# E Healthcare (Online Consultancy and Pharmacy) Android Application

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**Abstract:** The E Healthcare (Online Consultancy and Pharmacy) Android Application is an online consultation and online pharmacy project. Here we are proposing an application that will connect the patients to the available doctors for online consultation and online pharmacy from where the patient can order the prescribed medicines/drugs. Our proposed system is getting to build an environment where various patients needing a doctor's help can consult doctors, chat with doctors, tell them the medical issues that they might be facing and discuss cures and get the medicines associated with their medical issue from anywhere, at any time. It also consists of a doctor's login panel where doctors may login to the system and see the patient requests for consultations. This enables the doctors to speak with their patients and discuss their problems. After consultation the doctor may send them a subscription in an exceedingly printable word format so that the patient will directly get print out of the subscription and find the medicines/drugs supported that subscription. This method will prove helpful for urgent cases that don't reach the hospital, to the patients who don't have doctors in their nearby area/location and during late-night emergencies. This method also will help the patients to urge their drug/medicine online that they have in case of an emergency.

## 1.INTRODUCTION

The use of the Internet, mobile and web applications by various healthcare organizations has transformed many aspects of clinical practice. Mobile devices and also the Internet has become a standard place in healthcare organizations, resulting in a rise within the development of medical software applications for these platforms. Numerous applications are now available to help the Healthcare Organizations with many important tasks, such as: getting appointments with the doctors; online consultation with the doctors regarding any health issue that the patient might be facing; medical education and training for the doctors or medical students; and online pharmaceuticals from where the patient can get the medicines associated with their medical issues.

The establishment and improvement of E Healthcare (Consultancy and Pharmacy) Android Application may be an important requirement, especially within the current era when mobile communication technology and the Internet are developing at such a rapid pace. The benefit of web and mobile applications is to reduce the time and distance gap between doctors, patients and pharmaceuticals and to produce fast and adequate medical services.

In the current era almost every individual has access to the Internet, computers and mobile phones, which has made our life a lot easier than what it had been in earlier days by providing us various useful applications in the form of web applications and android applications. A number of those applications are being employed within the healthcare organizations that provide us with the means to induce in reality with the doctors so we can consult them regarding any health issue that we could be facing, and to order medicines prescribed to us by the doctors from an internet/online pharmacy.

The term 'Online Consultation' is employed for the consultation taken by a patient from a doctor through the utilization of various web and android applications on the Internet. Online Consultation has emerged as a boon to the people living in the cities as well as the people living in the rural or remote areas of various countries. During an internet consultation, either you can chat with a doctor or you can ask your queries in a video chat. [1]

Just imagine the extent of comfort online consultation and pharmacy brings to abedridden patient, who needs a reassuring or preventive consultation at regular intervals, there are many advantages like these which is a viable option.[1]Following are the several other advantages of online consultancy:

- Prompt medical attention
- Convenience
- Secure medical history
- Less expense

An online pharmacy is a pharmacy that works over the internet and delivers medicines to the customers who have ordered the required medicines through various methods such as mailing, shipping and online pharmacy web portal.

A total of 1059 patients completed the survey (response rate 77%). The mean age was 50 years, and 460 (43%) reported having chronic health conditions. The bulk (880/1060, 83.01%) of the people were aware that medications can be obtained online, but only 49 (4.62%) used the internet for previous medication purchases. The attitudes of people towards the various pharmacy supply chain retail channels showed a good amount of differences,

people accepted retail pharmacy units as the most appropriate source of medicines while rejecting the internet pharmacies. The people were asked to evaluate several statements that were generated regarding the pros and cons of the online medication purchase, and while they supported the computed relative attitude rate there's still a weak significant tendency toward rejection. Correspondence of these survey factors, internet usage behavior, and prospective online medicine/drug purchase attitude were evaluated. [3]

Following are some the advantages of online pharmacy:

• Efficient delivery and a straightforward ordering process.
• Completely convenient
• Discreet services
• On time delivery

## 2. LITERATURE SURVEY

According to WHO, in India the ratio of doctor-patient should be 1:1000 but the current doctor-patient ratio is only 0.62:1000 and to overcome this problem several web and android applications are launched that is used as a platform for online consultation and pharmacy.

