PROJECT REPORT FORMAT

INTRODUCTION

1.1 Project Overview

In the digital age, libraries are evolving to adapt to the changing needs and expectations of patrons. Traditional library management systems have been gradually replaced by more efficient and secure technology solutions, and one such innovation is blockchain. Blockchain technology, originally designed for cryptocurrencies like Bitcoin, has proven to be a revolutionary tool that can enhance the management of libraries in various ways.

A library is a dynamic hub of knowledge and information, serving as a crucial resource for individuals, students, researchers, and the community at large. The traditional library management system involves cataloguing, tracking, and lending physical and digital materials, along with managing patron information and circulation processes. However, this system often faces challenges such as data security, authenticity, and accessibility. Blockchain technology can address many of these issues, offering transparency, security, and efficiency.

This article explores how blockchain technology can transform library management. We will discuss its key features, benefits, and potential applications in library operations, as well as the challenges and considerations that come with implementing a blockchain-powered system. From secure transactions and simplified cataloguing to decentralized digital lending, the impact of blockchain on library management is far-reaching and promises a brighter future for libraries in the digital age.

1.2 Purpose

The purpose of implementing a blockchain-powered library management system is multifaceted, and it aims to address several key objectives and challenges within the library ecosystem;

Enhanced Security:

Blockchain technology provides a highly secure environment for managing sensitive data. Libraries often handle patron information, including personal and borrowing records. By using blockchain, libraries can ensure that this information is stored and accessed securely, reducing the risk of data breaches or unauthorized access.

Data Integrity and Authenticity:

Blockchain's immutability ensures the integrity and authenticity of records. This is critical for preserving the trustworthiness of catalogue information, archival records, and historical collections. Any changes to the data are recorded, making it nearly impossible to alter or tamper with records without detection.

Decentralization:

Blockchain eliminates the need for a central authority to oversee library operations. This decentralization can streamline processes and reduce administrative overhead. Additionally, it allows libraries to operate more independently and without reliance on a single vendor for management systems.

Transparency and Accountability:

Blockchain's transparency ensures that all transactions and changes to records are visible to authorized parties. This transparency fosters trust between library administrators and patrons. Patrons can have confidence in the authenticity of library records, and libraries can provide clear audit trails for their operations.

Efficiency and Automation:

Smart contracts, a feature of blockchain technology, can automate various library functions, such as lending and returns. This can free up library staff for more valuable tasks and improve the efficiency of library operations.

Digital Asset Management:

Libraries are increasingly handling digital assets, including e-books, digital collections, and multimedia resources. Blockchain can be used to manage the distribution, licensing, and access control of these digital materials, ensuring that copyright and licensing agreements are upheld.

Interlibrary Cooperation:

Blockchain can facilitate interlibrary cooperation by creating a shared and secure ledger for resource sharing. Libraries can collaborate on acquisitions, lending, and other services with confidence in the integrity of the shared data.

Resource Tracking:

Blockchain can enable more precise tracking of library materials, reducing the loss and misplacement of physical items and helping patrons locate resources more easily.

Streamlined Acquisitions:

The procurement of books, journals, and other materials can be made more efficient through smart contracts. These contracts can automate the ordering and payment processes, reducing the administrative burden on libraries.

Lending and Borrowing:

Blockchain can simplify the lending and borrowing of materials, whether physical or digital. Patrons can access resources more easily, and libraries can maintain better control and accountability over circulation.

The purpose of blockchain-powered library management is to modernize and improve library operations, making them more secure, efficient, and adaptable to the evolving needs of patrons in the digital age. It offers a solution to many of the challenges that libraries face in maintaining their traditional roles as keepers of knowledge while embracing the opportunities presented by the digital world.

2. LITERATURE SURVEY

2.1 Existing problem

Security and Privacy Concerns:

Traditional library management systems may not provide adequate security for sensitive patron data. Instances of data breaches and privacy violations can put patrons at risk. Blockchain's encryption and decentralization can significantly enhance security.

Data Tampering and Integrity:

In traditional systems, it can be relatively easy for unauthorized individuals to tamper with library records, leading to concerns about data integrity. Blockchain's immutability ensures that once data is recorded, it cannot be altered without detection.

Centralization:

Many library management systems rely on a centralized authority or vendor, which can lead to vendor lock-in, high maintenance costs, and limited flexibility. Blockchain's decentralized nature allows libraries to operate more independently.

Manual Administrative Tasks:

Library staff often spend significant time on administrative tasks, such as managing circulation, handling fines, and processing acquisitions. Blockchain's smart contracts can automate many of these processes, reducing the administrative burden.

Licensing and Digital Rights Management:

Libraries increasingly deal with digital assets, and managing licensing agreements and digital rights can be complex. Blockchain can facilitate transparent and automated digital rights management, ensuring compliance with copyright and licensing agreements.

Resource Sharing and Interlibrary Cooperation:

Coordinating resource sharing between libraries can be cumbersome in traditional systems. Blockchain can provide a secure and transparent ledger for interlibrary cooperation, making it easier for libraries to collaborate.

Loss and Misplacement of Physical Materials:

Physical materials like books can be lost or misplaced in traditional library systems, leading to inefficiencies and frustration for patrons. Blockchain can improve resource tracking, reducing the loss of items and helping patrons locate materials.

Inefficiencies in Acquisitions:

The process of acquiring new materials can be manual and time-consuming. Blockchain can streamline the procurement process through automated smart contracts, reducing the administrative workload.

