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INFORMATION TECHNOLOGY AND MANAGEMENT
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SOFTWARE ENGINEERING LAB

SOFTWARE REQUIREMENT SPECIFICATION DOCUMENT

ON

DIGITAL HEALTHCARE SYSTEM

SUBMITTED TO: Dr. SANTOSH SINGH RATHORE

BY

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1. Introduction

1.1. Purpose

This document specifies the Software Requirements Specification (SRS) for digital healthcare system (MEDICARE). The purpose of this document is to present a detailed description of the functionality of MEDICARE Website. It will explain the purpose and features of the system, the interfaces of the system and what the system will do.

1.2. Scope of Project

The scope of this document includes an overview of the MEDICARE Website, detailed information about the requirements, including functional requirements, interface requirements, non-functional requirements and additional constraints of the system. The scope of the project also extends for Arogyashree verification to benefit poor and deprived when tied-up with the government.

More specifically, this system is designed to provide facility to patients and health providers at any time and anywhere.

Objectives:

The objectives of this project is to-

1. To construct an automated doctor -patient system.
2. To ensure that medical and healthcare services are accessible to remote areas.
3. Quick medical and healthcare services in case of emergencies.

The concept note is aimed at providing an integrated approach towards achieving online medical consultation for providing health services to rural and urban people by creating information communication infrastructure at finger tips.

The workflow of the application:

The first part of the workflow deals with identifying patients as a guest or registered. Next part is about allowing the patients to book and cancel appointments with the doctors according to their requirements. The third part is providing proper medical consultation to patients and maintaining a proper history of their progresses. The patients can also provide feedback about their experience.

1.3. Glossary

Term	Definition
Guest User	The user who is not registered and is using the application.
Registered User	The user who is registered in the database of the application.
Database	Collection of all the information monitored by this system.
Admin	Person who monitors everything.
Payment Gateway	Services offered by third parties for handling payment and secure transactions.
Software Requirements Specification	A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.
Stakeholder	Any person with an interest in the project who is not a developer.
User	Person who will use this application ,comprises of both guest and registered users.

1.4. Customer

The customer for this software is any person who wants to have health services. Anyone who needs a handy and time-saving feature to avail faster and reliable health services is a customer to this application.

