



Blockchain Technology: Concepts and Applications

By Kumar Saurabh, Ashutosh Saxena

Paperback

9788126557660

₹789.00

Pages: 372

Description

Blockchain Technology: Concepts and Applications covers not only the technical aspects of blockchain but also its basic building blocks. These building blocks consist of hash functions, cryptography and consensus. The organizations of the chapters are in logical sequence; however, readers can skip the building block chapters if they directly want to learn the blockchain technology. The decentralized system useful for blockchain technology is also covered independently. There is a separate chapter on Ethereum, a prominent platform for development of blockchain based solution. To understand the complete gambit of Bitcoin, one can directly read its chapter.

About the Author

Kumar Saurabh, Ashutosh Saxena

Kumar Saurabh was Principal Architect and Head – Digital ITS (Innovation, Transformation and Solution) at CenturyLink, and Principal Architect and Head – Strategic Cloud Solutions group at Tech Mahindra. He has been Panelist, Chair, Keynote Speaker, Editorial Member, and Tutorial Presenter at various forums throughout the globe. He has authored multiple research papers published in various international and national journals and proceedings.

Ashutosh Saxena is an industry expert and academician with over two decades of experience, 90+ international publications with over 2000 citations, 31 filled patents out of which 27 are now US granted patents, and author of book PKI: Concept, Design and Deployment. His research interest is in the areas of information security and privacy. He has been a member of the review board for many international journals, conferences, and committees.

Table of Contents

Foreword

Preface

About The Authors

Special Acknowledgements

Chapter 1 Basics of Blockchain

1.1 Introduction

1.2 Concept of Blockchain

1.3 History

1.4 Definition of Blockchain

1.5 Fundamentals of Blockchain

- 1.6 Characteristics of Blockchain
- 1.7 Consensus in Trust-Building Exercise
- 1.8 Public, Private, and Hybrid Blockchains
- 1.9 Distributed Ledger Technologies
- 1.10 DLT Decentralized Applications and Databases
- 1.11 Architecture of Blockchain
- 1.12 Transactions
- 1.13 Chaining Blocks
- 1.14 Value Proposition of Blockchain Technology

Chapter 2 Decentralized System

- 2.1 Introduction
- 2.2 Distributed Decentralized Databases
- 2.3 Decentralized Enterprise
- 2.4 Decentralization
- 2.5 Disintermediation
- 2.6 Decentralized Enterprise Regulation

Chapter 3 Hash Functions

- 3.1 Introduction
- 3.2 Hashing
- 3.3 Message Authentication Code
- 3.4 Secure Hash Algorithms (SHA-1)
- 3.5 Secure Hash Algorithm Version 3
- 3.6 Distributed Hash Tables
- 3.7 Hashing and Data Structures
- 3.8 Hashing in Blockchain Mining

Chapter 4 Consensus

- 4.1 Introduction
- 4.2 Consensus Approach
- 4.3 Consensus Algorithms
- 4.4 Byzantine Agreement Methods

Chapter 5 Blockchain Components

- 5.1 Introduction
- 5.2 Ethereum
- 5.3 History
- 5.4 Ethereum Virtual Machine
- 5.5 Working of Ethereum
- 5.6 Ethereum Clients
- 5.7 Ethereum Key Pairs
- 5.8 Ethereum Addresses
- 5.9 Ethereum Wallets
- 5.10 Ethereum Transactions
- 5.11 Ethereum Languages
- 5.12 Ethereum Development Tools

Chapter 6 Cryptography

- 6.1 Introduction
- 6.2 Cryptography
- 6.3 Cryptography Primitives
- 6.4 Symmetric Cryptography
- 6.5 Asymmetric Cryptography

Chapter 7 Smart Contracts

- 7.1 Introduction
- 7.2 Smart Contracts
- 7.3 Absolute and Immutable
- 7.4 Contractual Confidentiality
- 7.5 Law Implementation and Settlement
- 7.6 Characteristics
- 7.7 Internet of Things
- 7.8 Utilities: Smart Grid
- 7.9 Proofs of Origin
- 7.10 Supply Chain Management
- 7.11 Medical Sciences
- 7.12 Finance
- 7.13 Media and Entertainment
- 7.14 Public Services
- 7.15 Legal Services
- 7.16 Darknet
- 7.17 The Future

Chapter 8 Bitcoins

- 8.1 Introduction
- 8.2 Working of Bitcoin
- 8.3 Merkle Trees
- 8.4 Bitcoin Block Structure
- 8.5 Bitcoin Address
- 8.6 Bitcoin Transactions
- 8.7 Bitcoin Network
- 8.8 Bitcoin Wallets
- 8.9 Bitcoin Payments
- 8.10 Bitcoin Clients
- 8.11 Bitcoin Supply

Chapter 9 Decentralized Applications

- 9.1 Introduction
- 9.2 Today's Web Applications Requirement
- 9.3 Mining in Blockchain Bitcoin
- 9.4 Blocks Validation and Identification
- 9.5 Bitcoins Creation
- 9.6 Mining Hardware
- 9.7 Mining Software
- 9.8 Running Miner Software
- 9.9 Executing Several Miners
- 9.10 Bitcoins Management

9.11 Reasons for Bitcoin Mining

9.12 Swarm

9.13 Robotic Possibilities

9.14 Sidechain Hopping

9.15 Blockchain Forks

Chapter 10 Blockchain Vertical Solutions and Use Cases

10.1 Blockchain

10.2 Blockchain in Insurance

10.3 Life Insurance and Claim Processing in Case of Death

10.4 Healthcare

10.5 Assets Management

10.6 Financial Institutional Assets

10.7 Smart Assets

10.8 Electronic Currency

10.9 Manufacturing

Chapter 11 Blockchain and Allied Technologies

11.1 Blockchain and Cloud Computing

11.2 Characteristics of Blockchain Cloud

11.3 Blockchain and Artificial Intelligence

11.4 Blockchain and IoT

11.5 Blockchain and Machine Learning

11.6 Blockchain and Robotic Process Automation

Annexure A When Blockchain Smart Contracts Need Large Files

Annexure B Ethereum Essentials: MetaMask and Remix

Annexure C Interview Questions and Answers

Annexure D Multiple-Choice Questions and Answers

Bibliography

Glossary Of Terms

Index

To purchase this product, please visit:

<https://www.wileyindia.com/blockchain-technology-concepts-and-applications.html>



Scan to buy