Complex Lending and Borrowing:

Traditional lending and borrowing processes, both for physical and digital materials, can be complicated. Blockchain can simplify these processes, making it easier for patrons to access resources while maintaining a clear audit trail for libraries.

Limited Transparency and Accountability:

Traditional library systems may lack transparency, making it difficult for patrons to understand how decisions are made about acquisitions, cataloging, and resource management. Blockchain's transparency ensures that all transactions and changes are visible to authorized parties, increasing accountability.

2.2 References

❖"Blockchain and the Academic Library: Promises and Practices" by Wayne Jones and David Lindahl.

❖"The Potential of Blockchain Technology for Libraries" by Karen Visser.

❖"Transforming Library Services with Blockchain Technology" by David Fiander.

❖"Blockchain Applications in Libraries: What, Where, and How" by R. Butler, L. Stephens, and S. Riggins.

❖"Blockchain: A New Technology for the Academic Environment?" by H. Joe and A. L. Chen.

❖"Smart Contracts for Libraries: A Promising New Technology" by Stephanie Erlich and Anthony Gerardi.

❖"Blockchain and Libraries: Privacy, Trust, and Decentralization in the Digital Age" by Patricio Y. Mosse.

2.3 Problem Statement Definition

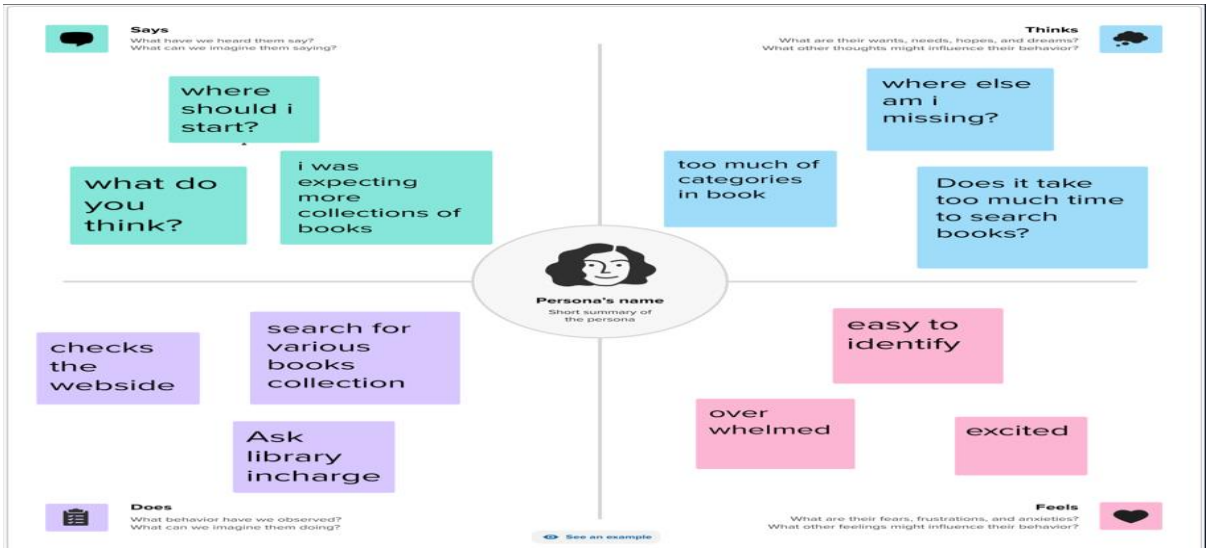
Traditional library management systems face significant challenges in terms of data security, transparency, operational efficiency, and adapting to the digital age. These challenges include data breaches, data tampering, the need for centralization, manual administrative tasks, complex licensing and digital rights management, resource sharing difficulties, physical item loss, and limited transparency and accountability. To address these issues, there is a need to explore the implementation of blockchain technology in library management systems.

The introduction of blockchain technology offers the potential to enhance the security, integrity, and efficiency of library operations, while also providing a solution for managing digital assets and fostering interlibrary cooperation. To fully realize these benefits, it is essential to investigate the practical implications, challenges, and opportunities associated with

integrating blockchain into library management. A clear problem statement is required to guide the research, development, and implementation of a blockchain-powered library management system that can revolutionize how libraries function in the digital age.

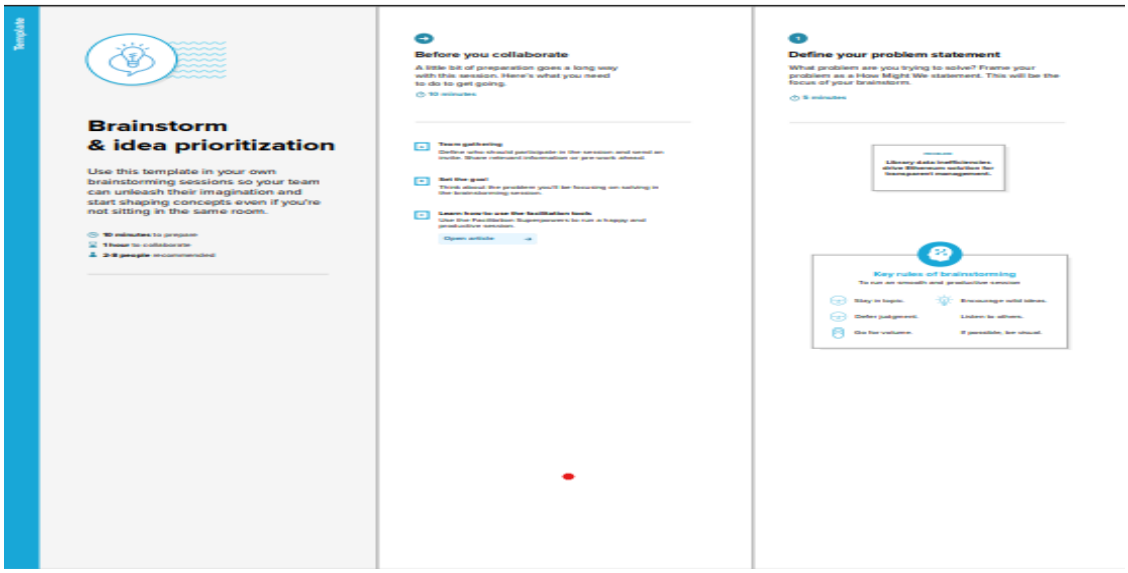
3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

