Private Blockchain for the General Election
of the Student Association at Telkom University

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Abstract
General elections, which are critical to democracy, encounter new obstacles such as administrative disputes, voter anonymity, and data security. The shift from traditional to electronic voting creates security issues, prompting a rethinking of technology's role in political processes. This study looks at blockchain technology as a solution, utilizing its tamper-proof architecture to improve e-voting using Streamlit as visualisation. The study focuses on the Telkom University Association's general election and creates a private blockchain system to provide privacy, security, and data integrity while adhering to legal criteria. According to performance studies, the Streamlit blockchain system beats standard SQL databases by processing votes faster and more consistently (average 0.000266 seconds) rather than SQL database (average 0.0005 seconds) and identifying tampering attempts within 0.0002 seconds. These findings underscore the feasibility and effectiveness of a private blockchain-based e-voting system, demonstrating its potential as a secure and transparent platform for democratic processes.

Keywords: General elections, Blockchain technology, Private blockchain, Streamlit, E-Voting, Privacy, Security, Integrity