**Decentralized File Sharing - Blockchain and Cryptography**

**Abstract:**

A consortium of organizations collaborates and exchanges information to create synergies in their operations. Centralized systems of file-sharing cannot provide distributed trust and transparency. Blockchain technology can be used to share files securely and transparently. This paper proposes a blockchain-based inter-organizational secure file-sharing system. It can be used by a consortium of organizations to securely exchange files in a distributed fashion. Hyperledger Fabric, an enterprise blockchain framework, is used for blockchain network setup and the development of smart contracts. The Inter Planetary File System (IPFS) is used for storing files in a distributed way. The paper provides the workflow for identity management and file-sharing processes. The proposed system allows a consortium of organizations to share files with confidentiality, integrity, and availability using blockchain.

**Existing System**

To preserve the privacy of traceable encryption in blockchain, previous works proposed a system in which authenticity and non-repudiation of digital content are guaranteed. The problem tackled by the authors is the secret key of the user, which when shared with other entities does not hold the specific information of the user. If the shared key is corrupted or abused, it makes it difficult to analyse the source of the secret key. Moreover, leakage of confidential information in access control is a bottleneck for existing systems. Therefore, previous works have integrated the privacy protection algorithm such as attribute-based encryption (ABE) to secure the secret keys.

**Proposed System:**

The proposed system provides secure file-sharing across a consortium of organizations using blockchain. It provides confidentiality, integrity, and availability of shared files. It ensures end-to-end encryption of the files. The content ID of the shared file is stored on the blockchain in a tamper-resistant way. The encrypted file and file metadata are stored in a distributed fashion on the distributed storage and blockchain ledger respectively.

**Hardware Requirements**

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| RAM | 4 GB Min. |
| Processor | i3 Min. |
| Hard Disk | 500 GB HDD Min. |

**Software Requirements**

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| Back End Technology | Python-Python 3.6, Django |
| OS | Windows Family |
| IDE | VS Code |
| Database Server | MySQL |
| Front End Technology | HTML, CSS, JS |