Software Design Document

for

Personal Medical Record Management System

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1 Introduction

1.1 Purpose

The purpose of this document is to delineate the design of our project title : Personal Health Record Managing System .

1.2 Scope

The system helps patient's to view their medical data through an android application and share these data to officials for claiming insurance, clearing medical tests, and any other official purposes. We ensure authenticity by making hospitals to upload the data themselves .Uploaded datas are stored in cloud.

- consisit of four modules.
- User can view and manage their medical data.
- Viewer can only access the record with user's permission .
- Hospital will upload medical data.
- Admin is responsible for granting approvals to hospitals and viewers and also revoke the approval and block them for serious concerns.

The product allows the users to check their health condition and admin to understand the health status of the citizen and take proper decision for insurance claiming.

1.3 Definitions, Acronyms and Abbreviations

1.3.1 Definition

- **Hospital** :- Authority which upload medical records.
- **Admin** :- Official side from the govt like ASHA workers,medical officers.
- **Viewer**:- Viewers are concerned parties who need some access from some patient's
- **User**:- A person diagnosed with disease(patients)
- **Data** :- The health status of citizen

1.4 Abbreviations

- **DBMS** :- Database Management System
- **DFD** :- Data Flow Diagram
- **AES** :- Advanced Encryption Standard

2 References

- 1 . MA Clark ,JF Gold ,ME Huska ,GH Gabel.."madical record mangement system and process with improved work flow feutures 1999 -

3 Architectural Description

The Architecture comprises of the Static and Dynamic Aspects of the System. It gives a view of the entire system highlighting the important features and ignoring unnecessary details. The architecture consist of four modules.Hospital and Admin modules are websites whereas User module and Viewer modules are android applications.Hospital uploads user's medical records into the cloud storage.User can access these records via the android application.Viewer needs to scan the qr code from user app to view corresponding medical records.All records are encrypted using AES during upload and decrypted during download from these sources only.Admin module must grant approval to viewer and hospital to access the system at first and can revoke the approval whenever needed.

