MediQ: Facilitating Access to Healthcare with Smooth Local Pharmacy Integration

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***Abstract*— A state-of-the-art project created with the Flutter framework and Firebase backend infrastructure is the "MediQ" mobile application. Its main goal is to increase the accessibility and simplicity of healthcare by enabling users to quickly search for specific drugs and easily find nearby pharmacies that offer the necessary meds. This project creates a strong and secure backend for managing data about medications and pharmacies by easily integrating Firebase. The main database, Firebase Firestore, contains vital data about medications and the pharmacies that carry them. To further improve user experience and guarantee data security, Firebase Cloud Functions, Firebase Authentication, and Firebase Hosting may be included. Firebase Firestore queries are used internally to retrieve information about pharmacies that have the searched**

Indexed Terms- Firestore, Seamlessly, Robust, User-interface.

I. INTRODUCTION

A forward-thinking mobile application called "MediQ" was developed utilizing Flutter and Firebase. Its main goal is to make it easier to search for prescriptions and find local pharmacies that carry them. This intuitive app is a big step in the right direction toward increasing the convenience and accessibility of healthcare. When a user enters the name of a specific medication that they need, "MediQ" uses Firebase's resources to quickly retrieve and present a list of local pharmacies that carry the specified medication. The user-friendly interface of the program guarantees a seamless experience, enabling people to conveniently obtain necessary healthcare supplies. The project uses Firebase as its backend architecture, which guarantees strong data security and administration. Important information regarding medications and the pharmacies that sell them is kept in Firebase Firestore. To further improve user experience and data security, Firebase Cloud Functions, Firebase Authentication, and Firebase Hosting may all be combined. "MediQ" represents a practical application of technology to address real-world healthcare challenges, going beyond simple technological advancement. It ensures that consumers can quickly and easily find the prescriptions they need by combining the strengths of Firebase for effective data processing and Flutter for cross-platform smartphone development. In conclusion, "MediQ" is an effective tool for enhancing accessibility to healthcare, offering a real-world example of how to use Firebase and Flutter to make the industry more user-centric and accessible. The main goal of the "MediQ" initiative is to close the gap between those looking for necessary prescription drugs and the closest pharmacies carrying those drugs, with an emphasis on enhancing the ease and accessibility of healthcare. By offering a quick and easy way to look for individual prescriptions, this ambitious project hopes to empower consumers and cut down on the time and effort needed to locate necessary pharmaceuticals.

II. EXISTING SYSTEM

PharmEasy: In order to improve healthcare accessibility and convenience for users in India, the main goal of the PharmEasy application is to make it easier for people to order and receive medications online. It also offers healthcare services, such as virtual doctor consultations and diagnostic test bookings.

Netmeds: The primary function of Netmeds, an online pharmacy and healthcare platform, is to provide users with easy access to a variety of pharmaceutical and healthcare products, including prescription and over-the-counter medications. Users can purchase, manage, and receive medications and healthcare products from

the comfort of their homes, and the platform also offers services like lab tests and telemedicine consultations to further improve healthcare accessibility and convenience.

Apollo Pharmacy: Apollo Pharmacy is a chain of retail and online pharmacies connected to Apollo Hospitals. Its mission is to ensure the well-being and convenience of its customers while maintaining the reliable healthcare standards and experience of the Apollo brand by making a wide range of high-quality pharmaceutical and healthcare products, medications, and wellness essentials easily accessible.

