

Experiment No. 09

Trust Docs

Block Chain Mini Project Report

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the Degree of
(Computer Engineering)

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Index

Sr. No.	Content	Pg. No.
1.	Abstract	3
2.	Introduction	4
3.	Methodology	5
4.	Technology Stack	6
5.	Implementation	7
6.	Output	9
7.	Conclusion	10
References		11

Chapter 1: Abstract

Trust Docs is a pioneering web application that introduces a novel approach to document verification. At its core, the system employs blockchain technology to record the hash values of user-uploaded documents on an immutable ledger, ensuring that the documents remain tamper-proof and their authenticity is preserved.

Authenticated users have the privilege of verifying documents on their local machines and maintaining a record of their uploaded documents. Unauthenticated users, on the other hand, can efficiently verify the authenticity of documents, thus making Trust Docs a versatile and accessible platform for all.

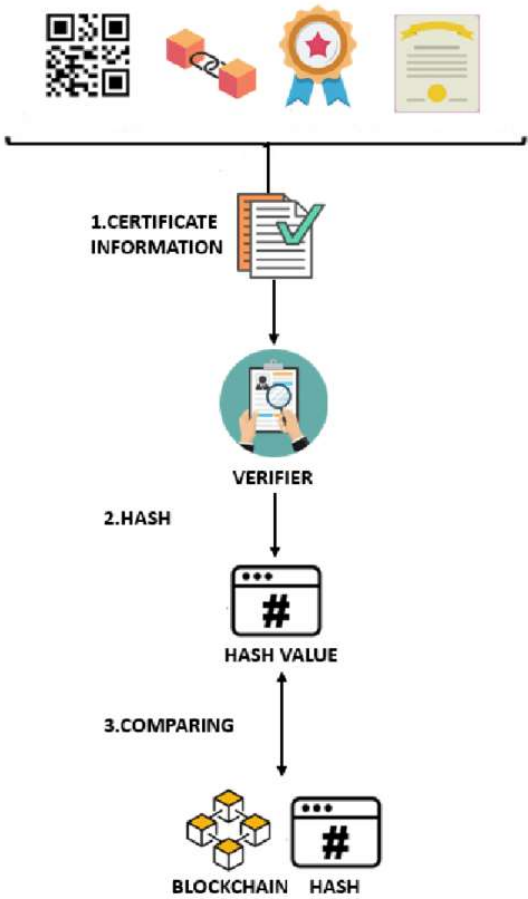
Due to the nature of a blockchain, any document's hash once entered on the ledger can never be modified, limiting the possibility of fraud and other malpractices.

Chapter 2: Introduction

In today's digital age, ensuring the integrity and authenticity of documents is of paramount importance. Traditional methods of document verification often suffer from vulnerabilities, such as forgery and tampering. To address these issues and provide a secure, transparent, and tamper-proof solution, we have developed Trust Docs.

Trust Docs is a web application that leverages the power of blockchain technology to offer a robust document verification system. This innovative solution records users' uploaded documents on the blockchain by storing their document hashes on the ledger. It is built using popular technologies like React for the front-end, Node/Express for the back-end, and MongoDB for data storage. During the initial phases, we use Ganache for a local blockchain, ensuring a smooth development process.

