Privacy Preserving of Data in M-Health Application for DIABETES MELLITUS

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***Abstract*—- Information Technology (IT) and Health care sector are the two most prominent fields growing rapidly since few years. Information technology has become a strategic necessity for developing an integrated health care IT infrastructure that can improve services and reduce medical errors. Health care sector progress one step forward and focused a light on health monitoring systems using the science and communication in respective fields. Due to the busy life schedules of human beings in present world and precipitate growth in mobile communications. Smart phones usage has become more and more and easy way of information gathering and web based work completions are being done by it. That is the way a revolutionary approach took place by introducing Health monitoring (HM) system using mobile communications and which increased quality of health care services at low cost. In this paper we developed a mobile health application (M-Health app) intended only for disease called diabetes which acts as a messenger, provides complete information for all types of related queries (medical consultation , exercises , physical activities, diet etc), where entire details regarding the disease to be mentioned by filling up the required fields and uploading a query to the trusted authority (TA) for solutions, it mainly Provides protection to privacy of involved parties and their data by using outsourcing Decryption, key private proxy re-encryption techniques.**

Keywords — HM ,TA , Privacy

I. INTRODUCTION

In today's world technology is gradually increasing in a wide range in all fields . Medical field is one among the different fields were development and advancement has been seen more and functionalities of it is dependable using different techniques. Patients are habituated in easy way for all types of treatments, checkups in their daily schedule of life style. Health monitoring, Health care system is the examples for easy medical system. This type of approach made advancement by introducing Mobile application for all the users of smart phones. Mobile app is easy way of approach interacts with the patient directly and collects all the necessary details required for diagnosis of the disease and disease condition. Here we implemented a M-App which is specifically for Diabetes, gives all information in related to patient query. The main importance in this app is it maintains privacy of the client's data using trusted authority and maintains authentication and confidentiality to user data by following encryption techniques for data for all the shared data.

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II. BRANCHING PROGRAM FOR DIABETES CLASSIFICATION

It is a methodology used for identifying or classifying any given problem based on the conditions given. The main advantage of branching program is it easily classifies the solution for ambiguity problem. The above figure illustrates the diagnosis method for the disease named diabetes by medical conditions assigned. It checks all the possible ways for given problem. It is the application were initialized in M-app for specific condition using different attributes and conditions related to it. In this application we took some basic conditions for health issues which impact for arising diabetes. Three states of disease condition is classified as Low, Normal, High .

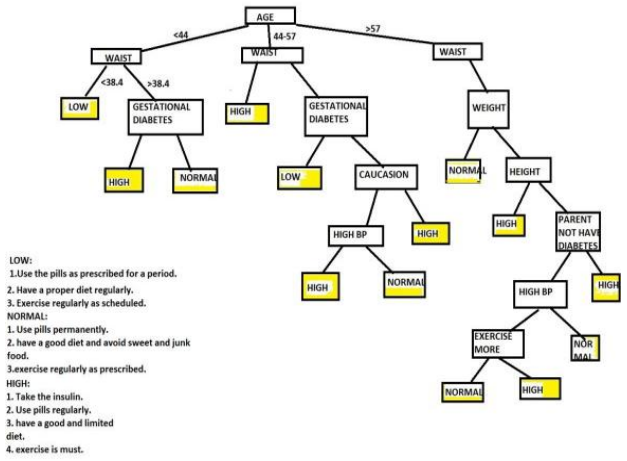

Fig-1 Branching program for Identifying Diabetes condition

III. WORKING PRINCIPLE OF BRANCHING PROGRAM FOR DIABETES IN EACH CONDITION

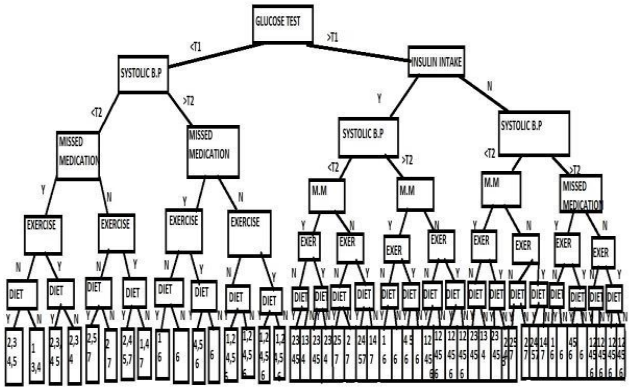

Fig-2 Working principle of system using Branching program for Diabetes for Each Checkup

Generally there will be three conditions for DIABETES it may be of Low, High, and Normal. The conditions are identified based on Glucose test. Once it is identified how to approach to control it is the main intention here, the above principle insists the controlling methods or approaches for different cases in different scenarios. Based up on values given by the users the branching program analyzes the condition where the inputs already mentioned as a conditions, so based up on that it insists the users to follow the different measurements like mentioned below.

1.Take extra medication
2.Increase fluid intake
3.Notify physician
4.Notify next of kin
5.Modify daily diet
6.Take regular medication
7.Do not take next dosage of medication

IV SYSTEM ARCHITECTURE

The System architecture of these mobile health monitoring consists of four parties.

1. Company(The health service provider)
2. Semi trusted authority(TA)
3. Cloud server
4. User

The company stores its encrypted monitoring data or program in the cloud server. Individual clients collect their medical data and store them in their mobile devices, which then transform the data into attribute vectors. The attribute vectors are delivered as inputs to the monitoring program in the cloud server through a mobile (or smart) device. A semi- trusted authority is responsible for distributing private keys to the individual clients and collecting the service fee from the clients according to a certain business model such as pay-as-you-go business model. The TA can be considered as a collaborator or a management agent for a company (or several companies) and thus shares certain level of mutual interest with the company. However, the company and TA could collude to obtain private health data from client input vectors. We assume a neutral cloud server, which means it neither colludes with the company nor a client to attack the other side. This is a reasonable model since it would be in the best business interest of the cloud not to be bias.

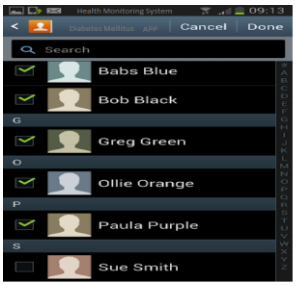

Fig: 3 Sample Screen of users list

V CONCLUSION

In this paper, we design a cloud-assisted privacy preserving mobile health monitoring system which can effectively protect the privacy of clients and the intellectual property of M-health service providers. Health monitoring system based on M-app is the user friendly system which helps the mobile users in identifying the causes for Diabetes and provides solutions for all types of medical advices for users.

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