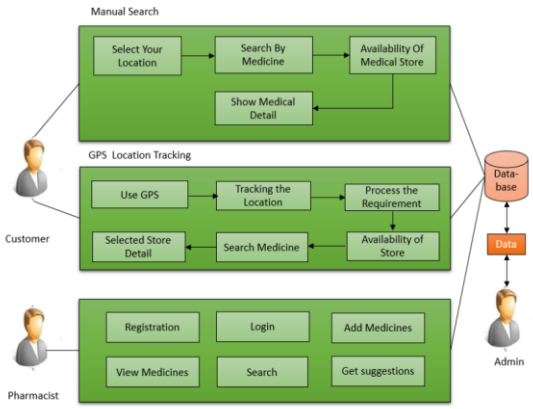
III. PROPOSED SYSTEM

The "MediQ" project's suggested solution, a Flutter and Firebase-based application for medication search and pharmacy location, is made to effectively handle the difficulties people have finding nearby pharmacies and getting access to necessary prescriptions. The user-friendly mobile application created using the Flutter framework forms the basis of the suggested system. The main tool used by users to look for prescription drugs and locate pharmacies in the area is this app. With the help of the application's powerful search function, users can look up certain pharmaceuticals by name. The search function looks for current details on medications, such as availability, costs, and pharmacy locations, from the Firebase database. The system incorporates geolocation technologies to make drugstore location easier.

By using the GPS on their device, users may locate local pharmacies that have the drugs they are looking for. Accurate results are produced by using geolocation data. The backend technology of the system is Firebase, while data storage is handled by Firebase Firestore. By storing data regarding prescription drugs, pharmacies, user accounts, and real-time changes, it guarantees effective data synchronization and management. User authentication is supported by the system to improve security and customize the user experience. In order to track orders, store preferences, and get customized recommendations, users can register and establish profiles.

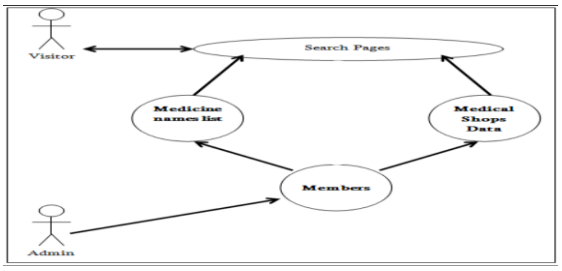
In conclusion, the "MediQ" system that has been suggested is a thorough and user-focused solution that makes finding medications and pharmacies easier, improves accessibility to healthcare, and uses technology to make the entire medical experience better.

IV. SYSTEM ARCHITECTURE



The "MediQ" system architecture consists of a mobile application built with Flutter that communicates with a Firebase backend. Through the user-friendly app, users may search for medications and use geolocation features to find pharmacies in their area. Firebase Authentication oversees user accounts, whereas Firebase Firestore maintains prescription drugs, pharmacy information, and user data. Accurate information about medicine availability is ensured via real-time data updates. Medication reminders, safe payment integration, a health information area, and the ability to schedule diagnostic tests are optional features. System functionality is ensured by quality assurance and testing, with help from user support and training. By streamlining prescription searches, improving pharmacy locations, and utilizing technology to provide a user-centric healthcare experience, this architecture aims to expedite healthcare access.

V. DATA FLOW DIAGRAM



The data flow diagram shows how users explore, request data, and complete transactions in our flutter-based application by illuminating the dynamic interactions among components.

VI. WORKING

Using Flutter and Firebase technologies, the "MediQ" project functions as a user-centric mobile application that is intended to simplify the process of looking up certain prescriptions and finding nearby pharmacies. The procedure is started by users opening the "MediQ" mobile app, which has an easy-to-use interface. After that, they can use the search function to enter the name of a prescription drug. The program makes a query to the Firebase database to obtain up-to-date details about the medication, such as its costs and availability at neighboring pharmacies.

The app uses geolocation services to figure out the user's position in order to improve user experience. This allows the app to give precise information about nearby pharmacies that carry the drug that was searched for. In order to guarantee prompt access to necessary healthcare goods, this information is vital. Users may track orders, record preferences, and receive personalized suggestions thanks to user identification and account management, which also ensures data security and personalization.

Users are guaranteed to obtain the most recent information regarding drug availability thanks to real-time data synchronization with Firebase. The app's dependability and functionality are ensured through quality assurance and testing processes. To properly use the app, users can get assistance and training. In general, "MediQ" functions as a holistic solution that enhances healthcare accessibility and convenience by providing a useful and user-focused method for finding a pharmacy and searching for medications.

