



Medical report management & distribution system on block chain

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ABSTRACT

Generally, the Hospital operations involve a lot of medical reports which are an integral part of operations. Hospitals these days have increased their business by integrating pathology and other test labs within the hospital for efficient and fast reports along with increased business. Hospital operations include a variety of processes from patient admission, management, to hospital expense management.

This coupled with added services like pathology and pharmacy management increases operational complexity and also makes it difficult to track. So, to overcome this problem, we use a block chain technology to keep track of every single transaction with a 100% authenticity through the hyper ledger concept.

All transactions are secured by an encryption and stored as blocks to authenticate within a network of computers rather than a centralized server.

Moreover we use hyper ledger concept to associate and store all the associated medical documents associated with each transaction with date stamp. This allows verifying the authenticity of each report which will be detected if modified by any individual.

INTRODUCTION

Electronic restorative statistics (EMRs) are basic but very responsive to innate information for finding and treat human services, which have to be as often as viable disseminated and shared amongst pals, as an example, medicinal services suppliers, insurance agencies, drug stores, analysts, sufferers families, amongst others.

This represents a noteworthy take a look at on preserving a patient's medicinal history splendid. Putting away and sharing records among various elements, preserving up get admission to control through various assents just entangle the technique of a patient's treatment.

A affected person, experiencing a real sickness, as an instance, malignant increase, or HIV, wishes to preserve up the lengthy history of the remedy procedure and submit-remedy recovery and checking. Approaching a complete history might be crucial for his remedy: as an example, knowing the conveyed radiation quantities or research facility consequences is crucial for proceeding with the treatment

Implementation And Results

Admin

Admin can login with valid credentials; admin can add doctors, add receptionists, view doctors, view receptionists and view patients.

Receptionists

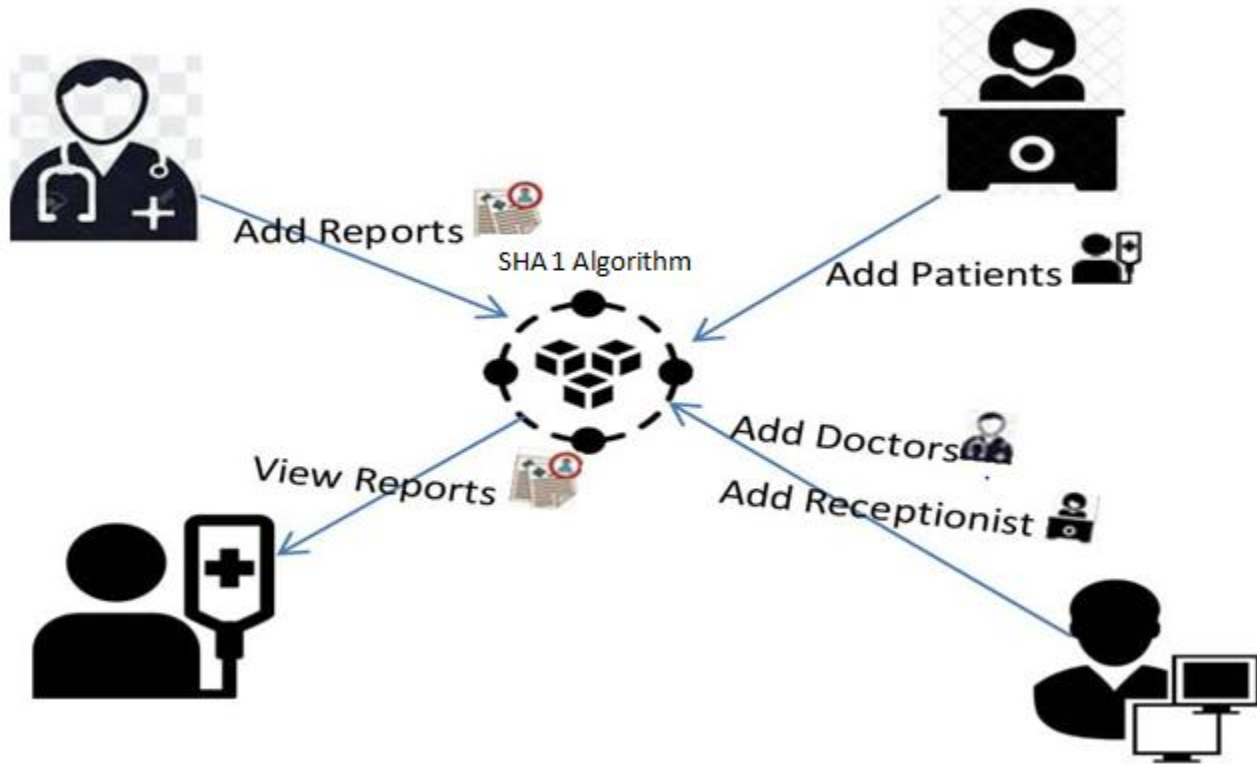
Receptionist can log in with provided email id and password, they can add patient's data and view patient details