An article from Times of India states that women increasingly prefer online consultations over physical appointments for health issues, with top-most being the specialist of gynecology and dermatology. [4][5]

The online medical consultancy was increased by 176% that was prompted by the need for the second opinion and to replace self-diagnosis, while there was only a small percentage (about 3%) growth in women users taking physical appointments in 2018, a survey from Practo, a digital healthcare platform says.[4] Interestingly, women that are over 50 years old are one of the fastest-growing user bases for online consultation, with dermatology, kidney stone, chest pain, diabetes, blood pressure, and breast cancer being the ones that were commonly searched issues. [5]

According to Practo, India is getting serious about healthcare: Practo Insights blog; The healthcare map has been compiled from data of hundreds of thousands of searches and appointments, by over 130 million patients, across 60+ cities and 255+ specialties, in 2018. The report demonstrates a significant rise in the adoption of online healthcare in India. With 67% of its population below the age of 37 years old, India, at an average age of 29 years, is using digital technology such as mobile, internet and other applications to actively get in touch with doctors, using both online and offline channels. As the country ages over the coming years, this number is only going to go up. The people of Japan, as an example, at an average age of 47, visit doctors 13 times, while the people of the US at a median age of 37, visit doctors a little over 4 times.[6]

In the existing systems the patient can consult with the doctors regarding any health issue that they might be facing

by providing the symptoms first. After providing the symptoms, the application provides the list of the available doctors (In some applications there is a doctor assistant present who will first interact with the patient before the list of the doctors is provided),from which the patient selects the doctor for the online consultation with whom they can chat, the doctor will provide the patient with the subscription associated with a health issue they are facing. Then the patient will order the medicines from the online pharmacy by either uploading the subscription provided by the online doctor or by uploading the names of medicines that they require. In most of the applications the pharmacy module is provided separately.

Several of those existing systems are: Netmeds, Practo, PharmEasy, 1mg, Medlife.

## 3. PROPOSED PLAN
We are proposing an application through which the patient will be able to consult with the doctor and the required medicines from anywhere at any time, called E Healthcare (Online Consultancy and Pharmacy) Android Application.

In our application the patient will first get an appointment with the doctor, after which they can chat with the doctor regarding any health problems they might be having. When the doctor prescribes the medicine, a copy of the subscription will be sent to the online pharmacy and the pharmacy will call the patient to ask whether they want to order the prescribed medicine or not.

In our proposed application, the patient will be able to call the doctor and view their location; similarly the doctor can call the patient and view their location, and the online pharmacy will be able to view the patient details.

## 4. FEATURE EXTRACTION

### 4.1  Methodology

• **Android Studio**
Android Studio is the Integrated Development Environment (IDE) that is built and designed specifically for developing various Android Applications that we use in our day to day life. [8] It is available for Windows, macOS and Linux based operating systems.[9]
Android software development is the process by which new applications are created for devices running the Android operating system. Google states that[10] "Android apps can be written using Kotlin, Java, and C++ languages" using the Android software development kit (SDK), while using other languages is also possible. All non-JVM languages, such as Go, JavaScript, C, C++ or assembly, need the help of JVM language code, that may be supplied by tools, likely with restricted API support.

• **Java**
Java is a general-purpose programming language that is class-based, object-oriented, and designed to have as few implementation dependencies as possible. It is intended to

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let application developers write once, run anywhere (WORA), [17] meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.[18] For Android Development, Java is used as the brain of the Android Application since it is used as the backend language that allows the Android Application to perform its intended task.

### • XML

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. The World Wide Web Consortium's XML 1.0 Specification[19] of 1998[20] and several other related specifications[21]—all of them free open standards—define XML.[22]XML is used in Android Studio for the designing of the Android Application that is to be developed. It provides a layout on which we design our application by providing it buttons, imageView, textView, etc.

### • Firebase

Firebase is a mobile and web application development platform that was developed by Firebase, Inc. in 2011.[11] For Android development, Firebase is mostly used as the database where the data is stored that is to be used in the Android Application after its development.

Formerly known as Google Cloud Messaging (GCM), Firebase Cloud Messaging (FCM) is a cross-platform solution for messages and notifications for Android, iOS, and web applications, which as of 2016 can be used at no cost.[12]

On January 31, 2019, Cloud Firestore was officially brought out of beta, making it an official product of the Firebase lineup.[13] It is the successor to Firebase's original databasing system, Real-time Database, and allows for nested documents and fields rather than the tree-view provided in the Real-time Database.

## 5. IMPLEMENTATION
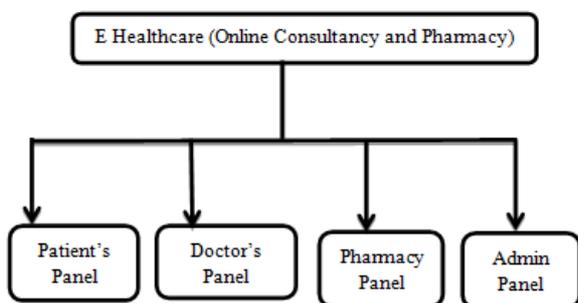


### 5.1  Algorithm

**Step 1:**The user first login to the application.

**Step 2:**The panel will open according to the login id of the user; it can be the panel for the patient, the doctor, the pharmacy or the admin.

**Step 3:**In the patient's panel,

a) There will be two layouts in the patient module: appointment, wallet.
b) For getting the appointment the patient will provide the symptoms.
c) From these symptoms our application will list diseases.
d) After selecting the symptoms the system will provide the patient with the doctor.
e) The patient can call the doctor, view the doctor's locations or get an appointment.
f) For getting the appointment the patient selects thedate for the appointment.
g) After that a fixed amount is cut from the wallet module of the patient.
h) The patients can then chat with the doctor and consult with them regarding their (patient) health issues.
i) Patient logout.

