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Digital Healthcare Application

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Abstract: *The population of the world is multiplying with each coming year and so are the diseases and health issues. There is a rise in the need for blood as the population grows. There are many potential blood donors thanks to the world's expanding population. Blood banks play an important role in the process of collecting blood and managing blood stocks, approving blood requests, updating donations, and updating available blood types. The use of digital healthcare software makes it easier for patients and healthcare professionals to communicate with one another. With the help of this function, medical professionals such as doctors and therapists can interact intimately with their patients and provide them with very individualized health information. The software system is an online healthcare management system that helps in managing various blood banks and healthcare operations effectively. The project comprises a central repository with a variety of blood deposits and related information. These particulars include blood type, storage location, and storage date. These specifics aid in preserving and keeping an eye on the blood deposits. The project is an online system that enables users to determine whether the blood bank has the required blood deposits for a specific group. Moreover, the system also has added features such as patient name and contacts, blood booking, and even use for certain blood groups provided in case of emergency. Also, the project has various other health care facilities like providing contact of hospitals with dialysis services, booking blood test schedules online scheduling of appointments, ambulance services, and ventilator services.*

Key Word: *Flutter, SQL, Languages, Database*

I.INTRODUCTION

This online system is developed on the Flutter platform and supported by an SQL database to store blood and user specific details. Through this project, we hope to show how My SQL operations like creating, reading, updating, and deleting are used. This project contains adding details of the doctor. Once, registration is done doctor and registered candidate/patient can add blood donor/receiver details with blood group, quantity, age, etc. Now, when a patient requires blood, clinicians may quickly determine the available blood type and give it to the recipient. The project will also provide details about the blood camps so that number of people can participate in a good cause and save many people's life. Online scheduling enables individuals to securely and conveniently book their appointments via tablet etc. The online booking of appointments will also provide reminders through notifications and emails, which will be sent to patients or individuals on the date booked before their scheduled time of booking. Users who have an android phone & active internet connection can be contacted. Digital healthcare is an android application providing various healthcare services in minimum time and money. The advantages of this project are- time savings, monetary savings, 24 hours convenience, online booking of appointments, centralized information system. These problems can be dealt with by automating the existing healthcare management system. A high-end, efficient, highly available, and scalable system that bridges the gap between the patients/users and the healthcare recipients to reduce the efforts required in search of healthcare services.

II.OBJECTIVES

The primary goal of this project is:

- **Enabling affordable universal access** to the best possible*("right" level of)*healthcare*(services)*for all;
- **Making the ways to achieve this goal, a.k.a. healthcare systems, sustainable and affordable** for society *(local, regional, national, supra-national),* so for both healthcare payer, healthcare payee as well as for people involved in care who are still often over looked;
- **Educating and empowering people in a measurable way to prevent** diseases, provide care when needed and activating circles of support;
- **Enabling a faster diagnosis and insights/decisions** based upon information to avoid far too many cases where speed could have made a critical decision;
- **Putting people first**: patients and their relatives, healthcare workers, anyone involved in prevention and care– technology should also beat their service, not the other way around;
- **Bringing the various stakeholders in any healthcare system together** to find collaborative and innovative ways to move beyond experiments and realize sustainable and effective solutions to address the changing and well-documented needs for health care to day and in the future;
- **Enhancing the quality** of healthcare delivery and its outcomes;

- **Improving patient-centricity** in the full and true sense of the term,(which also means personalization and a recognition of the emotional and social factors since health as such is a holistic given)with a better patient satisfaction;
- **Enhancing staff satisfaction**: automation and digitization need to be truly enabling and augmenting capabilities and quality of work and interaction with patients;
- **Enabling distributed and hybrid care** delivery models where by digital healthcare approaches allow to allocate resources, tasks and even the overall infrastructure including healthcare facilities. Coordination and exchanges between all stakeholders *(professionals on various levels, professionals and patients in both directions)*are essential to make this succeed;
- **Developing innovative healthcare ecosystems** with a place for new players and entities, including those that know how to position their often-digital offerings in an integrated multi-disciplinary approach that makes sense and respects the needs, behaviour and demands of other partners, patients, healthcare payees and payers, and regulators.
- **A digital transformation of healthcare** that respects the key stakeholders, as well as their privacy and integrity, and that is bold enough to collaboratively gauge what is needed, what hasn't worked, what is hype and what brings value, where change is needed to improve quality, availability and value of care, what needs to be stopped and what is worth replacing or adding from the vast landscape of digital healthcare evolutions – in a measured and as unbiased possible way, resisting pressure from interest groups that don't want to see change happening where it is needed.

