Healthcare Management System

System Requirement Specification

Ajay Bhosle (02)
Atharv Suryavanshi (09)
Gaurav Urkude (27)
Saurabh Potdukhe (82)

Group no. 10 | PG-DAC Project | 28st Feb 2023

Table of Contents

THIS DOCUMENT CONTAINS 30 NUMBERED PAGES

1. Introduction

1.1 Purpose:

This document communicates the business requirements and scope for developing The Healthcare Management System. The scope of this document is to define the functional and non-functional requirements, business rules and other constraints requirements.

There is no system available which can manage the facilities of the hospitals and connect them with the doctors and patients efficiently. From patients' perspective it is hard for them to find hospitals, doctors, treatments and some particular medicines and to compare between them. It is also difficult to find an available bed at the hospitals in the vicinity. Also, carrying all the medical records in hard copy related to a treatment is difficult.

For doctors, it is hard to treat the patient if they don't know the medical history of that patient. There is also a difficulty for doctors to consult with each other or with an expert on a complex treatment. For hospitals, they cannot interact with patients about the availability of beds and treatments as well as specialist doctors who practice there for a limited period of time.

Because of these points, there is no efficient interaction between the patients, the doctors and the hospitals. We have experienced this mis-interaction in the last few years when the COVID-19 pandemic was ongoing.

1.2 Objective:

The main objective of this project is building a website which can increase the interaction between patients, doctors and hospitals. Supposing the patients have the knowledge of computers and the internet, they can easily find hospital facilities and treatments. They also can find medicines, medical equipment, blood banks etc. Also finding the basic fees of doctors and comparing them is easy. On the other side, doctors and hospitals can also manage their requirements according to patients. Data about the available facilities can be visible to the patients.

1.3 Scope:

- Hospital Management will be able to give information about bed availability as well as treatment facilities and doctors related to them.

- The System will be operational 24 x 7.

- This system will be operational in cities of Maharashtra state.

- Information about patient will be taken by patient sign up. Whenever the patient comes up, their information is stored freshly.

- Patient can check treatment info quality of facility, and basic price for these.

- Diagnosis information of patient is generally recorded on the system, which contains Patient information. This info can be available to the patient as well as doctors.

- Doctor's information will be taken by doctor sign up. This info will be provided by doctor and validated by hospital management.

- Treatments with their full info which are given by each doctor will be saved and can be used for patient's further treatments.

- Hospitals will be given access to the system by Admin. This can be done through validation and legal check. All the info about the whole system will be controlled by Admin.

2. Functional Requirements

The Account part of HealthCare Management System has four modules which are divided in processes described as below:

No.	BRS requirement ID	Description
2.1	**Patient's Module**	
2.1.1	F1	New Account Creation Process
2.1.2	F2	Patient Login Process
2.1.3	F3	Forgot Password Process
2.1.4	F4	Change Password Process
2.1.5	F5	Update/Delete Account Process
2.1.6	F6	Browse Treatments and Medical Services Process
2.1.7	F7	Search Doctors Process
2.1.8	F8	Medical Records and Treatment History Process
2.2	**Doctor's Module**	
2.2.1	F8	New Account Creation Process
2.2.2	F9	Doctor's Login Process
2.2.3	F10	Forgot Password Process
2.2.4	F11	Update/Delete Account Process
2.2.5	F12	Check Patient's Medical History Process
2.2.6	F13	Give medical advice to Patient Process
2.2.7	F14	Medical Specialist's Advice Process
2.3	**Hospital Administration's Module**	
2.3.1	F14	Hospital Login Process
2.3.2	F15	Manage Account Process
2.3.3	F16	Forgot Password Process
2.3.4	F17	Update/Delete Doctor's Account Process
2.3.5	F18	Update/Delete Treatments
2.3.6	F19	Bed/Capacity Management
2.3.7	F20	Notifications from Government Sector
2.4	**Admin Module**	
2.4.1	F21	Login Process
2.4.2	F22	Change Password Process
2.4.3	F23	Update Account Process
2.4.4	F24	Manage/Verify Hospitals Process
2.4.5	F25	Manage/Verify Visiting Doctors Process
2.4.6	F26	Report Generation Process

2.1 Patient Module

- Patient can register and create his own account.

- They are able to browse treatments and facilities.

- Patients can upload and save their medical record in digital format.

