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GreenChain: A Blockchain-Based Sustainable Cloud Storage Solution

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Statement of the Problem: The increasing demand for cloud storage services has led to a surge in energy consumption and environmental impact, calling for innovative and sustainable solutions. This study presents “Green Chain,” a blockchain-based sustainable cloud storage system designed to address the environmental challenges associated with traditional cloud storage infrastructure. Green Chain leverages the decentralized and immutable nature of blockchain technology to establish a transparent, secure, and energy-efficient cloud storage ecosystem. By integrating blockchain into the cloud storage infrastructure, Green Chain aims to reduce energy consumption, enhance data privacy and security, and promote sustainable practices in the digital domain. The key features of Green Chain include decentralization, transparency, energy efficiency, sustainable incentives, data privacy, security, scalability, interoperability, etc. Green Chain utilizes a distributed ledger technology, ensuring that data is stored across multiple nodes, eliminating the need for a centralized authority. This decentralized approach enhances transparency, promotes data integrity, and prevents single points of failure. It employs consensus mechanisms such as Proof of Stake (PoS) or Proof of Authority (PoA), which significantly reduce the energy consumption associated with traditional Proof of Work (PoW) mechanisms. This energy-efficient approach minimizes the carbon footprint of the cloud storage system. Furthermore, Green Chain introduces sustainable incentives for participants who contribute computing resources and storage capacity. By rewarding eco-friendly practices and encouraging the use of renewable energy sources, Green Chain fosters a greener cloud storage ecosystem. It ensures robust data privacy and security through cryptographic techniques and smart contracts. Users maintain control over their data, and the transparent nature of the blockchain enhances trust among participants. By implementing the Green Chain system, we envision a sustainable future for cloud storage, where energy consumption is minimized, data privacy is safeguarded, and environmental impact is reduced. The proposed solution not only addresses the current challenges but also promotes responsible practices in the digital era, aligning with global sustainability goals.

Biography

Dr. Pratima Sharma is an accomplished professional serving as an Assistant Professor at Bennett University. With her expertise and dedication, she contributes to the academic community by imparting knowledge and guiding students in their educational journey. As an Assistant Professor, pratimasharma1114@gmail.com

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