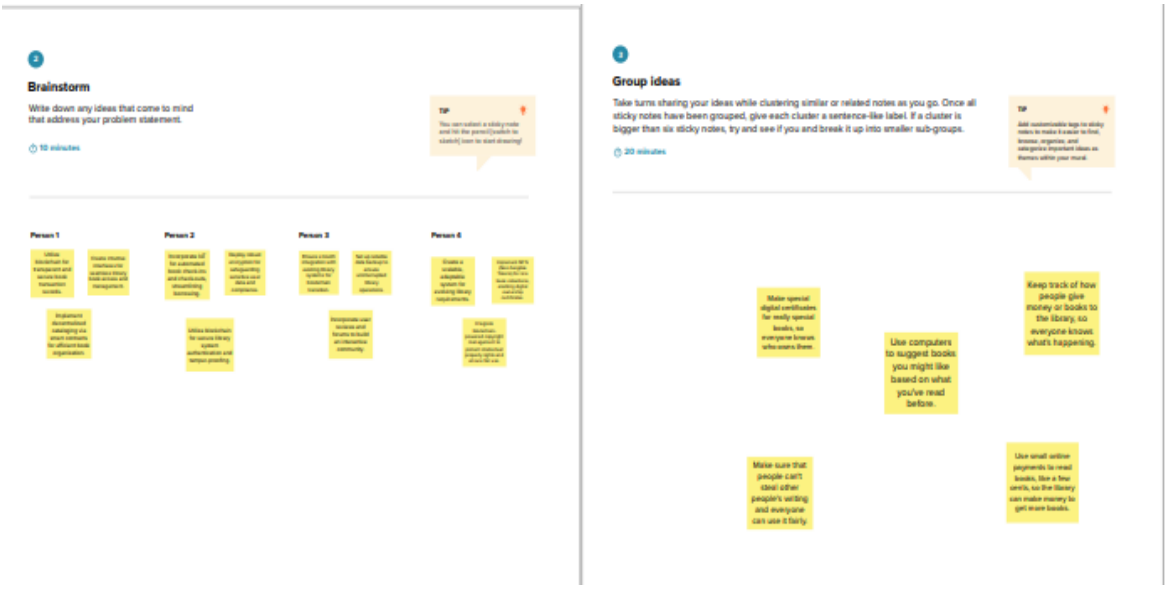


3.2 Ideation & Brainstorming

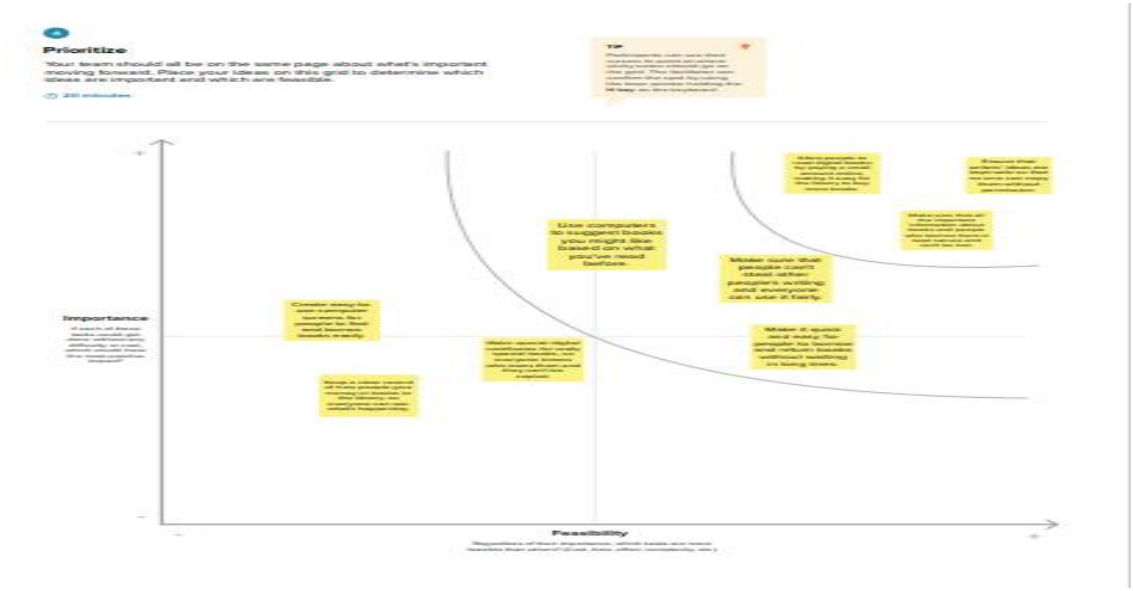
Step 1: Problem Statement



Step 2: Brainstorm



Step 3: Prioritize map



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Catalogue Management:

- Enable cataloguing of physical and digital materials.
- Include fields for metadata, such as titles, authors, descriptions, and keywords.
- Support version control and immutability of catalogue records using blockchain.

