A Synopsis on

Electronic Health Records Using Blockchain (Healthchain)

Submitted in partial fulfillment of the requirements
of the degree of

Bachelor of Engineering

in

Information Technology

by

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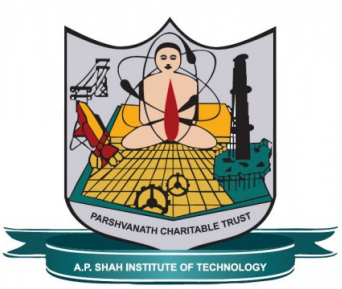

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CERTIFICATE

This is to certify that the project Synopsis entitled ***"Electronic Health Records Using Blockchain(Healthchain)"*** Submitted by ***"Sanjana Nalawade (17104056),Sitanshu Mathukia (18204004),Kunal Jadhav (17104026)"*** for the partial fulfillment of the requirement for award of a degree ***Bachelor of Engineering*** in ***Information Technology.***to the University of Mumbai,is a bonafide work carried out during academic year 2019-2020

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Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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(Signature)

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Abstract

Maintaining and carrying all the health reports becomes quite difficult and hectic for an individual. Also it uses a huge amount of paper, which has a possibility of getting lost, being damaged and also affects the environment. While centralizing these documents might lead to scarifying privacy and security. Decentralizing Health Records Electronically through Block Chain is the answer to all these issues and is also efficient cost wise as well as performance wise. EHR is basically decentralized database maintaining Health record of every individual, connected to doctors, medical chemists and insurance vendors controlled by patients.

Introduction

Blockchain technology has the potential to transform health care by placing the patient at the center of the health system and increasing the security, privacy, and interoperability of health data. This technology could provide a new model for health information exchange (HIE) by making electronic health records (EHRs) more efficient and secure. EHRs contain critical and highly sensitive private information for diagnosis and treatment in healthcare. These data are a valuable source of healthcare intelligence. The sharing of healthcare data is an essential step toward making the healthcare system smarter and improving the quality of healthcare service.

Objectives

- Collaboration Among Healthcare Organization : Blockchain makes this possible by giving the healthcare industry one consistent, standard database of real-time patient data to work with.
- Safe Data Exchanges : Blockchain makes the data safe and also provides comprehensive data sharing options, allowing patients to unlock only the data that their healthcare providers need and keeping rest of the data private and secure.
- Valuable Insights for Better Care One of the complications of EHRs is the huge amount of data that is created every day. It can be a very tedious task for doctors to go through this vast data every time and might also lead to missing important data in between.
- Complete Healthcare services which included appointment scheduling , video calling, storing of electronic health records

