Transparent Education Data Management

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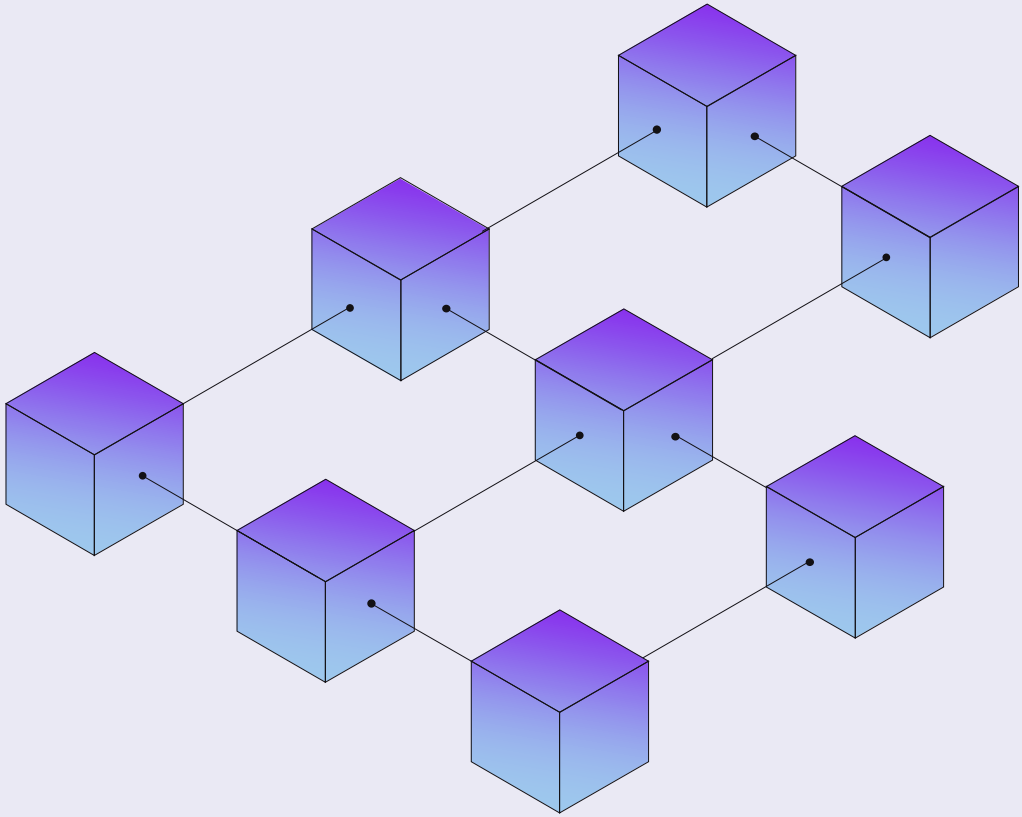
Abstract

Transparent Education Data Management on blockchain revolutionizes the conventional approach to storing and verifying students' digital certificates. By employing blockchain technology and decentralized networks like IPFS, this solution ensures the secure, tamper-proof storage of certificates. Smart contracts facilitate instant addition and retrieval of certificate details, streamlining verification processes for educational institutions and employers. The decentralized nature of the system enhances security, reduces the risk of data manipulation, and fosters trust through transparency. This innovative approach not only ensures data integrity and accessibility but also encourages a more efficient, credible, and trustworthy educational ecosystem.

Problem Statement

- In the current education system, managing and verifying student records,academic credentials, and certificates is a complex and often opaque process. Traditional methods of record-keeping are susceptible to fraud, errors, and unauthorized access. Employers, academic institutions, and other stakeholders face challenges in verifying the authenticity of educational qualifications, leading to inefficiencies and lack of trust in the education ecosystem.



Our Solution

- The solution for Transparent Education Data Management on blockchain involves creating a decentralized network where digital certificates and student records are securely stored. Using blockchain technology and smart contracts, these certificates are added to the blockchain, ensuring tamper-proof storage. The actual certificate files are stored in a decentralized network like IPFS, ensuring data integrity. This setup allows for instant and trustworthy verification of student records. Users can query and verify certificates efficiently, promoting transparency and trust within the education system.

Scope of the Project

- The scope of his project is Transparent Education Data Management on blockchain involves leveraging decentralized and tamper-proof blockchain technology to securely store digital certificates and student records.
- By utilizing smart contracts, the system allows for the seamless addition of certificate details into the blockchain. Each certificate's integrity is ensured through cryptographic hashing, while the actual files are stored in a decentralized network like IPFS, enhancing security and reducing the risk of data manipulation.
- Users can query and verify certificates instantly through the blockchain, promoting transparency and trust in the education system. This approach provides an efficient, secure, and transparent way to manage and verify student credentials, benefiting educational institutions, employers, and students alike.