- Patient can select doctor and hospital as they see fit.

- Patients will be able to rate the services provided by the hospital.

2.1.1 New Account Creation Process

- HealthCare Management System will ask the user to create the account,if not exists already, before using it. So, HealthCare System should provide the function which makes Patient creates new account.

- When patient creates new account, the function demands four information described as below:
    1. Login information
    2. Contact Details

- The Login information consists of some items described as below:
    1. UserID
    2. Password
    3. First Name
    4. Last Name
    5. E-mail address
    6. Contact number
    7. User Type(Patient to be choosen for this case)

    ➢ All items are compulsory demanded except for Contact details.

    ➢ UserID
        The UserID should be unique. If the UserID correspond with not case-sensitive to other which is previously registered, the UserID should not be registered as an account.

    ➢ Password
        The Password has constrains which makes the Password consists of more than or equal 8 and less than or equal 16 characteristics including characters described as below:
        1. Numeric figure (at least one)
        2. Capital alphabet (A-Z)(at least one)
        3. Small alphabet (a-z)(at least one)
        4. Special character (#, $, %, &, etc.) (at least one)
        5. The Password is masked by dummy characters. The re-entering Password is demanded.
        6. The Password must be encrypted in HealthCare Management System.

> ➢ User Type
> The User Type falls into three categories described as below:
>> 1. Patient
>> 2. Doctor
>> 3. Hospital
>> 4. Administrator
>
>> ✓ The User Type defines also three types of user; "Patient user", "Doctor user", "Hospital user" and "Administrator user".
>> ✓ In an Account Creation Process, the user can select Patient.
>> ✓ No one could select The Administrator, because Administrator is implemented to HealthCare Management System in advance.
>
> ➢ Contact Details
>
> The Contact Detail consists of some items described as below.
>> 1. Permanent Address
>> 2. Contact Phone No

- The Security Question information
  The Security Question information is needed when Patient lost their Password. This information consists of two items described as below:
  >> 1. Selected Question
  >> 2. Answer

  > ➢ All items are compulsory demanded.

  > ➢ Some questions which are difficult to answer for anyone else are prepared in advance.
  >> E.g. which color do you like most?
  > ➢ A question should be selected from options by the Patient, and the Answer is registered by the Patient.

- Login information should be entered on one screen, and then Patient information and Security Question information should be entered on another screen.

2.1.2   Patient Login Process

- HealthCare Management System always compels user authentication before using itself except when a new account is successfully created.

- The user authentication demands UserID and Password. The UserID and the Password should be checked in three ways.

  > ➢ First, The UserID and the Password should be existed and correct.
  >> ✓ If The UserID and the Password are not equal to what the user has registered, the user authentication cannot be provided.

> ➢ Second, the User Type linked to the UserID should be "Patient".
> > ✓ When the User Type is "Patient", then user can be placed on "Patient Home".
>
> ➢ Finally, UserID should be available.
> > ✓ The Administrator can decide whether the UserID is available or suspended.
> > ✓ If Patient is rejected, user authentication is not provided for system user.

- The Patient account should alive for so long as the duration decided by Admin.

- Only when the three checks are successfully completed, Patient can be placed on respective page.

- The "Patient Home" provides the some items described as below:
  1. A trigger to Logout
  2. A trigger to Update Account
  3. A trigger to Change Password
  4. A trigger to Browse Treatments & Doctors
  5. A trigger to Search Hospitals
  6. A trigger to Update/Upload Medical Information
  7. A trigger to Rate the Facilities visited
  8. A trigger to Delete Account

2.1.3   Forgot Password Process

- When system user lost their Password, the recovery method should be provided by HealthCare Management System. The recovery method is described as below:

  > ➢ First, system user enters their UserID for HealthCare Management System.

  > ➢ Next, HealthCare Management System demands the Answer which has been registered since when the Account was created.

  > ➢ Only when the Answer is correct, Patient get the new password by E-mail which also has been registered since when the Account was created.

  > ➢ The new password is automatically generated by HealthCare Management System. Of course, the new password should consist of more than or equal 8 and less than or equal 16 characterics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.

- As a consequence, The Patient could get the Patient authentication using the new password.
  > ➢ Then, the Patient had better change the new password manually.

- If the Answer is not correct, otherwise, the correct Answer is demanded for user again.
  > ➢ In that case, Of course, Patient couldn't get the new password.

