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A Framework for Blockchain Vulnerability Detection and Cybersecurity Education

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Abstract : The Blockchain has become a necessity for many different societal industries and ordinary lives including cryptocurrency technology, supply chain, health care, public safety, education, etc. Therefore, training our future blockchain developers to know blockchain programming vulnerability and I.T. students' cyber security is in high demand. In this work, we propose a framework including learning modules and hands-on labs to guide future I.T. professionals towards developing secure blockchain programming habits and mitigating source code vulnerabilities at the early stages of the software development lifecycle following the concept of Secure Software Development Life Cycle (SSDLC). In this research, our goal is to make blockchain programmers and I.T. students aware of the vulnerabilities of blockchains. In summary, we develop a framework that will (1) improve students' skills and awareness of blockchain source code vulnerabilities, detection tools, and mitigation techniques (2) integrate concepts of blockchain vulnerabilities for IT students, (3) improve future IT workers' ability to master the concepts of blockchain attacks.