**Software Requirements Specification (SRS) for**

**Smart Health Consultation System (SHCS)**

1. **Introduction**

**1.1 Purpose:**

Smart Health Consultation System intends to maintain patient health records and helps to get appointments from various doctors for related treatments. The system user must register as a member of this system and keep updating his medical history. Patients can then select from a list of specialized doctors for respective treatments such as (skin specialist, ENT specialist cardiologist etc.) at particular locations. Patients may also select suitable appointment timings for their meeting.

This document is meant to delineate the features of SHCS, so as to serve as a guide to the developers on one hand and a software validation document for the prospective user on the other. It will also illustrate the purpose and complete declaration for the development of system.

**1.2 Scope:**

We describe what features are in the scope of the software to be developed.

*In Scope:*

1. User authentication
2. Maintaining authenticity of HealthCare providing institutions by Admins
3. Maintaining the records of a single Patient, which includes information about entities like medical history and Insurances.
4. Managing the details of Doctors, which includes information regarding hospital, specialization and appointment times.
5. Managing the allotment of appointments to various patients at particular locations.
6. Maintaining the inventory in pharmacy.
7. Managing the bills of patient.
8. Keeping track of insurance money and sending insurance coverage request.
9. Generating insurance tracking reports.

*Out of Scope:*

1. Insurance coverage from insurance companies subject to their regulations
2. Home Delivery of medicine

**1.3 Definition:**

1. UI: User Interface
2. UX: User Experience
3. Insurance: An arrangement by which a company or the state undertakes to provide a guarantee of compensation for specified loss, damage, illness, or death in return for payment of a specified premium.
4. GUI: Graphical User Interface

**1.4 Reference:**

Appendix A: Rules for insurance tracking.

**1.5 Overview:**

The rest of this SRS is organized as follows: Section 2 gives an overall description of the software. It gives what level of proficiency is expected of the user, some general constraints while making the software and some assumptions and dependencies that are assumed. Section 3 gives specific requirements which the software is expected to deliver. Functional requirements are given by various use cases. Some performance requirements and design constraints are also given. Section 4 describe respectively the formula for tracking insurance coverage user.

**2. Overall Description:**

**2.1 Product Perspective:**

SHCS is a software which tries to minimize hue and cry that general people face while availing healthcare services. It will help people to maintain all their health records in one place and get an appointment with the required doctor in any hospital at suitable timings. It is also aimed to provide facility for viewing of reports and tracking user’s insurance coverage at the comfort of your home. SHCS helps to pay bills through online transactions and also provides the facility sending insurance coverage request to concerned company. SHCS should be user-friendly and intuitive with respect the above purposes.

**2.2 Product Functions:**

SHCS should support the following use cases:

|  |  |  |
| --- | --- | --- |
| **Class of use cases** | **Use cases** | **Description of use cases** |
| Use cases related to User Authentication | Register as User | Creating User profile |
| User Login | Login to SHCS as User |
| Change Password | Change SHCS password |
| Register as Hospital | Creating Hospital profile |
| Register as Pharmacy | Creating Pharmacy profile |
| Pharmacy Login | Login to SHCS as Pharmacy |
| Use cases related to Appointment | Book Appointment | Booking appointment |
| Cancel Appointment | Canceling appointment |
| Use cases related to Medical History | Update Medical Record | Updating record |
| View Medical Record | Viewing record |
| Use cases related to billing | Consultation fee billing | Billing consultation fee |
| Medicine fee billing | Billing medicine fee |
| Online Payment | Digital payment |
| Use Cases related to pharmacy | Supply medicine | Supplying medicine and updating inventory |
| Add medicine to stock | Adding medicine to stock |
| Use cases related to Insurance Claims | Keeping track of insurance coverage | Tracking your insurance coverage |
| Sending insurance claims | Sending insurance coverage claims |
| Use case related to Admin | Verify and add User | Verifying user |
| Verify and add Hospital | Verifying Hospital |
| Delete User | Deleting user |

**2.3 Principal Actors:**

The principal actors in SHCS are

* User
* Admin
* Patient
* Doctor
* Hospital
* Pharmacy

**2.4 User Characteristics**:

1. No specific characteristics

**2.5 General Constraints:**

1. Internet Connection required

**2.6 Assumptions and Dependencies**:

1. Full working of SHCS is dependent on the availability of Internet connection.

2. Insurance policy changes are subject to company regulations.

**3 Specific Requirements:**

**3.1 Functional Requirements:**

We describe the functional requirements by giving various use cases.

