

# From Code to Coin: Software Strategies for Building Secure and Intuitive Cryptocurrency Wallets

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**Abstract:** *The rising use of cryptocurrencies has led to an increased need for digital wallets that offer a balance of security and user-friendly. Existing solutions often face challenges in reconciling robust security protocols with effortless user interaction. This research examines the design and development of cryptocurrency wallets, specifically addressing secure key handling, authentication methods, data security, and user-friendly design from an engineering standpoint. The study also examines regulatory requirements like Know your Customer, Anti-Money Laundering, and data protection legislation which influences wallet architecture. The study evaluates existing development frameworks, modeling approaches to threats, and platform-specific difficulties to establish guidelines for constructing wallets that meet both operational and security requirements. The report ultimately emphasizes several upcoming trends, such as decentralized identity, post-quantum cryptography, and AI-boosted surveillance, providing valuable information for future wallet development.*

**Keywords:** Cryptocurrency; Wallets; Key Management; Blockchain; Decentralized applications