Chapter 3: Methodology

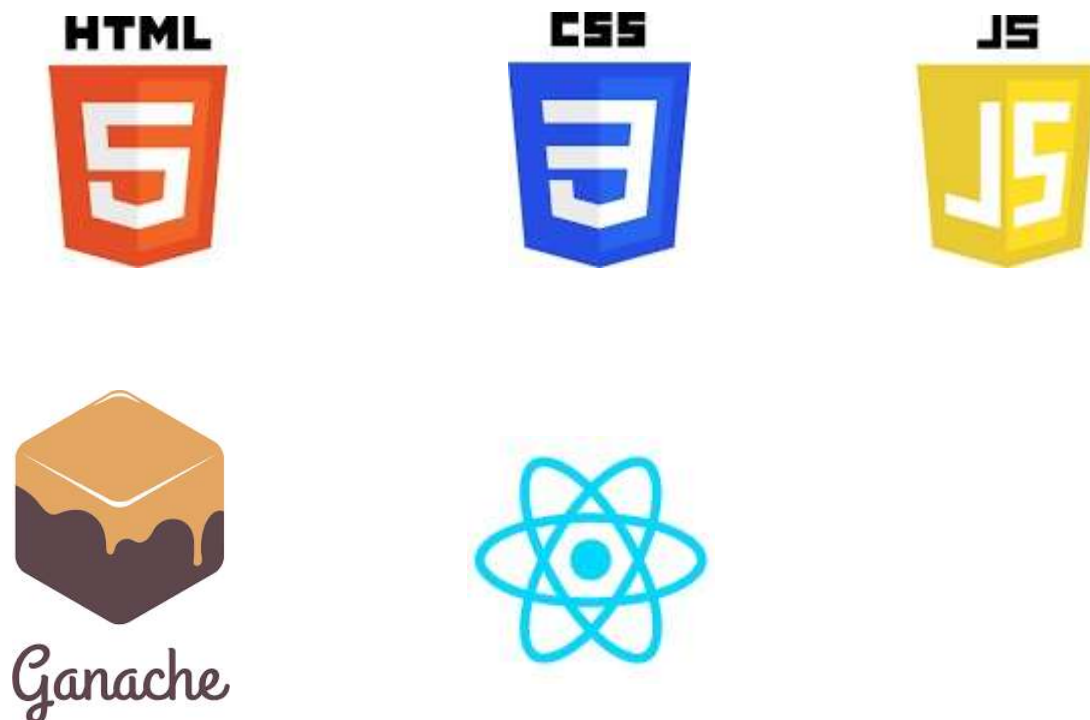


System Flow

Chapter 4: Technology Stack

In the development of our blockchain project, "Trust Docs," we have leveraged a robust and well-rounded technology stack to ensure the efficient and secure verification of documents. Our stack primarily comprises React for the front-end interface, Node.js and Express.js for the back-end, and Truffle Ganache for blockchain development. React, known for its high-performance user interfaces, provides a responsive and user-friendly platform for document submission and verification.

Meanwhile, Node.js and Express.js have enabled us to build a scalable, reliable, and lightweight server for handling the core logic of the application, ensuring seamless communication between the user interface and the blockchain network. Truffle Ganache has been instrumental in facilitating blockchain development, offering a local blockchain environment for testing and development, which enhances the overall development process by allowing for rapid iteration and smart contract deployment. Together, these technologies empower Trust Docs to deliver a secure, efficient, and user-friendly solution for document verification in a blockchain ecosystem.



Chapter 5: Code

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

```
// DocumentVerification.sol
```

```
pragma solidity ^0.8.0;
```

```
contract DocumentVerification {
```

```
    struct Document {
```

```
        address owner;
```

```
        string hash;
```

```
    }
```

```
    mapping(string => Document) documents;
```

```
    event DocumentAdded(address indexed owner, string hash);
```

```
    constructor() {
```

```
        // Constructor sets an initial owner for the contract
```

```
        documents["initialDocumentHash"] = Document(
```

```
            msg.sender,
```

```
            "initialDocumentHash"
```

```
        );
```

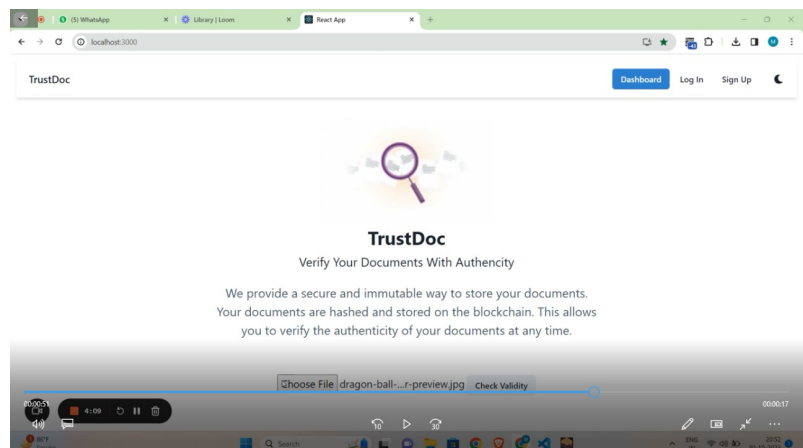
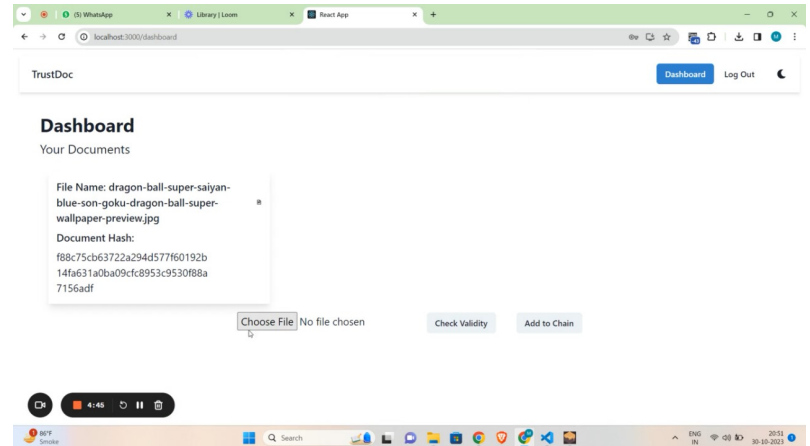
```
        emit DocumentAdded(msg.sender, "initialDocumentHash");
```