2.1.4   Change Password Process

- When Patient wants to change their Password, the measure should be provided by HealthCare Management System.

- Therefore, HealthCare Management System should provide the function which is available after getting the Patient authentication.

- The function demands the current password and the new password.

  - ➢ Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.
  - ➢ The current password and the new password are masked by using dummy characters.
  - ➢ The new password is demanded to enter twice to avoid a typing error.

- Only when the current password is correct, Patient could change their Password.

- When the current password is changed into new password, HealthCare Management System compels user authentication again.

2.1.5   Update Account Process

- HealthCare Management System should provide the function which makes the account updated for Patient.

- The information Patient could update is described below:
  1. Login information
  2. User information
  3. Security Question Information

- The Login information
  The updatable items as described below:
  1. First Name
  2. Last Name
  3. E-mail address

  - ➢ All items are compulsory demanded, but updating is optional.

- The User information
  The updatable items as described below:
  1. User Name
  2. User Phone No
  3. E-mail address
  4. Permanent address

> ➢ All items are compulsory demanded, but updating is optional.

- The Security Question information
  The updatable items as described below:
    1. Selected Question
    2. Answer

> ➢ All items are compulsory demanded, but updating is optional.

2.1.6   Browse Treatments and Medical Services Process

- Search conditions are described as below:
    1. Treatment category
    2. Treatment name
    3. Hospital name and address
    4. Treatment price

2.1.7   Search Doctors Process

- Search conditions are described as below:
    1. Doctor category
    2. Doctor name and location
    3. Availability Status

2.1.8   Medical Records and Treatment History Process

- HealthCare Management System should provide the function which manages the medical records for Patient.

- The information Patient could update is described below:
    1. Patient information
    2. Treatment records
    3. Treatment date and cost

2.1.9   Rating Facility process

- HealthCare Management System should provide the function which makes patient to rate the hospitality.

- The information Patient could update is described below:
    1. Hospital/Treatment information
    2. Ratings out of 5

3. Patient Review

2.1.10   Delete Account Process

- HealthCare Management System should provide the function which delete/deactivate Patient's account if they no longer want to use HealthCare System.

2.2 Doctor Module

- Doctors can register and create their own account individually.
- Healthcare Management System provides the function which allows doctors to review medical records of patients.
- Doctors can also take expert or specialist advice using the system.
- Update or remove option will be provided to doctors if they wanted to change or delete their account.

2.2.1 New Account Creation Process

- HealthCare Management System will ask the user to create the account,if not exists already, before using it. So, HealthCare System should provide the function which makes Patient creates new account.

- When patient creates new account, the function demands four information described as below:
    1. Login information
    2. Contact Details
- The Login information consists of some items described as below:
    1. UserID
    2. Password
    3. First Name
    4. Last Name
    5. E-mail address
    6. Contact number
    7. User Type(Doctor to be choosen for this case)
    8. Experience
    9. **Degrees**
    ➢ All items are compulsory demanded except for Contact details.
    ➢ UserID

The UserID should be unique. If the UserID correspond with not case-sensitive to other which is previously registered, the UserID should not be registered as an account.

➢ Password

The Password has constrains which makes the Password consists of more than or equal 8 and less than or equal 16 characteristics including characters described as below:

1. Numeric figure (at least one)
2. Capital alphabet (A-Z)(at least one)
3. Small alphabet (a-z)(at least one)
4. Special character (#, $, %, &, etc.) (at least one)
5. The Password is masked by dummy characters. The re-entering Password is demanded.
6. The Password must be encrypted in HealthCare Management System.

➢ User Type

The User Type falls into three categories described as below:

1. Patient
2. Doctor
3. Hospital
4. Administrator

✓ The User Type defines also three types of user; "Patient user", "Doctor user", "Hospital user" and "Administrator user".
✓ In an Account Creation Process, the user can select Doctor.
✓ No one could select The Administrator, because Administrator is implemented to HealthCare Management System in advance.

➢ Contact Details

The Contact Detail consists of some items described as below.

1. Permanent Address
2. Contact Phone No

- The Security Question information

The Security Question information is needed when Doctor lost their Password. This information consists of two items described as below:

1. Selected Question
2. Answer

➢ All items are compulsory demanded.