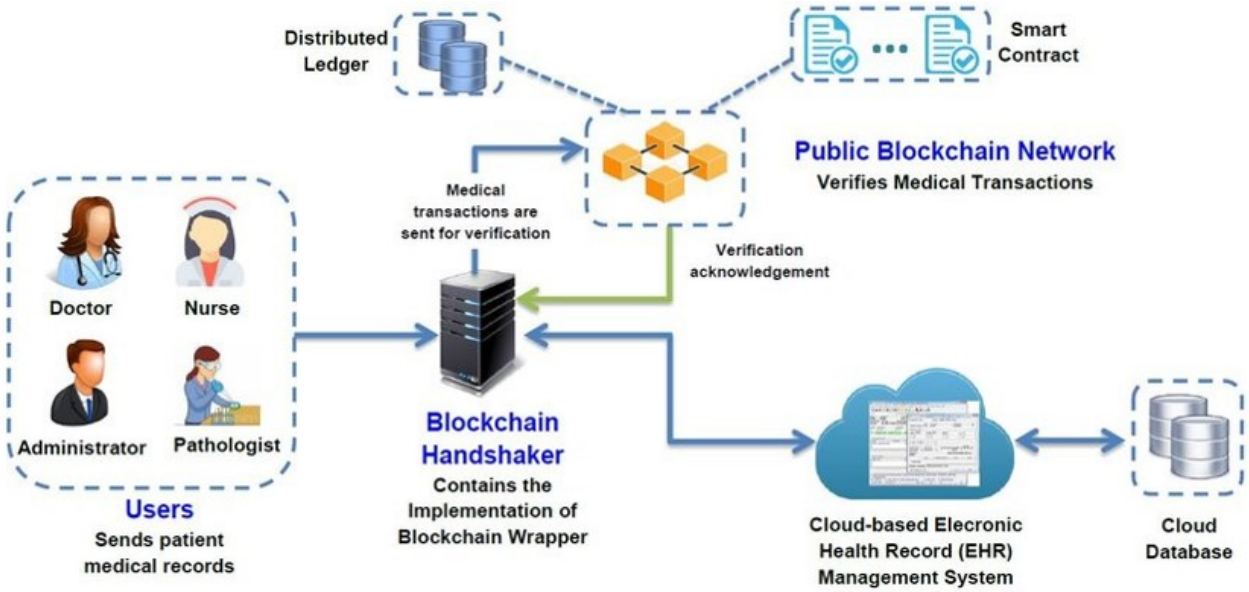
Literature Review

As Block Chain is a new technology, it overcomes many disadvantages and is more efficient, Block Chain already has a ready market. It has an upper hand in security as compared to other technologies. Maintaining Electronic Health Record is one of the main applications of Block Chain, here the patient has the complete control, hence complete privacy is implicated. The easy to use, efficiency, security and easy access increases the market.

Problem Definition

Health care sector faces major problem of centralization and communication between various entities. Patient's Data is redundant on individual databases of various organisations, also the security of this data is compromised if the database faces any errors.
Blockchain have been an interesting research area for a long time and the benefits it provides have been used by a number of various industries.Similarly, the healthcare sector stands to benefit immensely from the Blockchain technology due to security, privacy, confidentiality and decentralization.The aim of our proposed idea is firstly to implement Blockchain technology for EHR, secondly to provide secure storage of electronic records by defining granular access rules for the users of the proposed idea and thirdly to provide data for research and development.