Resource Tracking:

● Provide a system for tracking the location and status of physical items in the library.

● Record lending and return transactions, associating them with specific patrons.

● Utilize blockchain for transparent and tamper-proof tracking.

Circulation Management:

● Manage the lending and borrowing of materials, both physical and digital.

● Automate the loan periods, renewals, and late fee calculations through smart contracts.

● Notify patrons of due dates and overdues.

Interlibrary Cooperation:

● Facilitate resource sharing and collaboration with other libraries.

● Implement blockchain-based record-keeping for shared resources and transactions.

● Enable seamless borrowing and returning across cooperating libraries.

Digital Asset Management:

● Manage digital materials, including e-books, databases, and multimedia resources.

● Ensure secure digital rights management (DRM) through blockchain.

● Implement blockchain-based licensing and access control.

Data Security and Privacy:

● Utilize blockchain's encryption and decentralization for data security.

● Implement robust access controls to protect patron information.

● Enable patrons to control their personal data and privacy settings.

Automated Acquisitions:

● Streamline the acquisition process for new materials.

● Use smart contracts for automated ordering, payment processing, and vendor management.

● Maintain a transparent and auditable ledger for acquisitions.

Reporting and Analytics:

● Generate reports on library usage, circulation statistics, and resource availability.

● Analyz=se data for decision-making and resource allocation.

● Utilize blockchain for transparent data records.

Accessibility Features:

● Ensure that the system is accessible to patrons with disabilities.

● Provide options for accessible formats, such as screen readers and braille.

● Comply with accessibility standards and regulations.

User Feedback and Support:

● Implement a system for patrons to provide feedback and report issues.

● Offer user support and assistance for technical problems or inquiries.

● Utilize blockchain to log and track support interactions.

Scalability and Integration:

● Design the system to be scalable to accommodate a growing collection and user base.

● Integrate with other library systems, university databases, or consortia.

Audit Trails and Transparency:

●Maintain an immutable audit trail of all library transactions.

●Ensure transparency in library operations through blockchain.

●Allow users to access historical records of library activities.

4.2 Non-Functional requirements

Performance:

● **Response Time:** The system should respond to user actions promptly, with minimal latency.

● **Throughput:** It should handle a large number of simultaneous transactions efficiently.

● **Scalability:** The system should be able to scale to accommodate a growing user base and library collection.

Security:

● **Data Encryption:** Data should be encrypted during storage and transmission.

● **Access Control:** Access to the system should be controlled through role-based access and permissions.

● **Immutability:** Blockchain should ensure data immutability and protection against tampering.

● **Authentication:** Implement strong authentication mechanisms for both staff and patrons.

Reliability:

● The system should be highly reliable, with minimal downtime.

● Blockchain technology should provide a robust and reliable ledger for transaction records.

Usability:

● The system should be user-friendly, with an intuitive interface for both library staff and patrons.

● Accessibility features should be in place to ensure usability for patrons with disabilities.

Compatibility:

● The system should be compatible with a wide range of devices and browsers.

● It should support integration with various library management modules, databases, and consortia.

Auditability and Transparency:

● The system should provide a transparent and auditable ledger of all transactions and changes.

● Users should be able to access historical records and audit trails.

Interoperability:

● Ensure that the system can interact with other library systems, databases, and external services.

● Use industry standards and open protocols for data exchange.

Data Backup and Recovery:

● Regularly back up data, including blockchain records.

● Implement disaster recovery procedures to ensure data integrity in case of system failures.

Compliance and Regulation:

● The system should comply with relevant data protection and privacy regulations.

● It should adhere to library and copyright regulations regarding digital assets.

Resource Utilization:

● Efficiently use system resources, such as computing power and storage.

● Optimize blockchain resource utilization to reduce costs.

Maintenance and Support:

● Provide regular system updates and maintenance.

● Offer support for technical issues and inquiries from library staff and patrons.

Performance Testing:

● Conduct performance testing to ensure the system can handle peak loads.

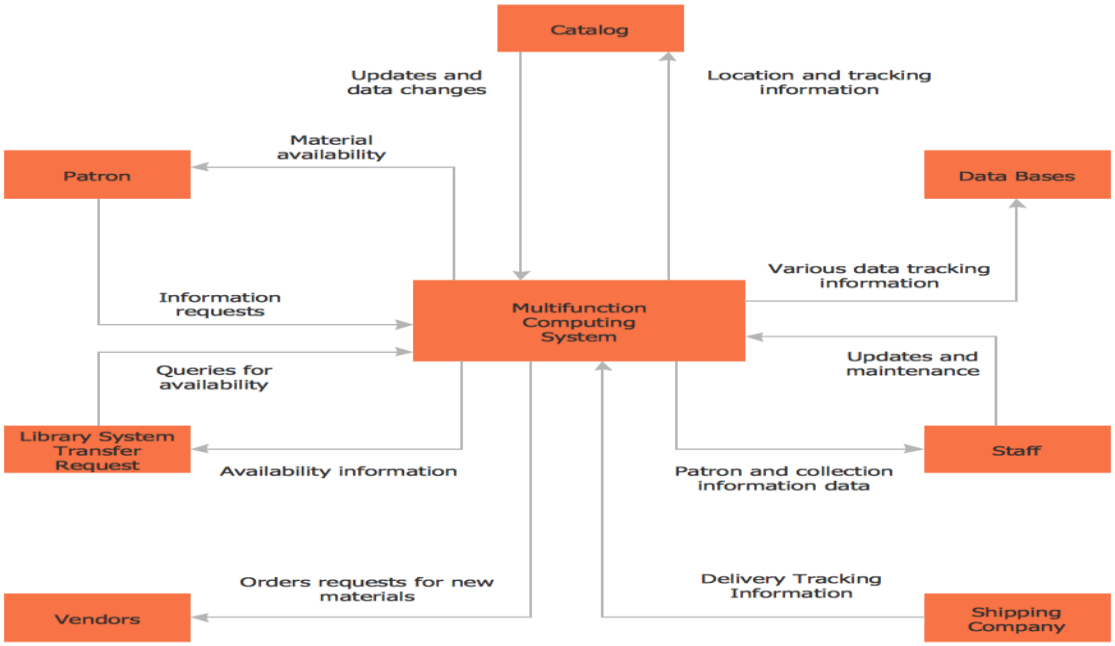
● Perform stress testing to identify system limitations and weaknesses.

