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# SOFTWARE REQUIREMENT SPECIFICATION.

For MedHist®

Version 1.0

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# 1 Introduction

## 1.1 Purpose

This document presents the Software Requirement Specification (SRS) for the application **MedHist**. It specifies all the deliverable user and application requirements from a software perspective.
The purpose of this document is to present a detailed description and all the functionalities of the MedHist app. It will explain the purpose and features of the application, the interfaces of the application, what the application will do, the constraints under which it must operate and how the application will react to input by the user.

## 1.2 Document Conventions

This document uses the following conventions :
TBD - To Be Decided
Bold font - is used to highlight the important components of the application.

## 1.3 Intended Audience and Reading Suggestions

This document is intended to be read by architects, developers, testers, and marketing team. Section 3 of the document is mainly meant for design architects. Section 4 of the document is written keeping developers and testers in mind. It should be used by developers to write functions and by testers to write test cases. Marketing team can make use of this document to understand all the features and functionalities of the application and come up with suitable marketing strategies.

## 1.4 Product Scope

This application is a patient medical history tracker. It is intended to help the doctor keep an eye on the progress of the patient based on his previous visits to the clinics or diagnostic centres and past test reports.
More specifically the application is designed to allow doctors to add and maintain the records of the patient. A doctor can register, and view the medical record of the patient anywhere, anytime. It allows the patients to view their prescriptions and test reports. It eliminates the burden of carrying medical files. The main idea of this application is that doctors can find the history of the patient using a simple unique ID. This is a simple yet innovative application which expedites the interaction between the physician and patient. No special prerequisites are needed to use this application and should be made be designed and developed in a user friendly way.

## 1.5 References

*IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.

# 2. Overall Description

## 2.1 Product Perspective

The perspective of this product is to effectively manage and maintain the medical record of the patients. It is intended for the use of clinic doctors. It provides a centralised system for storing all the medical records so that it can be easily accessed by both the patients and the doctors thus easing up the procedure of check up. This product will help in handling all the medical records of the patient in a safe, secure and efficient way.

## 2.2 User Classes

- Doctors.
- Patients.
- Diagnostic Center.

## 2.3 Product Functions

The product is divided into 3 parts based on the person accessing it :

1. Doctor
    - The doctor has the permission to add a new patient record to the database.
        - **(Xref**-4.1)
    - The doctor has the ability to view the past records of the patients he is attending.
        - **(Xref**-4.2)
    - The doctor can use the search bar made available to search for a patient using his/her unique ID.
        - **(Xref**-4.2)
    - Patient and the doctor can communicate with each other using the chat box made available for the same.
        - **(Xref**-4.3)
2. Patient
    - The patient has the permission only to check his/her medical records, prescriptions and test reports.
    - The patient can download test reports and the prescription from the application
        - (**Xref**-4.4)

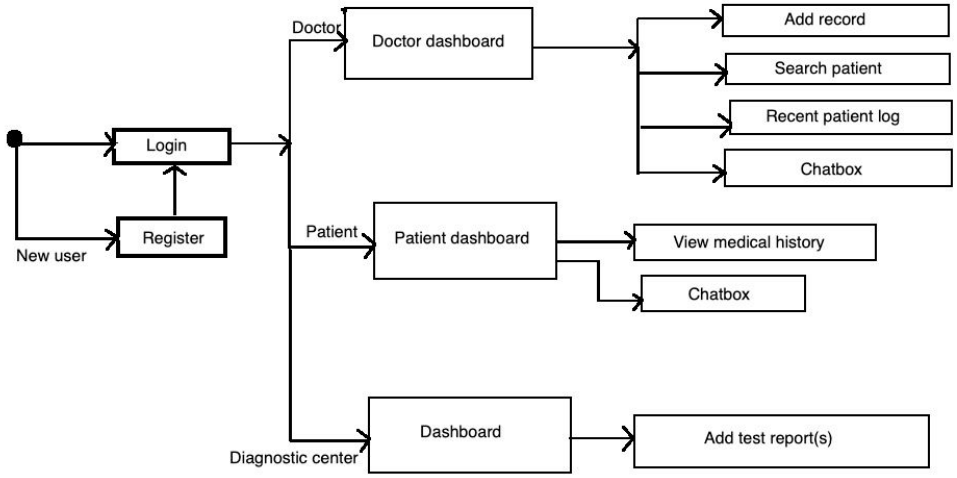
3. Diagnostic Centre
    - The diagnostic centre has the capability to upload the reports of the test they have done on the patient to that patient's records.
        - (**Xref**-4.5)
4. Data backup
    - A copy of the data is made everyday and stored in the form of backup so that it can be restored if any unexpected event occurs.
        - (**Xref**-4.6)