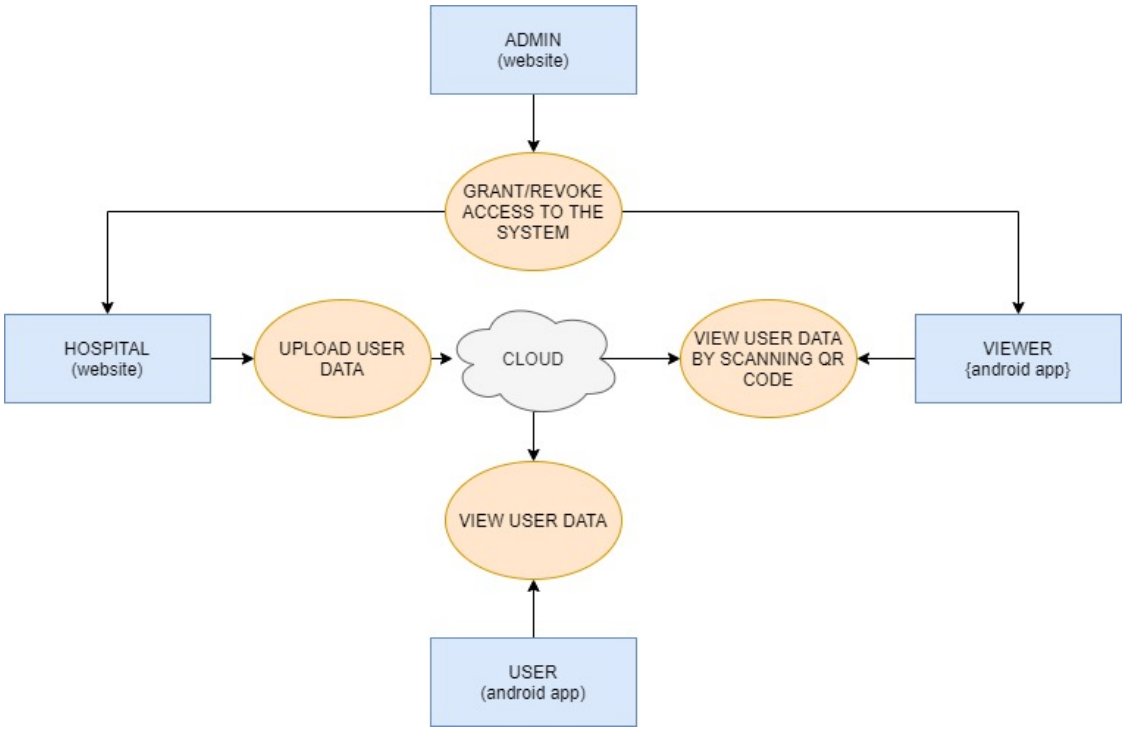

Figure 1: Abstract architecture model

4 Decomposition Description

The System is divided into 4 modules based on the functionality of the system, that is it is divided into modules for each of the functionality the system would provide. The Modules are:

- **User** - It is designed for patients.The main functions are:-
  1. View and manage their medical data.
  2. Rate hospitals and register complaints.
  3. QR code generation.
- **Viewer** - Concerned parties who need some access to some patient's records for various official reasons.Functions are:-
  1. QR Code Scanner

- **Hospitals** - Ensures no tampering will occur to medical data and they will by authentic and legit by making hospitals to upload the data themselves instead of patients.The main functions are :-
  1. Upload medical records.
  2. Can also view patient's basic details and previous medical data uploaded by themselves.
- **Admin** - This portal is mainly for the official side if the govt like ASHA workers,medical officers.The main functions are:-
  1. Admin is responsible for granting approvals to hospitals and viewers and also revoke the approval and block them for serious concerns.
  2. Admin also needs to view and may give replies to patients complaints about hospitals.
- **Realtime Database** - We use the could to store the data uploaded by the hospitals .All records are encrypted using AES during upload and decrypted during download from these sources only.

5 Dependency Description

5.1 Intermodule Dependency

The Dependencies between the modules is expressed as the DFD diagram shown below :

