**Professional Healthcare Mobile App on JAVA**

**A PROJECT REPORT**

***Submitted by***

**Rohan Ghosh (20BCS9671)**

**Jai Budhraja (20BCS5816)**

**Kirti (20BCS7083)**

**Mohammad Badruddin (20BCS5907)**

**Liza Sharma (20BCS5845)**

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**BONAFIDE CERTIFICATE**

Certified that this project report **“****Professional Healthcare Mobile App on JAVA”** is the bonafide work of **“Rohan Ghosh, Jai Budhraja, Kirti, Mohammad Badruddin, Liza Sharma”** who carried out the project work under my/our supervision.

**SIGNATURE**

Dr. Sandeep S. Kang

**HEAD OF THE DEPARTMENT** **Department -** CSE

**SIGNATURE**

Kirat Kaur (E12999)

**SUPERVISOR**

Assistant Professor

**Department -** CSE

Submitted for the project viva-voce examination held on

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ABSTRACT

Healthcare mobile apps are becoming a reality for users interested in keeping their daily activities under control. Docter G is an application based upon android development. It aims to provide faster and efficient way to have a proper health service in your hands. The application provides the user to have his/her own data of any disease data here means the reports, medicinal routine, precautions and a data of the nearest hospital and the availability doctors 24/7. Most unique part of the application is that the users get a daily update of the disease viral in air by providing the bets precaution, affected symptoms, and home remedies because prevention is better than cure.

In the last years, several researchers have investigated the effect of healthcare mobile apps on the life of their users as well as the positive/negative impact they have on the quality of life. In doing so, we define a manual process that enables the creation of an extended taxonomy of healthcare users' requests. The results of our study show that users of healthcare apps are more likely to request new features and support for other hardware than users of different types of apps. Moreover, they tend to be less critical of the defects of the application and better support developers when debugging.

# INTRODUCTION

## Client Identification/Need Identification/Identification of relevant Contemporary issue

Growing demand for mobile care is fueling a healthcare revolution. Convenience features included in the health app allow users to easily record their health data and access treatment. This eliminates the need to see a doctor directly.

Healthcare app may vary in functionality, but its purpose remains the same. The benefits of mobile health apps make life easier for patients and doctors and support hospital management.

## Identification of Problem

Project advancement represents a ton of hazard and vulnerabilities which should be dealt with during the improvement interaction.

The major problem in healthcare application is sometimes doctor cannot provide the service instantly so the user has to wait for a while. There can be a condition when doctor is in Operation Theatre or dealing any client with critical condition.

During the cab service cabs driver may delay due to traffic or accidental prone conditions.

Keeping a note of this large number of dangers, we worked interminably to adapt to this multitude of vulnerabilities and thought of an answer which limits the above angles.

## Identification of Tasks-

The task of this project is to build a model in which user book slots under emergency conditions will be given priority services from the hospital as well as the partnered ride services. Medicine refilling or buying has been made easier and hassle free with our free home delivery medicine services by the partnered chemist.

### Single Entity

Execution of the undertaking with a little group is a quite extreme errand, yet we figured out how to keep the work underway by partitioning the venture in modules and teaming up and guaranteeing the task is finished as a Single Entity

### Life Cycle

* + - The undertaking lifecycle began with formulating out the thought for the task.
    - After effectively concluding the task, our group began to design out how the beginning stage will be executed.
    - The significant terms in regards to the task was characterized and we began with the plan interaction.
    - Subsequent to finishing the planning of the undertaking, the task was worked in around multi month time, being tried for any issues and afterward it will be sent as the last advance of the improvement lifecycle.

### Team Spirit

All through the improvement interaction, our group crossed numerous snags to accomplish the ideal outcomes. At times it took us days to determine a single bug which was very baffling as the advancement ended. In any case, keeping our expectations high and keeping us loaded up with enthusiasm and inspiration, we continued pushing ahead beating every one of the obstructions and effectively finished the undertaking.

### Directions

* In the wake of fostering the model of the setup, we took client input about what the machine needs and where it required a few alterations.
* In view of the inputs got, we worked in the headings given by them to construct a machine that welcomes clients.