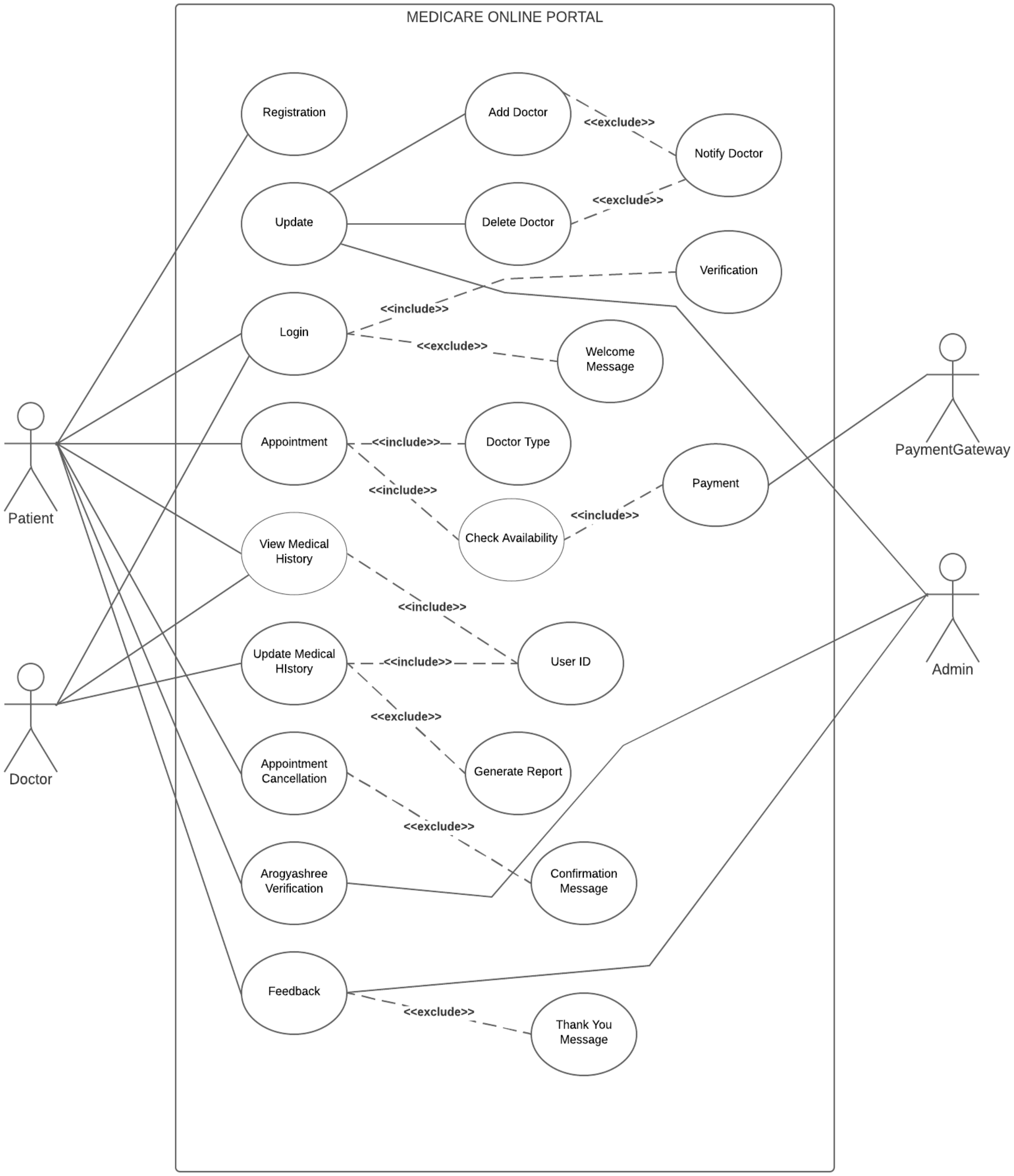
1.5. Competitive Landscape

There are many applications such Practo etc. which provide health consultancy but our application will provide live virtual interaction between doctor and patient. Our application also provides Arogyashree facility which is first of its kind in the digital health system industry. These features can create competitive differences which make this software notable than other systems in the market

2. Overall Description

2.1 System Environment

The main actors of the digital health system are the customer/user, doctors and the admin. Use case diagram for the same is shown below.



The payment and verification is done through the APIs. Any formal communication with the admin can be done through email. The admin controls the refund in case the transaction fails.

2.2 Functional Requirements Specification

Patient Use Case

2.2.1.1: Register

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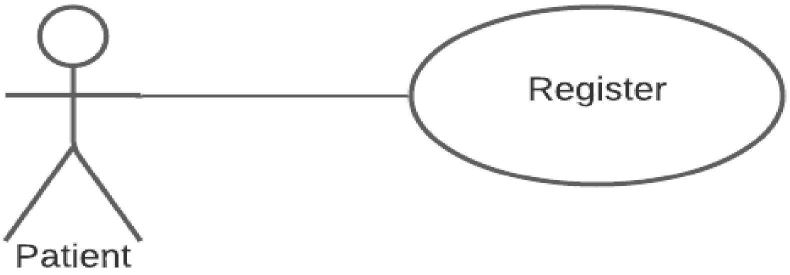


Brief Description : The user opens the portal there he will select option to register himself by filling necessary details

