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Design of a Health Care Application for an Educational System

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ABSTRACT: Hospitals, clinic and community health agencies can be very different from other work environments. Healthcare systems are complex and there are many things we need to know about types of hospital systems, patient care, insurance, healthcare providers and legal issues. This paper gives an insight towards the management of health care system in an Education Institution. The students, staff and other employees of the institution avail the system and help them to take care of physical and mental health. This proposed system is an android application, collects the detailed information about the students who intends to visit the healthcare center for various reasons. The application helps the patients to register in the system, helps the doctor to schedule the appointment and make a review of the patient's status. The reports are later sent back to the Head of the Department for further analysis.

KEYWORDS: Health care, physician, Students, reports, analysis.

I. INTRODUCTION

In recent days, health care domain is overflowing with enormous amount of data, if the data is examined properly will be useful to society. Healthcare sector has long been an early adapter and profited importantly by technologies improvements. This paper intends to build an Android application for a health care center in an educational organization. This enables the students to register , doctors to schedule appointment to the students and send the reports to the Head of the Department of the student so as to maintain their health records. The application analyses the behavior of the students during various phases in the academic institution.

Health care data are present in real world are present in various forms and formats. It deals not only with the patient care data but also a huge amount of operations (administrative) data which if used properly and handled efficiently will enable better care to the patients.

Android is an open source and Linux-based Operating System for mobile devices such as tablet and smartphones. Android was developed by Open *Handset Alliance*, led by Google, and other companies. Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices and different versions powered by Android.
The paper is divided into Introduction, Literature survey, proposed system and conclusion.

II. LITERATURE SURVEY

Jacek Ruminski [1] has projected an application that is implemented by using the QR code to exchange laboratory results. It is proposed that secure data should be exchanged between the patient and the laboratory and also between EHR (E-Health Records) and the patient, but there is a need for interaction between healthcare professionals and patients, as healthcare professionals can access and update on patient information in response.

In [2] the author has implemented an interactive system designed to be used by healthcare workers in healthcare facilities implemented on standard smartphones, laptops, and mobile devices. The goal here is to allow the use of standard smartphones by health care providers, nursing staff, and professionals involved in the facility, irrespective of the existence of wireless networks in the environment.

P. Geethika Choudary [3] has implemented an application which consists of health trackers, convertors, mental health awareness platform, and local maps. The users are allowed to interact with those modules and processes the health assessments.

Sudha and et al [4] developed a model, for patient multimedia medical data monitoring while the user is on the move. Due to the lack of less storage in mobile devices to store data they used My SQL database as a server system for storing and accessing large data with security. It provides authentication and security and accessing the database.

Mungyu Bae[5] Implemented a strategy for reducing the time-consuming process of writing papers for medical visits to medical centers, so a local hospital can handle patient personal information cost-effectively. Through this approach, the patient has to mention his/her symptoms to the doctor each time.

The use of machine learning algorithms like Naive Bayes and Decision tree algorithms those are implemented with and without using PCA on the prediction dataset for heart disease has been depicted by [6].

Chayakrit Charoensiriwath [7] exhibited a low-cost model that was designed and tested in a limited budget for the public hospital. The whole system used QR code and mobile devices to track as-is hospital operations and time spent on patient activities. With all the available activity data, two algorithms are built to identify two quantities that are useful for quality improvement: the most time-cons using and bottleneck activities.

Rizal Mohd nor [8] developed a mobile pharmaceutical adherence network it will allow the government and community hospitals to resolve some of the issues related to compliance with medicines in Malaysia. The proposed solution is built with the android platform which uses the camera (scanner element) to scan the QR code which is labelled on medicines.

Jafar Saniie [9] implemented a Mobile Health Monitoring system for patients, which utilizes multiple biosensors are anticipated patients' signs so that, in addition to the biosensors, the device can easily obtain medicine using the form of a sensor known as the environmental sensor to enhance accuracy and analysis.

Daryl Abel [10] presented a method for repairing a doctor's or medical consultant's appointment. Using this method, patients can easily use a smartphone application to fix appointments. A mobile app is being created and a road map for further analysis is also included.

Y. RaviSekhar [11] projected a healthcare scheme that relies on measuring as well as maintaining biological metrics of the patient's overall condition, such as pulse rate, bloodstream and temperature oxygen levels, using with an android smartphone application and a web server, where the patient health vitals also be monitored continuously on his smartphone application.

Prashant Salunke et al. [12] implemented a model which reduces the risk of a doctor visiting patients at any instance. The doctor collects the patient's real time data through the cloud platform, and the recommendation is given to the respective patients by the medical professionals. It is designed with Intel Edison which is a computer-on-module introduced by Intel as a wearable device model and an IoT (Internet of Things) application. It offers multi-tasking capability and power efficiency, makes it an effective system.

Muhammad KamrulHossain et al. [13] built a mobile application to locate local hospitals, obtain prior information on first aid and book rooms in the respective hospitals for patients. Users can use smartphone devices effectively and they are also easy to manage. There the doctor functions as an administrator, and the patient acts as the client, being able to access server information, and it is allowed to perform network free operations.

An application is proposed by [14] that is used for healthcare specialists and it focuses on preferring the specialists and strengthen the specialist information separation. The proposed system is implemented with Adriano and cloud is used to information maintenance with networking protocol conventions.

From [1-14] it is understood that various modules to develop an android application. This papers gives some knowledge about the hospital requirements where that can be applied to the application. It gives a knowledge about and how that is used to develop an android healthcare application.

The next section gives the details of the proposed model.