➢ Some questions which are difficult to answer for anyone else are prepared in advance.
    E.g. which color do you like most?
➢ A question should be selected from options by the Doctor, and the Answer is registered by the Doctor.

- Login information should be entered on one screen, and then Doctor information and Security Question information should be entered on another screen.

2.2.2 Doctor Login Process

- HealthCare Management System always compels user authentication before using itself except when a new account is successfully created.

- The user authentication demands UserID and Password. The UserID and the Password should be checked in three ways.

  - First, The UserID and the Password should be existed and correct.
    - ✓ If The UserID and the Password are not equal to what the user has registered, the user authentication cannot be provided.

  - Second, the User Type linked to the UserID should be "Doctor".
    - ✓ When the User Type is "Doctor", then user can be placed on "Doctor Home".

  - Finally, UserID should be available.
    - ✓ The Administrator can decide whether the UserID is available or suspended.
    - ✓ If Doctor is rejected, user authentication is not provided for system user.

- The Doctor account should alive for so long as the duration decided by Admin.

- Only when the three checks are successfully completed, Doctor can be placed on respective page.

- The "Doctor Home" provides the some items described as below:
  1. A trigger to Logout
  2. A trigger to Update Account
  3. A trigger to Change Password
  4. A trigger to Browse upcomming appointment list
  5. A trigger to Search Patient's medical record
  6. A trigger to Update/Upload Medical Information
  7. A trigger to Give medical advice to patient
  8. A trigger to Delete Account

2.2.3 Forgot Password Process

- When system user lost their Password, the recovery method should be provided by HealthCare Management System. The recovery method is described as below:

  - First, system user enters their UserID for HealthCare Management System.

> ➢ Next, HealthCare Management System demands the Answer which has been registered since when the Account was created.

> ➢ Only when the Answer is correct, Doctor get the new password by E-mail which also has been registered since when the Account was created.

> ➢ The new password is automatically generated by HealthCare Management System. Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.

- As a consequence, The Doctor could get the Doctor authentication using the new password.
  - ➢ Then, the Doctor had better change the new password manually.

- If the Answer is not correct, otherwise, the correct Answer is demanded for user again.
  - ➢ In that case, Of course, Doctor couldn't get the new password.

2.2.4 Change Password Process

- When Doctor wants to change their Password, the measure should be provided by HealthCare Management System.

- Therefore, HealthCare Management System should provide the function which is available after getting the Doctor authentication.

- The function demands the current password and the new password.
  - ➢ Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.
  - ➢ The current password and the new password are masked by using dummy characters.
  - ➢ The new password is demanded to enter twice to avoid a typing error.

- Only when the current password is correct, Doctor could change their Password.

- When the current password is changed into new password, HealthCare Management System compels user authentication again.

2.2.5 Update Account Process

- HealthCare Management System should provide the function which makes the account updated for Doctor.

- The information Doctor could update is described below:
  1. Login information
  2. User information
  3. Security Question Information

- The Login information
  The updatable items as described below:
  1. First Name
  2. Last Name
  3. E-mail address

  ➢ All items are compulsory demanded, but updating is optional.

- The User information
  The updatable items as described below:
  1. User Name
  2. User Phone No
  3. E-mail address
  4. Permanent address

  ➢ All items are compulsory demanded, but updating is optional.

- The Security Question information
  The updatable items as described below:
  1. Selected Question
  2. Answer

  ➢ All items are compulsory demanded, but updating is optional.

2.2.6 Browse Upcomming Appointment List

- Search conditions are described as below:
  1. Treatment category
  2. Price range

2.2.7 Search Patient's Medical Record

- Search conditions are described as below:
  1. Specialization category
  2. Ratings
  3. Availability Status

2.2.8 Give medical advice to patient

- HealthCare Management System should provide the function which makes the account updated for Doctor.

- The information Doctor could update is described below:
  1. Login information
  2. User information

3. Security Question Information

2.2.9

2.2.10   Delete Account Process

- HealthCare Management System should provide the function which delete/deactivate Doctor's account if they no longer want to use HealthCare System.

2.3 Hospital Management Module

- Hospital Administration will maintain their own account.
- This account can update data about the treatments and hospital beds availability.
- They can be considered to be a link between the patients and the doctors which are being connected through this platform.
- Hospitals will recieve government notifications and health sector advancement.
- Add, remove and update options will be given to the Hospital Administration to manage Doctors and Treatments.