Cost-Effectiveness:

● Implement cost-effective solutions for blockchain management, including transaction fees and data storage costs.

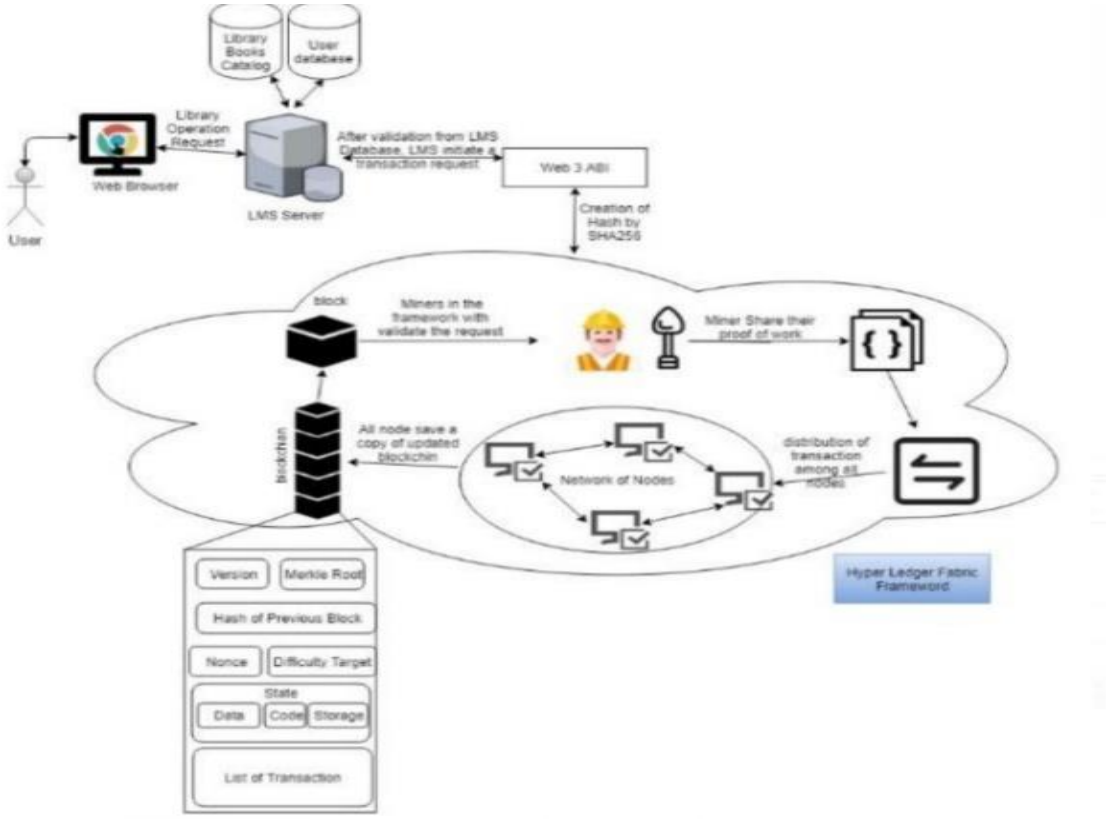
5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories



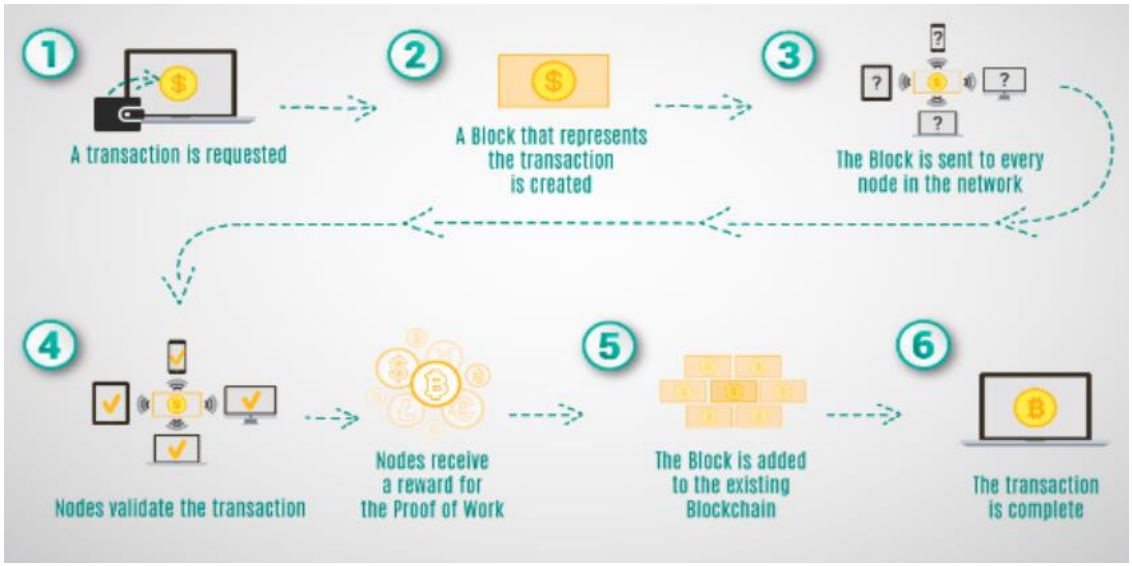
- Librarians securely manage patron accounts on the blockchain, ensuring data integrity.
- Patrons access services with blockchain-based digital identities, eliminating physical cards.
- Book transactions (check-outs and returns) are transparently recorded on the blockchain.
- Patrons instantly check book availability through blockchain technology.
- Cryptocurrency payments for fines are accepted, guaranteeing secure transactions.
- Patrons receive due date notifications via the blockchain.
- Cataloging, reviews, rewards, reading history, reservations, and inventory management are simplified and enhanced by blockchain technology.