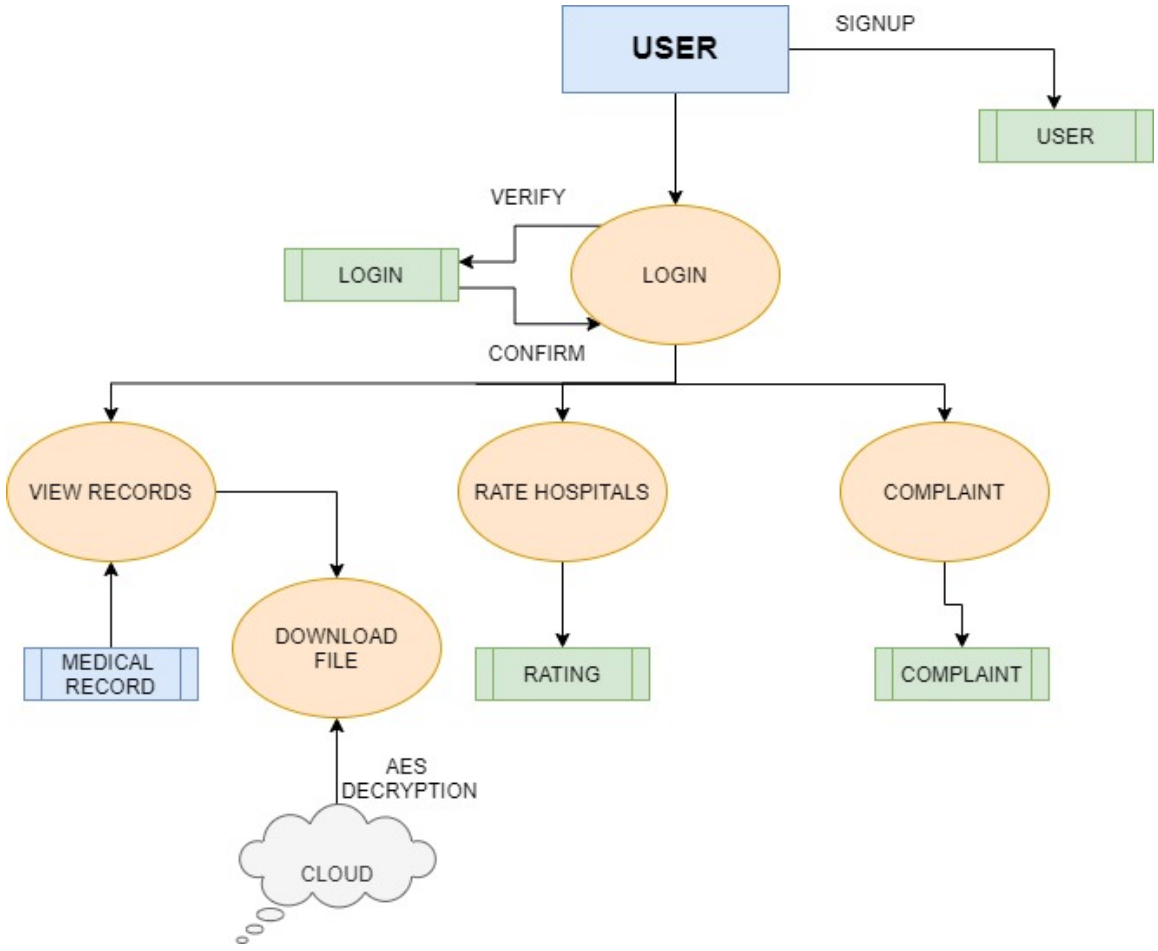

Figure 2: Data Flow Diagram Of User

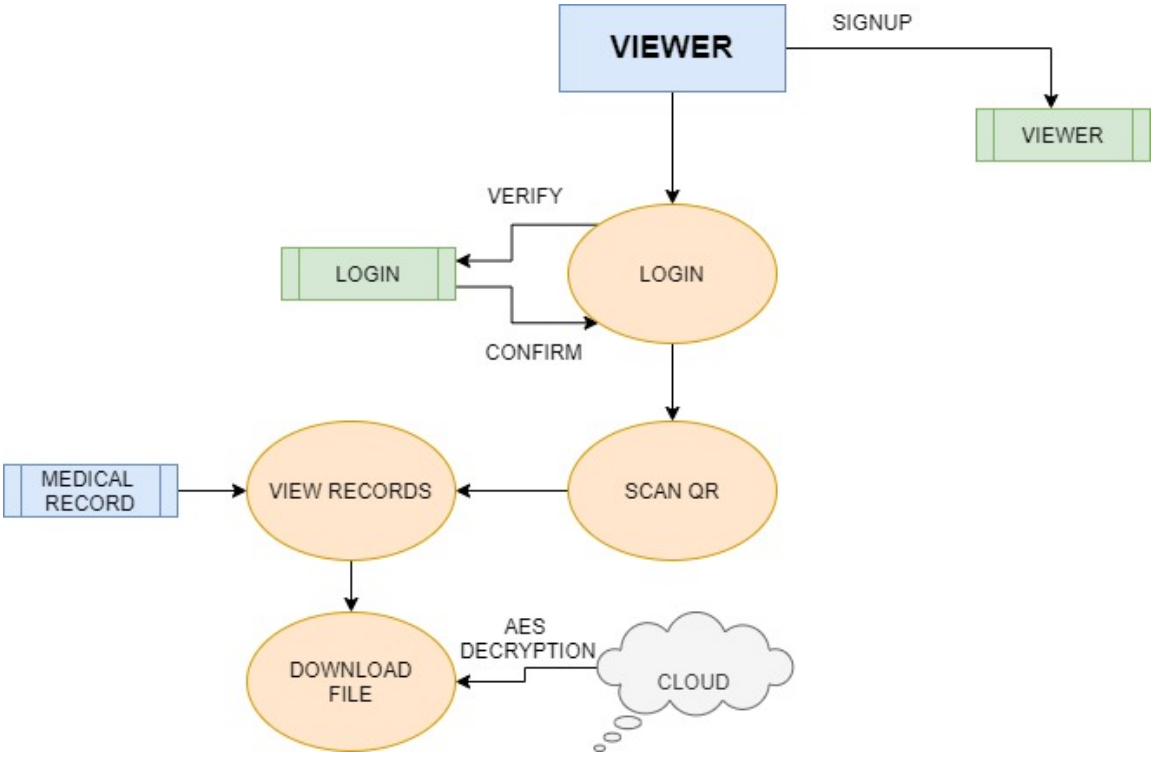

Figure 3: Data Flow Diagram Of viewer