III. PROPOSED SYSTEM

The proposed model is built in three phases namely phase I Stores the details of the patient, phase II-Acceptance or Reschedule the appointment by the doctor, phase III – Data analysis of the patient and monthly report of patients and department to be done. The following figure 3.1 explains the model in details.
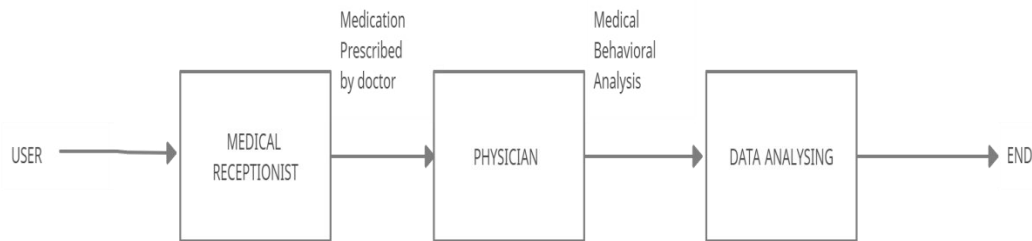
Figure: 1 Model Workflow

In above Fig 1 shows when the user login with the details and he need to send the details to the doctor and doctor need to give an appointment or in case of emergency he reschedule the appointment then the data to be forwarded to the department and comes with the data analyzing here data to be shown in a graphical representation.

The details of the functionalities are listed below:

In phase I, a process is designed to collect thedetails of the patients were collected and their medical history to be verified. The details like Name, USN, Email, Department and then the password to be generated with mail ID and password the student can login and request for appointment with doctor students can select doctor and date for an appointment then moving the details to the doctor for further process.

Phase 2 – It's a process of generating the appointment. Here doctor can accept or reschedule the appointment for the patient in case of emergency from both side. It can be through patient and also from doctor. Doctor can have the authority of issuing medical certificate to patients with their request. Here patient who required medical certificate he/she has to request for the medical certificate.

Phase 3– It's a process of analyzing the data of the patient. Here the data to be collected on the basis of patients from the department and it can be represented graphically. The graphical data can get highest count of which department have more medication and we can get it with the monthly analysis. Student who have requested for medical certificate can get generated here.
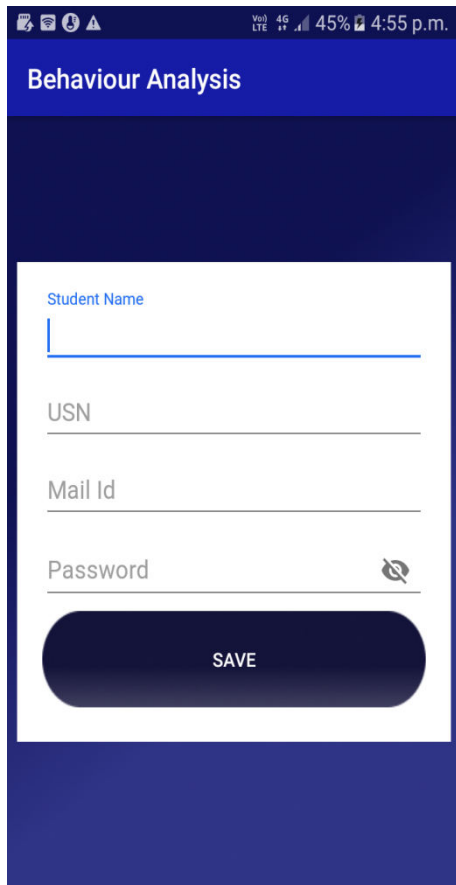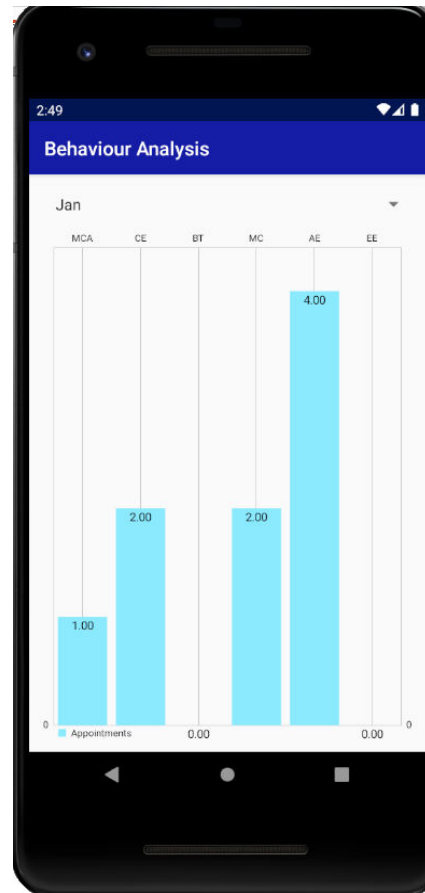
Fig 3.2 – Registration Screen for student

Fig 3.3 – Data Analysis screen

In above figure 3.2 shows how the registration screen will be shown to the student and how students can register here and the figure 3.3 shows the monthly data with highest count by department. These two figures shows how students can register and the highest data count by month by the department.

IV. CONCLUSION

Many medical applications for smartphones and tablets have been developed and widely used by health professionals and patients. The use of smartphones is getting more attention in healthcare day to day. Medical applications make smartphones useful tools in the practice of evidence-based medicine at the point of care, in addition to their use in mobile clinical activity. Also, smartphones can play a very important role in patient education, disease self-management, and remote monitoring of all patients. This application will help the institution to maintain the medical records of the student in a better way and help them.

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