5.2 Solution Architecture



6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture



6.2 Sprint Planning & Estimation

For a blockchain-powered Library Management System (LMS), begin by defining the project's scope and objectives, specifying features like user registration, book cataloging, and

book transactions. Create a prioritized product backlog with user stories. Set a sprint duration (e.g., 2 weeks) for agility. Assemble a diverse development team, conduct sprint planning meetings, and define sprint goals, e.g., "Implement user registration and book cataloging." Break down user stories into tasks, estimate effort, assign responsibilities, and proceed with development, design, and testing. Hold daily standup meetings, followed by sprint reviews and retrospectives to gather feedback and improve the process. Close each sprint by ensuring story completion, and repeat this cycle for project completion.

6.3 Sprint Delivery Schedule

Sprint 1 (2 weeks): Initial Setup

User registration and login system

Basic blockchain infrastructure

Sprint 2 (2 weeks): Catalogue Management

Add books to the catalogue

View book details

Sprint 3 (2 weeks): Borrowing and Returning

Borrow books

Return books

Notification system

Sprint 4 (2 weeks): User Profiles and Preferences

User profiles

Preference settings

Sprint 5 (2 weeks): Enhanced Blockchain Features

Enhanced blockchain functionality (e.g., smart contracts)

Transaction history

Sprint 6 (2 weeks): Reporting and Analytics

Generate reports on book usage

Analytics for library management

Sprint 7 (2 weeks): Notifications and Alerts

Automated reminders and alerts

Fine calculation and payment

Sprint 8 (2 weeks): Mobile App Integration

Develop a mobile app for users

Ensure cross-platform compatibility

Sprint 9 (2 weeks): Security and Scalability

Enhance security measures

Improve system scalability

Sprint 10 (2 weeks): Final Testing and Bug Fixing

Comprehensive testing and bug fixing

Performance optimization

Sprint 11 (2 weeks): Documentation and Training

Prepare user documentation

Train library staff and users

Sprint 12 (2 weeks): Deployment and Launch

Deploy the system to production

Launch the blockchain-powered LMS

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1

Decentralized Catalog Management:

Smart Contracts: Create smart contracts on the blockchain to represent books and their metadata. Each book entry could include information such as title, author, ISBN, availability, and location within the library.

Add/Remove Books: Users with the necessary permissions can add new books to the catalog or remove books when they are no longer available.

Book Reservation: Allow users to reserve books through the blockchain. The smart contract should handle the reservation process, ensuring that no two users can reserve the same book simultaneously.

Ownership Tracking: Use the blockchain to track the ownership and history of each book. When a user checks out a book, record the transaction on the blockchain.

7.2 Feature 2

Decentralized User Management:

User Identity and Authentication: Implement a user registration and authentication system using blockchain technology. This can involve creating a unique identity for each user on the blockchain and ensuring that only authorized users can access the library system.

User Permissions: Assign different permission levels to users (e.g., librarians, patrons, administrators). Smart contracts can control access based on these permissions.

Transaction History: Record user activities such as book checkouts, returns, and reservations on the blockchain. This provides transparency and accountability.

8. PERFORMANCE TESTING

8.1 Performance Metrics

Response Time:

This metric measures how quickly the system responds to user actions. It can be broken down into sub-metrics, including:

● Search Response Time: The time it takes to retrieve search results for library materials.

● Check-Out and Check-In Time: The time it takes to complete lending and returning transactions.

Throughput:

Throughput metrics assess the system's capacity to handle concurrent transactions and user interactions. Key measurements include:

● Transactions per Second (TPS): The number of transactions the system can process within a second.

● Concurrent User Capacity: The maximum number of simultaneous users the system can support without performance degradation.

Scalability:

Scalability metrics evaluate the system's ability to grow and accommodate an increasing user base and library collection. Considerations include:

● System Performance Under Load: Assess how the system performs as the user base or data load increases.

● Vertical and Horizontal Scalability: Measure the ability to scale up (adding more resources to a single node) and out (adding more nodes) to maintain performance.

Downtime and Availability:

Evaluate the system's reliability and uptime, which can be critical for library operations. Metrics include:

● System Availability: The percentage of time the system is operational.

● Mean Time Between Failures (MTBF): The average time between system failures.

Data Retrieval Speed:

Measure the speed at which the system can retrieve catalog information and digital assets. Consider sub-metrics for both physical and digital materials.