*Use cases related to User Authentication*

**Use Case 1:** Register as User

Primary Actor: User

Pre-Condition: Nil

Main Scenario:

* + 1. System asks for details.
    2. User enters the details along with user type.
    3. Ask user to enter password two times
    4. Verify if password entered both the times is correct.
    5. Create account.
    6. Wait for admin verification if user is a doctor
    7. Open login page.

Alternate Scenario:

3(a). Passwords do not match.

3(a) 1. Prompt user to renter correct passwords.

3(a) 2. User enters correct passwords.

3(a) 3. Account is created.

3(a) 4. Wait for admin verification

3(a) 5. Open Login Page.

**Use Case 2:** User Login

Primary Actor: User

Pre-Condition: Nil

Main Scenario:

1. System prompts user for username and password.

2. User enters username.

3. User enters password.

4. System does authentication.

5. Main screen is displayed.

Alternate Scenario:

5(a). Authorization fails

5(a) 1. Prompt user to enter correct username and password.

5(a) 2. User enters correct details.

5(a) 3. Authentication done by system.

5(a) 4. Main Screen is displayed.

**Use Case 3:** Register as Hospital

Primary Actor: Hospital

Pre-Condition: Nil

Main Scenario:

* + 1. System asks for details.
    2. Hospital enters the details like location.
    3. Verify if password entered both the times is correct.
    4. Create account.
    5. Wait for admin verification

Alternate Scenario:

3(a). Passwords do not match.

3(a) 1. Prompt user to renter correct passwords.

3(a) 2. User enters correct passwords.

3(a) 3. Account is created.

3(a) 4. Wait for admin verification

**Use Case 4:** Register as Pharmacy

Primary Actor: Pharmacy

Pre-Condition: Nil

Main Scenario:

* + 1. System asks for details.
    2. Pharmacy enters the details like location.
    3. Verify if password entered both the times is correct.
    4. Create account.
    5. Open login page.

Alternate Scenario:

3(a). Passwords do not match.

3(a) 1. Prompt user to renter correct passwords.

3(a) 2. User enters correct passwords.

3(a) 3. Account is created.

3(a) 4. Open Login Page.

**Use Case 5:** Pharmacy Login

Primary Actor: Pharmacy

Pre-Condition: Nil

Main Scenario:

1. System prompts user for username and password.

2. Pharmacy enters username.

3. Pharmacy enters password.

4. System does authentication.

5. Main screen is displayed.

Alternate Scenario:

5(a). Authorization fails

5(a) 1. Prompt user to enter correct username and password.

5(a) 2. Pharmacy enters correct details.

5(a) 3. Authentication done by system.

5(a) 4. Main Screen is displayed.

**Use Case 6:** Change Password

Primary Actor: User

Pre-Condition: Logged in User

Main Scenario:

1. User initiates the password change command.

2. User is prompted for old password, new password and confirm new password.

3. User gives the old password, new password and confirm new one.

4. System does authentication.

5. New password is registered with the system.

Alternate Scenario:

4(a). Authorization fails

4(a) 1. Prompt the user that he typed the wrong password

4(a) 2. Allow him to re-enter the password. Give him 3 chances.

4(b). New password and confirm new password do not match.

4(b) 1. Allow him to re-enter the attributes. Give 3 chances

*Use cases related to Appointment*

**Use Case 7:** Book Appointment

Primary Actor: Patient

Pre-Condition: User logged in as Patient

Main Scenario:

1. Patient initiates “book appointment” functionality.

2. System asks user to select a specialization from a given list and enter location.

3. System displays the list of doctors under the selected specialization and available timings.

4. Patient selects a doctor with suitable timing and location.

5. Appointment confirmed and notification goes to doctor.

**Use Case 8:** Cancel Appointment

Primary Actor: Patient

Pre-Condition: Logged in as Patient

Main Scenario:

1. Patient initiates “cancel appointment” functionality.

2. System shows appointments

3. Patient selects appropriate appointment.

4. Patient clicks submit

*Use cases related to Medical History*

**Use Case 9:** Update Medical history

Primary Actor: Doctor

Pre-Condition: Logged in as Doctor.