Steps to complete the project

Step 1:-

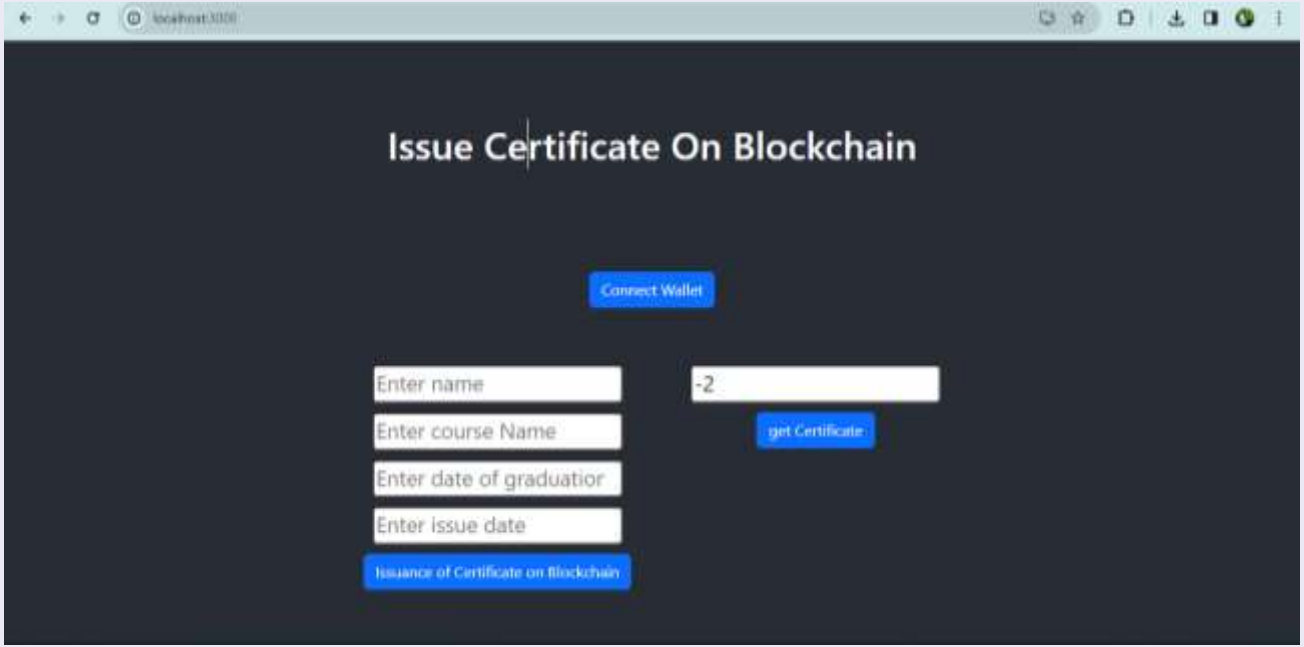
1. Open the Zip file and download the zip file. Extract all zip files

Step 2 :

1.Open vs code in the left top select open folder. Select extracted file and open .
2. Select the projectname.sol file and copy the code.
3. Open the remix ide platform and create a new file by giving the name of projectname.sol and paste the code which you copied from vs code.
4. Click on solidity compiler and click compile the projectname.sol
5. Deploy the smart contract by clicking on the deploy and run transaction.
6. select injected provider - MetaMask. In environment
7. Click on deploy. Automatically MetaMask will open and give confirmation. You will get a pop up click on ok.
8. In the Deployed contract you can see one address copy the address.
9. Open vs code and search for the connector.js. In contract.js you can paste the address at the bottom of the code. In export const address.
10. Save the code.

Step 3:
open file explorer
1. Open the extracted file and click on the folder.
2. Open src, and search for utiles.
3. You can see the frontend files. Select all the things at the top in the search bar by clicking alt+ A. Search for cmd
4. Open cmd enter commands npm install npm bootstrap npm start
5. It will install all the packages and after completing it will open {LOCALHOST IP ADDRESS} copy the address and open it to chrome so you can see the frontend of your project.

Output


Issue Certificate On Blockchain
Connect Wallet
Enter name
Enter course Name
Enter date of graduatior
Enter issue date
Issuance of Certificate on Blockchain
-2
get Certificate

Conclusion

- In conclusion, Transparent Education Data Management on blockchain presents a transformative solution for education systems. By leveraging a decentralized network, digital certificates are securely stored and accessed via blockchain technology and smart contracts. This approach ensures data integrity and enables swift, reliable verification of student records. The transparency offered fosters trust among institutions, employers, and students. Embracing this technology not only enhances the efficiency of record-keeping but also fundamentally strengthens the credibility and integrity of education credentials, paving the way for a more secure and transparent educational landscape.

Key Takeways

01 Enhanced Security

02 Efficient Verification

03 Transparency and Trust

Thank You!!