Cryptocurrency Technologies

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Product Description

Cryptocurrency Technologies This book addresses the explosive growth of digital money, which has resulted in an entirely novel phase of decentralized structures, led prominently by the advancements in Bitcoin. As Bitcoin has evolved from an innovative concept into a multi-trillion-dollar business, it fundamentally challenges existing finance paradigms and recasts the concept of trust in digital communication. Serving as a crucial, detailed resource, this text offers a comprehensive guide to the fundamental concepts, technological advances, and practical implications of digital currencies. It provides a detailed overview of the industry's current condition and possibilities for the future, covering essential topics such as blockchain basics, smart contracts, decentralized finance (DeFi), and emerging digital currency tendencies. Crucially, the text extends beyond core technology to explore the practical uses, legal issues, and wider societal ramifications of decentralized digital assets. The book's mission is to equip individuals with the knowledge required to engage in and recognize the underlying bitcoin system, guiding readers through the complexity of cryptocurrency technologies in a simple and practical manner. The target audience is broad, encompassing complete beginners, enthusiasts, sector specialists, learners, researchers, programmers, and investors who seek to comprehend the foundations of this constantly evolving world. This academic yet friendly resource provides the necessary understanding to leverage the power of decentralized digital records. **Salient Features:**

- **Core Fundamentals**: Systematic review of physical money, digital money, fiat currencies, and interbank payment systems, setting the essential historical context for decentralized finance.
- **Advanced Cryptography**: Dedicated coverage of cryptographic tools crucial for blockchain security, such as Hash Functions, Digital Signatures (ECDSA), and the principle of Zero Knowledge Proof.
- **Blockchain Architecture**: Detailed explanation of the underlying network structure, covering essential concepts like Nodes, Distributed Consensus, and the Merkle Patricia Tree for data integrity.
- **Bitcoin and Ethereum**: In-depth units on the primitives and workings of Bitcoin (including mining and decentralization) and the Ethereum ecosystem, which revolutionized smart contracts.
- **Smart Contract Development**: Practical instruction on programming Smart Contracts on Ethereum and an overview of the specialized object-oriented Solidity Language used for development.
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