CSP650-CS255-FEB2217

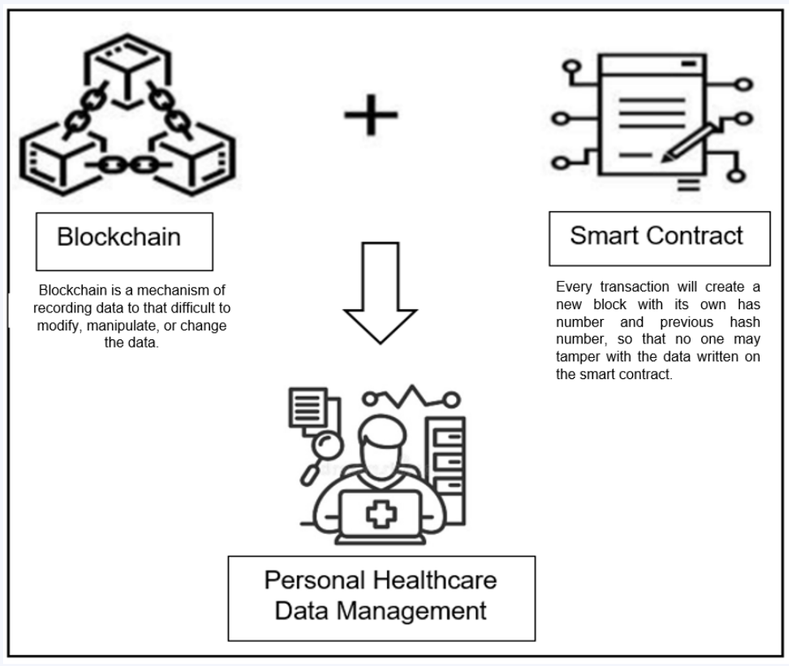
BLOCKCHAIN SMART CONTRACT FOR PERSONAL HEALTHCARE DATA MANAGEMENT

FACULTY OF COMPUTER & MATHEMATICAL SCIENCES

ABSTRACT

The digital revolution of healthcare has made medical services available to people all around the world. By introducing digital technology into the healthcare system, healthcare services can be accessible easily and quickly between medical facilities. Since it is a centralized system, there is a possibility that data will be leaked or modified for a number of reasons. New data-keeping technology named blockchain is one of the effective ways to solve these problems. Blockchain technology is a popular and recognizable technology to store data securely. Blockchain technology has been implemented in the personal healthcare data management that enhanced patient data and health record to be more secure and reliable. This project makes use of the Ethereum blockchain network and a Solidity smart contract. The smart contract is the code that handles most of the personal healthcare data management structure. This project accomplished the personal healthcare with fiction patient data utilizing smart contract in blockchain technology. The healthcare record transaction was recorded into blocks and can be observed. Furthermore, each block contains a hash value that connects it to the previous block, and these can improve the healthcare records' reliability. The transaction cannot be modified and only parties granted authorization can view the outcomes. Future studies can extend this work by complimenting the smart contract with full-stack development.