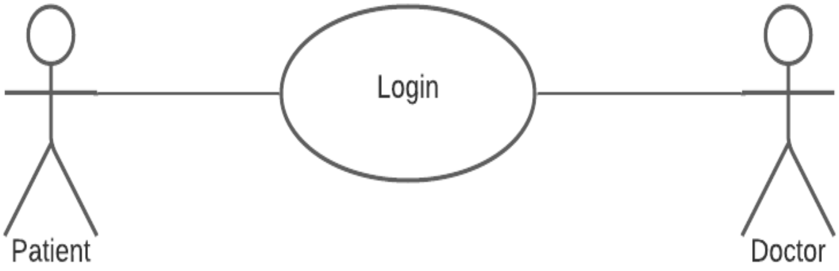
Initial Step-by-Step Description

Before the use-case can be initiated, the user has already opened the portal.

1- The user opens the portal and registers himself.

2- For registering, the user fills the details required.

2.2.1.2: Login

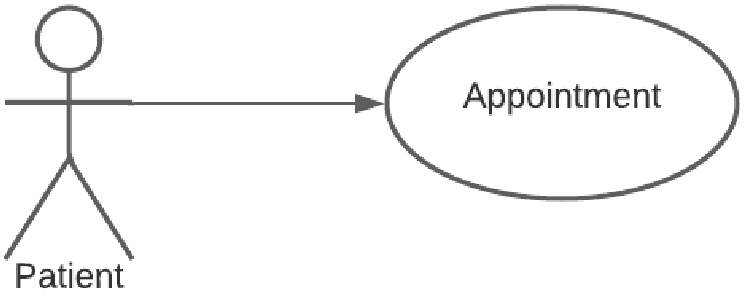


Brief Description : A registered user and doctor opens the site and logs into the site if the session is logged out.

Initial Step-by-Step Description
Before the use-case can be initiated, the patient has already accessed the portal and has registered.

1. The registered user opens the site and the login page is popped up.
2. The doctor and patient logs in to the site after verification.

2.2.1.3: Appointment

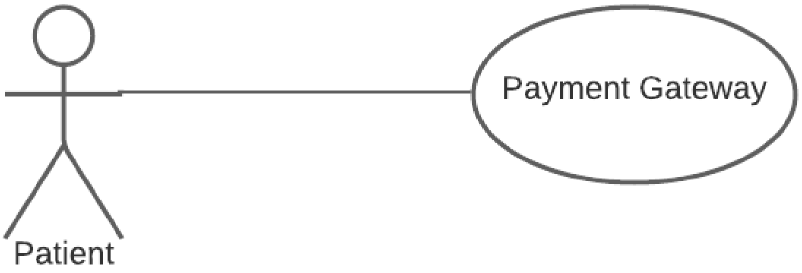


Brief Description :Patient can book appointment in a given time slot

Initial Step-by-Step Description
Before the use-case can be initiated, the user has already opened the site. Registered user is already logged in.

1. For both types of user a page with different services is popped up .
2. In doctor type drop down menu, they have to select doctor type and select the appropriate doctor for consultation.

2.2.1.4: Payment

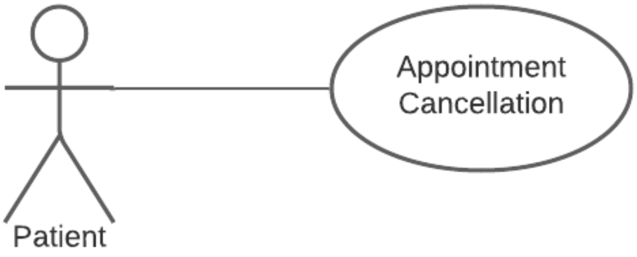


Brief Description : After selecting the suitable appointment time in accordance with the doctor's availability, the patient has to select payment mode from the options available and confirm the payment.

Initial Step-by-Step Description
Registered user is already logged in. Before the use-case can be initiated, the user has already booked the appointment. User is prompted to proceed for the payment.

1. User has to select the payment mode from the given options in the payment window.
2. After verifying the details, the user makes the payment.