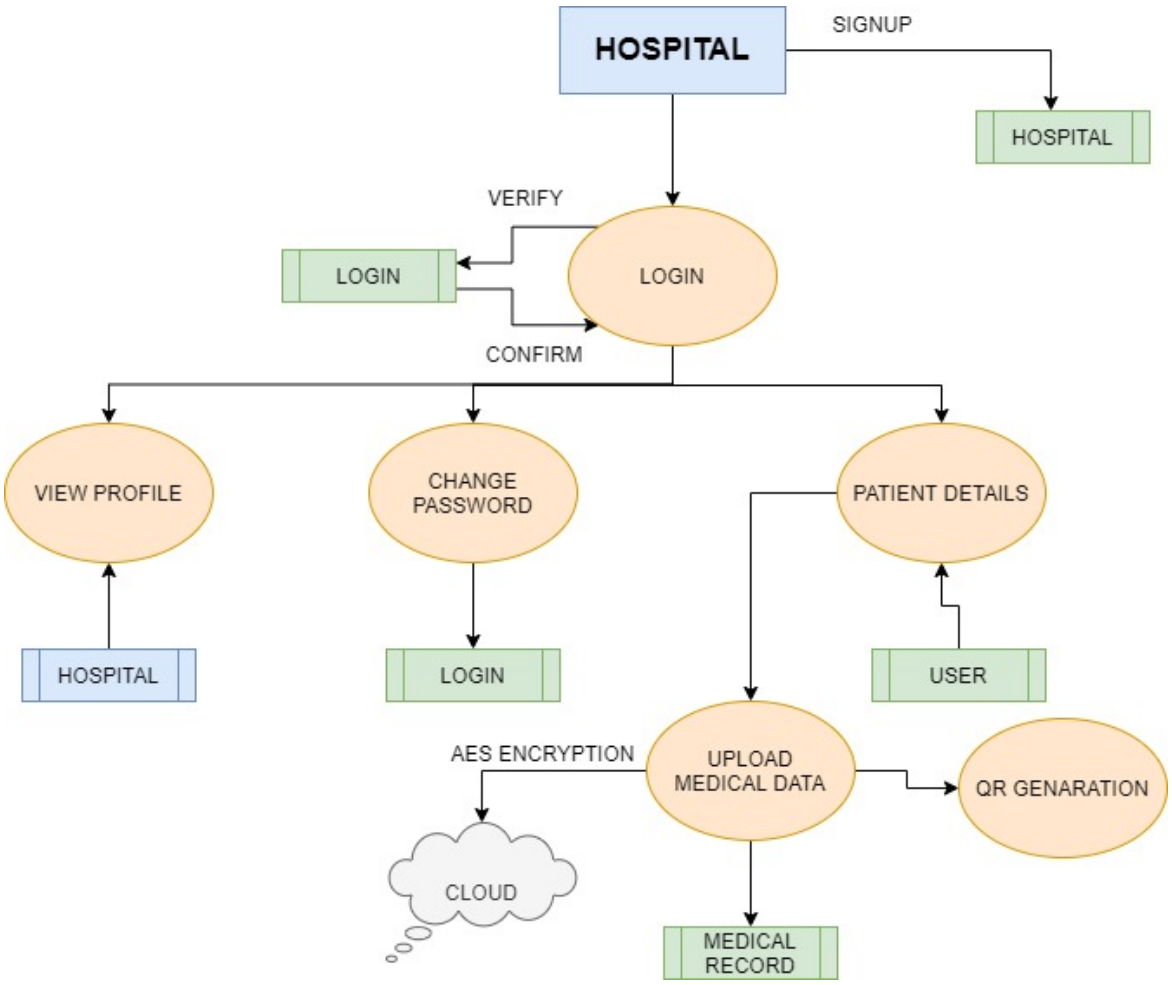

Figure 4: Data Flow Diagram Of Hospital

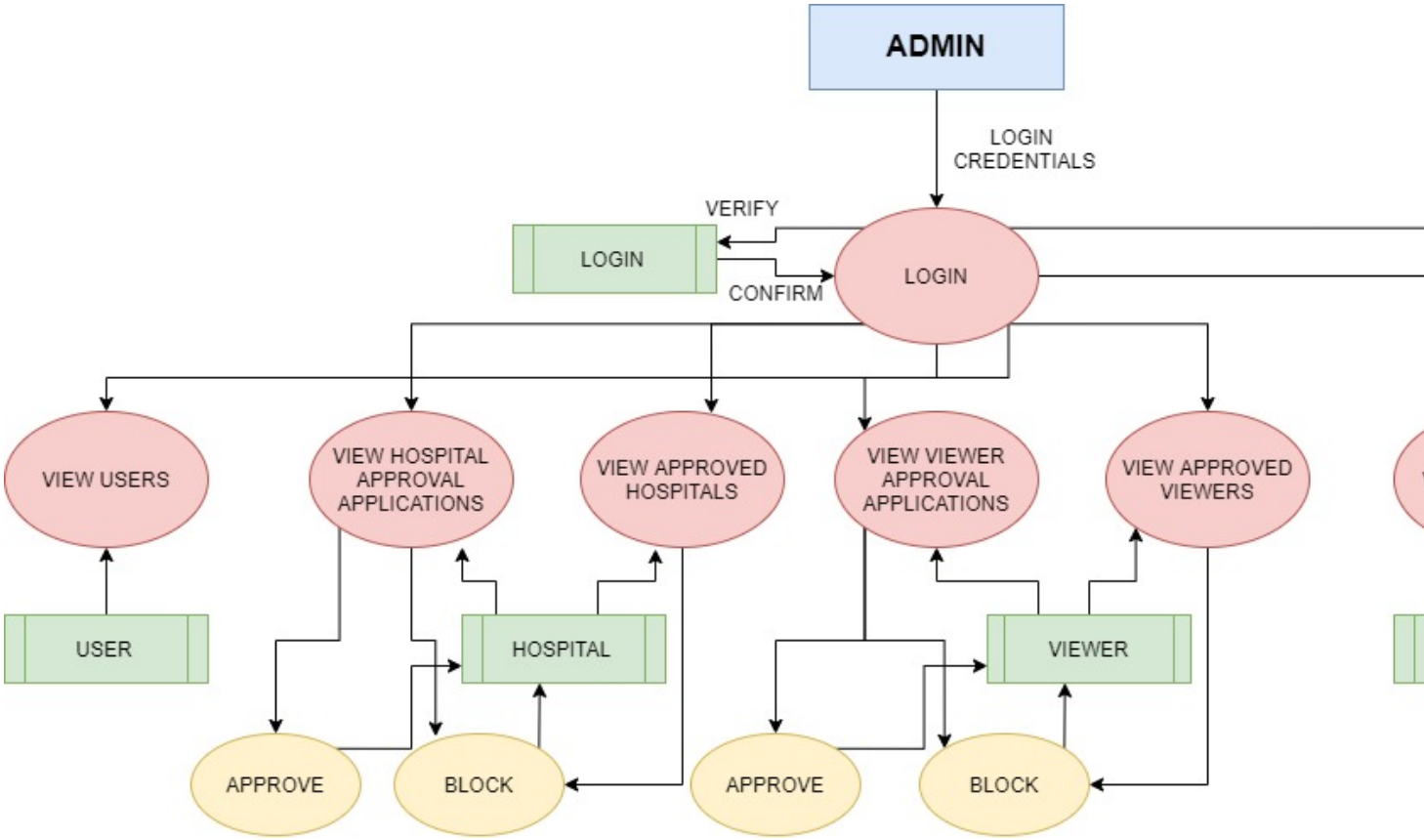

Figure 5: Data Flow Diagram Of Admin

6 app Interface Description