Main Scenario:

1. Doctor fills prescription.
2. Doctor submit prescription.
3. System updates the medical record of a patient.

**Use Case 10**: View Medical History

Primary Actor: Patient

Pre-Condition: Logged in as Patient

Main Scenario:

1. Patient selects “View Medical History” functionality.
2. System displays Medical History ordered by date.

*Use cases related to billing*

**Use Case 11:** Consultation fee billing

Primary Actor: Doctor

Pre-Condition: Logged in as doctor

Main Scenario:

1. Doctor selects “Complete Appointment” functionality.
2. Doctor fills consultation fee.
3. System updates patient bill record with the consultation fee.
4. Online payment by user

**Use Case 12:** Medicine fee billing

Primary Actor: Pharmacy

Pre-Condition: Logged in as pharmacy

Main Scenario:

1. Pharmacy enters prescribed medicine details
2. Pharmacy selects “Generate Bill” functionality.
3. System updates patient bill record with the Medical Bill.
4. Online payment by user

**Use Case 13:** Online payment

Primary Actor: Patient

Pre-Condition: Bill created with payment status

Main Scenario:

1. Patient selects “Payment” option.
2. System takes to transaction window.
3. User chooses payment mode
4. User authentication on the platform
5. Online Payment

Alternate Scenario:

5(a). Authorization fails

5(a) 1. Prompt user to enter correct username and password.

5(a) 2. User enters correct details.

5(a) 3. Authentication done by system.

5(a) 4. Online Payment

*Use Cases related to pharmacy*

**Use Case 14**: Sale medicine

Primary Actor: Pharmacy

Pre-Condition: Logged in as pharmacy

Main Scenario:

1. Pharmacy receives medical prescriptions

2. Verifies if medicines are in stock

3. Updates inventory and supplies medicines

4. Bill is generated

Alternate Scenario:

3(a).Medicine is not in stock.

3(a) 1. Display error message

**Use Case 15**: Add medicine to stock

Primary Actor: Pharmacy

Pre-Condition: Logged in as pharmacy

Main Scenario:

1. Pharmacy gets supply of medicines
2. Pharmacist updates inventory

*Use cases related to Insurance Claims*

**Use Case 16**: Keeping track of insurance coverage

Primary Actor: Patient

Pre-Condition: Logged in as patients

Main Scenario:

1. Patient selects “insurance tracking” functionality.
2. System shows remaining limits of co-insurance and max out-of-pocket amounts.

**Use Case 17**: Sending insurance claims

Primary Actor: Patient

Pre-Condition: Logged in as patients

Main Scenario:

1. Patient selects bills from his bill record.
2. Verify details
3. System sends proper documented email to the concerned firm.

Alternate Scenario:

3(a) Details are invalid

3(a).1. Prompt patient for correct details three times

3(a).2. System sends proper documented email to the firm.

*Use case related to Admin*

**Use Case 18**: Verify and add User

Primary Actor: Admin

Pre-Condition: Logged in as Admin

Main Scenario:

1. Verify the credential.
2. Adds user.

**Use Case 19**: Verify and add Hospital

Primary Actor: Admin

Pre-Condition: Logged in as Admin

Main Scenario:

1. Verify the credential.
2. Adds Hospital.

**Use Case 20**: Delete User

Primary Actor: Admin

Pre-Condition: Logged in as Admin

Main Scenario:

* 1. Crosscheck the credential.
  2. Deletes user.

**3.2 Performance Requirements:**

1. Should run smoothly on every platform mainly PC and mobile platform.

2. GUI should be PC and mobile platform compatible

**3.3 Design Constraints:**

1. Design

Design should be user friendly and adhere to guidelines of good UI/UX.

2. Security:

The files in which the information regarding personal data should be secured against malicious deformations.

3. Fault Tolerance:

Data should not become corrupted in case of system crash or power failure.

**4. Future Extension**

a. Adding insurance companies to the system to enable claiming insurance money

**5. Appendix**

**5.1 Appendix A:**

**The formula for keeping track of insurance coverage, Suppose**

* Annual deductible : **D**
* Coinsurance : **p**
* Annual out-of-pocket maximum : **Max**

Then

1. User pays the first **D** in medical costs (your deductible) before your plan starts paying.
2. After that, you're responsible for **p** percent of costs until you reach the **Max**.
3. Your health plan then pays the rest of your in-network covered costs for the year, no matter how high they are.