2.2.1.5: Appointment Cancellation



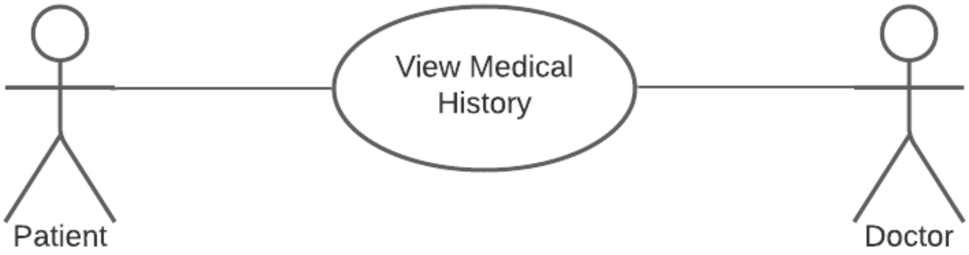
Brief Description : Patients can cancel their booked appointment, if they have some problem or issue at that time. Refunds will not be provided, however if the cancellation is initiated by the doctor’s side, the admin can provide a refund.

Initial Step-by-Step Description

Before the use-case can be initiated, the user is already completed with booking an appointment and completed payment for the same.

1. Patients will visit the appointment section of application.
2. From there they can cancel the appointment.

2.2.1.6: View Medical History



Brief Description : Registered users can view their own medical history and only doctors are allowed to update the medical history of the patient.

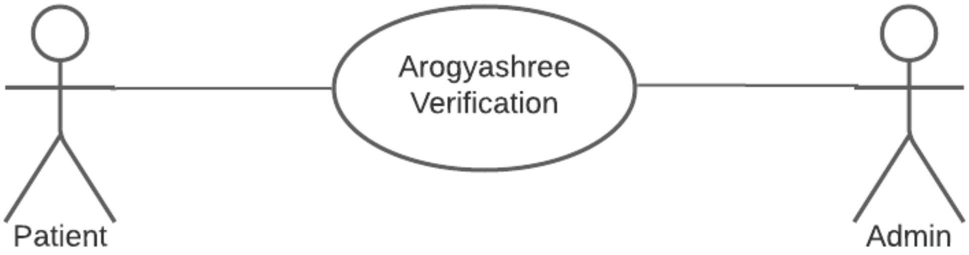
Initial Step-by-Step Description

Before the use-case can be initiated, the user is already on the portal and has logged in.

They can view their medical history and appointments.

1. Registered users will be allowed to view their medical history only in the view medical history window.
2. It helps the doctor to review the history of the patient for suitable treatment strategy and only doctors are allowed to update the patient medical history

2.2.1.7: ArogyaShree Verification



Brief Description : Patients having verified arogyashree id will be able to get services from organization for free.

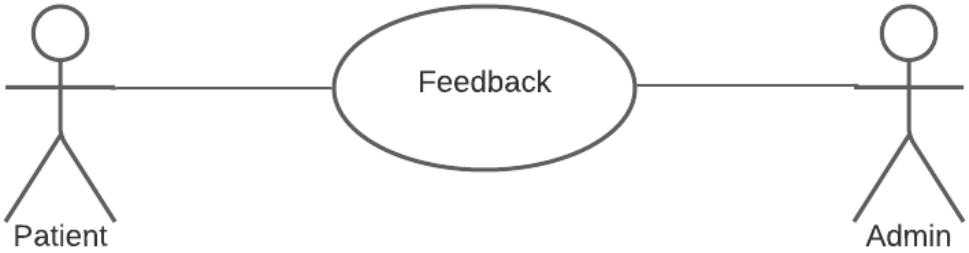
Initial Step-by-Step Description

Before the use-case can be initiated, the user has already opened the site and has logged in.

This would be helpful for financially weaker sections of the society.

1. Patients will be asked for an arogyashree number at the time of payment for appointment booking.
2. On successful verification of arogyashree id, the cost for consultancy will become zero.