6.1 User And Viewer Interface Design

6.1.1 User signup Interface

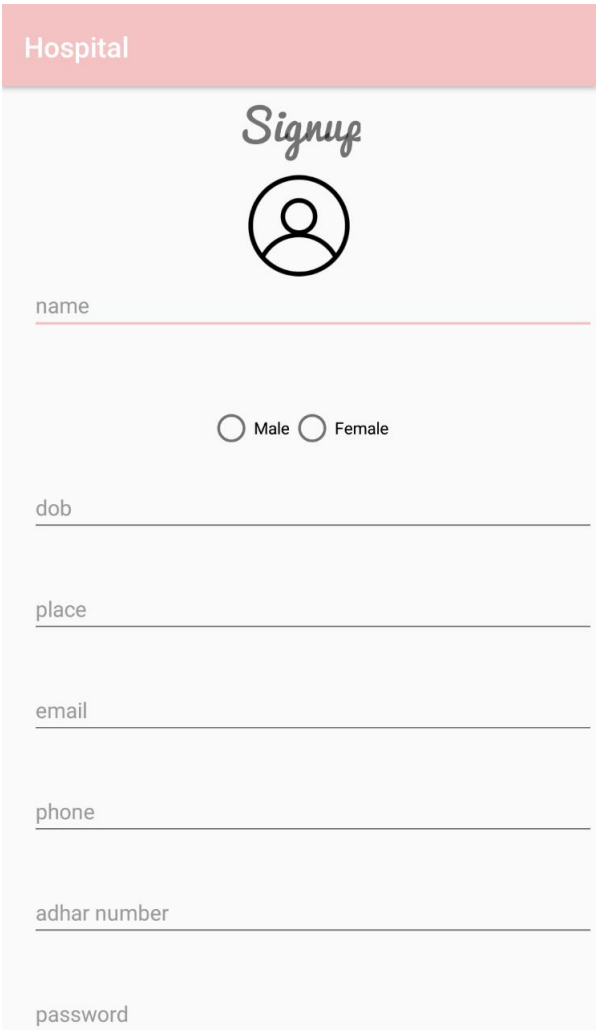

Figure 6: User signup interface

6.1.2 User And Viewer Login Interface

The user module and viewer module have same login page .Patient is the user.User and viewer can signup with details and can also login with login credentials.