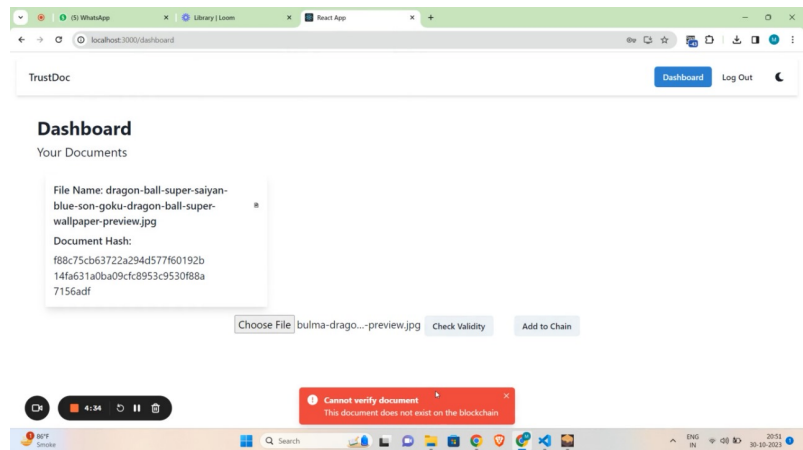
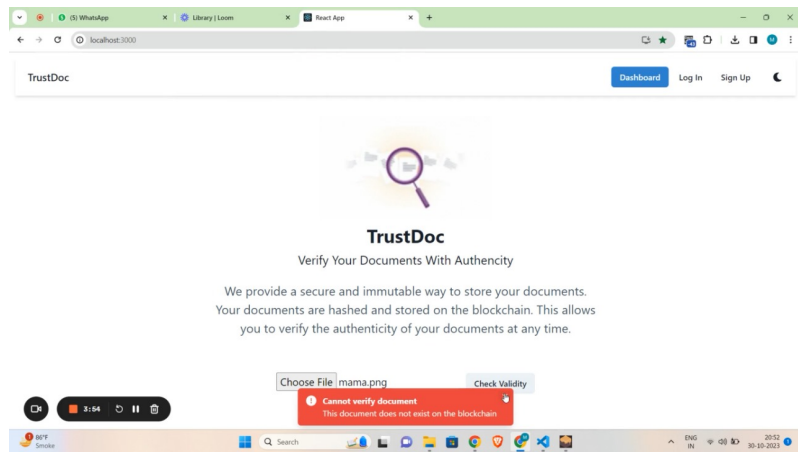
```
}
```

```
function addDocument(string memory _hash) public {  
    require(  
        documents[_hash].owner == address(0),  
        "Document already exists"  
    );  
    documents[_hash] = Document(msg.sender, _hash);  
    emit DocumentAdded(msg.sender, _hash);  
}
```

```
function verifyDocument(  
    string memory _hash  
) public view returns (address owner, bool exists) {  
    Document storage document = documents[_hash];  
    owner = document.owner;  
    exists = (owner != address(0));  
}  
}
```


Chapter 6: Output





Chapter 7: Conclusion

In conclusion, Trust Docs presents a secure and transparent document verification system, leveraging blockchain technology. It effectively addresses the vulnerabilities of traditional methods and offers an efficient user experience.

This project's scope is vast, benefiting individuals, businesses, and organizations. We're excited about the potential of Trust Docs to enhance trust and security in document verification. Thank you for your attention, and we're open to any questions or discussions.

A completed product may be used by individuals as well as large enterprises.