1. BACKGROUND



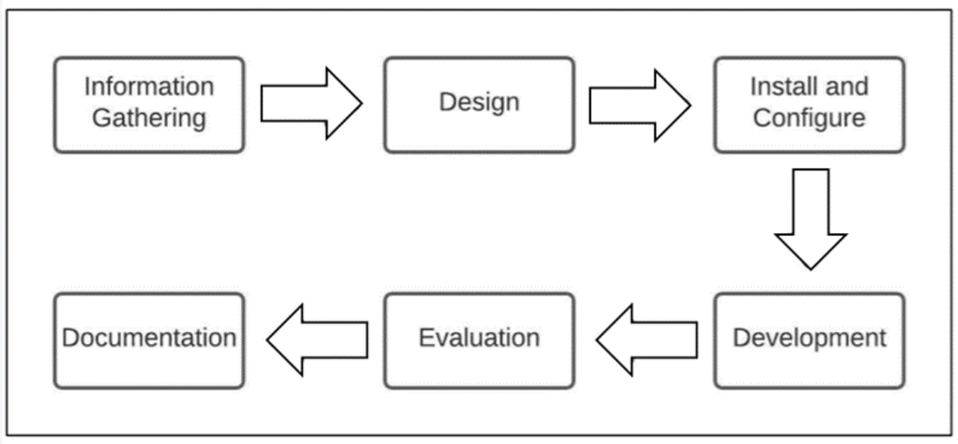
2. PROBLEM STATEMENT

- Currently, healthcare organizations save patient records, and medical notes using a centralized process.
- Since it is a centralized system, there is a possibility that data will be leaked or modified for many reasons.
- 41,404,022 patient records in the healthcare industry were affected due to a ransomware-related hacking incident.
- The hackers gained access to the database of the public health system and were able to remove or edit some data.
- Healthcare organizations convert a centralized system to a decentralized system.
- Unfortunately, it still has some limitations and issues such as decentralized storage and privacy leakage and the potential for information decay.
- The blockchain's smart contract secure features will significantly enhance the security of healthcare records and data management.
- The project is a decentralized approach that can avoid data modification and data will not be tempered easily.

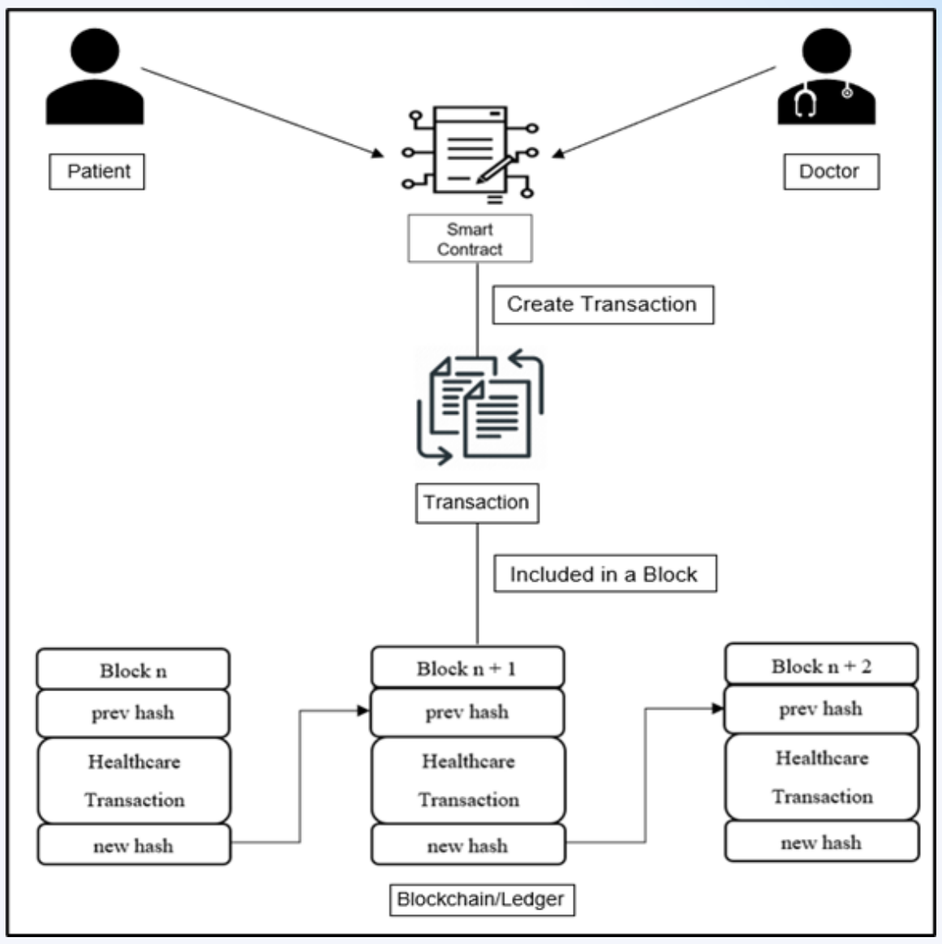
3. OBJECTIVES

1. To develop the blockchain smart contract for personal healthcare data management.
2. To test and evaluate the functionality of the blockchain smart contract for personal healthcare data management.

4. METHODOLOGY



5. FINDINGS AND DISCUSSION



6. CONCLUSION

As conclusion, the objectives of the project have been achieved. This project successfully implemented blockchain smart contract for Personal Healthcare Data Management. The blockchain technology could enhance and help personal healthcare data to be more secure and reliable.

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