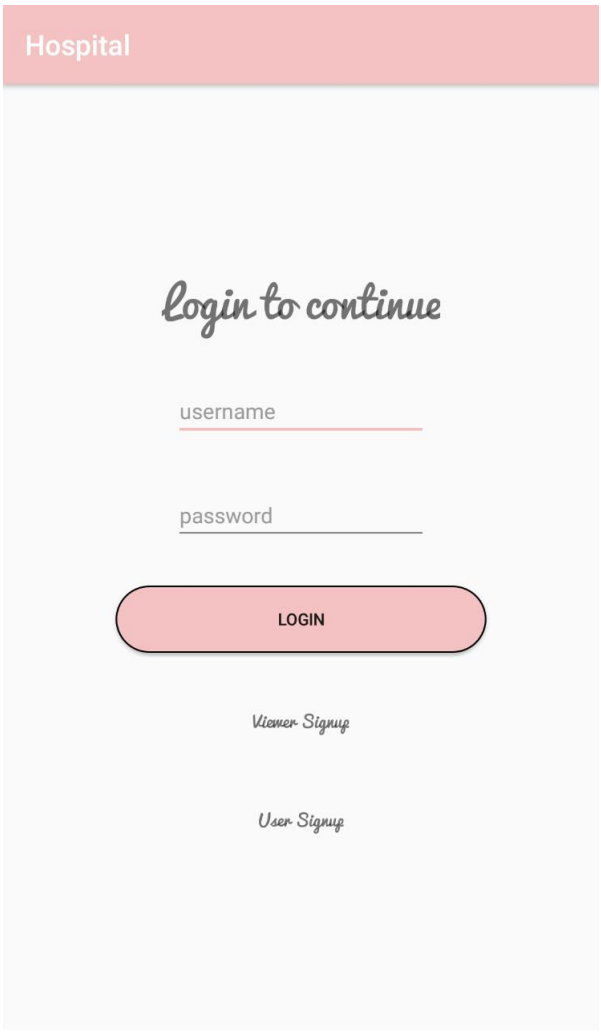

Figure 7: User And Viewer login interface

6.2 Hospital Ans Admin Interface Design

6.2.1 Hospital And Admin Interface

Admin and hospitals have same login page.Hospitals can signup Using hospital name and other details and can login using login Credentials.

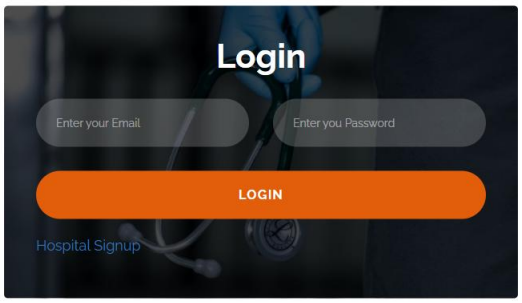

Figure 8: Hospital And Admin Login

6.2.2 Admin Home

Admin can view user details. Admin can approve or reject viewer and hospital based on genuinity.Can view ratings and reply for user complaints.

Figure 9: Admin Home interface

6.3 Hospital Sign up Interface

6.3.1

Hospitals can view and upload patients medical details. Datas are uploaded in cloud storage system. Hospitals can only see the details of patients uploaded by them.