2.2.1.8: Feedback diagram

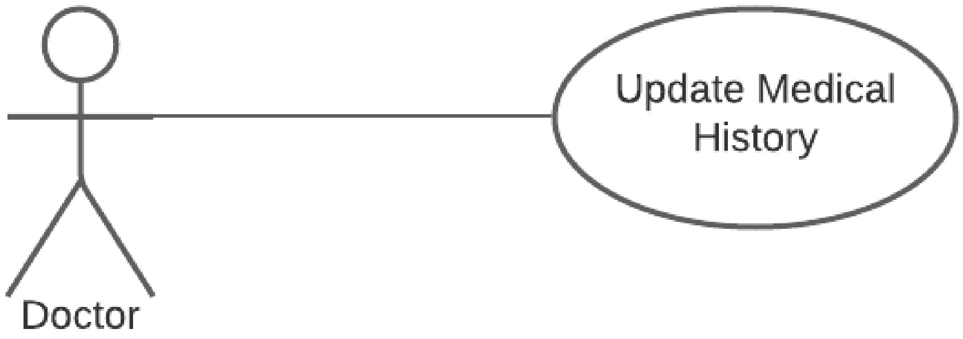


Before the use-case can be initiated, the user has already opened the site. Registered user is already logged in.

1. After successfully consulting a doctor, the patient will be asked for feedback about services provided by the application.
2. Patients will be able to rate the system on a scale of one to five stars

2.2.2 Doctor use case

2.2.2. Update medical history



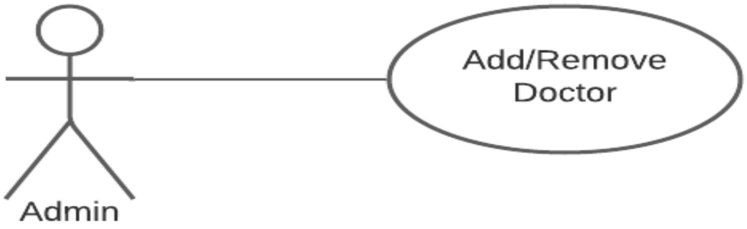
Brief Description : The doctor updates the medical report of the patient after virtually assessing the patient.The report here includes the patient's allergy, symptoms for illness, medicines prescribed.

Initial Step-by-Step Description: Before the use-case can be initiated, the doctor has already opened the site. Registered doctor is already logged in.

1. Here the only registered doctor is authorised to update the patient medical report .
2. It helps the doctor to review patient medical to apply suitable medical strategy for treatment.

2.2.3 Admin Use Case

2.2.3.1: Add/remove doctor



Brief Description : Admin will be able to add or remove doctors depending on who joins or leaves the organization.

Initial Step-by-Step Description
Before the use-case can be initiated, the user(doctor) has already opened the site and logged in.

1. Admin will be able to add or remove doctors from a dedicated list of doctors and their department(type).
2. Admin will be also responsible to provide email id and initial password to doctors so that they can access their account.

2.3. User Characteristics

The User is expected to be internet literate and be able to use a search engine. The main screen of the MEDICARE will have many sections like help section, transaction history section and many other which requires proper knowledge of internet and payment modes. The Admin and User are expected to be Internet literate and to be able to use email with attachments.

2.4. Non-Functional Requirements

Medicare will be on a server with high speed Internet capability.

As the payment is dependent on an external API, the speed of fetching the payment details depends on the speed of the server of the API. The authentication related information is stored in a high speed scalable server, it may be said that the data will be served at high speed, depending on the user's network speed.

3. Requirements Specification

3.1 External Interface Requirements

The links to an external system is a link to the external API which handles payment from various modes, and the second link is the database which holds all the data related to authentication of users.