### Uniqueness

* + - The algorithm used in our machine setup and the component compatibility gives our machine an edge and defines its uniqueness and further workforce for a better, smarter and efficient machine setup will lead us to patent acquisition with ease.
    - With upgradation in the interface and alteration won’t lead compromise in its functionality, because we have assigned two members of our team for its testing.

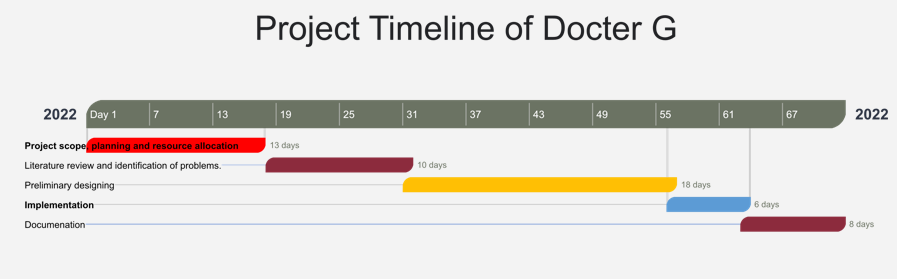
### Flexibility

* The task has been planned so that it is generally open to changes as expected by the client. The task is adaptable as far as utilization and changes can be made progressively whenever required

### Sub-contracting

* Our group has complete information about each progression of the undertaking improvement cycle and needed exceptionally less external support. However, we took help from our Co-supervisor who directed us to make this venture a triumph.

## Timeline

Define the timeline (preferably using a Gantt chart).

## Organization of the Report

Mobile Application Maintenance means improving the existing features and services and making them as per the user’s expectations. In the current situation, where the customers have a plethora of applications for every particular task or service, it is very necessary to have the users by your side. And app maintenance is undoubtedly a great way to ensure customer loyalty.

Besides maintaining customer loyalty, app maintenance has many other benefits.

# LITERATURE REVIEW/BACKGROUND STUDY

## Timeline of the reported problem

A lot of research has been done on health care applications in the past. Many methods and models have been proposed to enable the computer to generate these types of applications. Many of these approaches and models can be used in combination to create more effective and efficient models. The rough timeline of the models previously proposed is mentioned in the section below.

## Proposed solutions

## The application is proposed in such a way that the client gets reached to the nearest medical center with the quickest availability of doctor of the specific department as needed by the patient. And the quickest possible cab service irrespective of the service providing company will be made available to the patient. Moreover, the cab driver will be rewarded a bonus of 10% of the base fare, if the cab driver reaches the destination within 7 mins, thus encouraging faster service and preventing patient’s health risk.

## Bibliometric analysis

## Bibliometrics is the quantitative study of literature and a measurable method used to identify the developmental trends within a certain field to obtain quantifiable, reproducible, and objective data. In this analysis, we computed the growth rate of publications, characteristics of research activities (topics and keywords), publication patterns (countries and journals), and research hotspot tendencies (citation bursts and timeline map).

## Review Summary

Health professionals and patients use a variety of medical smartphone applications that have been developed. The adoption of these programs is particularly beneficial since it improves patient-doctor communication and raises the standard of care as a whole. The review of the literature on healthcare applications reveals that different aspects of healthcare are covered by the applications, including patient care and monitoring, weight loss and fitness, communication between doctors and nurses on inpatient wards, and the use of smartphones for medical research and education. Our suggested healthcare system is built on Web and Android apps to provide medical support for patients who reside in areas with limited mobility. It can save both the patient and the doctor a ton of money.

## Problem Definition

Consultations that take place in person are related to healthcare. The sufferers are forced by this issue to rush to the closest medical facility for treatment.

Lockdowns and the COVID outbreak made it worse. People were contained within the four walls of their dwellings by the virus's contagious impact. So, what do they do if they have an emergency and need to visit a doctor? To keep ahead in the fight for technological adoption, the requirement for remote access or virtual consultations is urgent and must be addressed.