Blockchain Transaction Speed:

Assess the time it takes for blockchain transactions to be processed and confirmed. Monitor factors such as block creation time and transaction verification times.

Resource Utilization:

Measure the efficient use of system resources, including CPU, memory, and storage. High resource utilization can lead to inefficiencies and increased costs.

User Satisfaction:

While not a technical metric, user satisfaction can be measured through feedback and surveys to ensure that the system is meeting the needs and expectations of library staff and patrons.

Error Rate:

Monitor the frequency of errors, such as failed transactions or system crashes. Reduce the error rate to ensure system reliability.

Performance Testing Results:

Utilize performance testing results to identify bottlenecks, vulnerabilities, and areas for improvement in the system.

Load Testing Results:

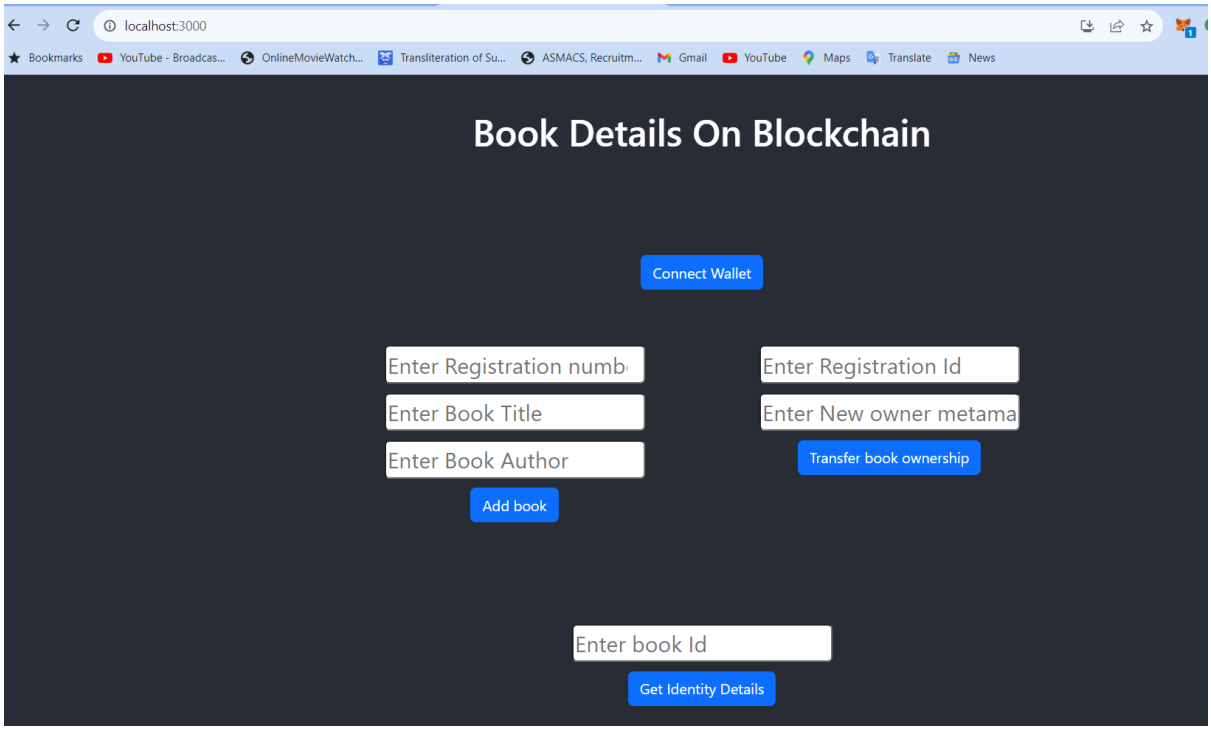
Analyse how the system handles peak loads and stress tests. Determine the maximum capacity before performance degradation occurs.

Maintenance and Updates:

Track the frequency and impact of system maintenance and updates on performance. Minimize disruptions to library operations during these activities.

9. RESULTS

9.1 Output Screenshots



10. ADVANTAGES & DISADVANTAGES

Advantages:

Transparency and Accountability:

Blockchain provides a transparent and immutable ledger, ensuring that all transactions and records are visible and tamper-proof. This can enhance accountability and reduce the risk of fraudulent activities within the library.

Security:

Blockchain uses cryptographic techniques to secure data. This means that library records, patron information, and other sensitive data are highly secure and less susceptible to hacking or data breaches.

Decentralization:

Blockchain systems are typically decentralized, meaning there's no single point of control. This can make the system more resilient to outages or attacks since it doesn't rely on a single server or entity.

Data Integrity:

Records stored on the blockchain are immutable, which means they cannot be altered or deleted. This ensures the long-term integrity of library records and minimizes the risk of data loss.

Smart Contracts:

Smart contracts can automate various library management processes, such as tracking due dates, calculating late fees, and managing digital lending. This can improve efficiency and reduce administrative workload.

Interoperability:

Blockchain libraries can potentially collaborate more effectively with other institutions and share resources, as blockchain technology can facilitate interoperability and data sharing across different libraries.

Disadvantages:

Complexity:

Implementing a blockchain system can be complex, requiring significant technical expertise. Libraries may need to invest in staff training or hire specialized professionals to manage and maintain the blockchain infrastructure.

Scalability:

Blockchains, especially public ones like Ethereum, can struggle with scalability issues when processing a large number of transactions. This can affect the speed and efficiency of library operations during peak periods.

Cost:

Setting up and maintaining a blockchain system can be expensive. Libraries may need to allocate a substantial budget for infrastructure, software, and ongoing maintenance.