3.2 Functional Requirements

3.2.1 Register

Use Case Name	Register
Xref	Section 2.2.1,Register
Trigger	Initially for the first time when the site will be launched.
Precondition	There should not any already registered user
Basic Path	1) The guest user opens the site and the register page is popped up. 2) The user must have to register .
Postcondition	After the verification of the registrations details has been done, the user is being redirected to the login page.
Other	none

3.2.2 Login

Use Case Name	Login
Xref	Section 2.2.1,Login
Trigger	Initially for the first time when the site will be launched.
Precondition	There should not be a logged user on the site.
Basic Path	1. The user opens the site and the login page is popped up. 2. The user has the option to register or to login depending whether is registered or not
Alternative Path	NULL
Postcondition	After the authentication has been done, the user is being redirected to the homepage.
Exceptional Path	The user may abandon login at any time.
Other	None

3.2.3 Enter Doctor Details and Type

Use Case Name	Enter Doctor Details and Type
Xref	Section 2.2.1,Enter Doctor Details and Type
Trigger	When a user navigates to select services..
Precondition	Registered user has to be logged in.
Basic Path	1. The user navigates to select services. 2. There the user is prompted to select the doctor type according to his/her needs.
Alternative Path	NULL
Postcondition	After selecting doctor and time slot for an appointment the user gets redirected to the payment portal.
Other	Time for an appointment should be selected from the available time slot provided.

3.2.4 Make Payment

Use Case Name	Make Payment
Xref	Section 2.2.1, Make Payment
Trigger	After filling appointment details ,the user clicks the make payment button.
Precondition	Appointment details should be filled correctly.
Basic Path	1. User checks the details and selects the appropriate mode of payment from the modes available. 2. He then clicks the confirm payment.
Alternative Path	Null
Postcondition	After confirmation the user gets the transaction bill with transaction id and success or failure message.In casse of failure he is asked to go to the help section of the app.
Exceptional Path	The user may cancel the payment at any time.
Other	The payment should be done from the given modes only.

3.2.5 Medical history

Use Case Name	Medical History
Xref	Section
Trigger	after virtually assessing the patient online
Precondition	The user should be registered and should consult the correct doctor. The doctor should update the medical history of concerned patient accurately
Basic Path	1. The user can just view the his/her medical history 2. Only a doctor must be allowed to update the.medical history and later can review the history for treatment.
Alternative Path	Null
Postcondition	After the update the medical history has to be verified and stored without any errors.
Exceptional Path	The user may view his/her medical medical history anytime.

3.2.6 Update(Add/Remove Doctor)

Use Case Name	Update(add/remove)
Xref	Section
Trigger	After admin login this button is triggered for add or remove of a doctor.
Precondition	Authorised doctors should only be given access.
Basic Path	1. Here the admin is allowed to add a new doctor by assigning login details and has the authority to remove the doctor by legal procedures.
Alternative Path	Null
Postcondition	After the adding of a new doctor, the doctor can be available to patients for appointment and removal of doctors leads to disable of his/her services on this platform.
Exceptional Path	Null

3.2.7 View Appointment History

Use Case Name	View AppointmentHistory
Xref	Section 2.2.1, View AppointmentHistory
Trigger	Registered User navigates to View Appointment history after login into the app.
Precondition	Registered users should be logged in and should have done successful Appointment previously.
Basic Path	1. Registered users will have to go to the View Appointment window in order to get the list of previous Appointments . 2. From the list provided he may select any particular Appointment to get its full information.
Alternative Path	NULL
Postcondition	Users will get the full information about any previous transaction.
Exceptional Path	The user may abandon the search at any time.

3.2.8 Feedback

Use Case Name	Feedback
Xref	Section
Trigger	After user login this section is triggered to rate a doctor
Precondition	Authorised user should be given access
Basic Path	1.The feedback must be genuine. 2.It helps the patients to consult a suitable doctors
Alternative Path	Null
Postcondition	After giving the feedback to a doctor ,it will public available to patients
Exceptional Path	Null

3.3 Non-Functional Requirements

3.3.1 Logical Structure of the Data

The logical structure of the data to be stored in the database is given below.