Despite notable improvements in medical research, the management technology used in the healthcare sector has led to ongoing inefficiencies and healthcare blunders.

This is more than just a barrier for medical research; because of the waste it produces, it slows progress. Patients not only pay the price for these inefficiencies and errors in terms of inconvenience and health, but we also see an increase in administrative costs and lawsuits as a result.

The interchange of patient data when a patient is transferred from one department or hospital to another is one particular area of concern. The usual method of transmitting patient records is time-consuming, ineffective, and leaves patients' data vulnerable to a breach.

## Goals/Objectives

Users who are interested in managing their everyday activities can now download healthcare mobile apps. An android-based application called Doctor G exists. It attempts to offer a more rapid and effective method of getting a good health service in your hands. The application enables the user to access personal information on any ailment, including reports, medication regimens, safety measures, information about the closest hospital, and information about the availability of doctors around-the-clock. The application's most distinctive feature is that users receive a daily update on any airborne diseases, along with the best preventative measures, symptoms to watch out for, and home cures.

Several scholars have looked into the impact of healthcare mobile in recent years.

# DESIGN FLOW/PROCESS

## Evaluation & Selection of Specifications/Features

Critically evaluate the features identified in the literature and prepare the list of features ideally required in the solution.

## Design Constraints

The work doesn’t end with your app getting launched on app stores. There are additional elements like app maintenance need to be considered. However, it will contribute to the increment in the cost of developing a healthcare app.

While these were the factors affecting your mobile healthcare app development time and cost, here’s an approximate range of features and its cost.

### Time

* + - During the arranging period of the advancement lifecycle, we zeroed in on how long we would expect for project completion.
    - This guaranteed that we worked inside the time constraints.

### Cost

* + - While sorting out the funds expected to effectively complete the venture, we put forth a most extreme line we can spend for the undertaking and guaranteed that regardless of whether additional assets are required, the cost constraints won't be impacted.

### Scope

* + - As currently referenced in the venture plan, our undertaking is fairly interesting and many haven't planned anything like this. Therefore, the scope constraints preclude from the conversation as we did a very great job by the decision of the venture

### Quality

* + - Our group has made an honest effort to hold the nature of the venture within proper limits. Rest, the client input will permit us to make alterations as required monitoring the quality constraints

### Benefits

* + - Being one of a kind in its own particular manner, it has a ton of advantages. The advantages of the application don't appear to stop just like a stage which is connected with endlessly learning is a continuous cycle in any individual's life