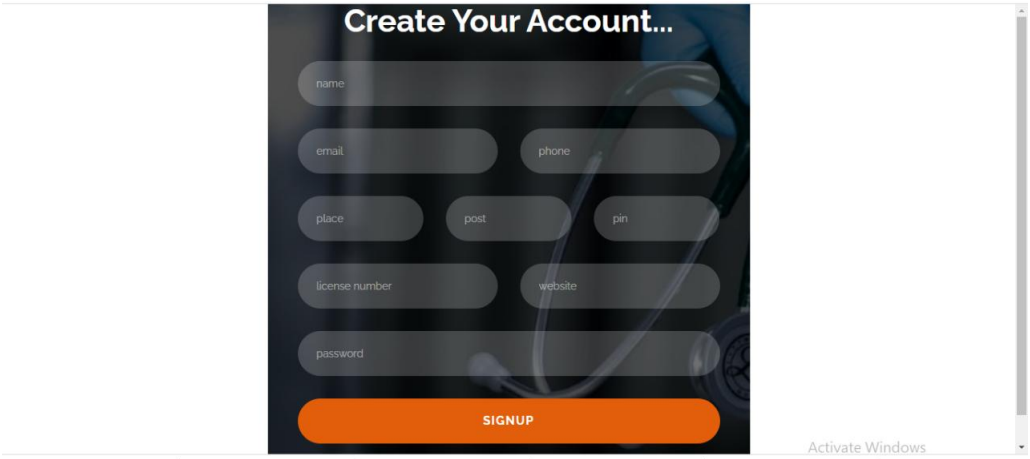

Figure 10: Admin Home interface

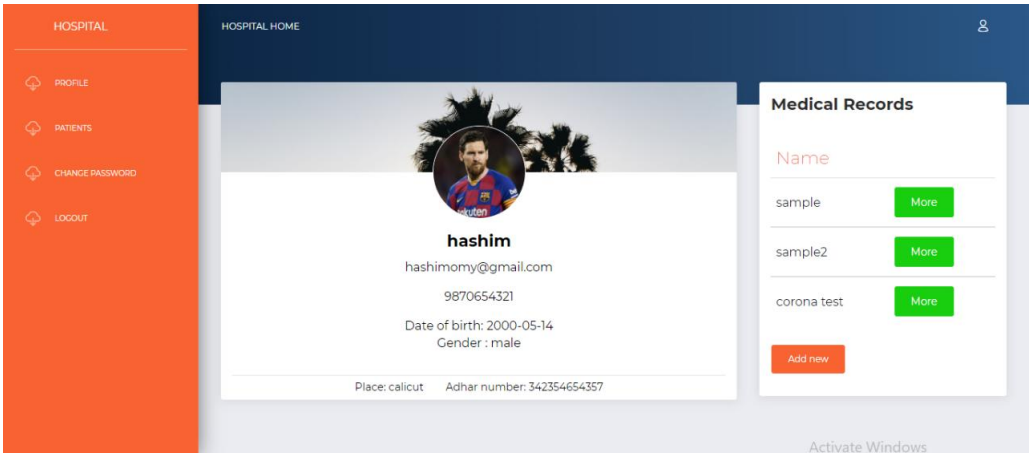

Figure 11: Patient Details interface

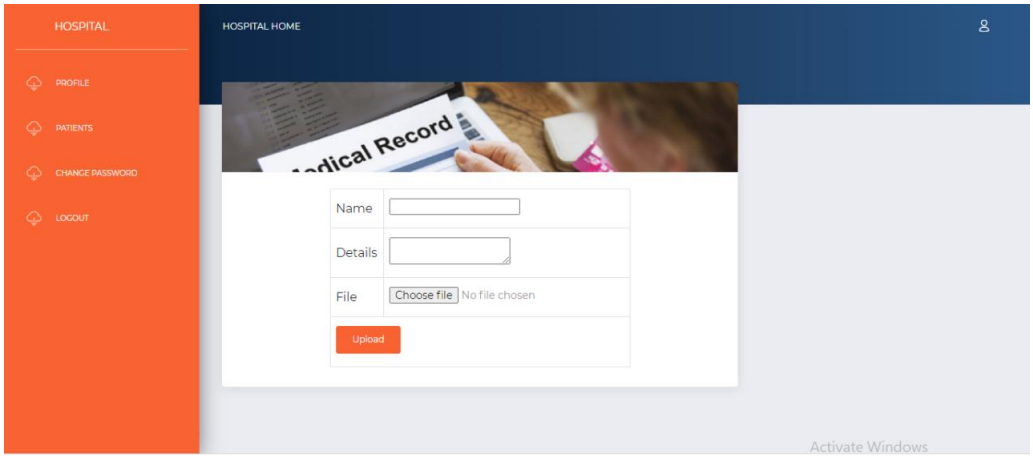

Figure 12: Upload Details

7 Detailed Design

7.1 Module Detailed Design

1. **User**
   It is designed for patients. User has the following functions:-

   1.1. User Login
   Patients can access this system via the android mobile application.

   1.2. Health Checkup -Data Entry
   Can view and manage their medical data.

   1.3. QR Code Generation
   here is a QR code attached to every record so that the user can just show it to whomsoever concerned instead of handing over their device.

2. **Viewer**
   Viewers are insurance agencies or others.The main functions are:-

   2.1. Login
   They can only access the record with user's permission .Viewer need to scan the QR from patient's app to access the corresponding file

3. **Hospitals**
   The Hospital portal has the following functions:-

   3.1. Upload medical records.Here we ensures no tampering will occur to medical data and they will by authentic and legit by making hospitals to upload the data themselves instead of patients.

   3.2. Can view patient's basic details and previous medical data uploaded by themselves .

4. **Admin**
   Admin portal is specifically designed for officials from govt side like ASHA workers,health inspectors. The admin portal has the following functions:-

   4.1. Viewer and Hospital modules need approval from Admin to get access to our system.

   4.2. Admin can revoke the approval and block Hospitals and Viewers for serious concerns.

   4.3. Admin can view and may give replies to patients complaints about hospitals.