Blockchain-Based e-Vault for Legal Records

A PROJECT REPORT

Submitted by,

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Under the guidance of,

Mrs. Shaik Salma Begum

Assistant professor

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND TECHNOLOGY(AI & ML)

At

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PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

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PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project report **"Blockchain-Based e-Vault for Legal Records"** being submitted by "Nagaruru Sunandhan, Bobbiti Yaswanth Reddy, Kruthika S" bearing roll numbers "20211CST0006, 20211CST0039, 20211CST0041" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Technology(AI &ML) is a bonafide work carried out under my supervision.

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **Blockchain-Based e-Vault for Legal Records** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Technology(AI &ML)**, is a record of our own investigations carried under the guidance of **Mrs. Shaik Salma Begum, Assistant professor, Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

The administration of legal records within conventional frameworks is plagued with issues such as data manipulation, access by unauthorized parties, and overall inefficiency. These issues cause delays in obtaining justice and erode public confidence. This project proposes an e-Vault, a blockchain-based application that attempts to address the problem of securely storing legal documents by utilizing decentralization, immutability features of blockchain technology, smart contract capabilities, and transparency to improve efficiency within judicial processes, enhancing their workflows. The system is built on Hyperledger Fabric, which uses permissioned blockchain technology to restrict record access to authenticated participants, including courts and legal practitioners. It consists of a multi-tiered system including an application layer, a document storage layer based on IPFS and encryption, blockchain layer for immutable audit trails, and smart contracts for controlled automated access. Important milestones within the development process included stakeholder requirement analysis, design, prototyping, and performance evaluation. Other user-friendly features include integration with legal databases, establishment of roles to limit access based on hierarchy, and document preservation that enables proof of infringement. Evaluation of the implemented system exhibited effective security policies and scalable performance, with average upload latency of two to three seconds and a throughput of approximately 300 transactions per second. This e-Vault could transform the modernization of legal record-keeping, enhancing efficiency while also elevating trust in judicial processes. Though it faces issues with regulation and scalability, the prototype creates effective groundwork for digital legal record systems that are secure, easy to use, transparent, and efficient.

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