### Risk

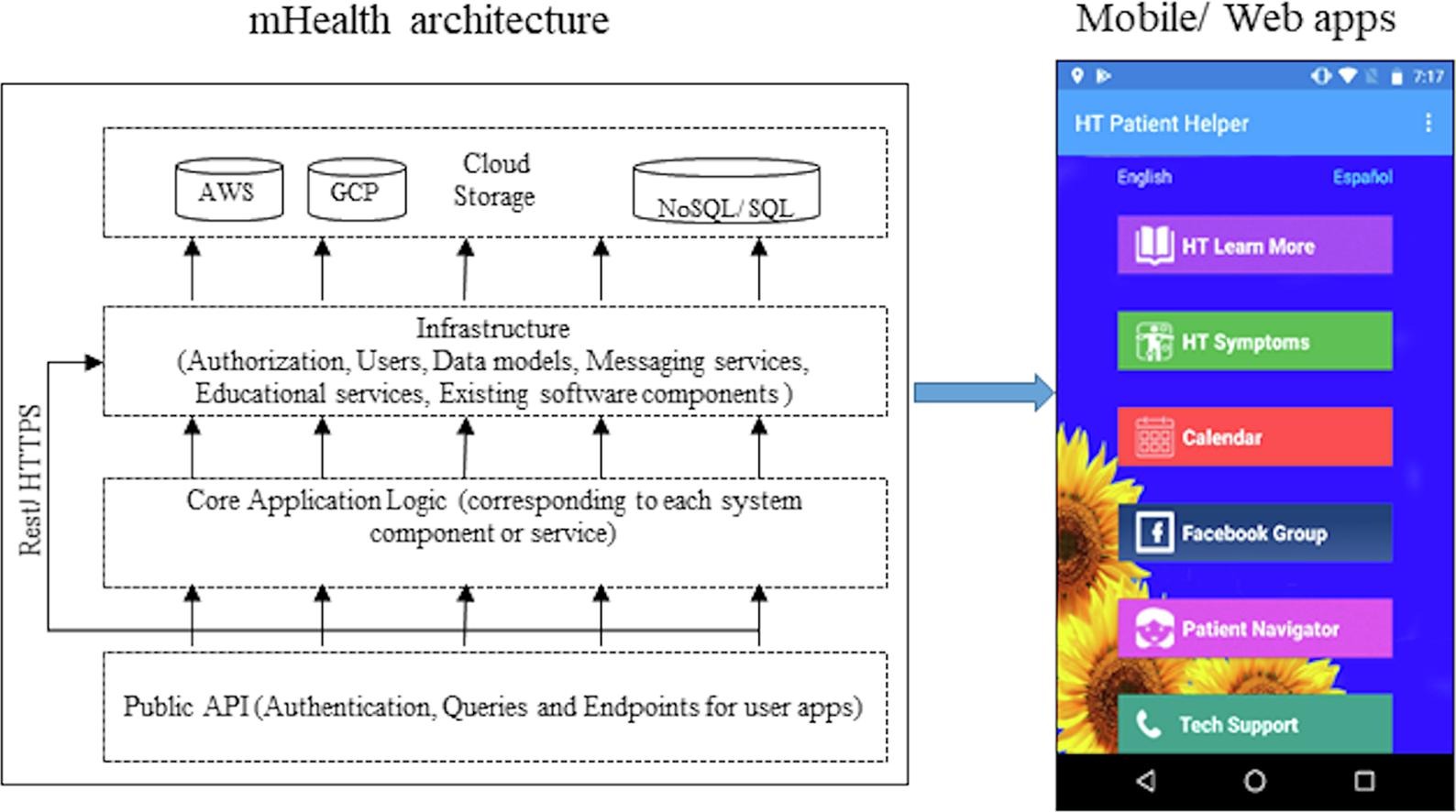
* + - As currently talked about, the improvement of an undertaking offers a great deal of dangers that might be of some value, however holding them within proper limits is what we truly need to focus on
    - The improvement has been done so that it has not surpassed the gamble resilience and gives an effective as well as easy to use insight.

## Analysis and Feature finalization subject to constraints

The project required a great deal of reasoning on how and what highlights ought to be carried out. Keeping every one of the essential important prerequisites a venture ought to have as well as drawing out a few less executed ideas.

## Design Flow

Analyze the above designs and select the best design based supported with comparison and reason.



## Design selection

## 

# RESULTS ANALYSIS AND VALIDATION

## Implementation of solution

### Leveraging device, operating system, and potential for scale

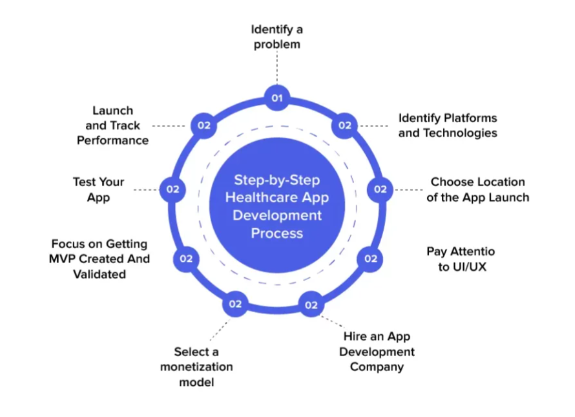
Mobile apps are able to leverage the strengths of host device hardware and operating systems. A review by Harari and colleagues has documented the numerous sensors and data collected by research apps, including accelerometer (coordinates, duration of movement), GPS scan (geolocation), clock (time), light sensor (ambient light), and microphone (audio). These data sources can be used creatively to develop interventions. For instance, a sun protection trial combined GPS data with real-time forecasts and time of day information to provide guidance regarding risk of sunburn and time until needed reapplication of sunscreen. A number of physical activity trials have used smartphone accelerometer data to collect physical activity data, and display such data as part of the intervention to study participants. Operating systems also provide rich interactive and monitoring features, including alarms, notifications, call logs, text logs, and system usage information. Data generated by these features can be highly useful; one study validated an algorithm to predict the total amount of users’ sleep based on their smartphone screen being on or off, with an average error of only 7% . Alarms/notifications are a main feature of many app-based interventions, providing a way to communicate updated data-informed progress towards goals, motivational messages, and re-engagement message. Another important benefit of the flexibility of app systems is their capacity to interface with a wide variety of other devices such as pedometers and pill bottle cap sensors.

