqetqh yiqurtq  
userdetail: home oiarua home haowfh fhoaiwf hfoaif foaiwf

user ID:



# Plan of Work



# 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

- [https://www.tutorialspoint.com/cryptography/cryptography\\_digital\\_signatures.htm](https://www.tutorialspoint.com/cryptography/cryptography_digital_signatures.htm)
- [https://aphrdi.ap.gov.in/documents/Trainings@APHRDI/2020/feb\\_2/Citizen%20Centric%20Services/Block%20Chain%20Technology.pdf](https://aphrdi.ap.gov.in/documents/Trainings@APHRDI/2020/feb_2/Citizen%20Centric%20Services/Block%20Chain%20Technology.pdf)
- <https://www.investopedia.com/terms/b/blockchain.asp>
- [https://www.tutorialspoint.com/blockchain/blockchain\\_chaining\\_blocks.htm](https://www.tutorialspoint.com/blockchain/blockchain_chaining_blocks.htm)

THANK YOU

---

