Chapter 8
Design Family Health Management System Based on Ethereum Blockchain Interaction With MyEtherWallet Using Solidity

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ABSTRACT

A family health management system deals with a safe and secure way of managing family member health details such as illness diagnosis, treatment, medical prescriptions, medical reports, and life insurance policies. All health records are encrypted and stored in chronological order utilizing blockchain technology so that authenticity, integrity, security, and privacy of the records are safeguarded. All stages of medical treatment are documented and stored for ease of future reference by the family. This becomes very handy if a person changes doctors and/or relocates to some other place/country for varied reasons. All the necessary health reports are shared with the life insurance company so that insurance claims become hassle free, if applicable. Medicine details are cross-verified with the manufactures to avoid fake drugs. This chapter explores the compatibility of using ethereum with the interactive MyEtherWallet to implement the proposed model.

INTRODUCTION

Emerging technologies, as described by Industry 4.0, include emerging business and financial possibilities for healthcare networks. As per the Computing Technology Industry Association (CompTIA), the world's top 10 emerging innovations in 2019 were the Internet of Things (IoT), artificial intelligence, 5/6g Networks, server-less Computing, Blockchain, Robots, Biometry, 3D Printing, Augmented Reality/Virtual Reality, and Drones

Blockchain technology is a peer network for transferring digital assets and data without any hassle intermediate technologies and supports the popular crypto currency bitcoin. Bitcoin was first announced in 2008 and implemented by Nakamoto in 2009 (Rayome, 2019). The chain will continue to grow when new blocks are added. All transactions occur in a decentralized manner, eliminating the need for any intermediaries to verify transactions (Tsai et al., 2016). Blockchain has some key features, such as decentralization, transparency, variability and adaptability. Blockchain operates in a decentralized environment and employs digital signatures, cryptographic hash and distributed core technologies, consensus mechanisms.

Figure 1. Blockchain architecture
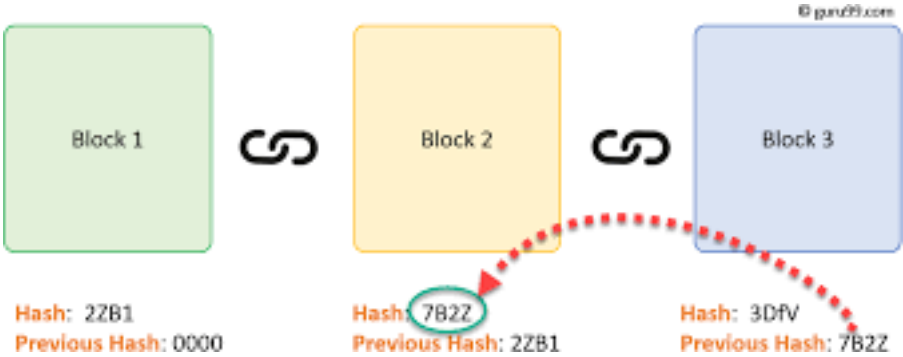
The blockchain network has a decentralized information system (Meng et al., 2018; Gipp et al., 2016) contain information about past transactions. It specifies the method for performing and checking transactions, as well as the overall functioning of the network and its participants (Mehdi et al., 2017). The term "distributed registry data" is often used to describe this network. Each node that works on a specific network is saved (Suveen et al., 2017; Ahram et al., 2017). The previous block hash record is used to connect transaction information to the chain on blockchain networks (Ovais, 2017).

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