The ability to positively influence health at a large scale is an intriguing advantage of successful mobile apps. Traditionally, the gold standard for impactful individual-level behavioural interventions has been evidence-based, multi-session interventions that are delivered in person. This approach provides a high level of exposure to a potentially tailored intervention, although it comes at a high cost by requiring substantial staff time and materials for each person newly engaged. Such multi-session interventions are typically sequentially planned to control the order in which a participant is exposed to an intervention, potentially enhancing the intervention’s effect, but also challenging the logistics of delivery. Mobile health apps have the potential to provide users with a high level of exposure (smartphones are ubiquitous and heavily used), while only requiring staff time that is fixed to the development and monitoring of the sequentially-designed app intervention, with low additional cost per person reached. Other technology-based intervention modalities, such as text messaging and website-based interventions, may have similar benefits of scale.

### Tailoring and measurement

Apps are a natural fit for providing tailored health information, with the potential to build in automated tailoring by user groups or by disease condition. Apps are created for a broad array of conditions that require tailored materials, ranging from tele-rehabilitation for people with multiple sclerosis to interventions to address childhood obesity. App platforms allow for each user group to receive an intervention appropriate for and customized to their experiences. This has the additional benefit of facilitating more successful inclusion of groups experiencing health disparities such as youth, sexual, and racial minorities. Through tailoring, mobile apps have the potential to engage persons in their health promotion in new and innovate ways, which are moreover less dependent on existing healthcare structures. For instance, apps can help users collect and track data on a particular health behaviour and can return information tailored to that individual, such as their stage in transtheoretical model, thereby optimally facilitating behavioural change.

Paradata, automated process data collected as users interact with a smartphone app, is an important additional tool to gain insight on how users engage with an app. Examples of paradata include log-in/log-out times; time spent in the app overall and by each app feature; and number of clicks through each app feature. Used in combination with the primary research outcomes data, paradata provides insight into user preferences and app use patterns. It can help app researchers to understand why an app feature may or may not have met expected outcomes, and provide direction for further tailoring or updates.



# CONCLUSION AND FUTURE WORK

## Conclusion

Although the popularity of mobile apps is growing and the interest of software engineers and medical scientists is notably high, only a few studies merge these two fields to bring evidence across domains. In this paper, we started looking at the intersection between mobile apps and healthcare mechanisms, by analyzing what the users of healthcare apps ask in their user reviews and whether they do that differently from non- healthcare users. To this purpose, we first manually analyzed 2,000 user reviews with the aim of classifying the types of comments left for healthcare and non-healthcare apps. Secondly, we assessed how the sentiment of these user reviews is and whether there are differences between healthcare and non-healthcare apps.

The main results of the study indicate the existence of ten categories of user reviews: while most of them are similar to those previously discovered in the literature, we found three additional ones. By analyzing them, we found that users of healthcare apps tend to ask more feature requests concerning other users, and this is likely because the developers of those apps are not aware of the specific customers' needs. Moreover, we found that healthcare users tend to be more proactive in the case of app's failures and try to propose solutions to developers.

## Future work

Our future research agenda is oriented to the definition and investigation of those novel methodologies. At the same time, we plan to corroborate the findings observed in this paper by analyzing more user reviews.

In addition, we plan to compare the development processes of those two categories through the analysis of the version control system guaranteed by the open access of the selected apps.

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