## 2.4 Operating Environment

The application works on Android and iOS devices, which has basic requirements like Wifi, internet, storage.
Minimum OS requirements - android 4.0.0+ and iOS 6 and above.
Minimum internet speed - 128 kbps
Backend - Firebase / MySQL (tentative, TBD)

## 2.5 Design

This flowchart gives an overview of the design of the application. This should be




## 2.6 User Documentation

Will be linked in the description of the application. A tutorial video should be provided at the time of production which will guide the users on how to use the app and what are its features.

## 2.7 Assumptions and Dependencies

No specific assumptions or dependencies are considered at this time.

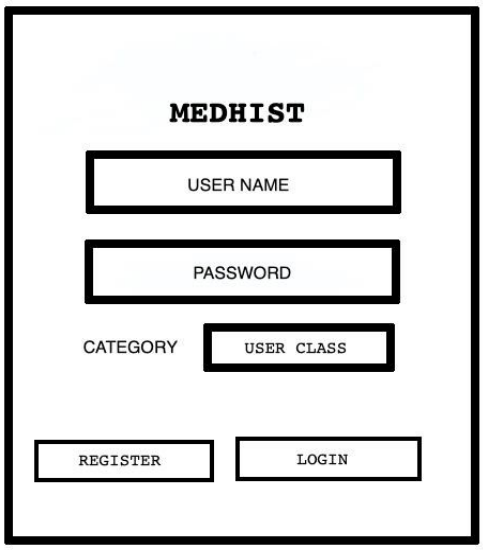
# 3. External Interface Requirements

## 3.1 User Interfaces

The UI of the application should be user friendly and materialistic. It uses english language. The user is expected to have a basic idea of how to use android / iOS. User interfaces are explained in detail below :

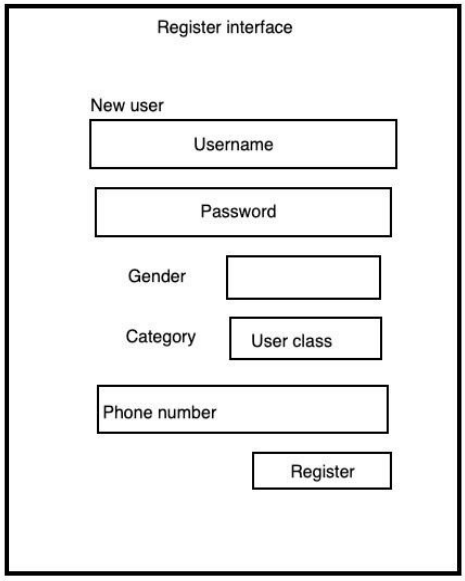
### 3.1.1 Login Interface

In this interface, there will be fields for username, password and dropdown list for selecting the category of user (doctor, patient and diagnostic center). There should be a button to login. There will be a register button, if the user has not registered to the application then he/she will use the register button to register.




### 3.1.2 Register Interface

In this interface, a user registers to the system by giving information about himself in provided text fields. After the user has filled the required fields with his/her related information (username, password, gender, phone number, user class), click the register button to register successfully.




### 3.1.3 Dashboard Interface

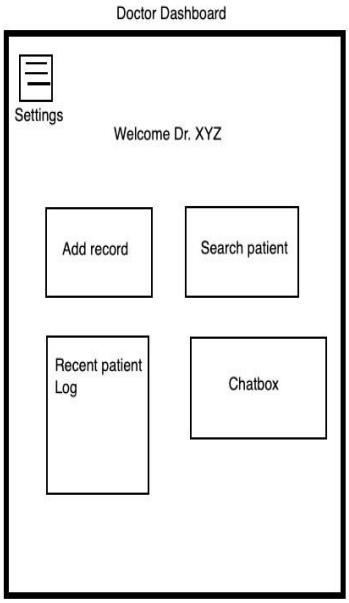
There will be a unique dashboard with different functionalities for doctors and patients.