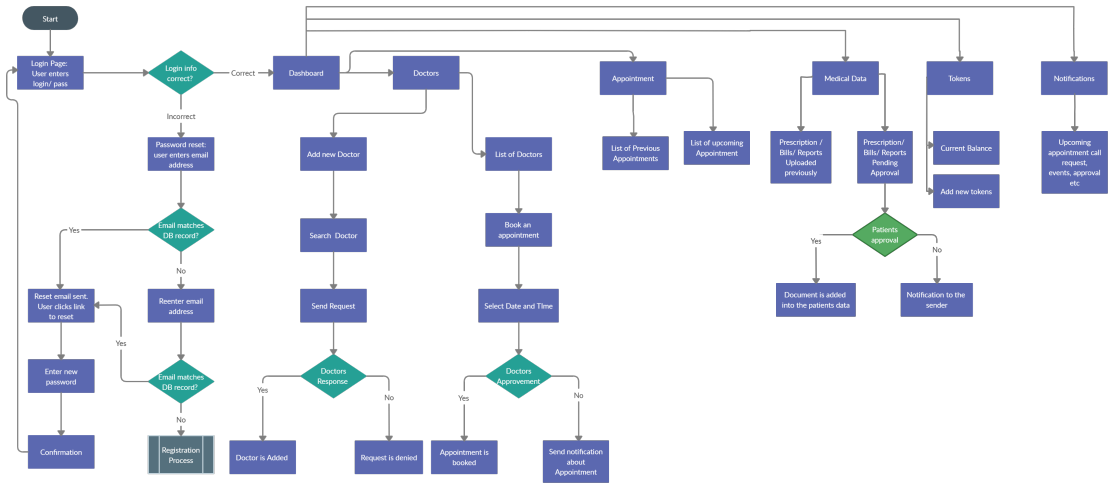
Proposed System Architecture/Working



Work Flow of Entities

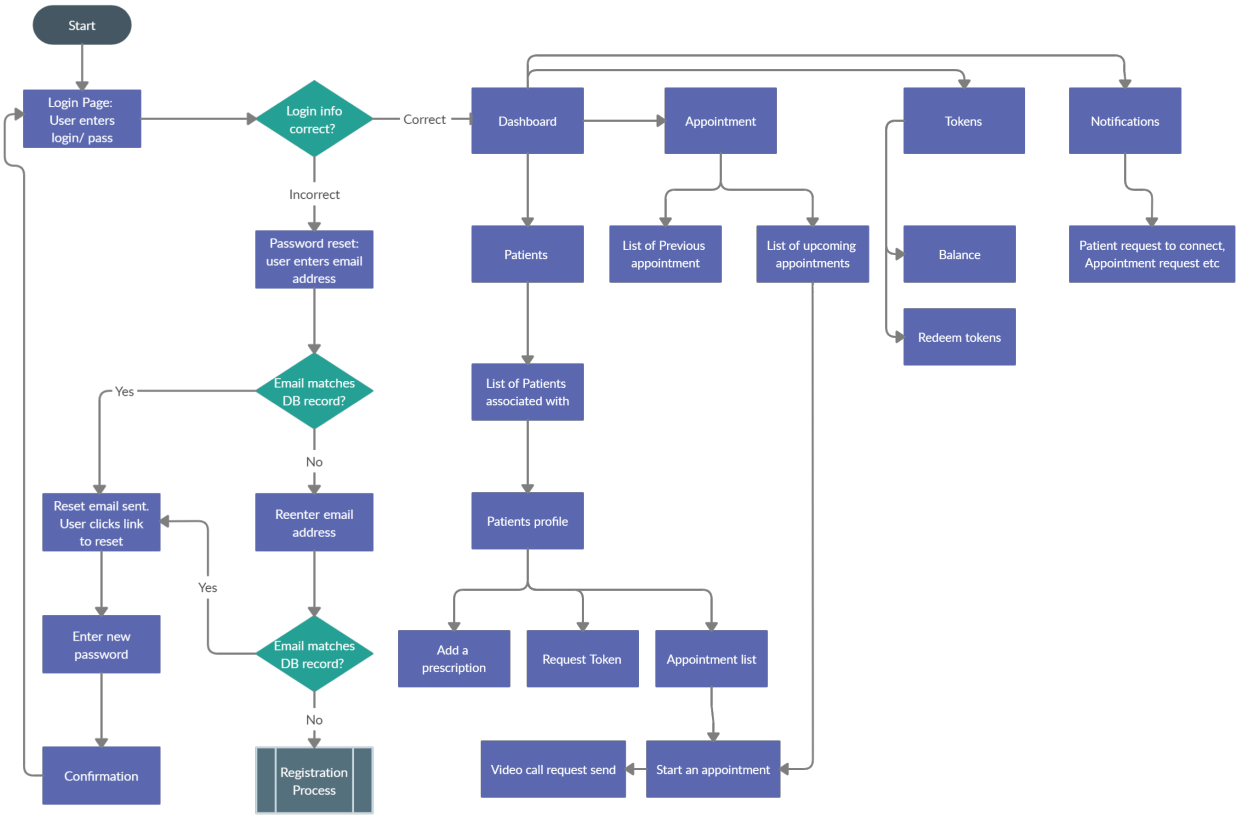
Work Flow of various entities in project, patient, doctors, insurer etc are explained below