Doctor

Doctor can login with provided email id and password, they can view patients and add patient's reports data, and also view reports

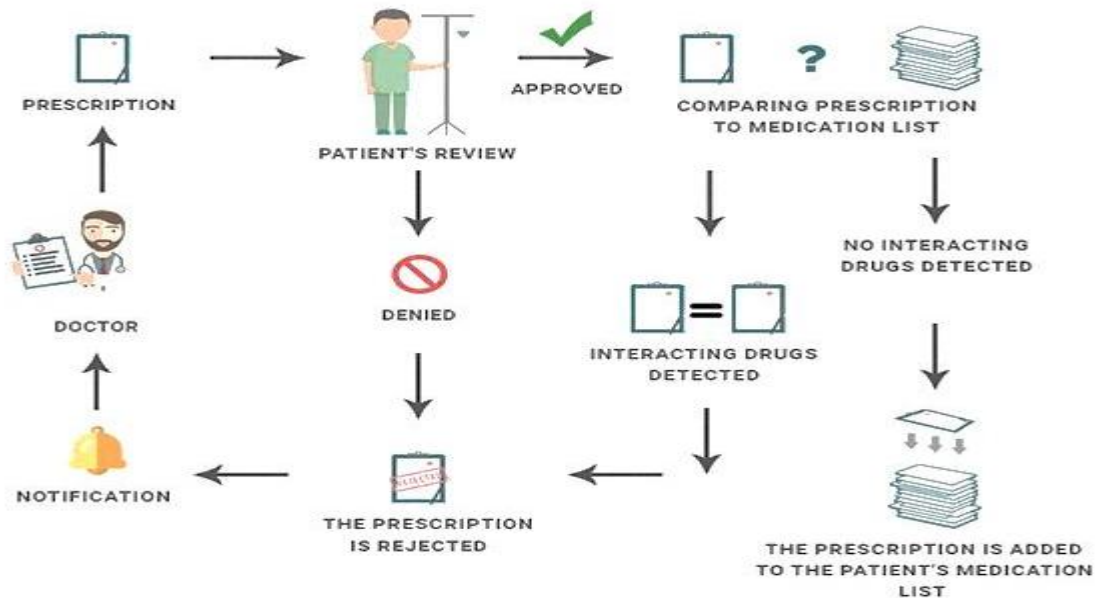
ARCHITECTURE

SHA 1 Algorithm



SHA1 in our Project and block diagram

1. The sha1 has we using for converting the reports to as into the blocks
2. The reports data can return to visualization to patients and doctors.
3. The admin has view all blocks of the patient data
4. The blocks data can available to check decode by the admin



Admin home



Fig no 6.9: Admin Home

Admin Home

Use case ID	MRMDSB-2
Use case Name	Home button
Description	Display home page of application
Primary actor	User
Precondition	User add doctor add receptionist, view doctor, view receptionist, view patient, logout.
Post condition	Displays the Home Page of an application
Frequency of Usage	One times
Alternative use case	N/A
Attachments	N/A