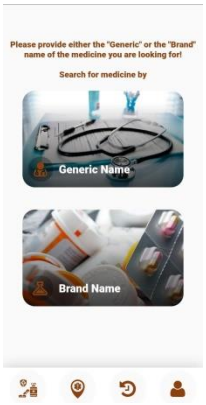
VII. DESIGN & DESCRIPTION

1. User Authentication Page

The user authentication page has two separate graphics, one for registration and one for login. This makes it easy for users to choose whether to access their existing accounts or create new ones, which improves the user experience in general.

2. Home Page

The main page has an eye-catching arrangement with visually arresting elements and a user-friendly style.

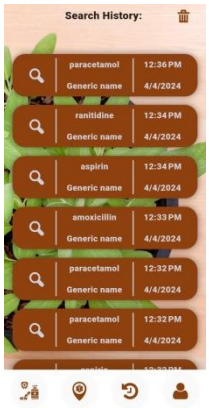


3. Pharmacies List on Map

The incorporation of geolocation services guarantees that consumers can precisely and swiftly identify neighboring pharmacies.

4. Medicine Search History

The page below displays the history of any searches the user has made for the medication.



VIII. DETAILS OF HARDWARE & SOFTWARE

1. Hardware Requirements

System: AMD Ryzen 7 5700U with Radeon Graphics.
Hard Disk: 256 GB
Monitor: 14’ Color Monitor
Mouse: Optical Mouse
Ram: 16GB
GPU: 1060ti 4GB

2. Software Requirements

OS: Windows 10.
Coding Language:
Flutter: The foundational technology of the front end is Flutter. It offers a single codebase that ensures consistency and reduces development time for creating apps for the iOS and Android platforms.

Dart Programming Languaage: The language used to develop Flutter is called Dart. It has a solid performance history and works well for developing mobile applications. Dart is also used to write the widgets in Flutter.

Firebase Firestore: The main NoSQL database for managing and storing information about medications, pharmacies, user accounts, and real-time changes is called Firestore. Effective data storage and retrieval is made possible by it.

Firebase Authentication: Firebase Authentication is employed to manage user accounts and ensure the security of user data. Users can create accounts, log in securely, and access personalized features within the application.

IDE: Android Studio

ADVANTAGES:

The "MediQ" application, which was created with Flutter, has various benefits.

1. "MediQ" improves the accessibility of healthcare by giving users a quick and easy way to look up and obtain necessary prescription drugs. It takes less time and effort for users to find nearby pharmacies and pick up their medications.
2. By avoiding the need to physically visit multiple pharmacies or search through various internet sources, users can save significant time and effort when looking for medicines. The app makes healthcare more convenient by streamlining the procedure.
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4. "MediQ" has the capability to incorporate medication reminder functions, which lower the possibility of missing doses and enhance drug compliance, particularly for people with long-term medical illnesses.
5. Personalized recommendations and preferences for users are made possible by secure user authentication and account management, which also improve data security.

IX. FUTURE IMPLEMENATION

One crucial future development that can greatly increase the MediQ application's usefulness to users is

to increase the selection of medications and medical supplies it offers. In order to do this, the app can form a variety of pharmaceutical alliances with a wide range of pharmaceutical firms and distributors, guaranteeing an extensive inventory of drugs, including uncommon or specialized ones. Furthermore, adding over-the-counter (OTC) drugs, wellness items, vitamins, and supplements can establish MediQ as a comprehensive one-stop shop for all wellness and healthcare requirements. By including information on safety, effectiveness, and possible interactions, users of the database can access healthcare in a more comprehensive manner by utilizing alternative and herbal medicine.

The extension should also include medical supplies and equipment, such as blood pressure monitors and diabetic testing kits, to facilitate the finding and acquisition of necessary healthcare products by consumers. Users can find generic alternatives, save money, and make educated judgments regarding pharmaceutical pricing by using a price comparison option. In addition, functionalities like as alerts regarding medicine availability and information supplied by users can keep users informed and involved, promoting a sense of community and mutual understanding.

CONCLUSION

To sum up, the proposed "MediQ" system is a comprehensive and user-centered solution that streamlines the process of locating drugs and pharmacies, increases access to healthcare, and leverages technology to enhance the whole medical experience.

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