1. Patient



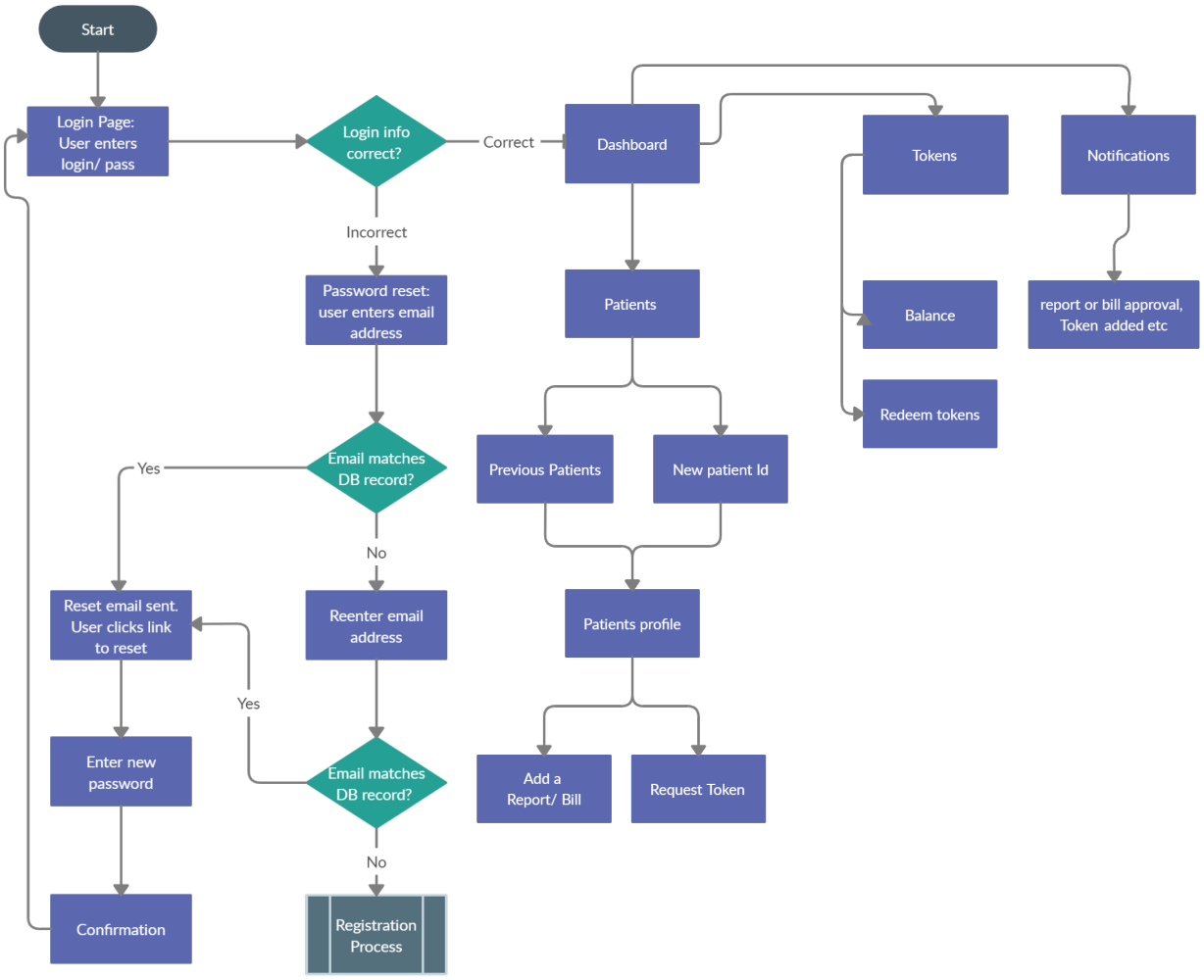
1. User need to login to the portal
2. On incorrect credentials the user needs to proceed with forgot password
3. On correct credentials the user has now the Dashboard View
4. In the Dashboard the user can add Doctors to the profile by sending them request, booked an appointment, and also join the appointments on doctors initialization.
5. Also, in the Dashboard the user can also view previous and upcoming appointments
6. Medical Data consist of Pending approvals for prescriptions, bills, reports and also the previously approved bills.
7. Tokens consist of the current user balance also the user can add new tokens if required
8. Notifications consist of notification regarding approval, appointments etc

