

A Beginner's Guide to Blockchain Technology and its applications

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Furthermore, we want to recognize the numerous individuals who have contributed to the field of blockchain technology, directly or indirectly. Their collective efforts have advanced the state of the art and provided the foundation upon which this book is built.

To all those mentioned above and the countless others who have supported us throughout this endeavor, we express our deepest gratitude. A Beginner's Guide to Blockchain Technology and its applications would not have been possible without your contributions, and we hope that this book serves as a stepping stone for readers embarking on their journey into the fascinating realm of blockchain technology.

PREFACE

Welcome to A Beginner's Guide to Blockchain Technology and its applications! This book is to present a detailed exploration of the adaption and implementation of blockchain technologies in real-world business applications. Blockchain is getting momentum in all the sectors that transact in huge numbers every day. This book covers all the aspects of the blockchain and it can be used at basic and intermediary levels by computer science postgraduate students, researchers, and practitioners. It presents the rapid advances made in the existing business model by applying blockchain techniques.

The potential benefits of the blockchain are more than just economic they extend into political, humanitarian, social, and scientific domains and the technological capacity of the blockchain is already being harnessed by specific groups to address real-world problems. How blockchain has developed a significant way for the in-depth integration of vertical industry and technology is presented in this book. Blockchain develops trust via a cryptographic process by permitting diverse groups to securely exchange information without the use of a central agency.

Blockchain technology permits the formation of currencies that are decentralized, self-operational digital smart contracts and intellectual digital assets that can be governed over the Internet. Blockchain also empowers the advancement of new management systems with more self-governing or shared decision pursuers, and decentralized enterprises that can function over a network of computing ecosystems without any manual interference.

Blockchain components and consensus protocols are briefly discussed in this book. The consensus in the blockchain is a way to ensure that nodes on the network verify the transactions and agree with their order and existence on the

immutable ledger. In a typical case of cryptocurrency, the process is critical to prevent double-spending and therefore the consensus mechanism plays an important role.

Cryptography is the core of blockchain technology. In this book covers the topic of cryptography to have a complete understanding on a blockchain. It also covers the primary cryptographic primitives. We are hopeful that this should be sufficient to understand the underlying cryptography principles in Blockchain.

This book is aimed who are eager to learn about A Beginner's Guide to Blockchain Technology and its applications. We have carefully crafted the content to provide a brief introduction to the concepts, walking you through the fundamentals step by step. By the end of this journey, you will have a solid understanding of various algorithms, their strengths and weaknesses, and the practical considerations involved in their implementation.

We would like to express our sincere gratitude to all those who have contributed to the creation of this book, from our families and friends for their unwavering support to the experts and reviewers who provided valuable feedback and insights.

We hope that the A Beginner's Guide to Blockchain Technology and its applications book will be useful not only to beginners but also to developers and architects of blockchain to help them solve real-world problems. May it empower you to explore, innovate, and create intelligent solutions that make a positive impact in your endeavors.

Happy learning!

Dr. K. Kalaiselvi
P. Sujarani

BLOCKCHAIN TECHNOLOGY

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