III.PROPOSED SYSTEM

The technology used in our project is flutter which is an interface for application development and in which we work on Dart language. In general, developing a mobile application is a complex and challenging task. There are many frameworks available to develop a mobile application. Android provides an ative framework based on Java language and IOS provides a native framework based on Objective-C / Shift language. However, to develop an application supporting both the OSs, we need to code in two different languages using two different frameworks. To help overcome this complexity, there exists mobile frameworks supporting both OS. Flutter a simple and high-performance framework based on Dart language, provides high performance by rendering the UI directly in the operating system's canvas rather than through native framework. Flutter also offers many ready to use widgets (UI)to create a modern application. These widgets are optimized for mobile environment and designing the application using widgets is as simple as designing HTML. To be specific, Flutter application is itself a widget. Flutter widgets also supports animations and gestures. The application logic is based on reactive programming. Widget may optionally have a state. By changing the state of the widget, Flutter will automatically(reactive programming) compare the widget's state (old and new) and render the widget with only the necessary changes instead of re-rendering the whole widget. Flutter is different from other frameworks because it neither uses Web-View nor the OEM widgets that shipped with the device. Instead, it uses its own high-performance rendering engine to draw widgets. It also implements most of its systems such as animation, gesture, and widgets in Dart programming language that allows developers to read, change, replace, or remove things easily. It gives excellent control to the developers over the system.

User Database

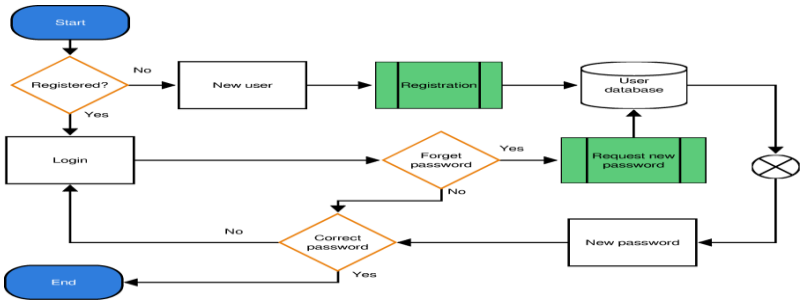

Fig. 1. Implementation Diagram

A database is a structured collection of data that can be electronically accessed from a computer system and facilitates data storage and manipulation. Data can be arranged into tables, rows, columns, and indexes. Data administration is simplified by it. Numerous items, including name, age, photo, image, file, PDF, and more, can be stored in a database. Every software contains data that needs to be managed, and data bases are used to store that data. Although the user inputs data into the software in an unstructured fashion, the database manages it in an organized manner. The output from databases is structured. Users will find that's imple to understand. To interact with the database, Flutter offers a variety of packages. SQLite database and Fire base database are the most utilized and well-liked programs. A well-liked database software library called SQLite offersa relational database management system for client/local storage. It has features like a self-contained, server-less, zero-configuration, transactional SQL database engine and is a lightweight, tried-and-true database engine. The Flutter SDK does not directly support SQLite. Instead, it offers a plug in called SQLite that works similarly to the SQLite library to conduct all database operations.

Donor Details

- Most people can give blood if they are in good health. There are some basic requirements one need to fulfill in order to become a blood donor. Below are some basic eligibility guidelines:

- Age should be in between 18 and 65.
- In some countries national legislation permits 16–17 year olds to donate provided that they fulfil the physical and hematological criteria required and that appropriate consent is obtained
- You weigh at least 50kg.
- In some countries, donors of whole blood donations should weigh at least 45 kg to donate 350ml
- Donor will submit their information, which will be directly saved in our database, such as their blood type, name, birth date, phone number, etc.

Ventilator Services

A medical ventilator is a device that supports the function of your lungs. If you have a medical condition that makes it difficult for you to breathe properly or when you are completely incapable of breathing ony our own, it may be a life saving device. Through our application user can know that where are the ventilator available. Respiratory failure is the medical term for being unable to breathe correctly ony our own and is a serious emergency. Your brain, heart, liver, kidneys, and other organs won't be able to perform as they should if they don't receive enough oxygen. You can acquire the oxygen your organs require by using a ventilator.

