Decentralized File Storage using Blockchain and IPFS

Rahul Mane, Vidhi Jain,
Yashovardhan Sarda, Simran Singh
Guidance: Dr. Rahul Ambekar

Computer Engineering

COMPUTER STUDENT ASSOCIATION

Problem Statement

The security of highly sensitive data stored in third-party data storage systems is often compromised, raising concerns about confidentiality and integrity.Traditional centralized storage solutions do not provide adequate security measures, prompting the need for an alternative approach. In response to this challenge, we propose a decentralized system as a potential solution.

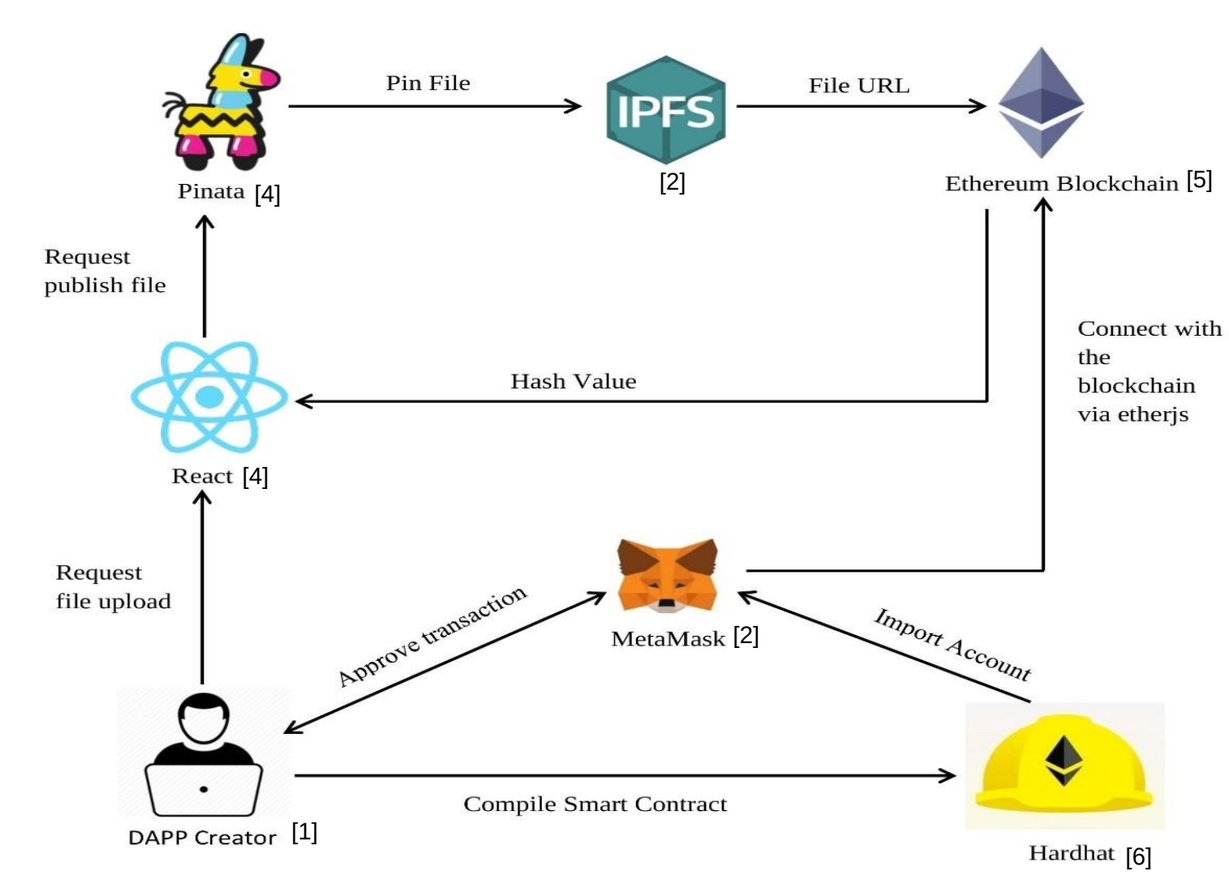
Objectives

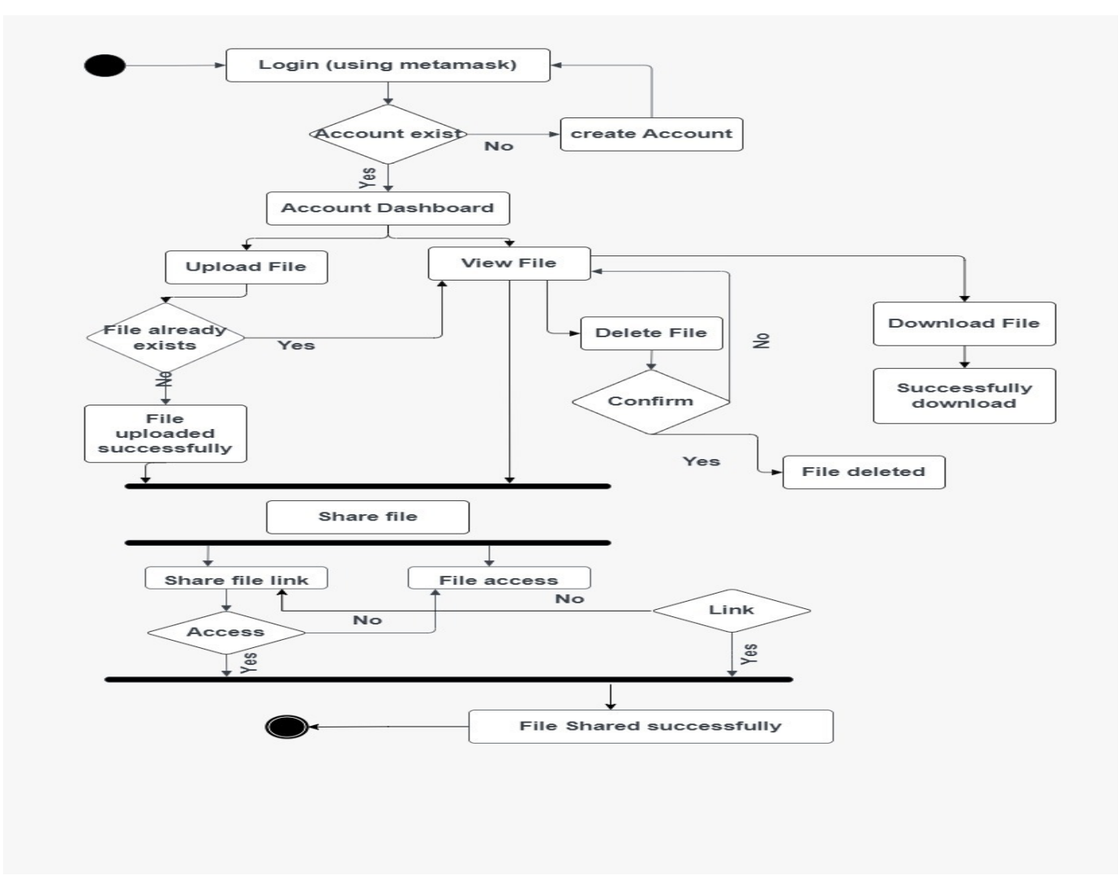
- Utilise Blockchain technology to create a transparent and tamper-proof ledger for managing storage and access permissions for files.
- Utilise IPFS technology to create a distributed peer-to-peer file system that allows users to store and share files without relying on a central server.
- Data is encrypted and stored across multiple locations or nodes that are run by individuals or organizations.

Scope

- create a more secure, reliable, and censorship-resistant alternative to traditional centralized file storage systems.
- The scope of the project can include technical, infrastructure, user experience, security, legal and regulatory, and scalability aspects, and requires careful planning and coordination to ensure the successful development and deployment of the system.

Proposed System





Results

Feature	Austria, Phillipe, "Analysis of Blockchain-Based Storage Systems“[5]	Our System
Storage Platform	Sia	IPFS
Security	Threefish block cipher	SHA 256bit encryption
Privacy	Sia to have less data access provide more privacy	Distributed storage across multiple peers high Privacy
Performance	Slower uploads	Goerli Faucet Test Network Imporove Performance
Cost	high redundancy factors will incur high costs	Maximizes storage resource utilization & lower Cost.
Technology	Skynet, P2P cloud storage	Pinata, Hardhat, Ethers.js, Remix, Solidity, Metamask
Availability	higher availability	Sometime the Goerli testnet faucet goes down with demand and traffic

References

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