#### 3.1.3.1 Doctor

In this interface, there should be a welcome text on the top. There should be 4 different buttons in the body. (Add a record, search, recent patient log and chatbox ). When these buttons are pressed they should be redirected to their respective pages.

#### 3.1.3.2 Patient

In this interface, there should be a welcome text on the top. There should be different buttons in the body. (View medical history and chatbox ). When these buttons are pressed they should be redirected to their respective pages.





### 3.1.4 Add a record

This interface is in accordance with the ‘add a record’ button on the doctor's dashboard. There will be a text field to enter relevant information about the medical condition ( Patient ID, illness, medical tests, prescription, general advice for the patient ).

### 3.1.5 Search Interface

This interface is in accordance with the ‘search’ button on the doctor’s dashboard. There will be a search bar, which takes patient ID as the input. When the search button is pressed, if a patient is found with that patient ID then the details of that patient are displayed. If there is no patient with that ID, then it displays ‘No such patient found’.

### 3.1.7 Chat Box Interface

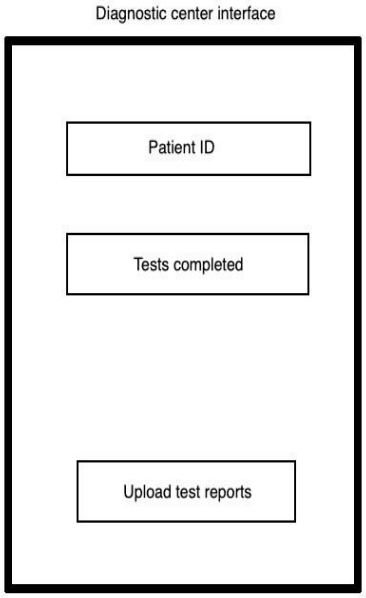
This interface is to be made available for doctors and patients. It is a simple chat interface, which provides a list of contacts and their chats.

### 3.1.8 Patient medical history view interface

This interface is in accordance with the ‘view medical records’ button in the patients dashboard. It will have a list view of all the medical checkups and treatments the patient has undergone.

### 3.1.9 Diagnostic centre Interface

This is the interface you get when you login under the category of diagnostic centre. It's a simple interface with very basic functionality of adding a test report. There will be fields for entering the patient ID, tests done and uploading the files of the report.




## 3.2 Hardware Interfaces

This application works on Android, IOS mobile devices and tablets. No other hardware is required. The device should have a good internet connection in order to fetch the data from the database. (Wi-Fi or 3G/4G internet connection is required).

## 3.3 Software Interfaces

Since this application is a mobile application, it will only need an Android version 4.0 or higher in order to perform.

## 3.4 Communication Interfaces

The communication between the client and the server is secured using safe internet protocols(TBD).The login credentials entered are cross checked with the database which uses sha 256 encryption to make sure that the passwords stored are secure. The client roles and server roles are separated by uniform interface. Communication to add data to the database is done with secure internet protocols(TBD) to avoid data breach or any other technical issues.

# 4. System Features

## 4.1 Add a record

| | |
|---|---|
| **Description** | This is the function using which a doctor can add a record to the patient's database,which can be used later for assessment of the patient. |
| **Stimulus** | This function is only accessible if the user has logged in as a doctor and selected the option to add a record to that particular patient's database. Only the doctor class has the privilege to add a record to the patients database. |
| **Function** | This is to be used by the doctor to add all the details about the patient that the doctor was able to understand in the session.<br>The details which can be added using this feature includes:-<br>● The ailment that the patient is suffering from.<br>● Prescription / medicine<br>● Tests which were conducted on the patient during that visit to the doctor.<br>● Particular remarks/advice that the doctor wants to give the patient. |