View Patient in SHA 1 Value

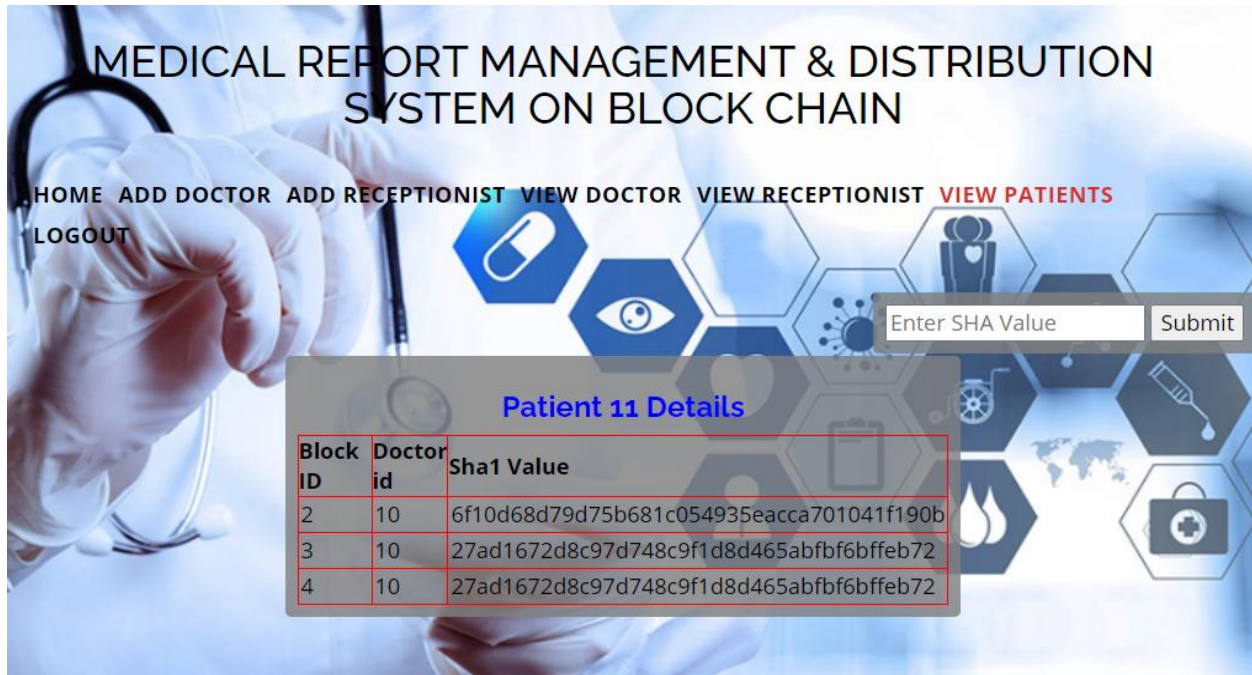


Fig no 6.23: View patient in SHA1 Value

My report

Use case ID	MRMDSB-16
Use case Name	View patient in SHA 1 Value button
Description	Display View patient in SHA 1 Value page of application
Primary actor	View patient in SHA 1 Value My report
Precondition	View patient in SHA 1 Value must open application
Post condition	Displays the View patient in SHA 1 Value (6f10d68d79d75b681c054935eacca701041f190b) Page of an application
Frequency of Usage	one times
Alternative use case	N/A
Attachments	N/A

SHA-1 ALGORITHM

SHA-1

The throughput of the algorithm solves the computational performance of the algorithm. The specific implementation formula is as follows: $T = (B * FMAX * N) / D$ (1) in equation (1), T is the throughput, B denotes the data block size, f is the maximum clock frequency, N is the pipeline series, and d denotes the calculation delay.[10] The number of pipeline series is proportional to frequency and throughput. In order to improve the throughput of the algorithm, the following is an

introduction to the optimization of SHA256, which can be extended to SHA1. SHA-1 is the most commonly used hash function in the family of application protocols including the Transport Layer Security (TLS), Secure Socket Layer (SSL), Pretty Good Privacy (PGP), Secure Shell (SSH), and the Internet Protocol Security (IPsec). SHA first pads the message data like MD5 to make its length a multiple of 512 bits, but it produces a 160-bit hash value[09]. The hashing operation involves 80 operations, each of which modifies the contents of five 32-bit registers A, B, C, and D. A SHA operation and consists of

A nonlinear operation F;

Left-circular shifts;

Addition (modulo 232) of constants {Ki}; and

$$(M_0, M_1, \dots, M_{15}) \rightarrow (W_0, W_1, \dots, W_{79})$$

$$W_i = \begin{cases} M_i, & \text{if } 0 \leq i < 16 \\ \sigma_1(W_{i-3} + W_{i-8} + W_{i-14} + W_{i-16}), & \text{if } 16 \leq i < 80, \end{cases}$$

CONCLUSION

As an age old saying goes "Health is Wealth" in the present scenario we can now consider in addition to health, health records are also wealth. So it is more important to keep our health records safe. The world has started moving towards patient-driven interoperability where patients provide the on demand access to their health records. In this model, the patient is considered as the sole owner to his health records who would decide on sharing what data and with whom. This drift from an institute-driven to patient driven comes with a bundle of challenges which are effectively addressed by Block chain by decentralizing the whole mechanism in contrast to the traditional way of data management. 200 health executives were interviewed by IBM's Institute for Business Value Block chain, of which 16 percent of people are ready to deploy commercial Block chain. As discussed above, Block chain does not just help in decentralizing the data, it also gives the real-time data access, keeps the data confidential, handles high volumes of data efficiently, and also authenticate and authorize the data.

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