Energy Consumption:

Some blockchain networks, especially proof-of-work-based systems like Bitcoin and Ethereum, consume a significant amount of energy. This could be a concern for libraries aiming to reduce their carbon footprint.

User Adoption:

Users, including both library staff and patrons, may not be familiar with blockchain technology, which could lead to resistance or difficulties in adopting the system.

Privacy Concerns:

While blockchain offers strong security, it can be challenging to balance privacy with transparency. Libraries need to carefully manage the exposure of patron data on the blockchain to protect privacy.

11. CONCLUSION

In conclusion, the implementation of a blockchain-powered library management system holds the promise of transforming the way libraries handle their operations, records, and resources. However, it is essential to carefully weigh the advantages and disadvantages to make an informed decision.

Advantages of blockchain-powered library management include increased transparency, accountability, and security. The decentralized nature of blockchain can improve data integrity and reduce the risk of data breaches. Smart contracts can automate tasks, enhancing efficiency, and interoperability can foster collaboration between libraries.

On the flip side, blockchain adoption comes with its challenges. It requires a degree of technical complexity, substantial initial investments, and ongoing maintenance costs. Scalability issues can affect performance during peak usage, and the energy consumption of some blockchain networks may be a concern. User adoption may also be a hurdle, and privacy concerns need to be addressed carefully.

The decision to implement blockchain in library management should be driven by the library's specific needs, resources, and long-term goals. A comprehensive evaluation of the benefits and drawbacks, coupled with a well-thought-out strategy, will determine whether the advantages of enhanced transparency, security, and efficiency outweigh the potential disadvantages and complexities of adopting this emerging technology.

12.FUTURE SCOPE

Enhanced Data Security:

Blockchain's decentralized and immutable ledger makes it highly secure. This can be used to protect sensitive user data, transaction records, and intellectual property rights of authors and publishers. Unauthorized access and data tampering become significantly more difficult.

Transparency and Accountability:

Libraries can use blockchain to maintain transparent and auditable records of transactions, acquisitions, and usage. Patrons and stakeholders can easily verify the authenticity and history of items in the library's collection.

Interlibrary Loans:

Blockchain can facilitate secure and efficient interlibrary loans. Smart contracts can automatically handle requests, permissions, and record-keeping, reducing administrative overhead and errors.

Digital Rights Management (DRM):

Blockchain can play a crucial role in managing digital content rights. Authors and publishers can have more control over how their content is distributed and accessed, ensuring fair compensation for their work.

Decentralized Cataloging:

A decentralized cataloging system can be developed on a blockchain, allowing libraries to collaborate on a shared, global catalog. This reduces redundancy, makes information more accessible, and ensures data accuracy.

Digital Archiving:

Blockchain technology can be used to create permanent, tamper-proof archives of digital assets. Libraries can use this for preserving rare or culturally significant digital materials.

User Privacy:

Blockchain can offer more privacy control to library users. Patrons can choose what information they wish to share, and who can access it, enhancing user autonomy.

Streamlined Licensing and Payments:

Blockchain smart contracts can automate licensing agreements and payments for content. When a library licenses content, payments can be automatically triggered based on usage or agreed-upon terms.

Crowdsourced Collections:

Libraries can engage their communities and enthusiasts to build collections. Crowdsourced curation can be rewarded through blockchain tokens, creating incentives for active participation.

Reduced Administrative Overheads:

Smart contracts can automate various administrative processes like late fees, renewals, and resource sharing, reducing operational costs.

Universal Borrowing:

A blockchain-based library management system could enable universal borrowing, where patrons can access materials from any library within the network, regardless of their physical location.

Accessibility Services:

Libraries can use blockchain to develop platforms that improve accessibility for users with disabilities, making content more inclusive and adaptable.

13. APPENDIX

Source Code

```
// SPDX-License-Identifier: MIT

pragma solidity ^0.8.0;


contract BookRegistry {

    address public owner;


    constructor() {

        owner = msg.sender;

    }


    modifier onlyOwner() {

        require(msg.sender == owner, "Only the owner can perform this action");

        _;

    }


    struct Book {

        string title;

        string author;

        address currentOwner;

    }


    mapping(uint256 => Book) public books;

    uint256 public bookCount;
```

```
    event BookAdded(uint256 indexed bookId, string title, string author, address indexed owner);
    event OwnershipTransferred(uint256 indexed bookId, address indexed previousOwner, address indexed newOwner);

    function addBook(uint256 registration, string memory _title, string memory _author) external onlyOwner {

        books[registration] = Book(_title, _author, owner);
        bookCount++;
        emit BookAdded(registration, _title, _author, owner);
    }

    function transferOwnership(uint256 registrationId, address _newOwner) external {
        require(_newOwner != address(0), "Invalid address");
        require(_newOwner != books[registrationId].currentOwner, "The new owner is the same as the current owner");
        require(msg.sender == books[registrationId].currentOwner, "Only the current owner can transfer ownership");

        address previousOwner = books[registrationId].currentOwner;
        books[registrationId].currentOwner = _newOwner;

        emit OwnershipTransferred(registrationId, previousOwner, _newOwner);
    }
```

```
    function getBookDetails(uint256 registrationId) external view returns (string memory, string memory, address) {


        Book memory book = books[registrationId];

        return (book.title, book.author, book.currentOwner);

    }

}
```

GitHub Link : https://github.com/subitha11/Naan-Mudhalvan

ProjectDemoLink:
https://drive.google.com/file/d/1aTGRwCpu4E4lbFGTvOoDKnxhTyhes2RD/view?usp=sharing