## 4.2 Past records and search bar

| | |
|---|---|
| **Description** | This is the function using which the doctor can view the medical history of the patient he is going to examine. |

| | |
|---|---|
| **Stimulus** | When the user is logged in as a doctor enters the unique code of a particular patient he is able to access the past records of that patient after confirmation from the patient. |
| **Function** | ● All the medical history of the patient is visible to the doctor.<br>● Whenever a new record has been added to the database this medical history is updated.<br>● A search bar is available which can be used to easily navigate to a particular patient's data using his unique ID. |

## 4.3 Chatbox

| | |
|---|---|
| **Description** | This is the function which enables communication between the doctor and the patient online. |
| **Stimulus** | This is accessible by both patient and the doctor by clicking on the chat option which opens this chat box which can be used to communicate. |
| **Function** | It is a chat box which can be used as a means of communication by the patient to get any kind of advice from the doctor who recently checked him. |

## 4.4 Patient-view record

| | |
|---|---|
| **Description** | The patient has the permission only to check his/her medical records, prescriptions and test reports. |
| **Stimulus** | A user has to be logged in as a patient can access these features. |
| **Function** | ● Patients can view his own medical history which has been added by the doctors.<br>● Patients can look at all the prescriptions,remarks and the advice given to him by the doctor.<br>● Patients can also look at all the test reports uploaded by the doctors and the diagnostic centres on him.<br>● Patients can download or print all these details as well. |

## 4.5 Diagnostic Centre functions

| | |
|---|---|
| **Description** | The diagnostic centre has the capability to upload the reports of the test they have done on the patient to that patient's records. |
| **Stimulus** | Users have to be logged in as a diagnostic centre. |
| **Function** | The reports which were obtained by doing tests on a certain patient can be uploaded to that patient's medical history by the diagnostic centre. |

## 4.6 Data Backup

| | |
|---|---|
| **Description** | A copy of the data is made everyday and stored in the form of backup so that it can be restored if any unexpected event occurs. |
| **Stimulus** | As this procedure occurs involuntarily there is no stimulus required for this procedure to occur. |
| **Function** | A copy of the database is made and is stored in the compressed form thus ensuring the availability of the required information in the case of uncertain events or emergencies. |

# 5. Other Nonfunctional Requirements

## 5.1 Performance requirements

- The system should provide acknowledgement  as soon as data gets committed in the database.
- System should be able to service at least 100 requests per second in order to guarantee high availability.
- User interface should be dynamic and should establish regular communication channels with the server to prevent the loss of data.
- The system should offer backup if in any case a patient's record goes missing.

## 5.2 Safety requirements

- Sensitive information of the patient should not get revealed.

- Software should be designed in such a way that patient information should be safe, and it should be accessible only to doctors and patients.
- The database with the patient data should be well maintained and available all the time. Only the admin should have access to make changes. Others should only be able to commit / save data.

- The user details are available to the admin - which are to be maintained confidentially.

## 5.3 Security Requirements

- Every user should login using his/her credentials.

- The whole application is secure, doctors and patients have access to restricted data. Only the admin can have access to all the data.

- Access control to be implemented via role based profiling of patient,doctor,administrators wherein each role will have seperate viewing of sensitive health records of patient's data.

- Modifications to patient's information like insert, delete, update etc.for the data should be In accordance to the ACID properties of relational databases
  **A** - Atrocity
  **C** - Concurrency
  **I** - Isolation
  **D** - Dynamity.

## 5.4 Software Quality Attributes

- **Reliability** : Doctors and patients should gain trust and rely on this application. The database should be available all the time, with a maximum maintenance time of 2hours.

- Software should be user friendly.

- Efficiency:It is measured in terms of time required to complete any task given to the system .System should utilise processor capacity,disc space and memory efficiency.

- Integrity and Security:the software should use upto date encryption protocols and methods to keep the data secure out of the hand of intruders,rigorous testing and updating should be done for this goal to be achieved.

- Testability:The code should be written with proper documentation for ease of testing and debugging.

# 6. Other requirements

- Administrators should be given complete access to the database. They are responsible for server maintenance and keeping it up to date.

- Regular updates should be released for the application to enhance its functioning, improve security and add new features.