PROBLEM & PROBLEM UNDERSTANDING

Specify the business problem

DATE	13.11.2023
TEAM ID	NM2023TMID08693
PROJECT NAME	Digital Asset Management on The Ethereum Blockchain

Specification of business problem:

The business problem in implementing the Digital Asset Management on The Ethereum Blockchain in traditional libraries is the cost effective adoption and integration of the technology. This includes costs associated with developing or acquiring block chain infrastructure, implementing ethereum smart contracts , training staff and maintaining the system over time.The problems are;

- Cost of implementation
- Scalability
- Data privacy
- User adoption
- Interoperability
- Regulatory and legal issues
- Smart contracts
- Backup and recovery
- Energy consumption
- User support

Secure cataloging:

1. Block chain platform (ethereum)
2. Smart contracts
   This ensure that transactions are secure, transparent and tamper-proof
3. Data structure
   This stores the library information about library items
4. Decentralized storage
   This ensures content availability and reduces the risk of data loss.
5. Transaction verification
   Proof of work, proof of stake can be chosen based on platform
6. User authentication and permission
   Public key private key utilization
7. Immutable ledger

8. Search and retrieval interface
9. Audit trail and reporting
10. Regular updates and maintenance

Efficient borrowing and returns:

Block chain Smart Contracts: Create smart contracts that record each book's ownership and due date. When a user borrows a book, a smart contract is created, specifying the due date and the user's information.

Automatic Due Dates: The due date for each book is automatically set in the smart contract based on predefined rules. This could be a standard loan period or customized for each user.

Late Fees: If a book is returned after the due date, the smart contract can automatically impose late fees. Users can view the late fees associated with their account in real-time.

Real-Time Availability Status: Implement a system that updates the availability status of each book in real-time on the block chain. When a user checks out a book, its status changes to "unavailable," and when returned, it becomes "available" again.