Finding Blood group easily

As there will be many donors present, the user can find their desired blood group with ease. The consumer can ask for them or get in touch with them. The page containing the list of donors with their blood groups listed will open after the user enters the type of blood they desire. The user can tap on the donor they think is best and get in touch with them immediately.

Finding Nearby Hospital

You can maintain your quality of life by having access to high-quality healthcare close by. The ease of routine check-ups, peace of mind during emergencies, and reduced travel time can all beat tributed to living close to a hospital. Had a persistent illness? Or simply health conscious? You'll like having quick access to a group of experts. There is no need to go across the province when you live close to a top hospital. Our application will help user to get the list of hospital that is closest to them so that in case of emergency they should not waste their time in searching of the hospitals.

Ambulance Service

Our program will offer ambulance services, allowing users to summon an ambulance without wasting time looking for one. User time and energy will be saved by this. Pre hospital medical treatment or an emergency response can both be used to describe ambulance services. An ambulance is the appropriate option to take when someone needs medical attention, especially after hours because it keeps the hospital facilities in the loop. There are certain emergency protocols that must be followed while moving a patient from their home to the hospital or from one hospital to another. And the only medical professionals qualified to provide emergency care are the paramedics who work for the ambulance service. They can offer the urgently needed medical assistance.

IV. EXPERIMENTAL RESULT

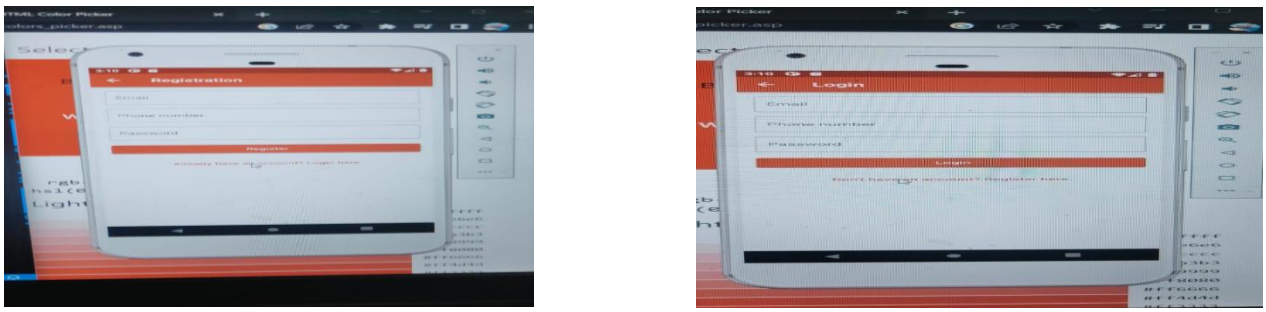

Fig. 2. Login and Signup page

Digital health refers to the usage of digital technologies to enable universal healthcare access, improve healthcare quality/outcomes and enhance the health and physical and emotional well- being of populations. Technologies are being used to listen in onpatient-doctor conversations and record everything in a comprehensive file. This saves a doctor's time from taking notes, allows for shorter visits, and shortens the wait time in the normally long lines outside the doctor's door. An innovative game-changer has been the integration of technologies into the health care sector. Technology enhances the knowledge of skilled medical professionals with extra layers of real-time data, information, and insights, allowing for increased precision and a reduction in errors. Medical personnel are able to quickly treat more patients with the use of technology, which may instantaneously supply information on the patient's past and present health as well as make ideas that might help in diagnosis the most innovative.

V.CONCLUSION AND FUTURE SCOPE

There are currently numerous studies on healthcare facilities or providing healthcare facilities via digital media. However, even though there are numerous ways to obtain blood, health care services, many people still struggle to do it on time. Most of the systems work only for particular facilities and not for special blood groups or services as a whole and most of them don't have a centralized form of system. Some of their work is only for donors and some only work for blood bank and some of them only work for different facilities. So, it is necessary to make a system that combines all these healthcare facilities in a single system so that people can easily access those facilities just by using this application.

The proposed project will help the blood bank administrator or the hospital administrator to meet the demand of patients/users by providing the request when required. This application will provide a common ground for all three parties (recipient, healthcare service provider, and admin).

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