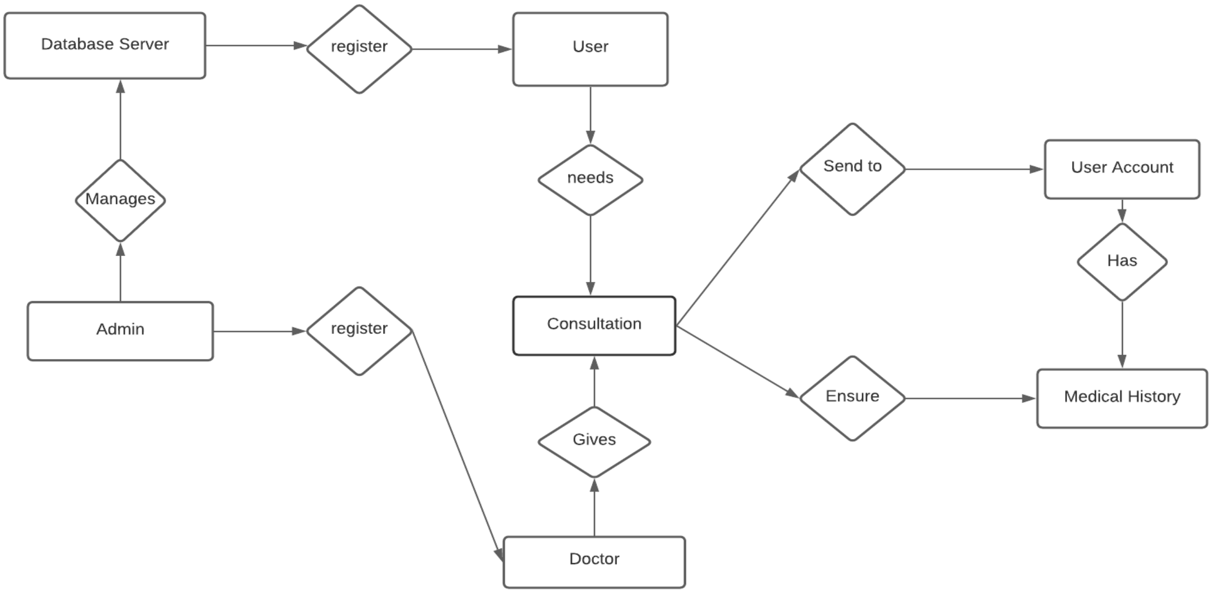


Fig: Diagram shows a flow on how the system is going to work

The data descriptions of each of these data entities is as follows:

User Data Entity

Data	**Type**	**Description**
First Name	Text	First Name of User
Last Name	Text	Last Name of User
Gender	Text	Gender of user
Age	Text	Age of user
Email Address	Text	Internet address
Mobile	Number	Mobile Number of User

Transaction Data Entity

Data	**Type**	**Description**
User	Pointer	Points towards user email
Transaction ID	Text	Unique Id assigned to a transaction
Amount	Decimal	Transaction Amount
Date	DateTime	Date and Time of transaction
Status	Text	Stores transaction status

Appointment Data Entity

Data	**Type**	**Description**
User	Pointer	Points towards user email
Transaction	Pointer	Points to Transaction ID
Date	DateTime	Date and Time of transaction
Status	Text	Stores appointment status

Prescription Data Entity

Data	**Type**	**Description**
Name	Text	Name of the user
Age	Integer	Age of user
Gender	Text	Gender of user
Email	Email	Internet address
Date and time	Date/time	Day and Time of an appointment
Prescription	Text	Doctor’s prescription

3.3.2 Security

The server on which the Online Recharge Portal resides will have its own security to prevent unauthorized write and delete access. There is no restriction on read access.

The PC on which the Admin resides will have its own security. Only the Admin will have physical access to the machine and the program on It. There is no special dedicated protection built into this system.