**Step 4:**In the doctor's panel,
a) The doctor can add symptoms in the system.
b) The doctor can view appointments and chat with the patient regarding the medical issue that the patient might be facing.
c) The doctor will get their fees during the appointments booking
d) Doctor Logout.

**Step 5:**In pharmacy panel,
a) Online pharmacies will get a notification of a copy of the subscription that is provided during the consultation.
b) After getting the copy the pharmacy will call the patient and ask whether they want the medicine or not.
c) Pharmacy logout.

**Step 6:**In the admin panel,
a) The admin will manage everything.

## 6. COMPARISON

There are several differences between our application, E Healthcare (Online Consultancy and Pharmacy) Android Application, and the already existing applications. Following are those differences:

1. In our application, the patient and the doctor will be able to view each other's location.
2. In our application, the patient and the doctor will be able to call each other.
3. While the pharmacy module in the existing application is separate from the consultation module, in our application that is not the case.
4. In the existing applications, the patient has to open the pharmacy module of the application and then upload the subscription provided by the doctor but in our proposed application the online pharmacy will call the patient and ask whether they want to order the medicine or not.

## 7. FUTURE SCOPE

Several other features can be added to our proposed system so that it can be more flexible. Below list shows the future points to be considered:

1. Video conferencing facilities can be added to the application.
2. The nearest location of hospitals and medical pharmacies to the patient can be added in the future.
3. The application can be used by various medical organizations or establishments in the future.
4. In the future, we can upload a feature for calling the ambulance.

## 8. CONCLUSION

E Healthcare (Online Consultancy and Pharmacy) Android Application will be helpful for a lot of individuals. The patients will be able to virtually consult with the doctors regarding any health issue they might be facing and get the medications associated with the health issue they are facing. Consultation with the doctor and getting the medication from the pharmacy will be a lot easier through the use of this application. It will reduce the time consumption and cost expenditure.

Our application will be able to help in optimizing the work of patients, doctors and pharmacies. It will make the patients more relaxed since they will not have to wait in long queues so that they can consult with the doctors. Our project will be a lot secured, i.e., the chat between the patient and the doctor will remain secret to others as opposed to the patient paying a physical visit to the doctors. The patient will be able to ask the doctor any kind of query, it can be embarrassing or sensitive questions, while people during the physical meeting are hesitant to ask such questions.

## REFRENCES

Kool MD (2017), "Why people are moving towards online doctor consultation".

Singh AP et al. Int J Community Med Public Health. 2018 Apr;5(4):1230-1232, "Online medical consultation: a review".

AndrásFittler, RóbertGyörgy Vida, MátyásKáplár, LajosBotz. Originally published in the Journal of Medical Internet Research, 22.08.2018.

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RupaliMukharjee, TNN, Mar 9, 2019, Times of India, "Online medical consultation by women sees 176% hike in 2018".

"India is getting serious about healthcare: Practo Insights", Posted On April 4, 2019 By Practo.

George &Duquenoy, January 2008, "Online Medical Consultation Legal Ethical and Social Perspectives".

"Getting Started with Android Studio".Android Developers.Google.Retrieved May 14, 2013.

Haslam, Oliver (May 16, 2013). "Download Android Studio IDE For Windows, OS X And Linux". Redmond Pie.Retrieved May 16, 2013.

"Application Fundamentals".Android Developers.

Tamplin, James. "Firebase is Joining Google!". Firebase, Inc. Retrieved October 22, 2014.

"Firebase Cloud Messaging".Google Developers.Retrieved 2016-05-28.

"NoSQL for the serverless age: Announcing Cloud Firestore general availability and updates". Google Cloud Blog.Retrieved 2019-04-30.

A K Singh, Hari Shankar Joshi, ArunNihal Singh, MedhaviAgarwal, PalveenKaur, Published 2018, "Online Medical Consultation: A Review".

Michael Bihari, MD, Updated on June 24, 2019, "Online pharmacies are they safe".

Chetna Desai, Department of Pharmacology, B.J. Medical College, Ahmedabad, Gujarat, India, 2016 Nov-Dec; 48(6): 615–616, "Online pharmacies: A boon or bane?"

"Write once, run anywhere?".Computer Weekly. May 2, 2002. Retrieved July 27, 2009.

"1.2 Design Goals of the Java™ Programming Language".Oracle. January 1, 1999. Archived from the original on January 23, 2013.Retrieved January 14, 2013.

"XML 1.0 Specification".World Wide Web Consortium.Retrieved 22 August 2010.

"Extensible Markup Language (XML) 1.0".

"XML and Semantic Web W3C Standards Timeline" (PDF). Dblab.ntua.gr. Retrieved 14 August 2016.

"W3C DOCUMENT LICENSE". W3.org. Retrieved 16 November 2017.