2. Doctor



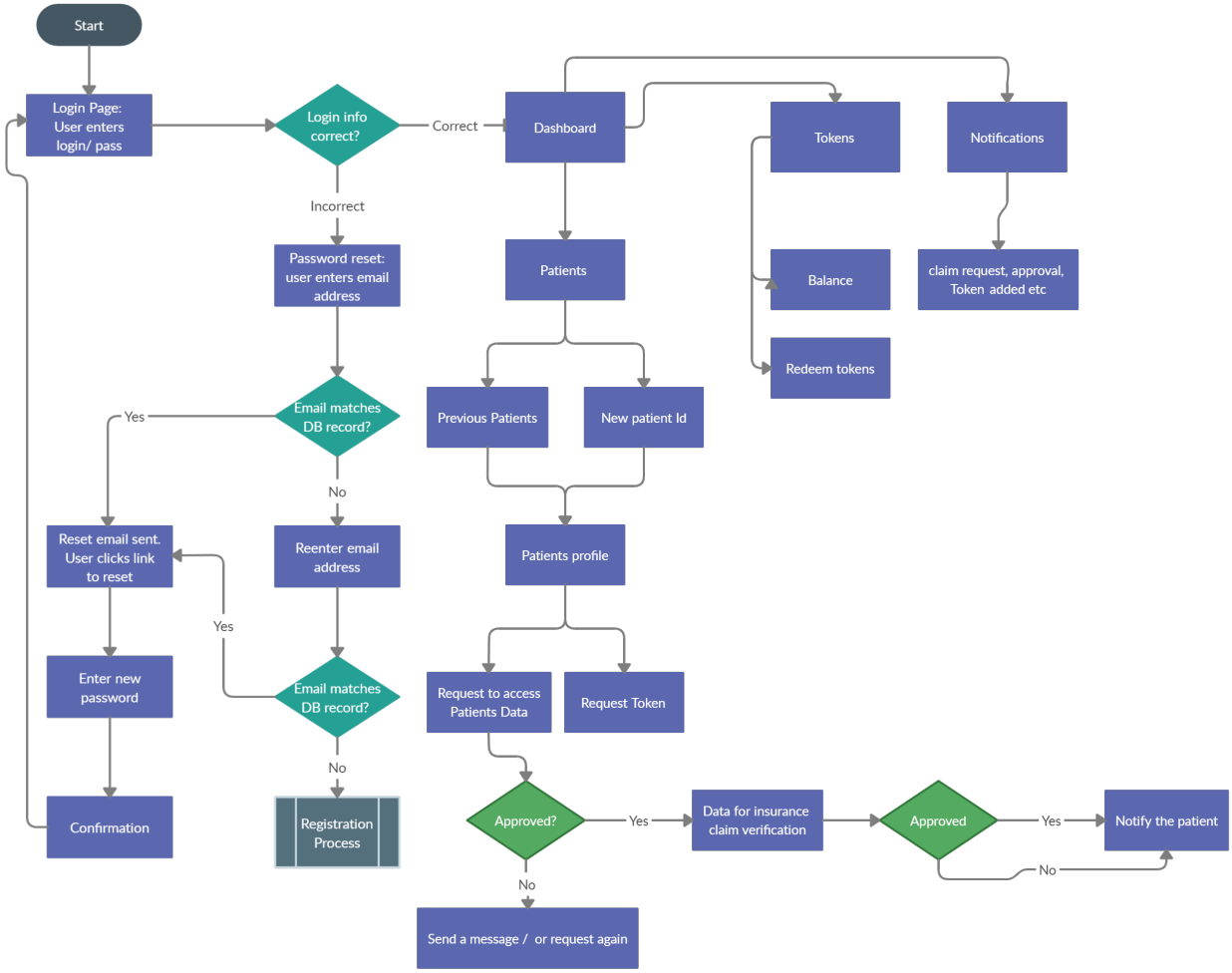
1. Doctor needs to login to the portal
2. On incorrect credentials the doctor needs to proceed with forgot password
3. On correct credentials the doctor has now the Dashboard View
4. In the Dashboard the doctors can view Patients information like list of patients their profiles , can also add prescription to their profile, request tokens , and can also the section to accept appointments and start the video or call appointments
5. Also, in the Dashboard the doctors can also view previous and upcoming appointments
6. Tokens consist of the current user balance also the user can redeem tokens if required
7. Notifications consist of notification regarding approval, appointments etc

