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Book of Abstracts

THEME:

**Innovative scientific research: A tool for socioeconomic
development and environmental sustainability**

**Federal University of Technology Minna,
Niger State, Nigeria**

2024SPSBIC0098**A Comprehensive Review on Techniques, Tools and Open Issue in Blockchain and Smart Contract Development**Hafiz O. Haruna , Ismaila Idris , Joseph Ojeniyi , Abdulkadir O. Isah, and Sikiru O. Subaiyru⁵

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Increasingly popular are blockchain platforms and programming languages for creating smart contracts. However, the development of smart contracts and blockchain applications follows non-standard software life cycles. This means that updating delivered applications or fixing bugs through new software versions is challenging. This literature review in software engineering aims to highlight current problems and potential solutions in smart contract and blockchain application development. Examining 98 articles from 2016 to 2023, we focus on addressing challenges specific to software engineering in the development, testing, and security assessment of blockchain-oriented software. The review covers four key topics: smart contract testing, smart contract code analysis, smart contract metrics, and blockchain applications. The research identify open challenges for further research in each of these areas, beyond reviewing proposed techniques, tools, and approaches in the literature.

Keywords – Blockchain, Smart contracts, software, Ethereum Virtual Machine, Solidity

2024SPSBIC0103**Modelling of Diabetic Patients' Treatment Compliance and Their Survival Patterns in Nigeria: A Survival Analysis Approach**

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Corresponding Author Email Address: * azeezsule76@gmail.com**Abstract**

This study investigates the Diabetic Patients' Treatment Compliance and their Survival Patterns in Nigeria using secondary data from the University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria, spanning the years 2020 to 2023. Employing a comprehensive analysis, the study assessed parametric, semi-parametric, and nonparametric approaches, with time to recovery from diabetes infection as the primary outcome variable. Four covariates including gender, age, years of admission, and categories of diabetes were considered in the analysis. Model selection criteria relied on the Akaike and Bayesian Information Criteria (AIC and BIC). Results indicate that age, years of admission and categories of diabetes significantly contribute to the patients' treatment compliance and their survival patterns, as evidenced by the estimated survival rates. Additionally, the log-rank test was employed to compare survival curves across different values of the variables. Significant statistical differences were observed at a 0.05 level of significance among various age groups, years of admission and categories of diabetes. The study further underscores the significant influence of age, years of admission and categories of diabetes on patients' survival patterns, with age, years of admission and categories of diabetes revealed a significant role in all models (Cox, exponential and Weibul models). Notably, parametric models consistently identified age, years of admission and categories of diabetes as significant covariates, while the Cox model highlighted age and years of admission as the significant covariates. Based on the findings, early hospital intervention and treatment compliance are recommended for diabetic patients to ensure optimal care, particularly considering the critical role of the categories of diabetes. Moreover, the study recommends the Exponential model as the most suitable fit for diabetes data, irrespective of sample size, and emphasizes the parametric models' approach as the preferred strategy for analyzing diabetes data.