3. Labs



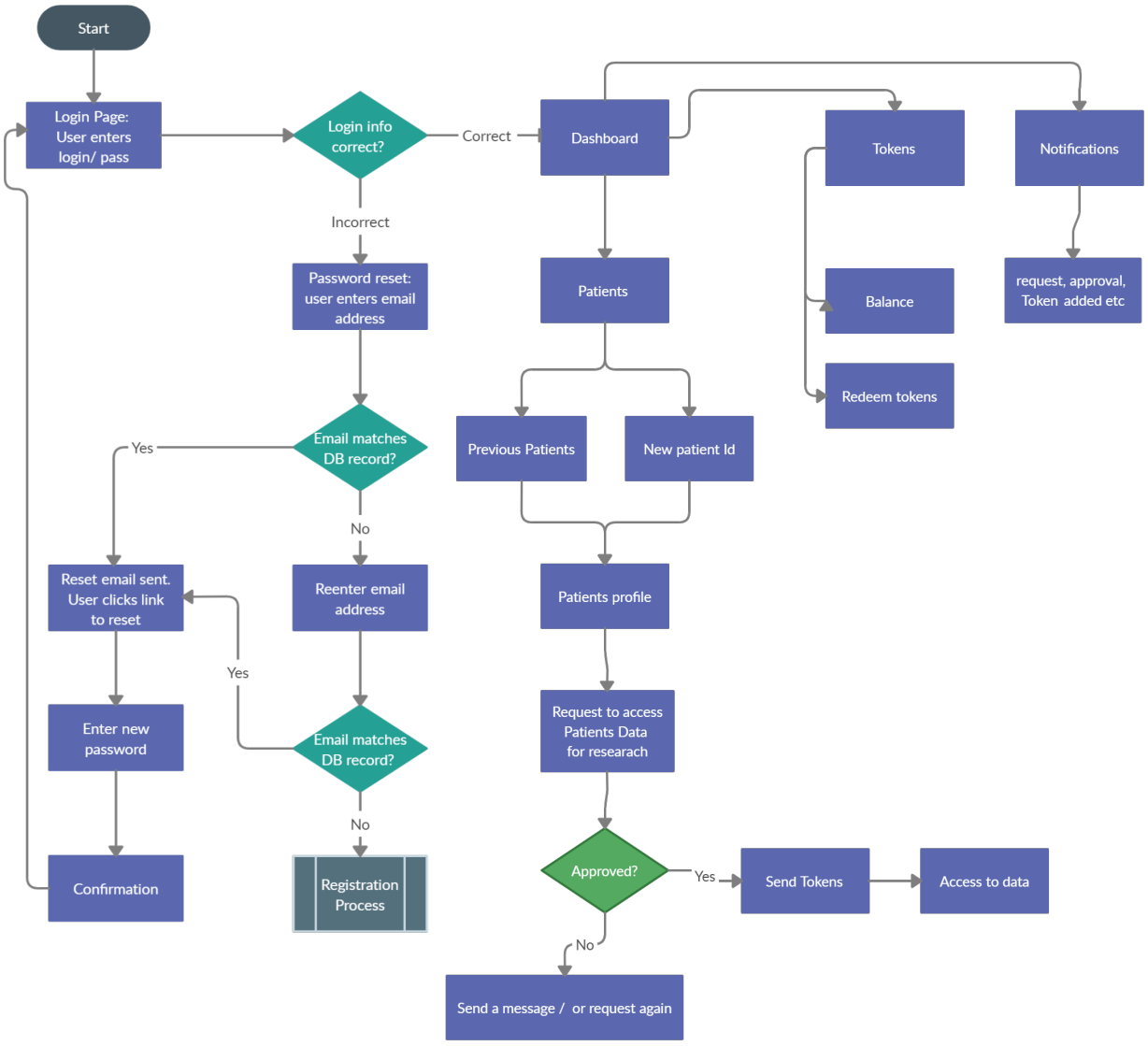
1. Lab user need to login to the portal
2. On incorrect credentials the user needs to proceed with forgot password
3. On correct credentials the user has now the Dashboard View
4. In the Dashboard the User can view Patients list, can also add new patients, add new reprots or bills and can also request tokens.
5. Tokens consist of the current user balance also the user can redeem tokens.
6. Notifications consist of notification regarding approval, tokens etc

4. Insurer



1. Insurer need to login to the portal
2. On incorrect credentials the user needs to proceed with forgot password
3. On correct credentials the user has now the Dashboard View
4. In the Dashboard the Insurer can view Patients list and can also add new patients and view their profiles, they can request access to the patients data for approving the insurance and can also request tokens.
5. Tokens consist of the current user balance also the user can redeem.
6. Notifications consist of notification regarding approval, tokens etc

5. Pharmaceutical Companies



1. Company users need to login to the portal
2. On incorrect credentials the user needs to proceed with forgot password
3. On correct credentials the user has now the Dashboard View
4. In the Dashboard the User can view Patients list and can also add new patients and view their profiles, they can request access to the patients data for research and can also send tokens for the same.
5. Tokens consist of the current user balance also the user can redeem.

6. Notifications consist of notification regarding approval, tokens etc

Summary

The work presented in this report is about the Electronic Health record using Block chain (Healthchain), which aims to solve the current digital problems in healthcare sector by providing, centralisation, security, and by providing features like video call, so that Healthchain is the one stop application for all your health documents and services.

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