2.3.1 New Account Creation Process

- HealthCare Management System will ask the user to create the account,if not exists already, before using it. So, HealthCare System should provide the function which makes Hospital creates new account.

- When patient creates new account, the function demands four information described as below:
    1. Login information
    2. Contact Details
- The Login information consists of some items described as below:
    1. UserID
    2. Password
    3. Name
    4. E-mail address
    5. Contact number
    6. User Type(Hospital to be choosen for this case)

  ➢ All items are compulsory demanded except for Contact details.

  ➢ UserID

The UserID should be unique. If the UserID correspond with not case-sensitive to other which is previously registered, the UserID should not be registered as an account.

➢ Password
The Password has constrains which makes the Password consists of more than or equal 8 and less than or equal 16 characteristics including characters described as below:
1. Numeric figure (at least one)
2. Capital alphabet (A-Z)(at least one)
3. Small alphabet (a-z)(at least one)
4. Special character (#, $, %, &, etc.) (at least one)
5. The Password is masked by dummy characters. The re-entering Password is demanded.
6. The Password must be encrypted in HealthCare Management System.

➢ User Type
The User Type falls into three categories described as below:
1. Patient
2. Doctor
3. Hospital
4. Administrator

✓ The User Type defines also three types of user; "Patient user", "Doctor user", "Hospital user" and "Administrator user".
✓ In an Account Creation Process, the user can select Hospital.

➢ Contact Details

The Contact Detail consists of some items described as below.
1. Permanent Address
2. Contact Phone No

- The Security Question information
The Security Question information is needed when Hospital lost their Password. This information consists of two items described as below:
1. Selected Question
2. Answer

➢ All items are compulsory demanded.

➢ Some questions which are difficult to answer for anyone else are prepared in advance.
E.g. which color do you like most?
➢ A question should be selected from options by the Doctor, and the Answer is registered by the Doctor.

- Login information should be entered on one screen, and then Doctor information and Security Question information should be entered on another screen.

2.3.2   Login Process

- HealthCare Management System always compels user authentication before using itself except when a new account is successfully created.

- The user authentication demands UserID and Password. The UserID and the Password should be checked in three ways.

  ➢ First, The UserID and the Password should be existed and correct.
     ✓ If The UserID and the Password are not equal to what the admin has registered, the Admin authentication cannot be provided.

  ➢ Second, the User Type linked to the UserID should be "Hospital Management Administration".
     ✓ When the User Type is " Hospital Management Administration", user can be placed on "Hospital Management Administration Home".

  ➢ Finally, UserID should be available.
     ✓ The Administrator can decide whether the UserID is available or suspended – Refer to the SRS of the Admin part.
     ✓ If user is rejected, user authentication is not provided for system user.

- The Hospital account should alive for so long as the duration decided by Admin.

- Only when the three checks are successfully completed, Admin can be placed on respected page.

- The "Hospital Home" provides the some items described as below.

  1. A trigger to logout
  2. A trigger to update Account
  3. A trigger to Change Password
  4. A trigger to Publish Treatments
  5. A trigger to Update Treatments Information
  6. A trigger to Delete Treatment
  7. A trigger to Browse existing Patients
  8. A trigger to Add Doctors
  9. A trigger to Update Doctors Information
  10. A trigger to Delete Doctor's Information

2.3.3 Forgot Password Process

- When Hospital lost their Password, the recovery method should be provided by HealthCare system.

The recovery method is described as below.

> First, Admin enters their UserID for HealthCare System.

> He will enter the E-mail id since when the Account was created.

> Only when the E-mail Id is correct, Hospital will get the new password by E-mail which also has been registered since when the Account was created.

> The new password is automatically generated by e-Farming System.
>   ✓ Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.

- As a consequence, The Hospital could get the authentication using the new password.
  > Then, the Hospital had better change the new password manually.

2.3.4 Change Password Process

- When Hospital wants to change his Password, the measure should be provided by HealthCare System.

- Therefore, HealthCare System should provide the function which is available after getting the Hospital authentication.

- The function demands the current password and the new password.

  > Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.
  > The current password and the new password are masked by using dummy characters.
  > The new password is demanded to enter twice to avoid a typing error.

- Only when the current password is correct, Hospital could change his Password.

- When the current password is changed into new password, HealthCare System compels user authentication again.

2.3.5 Update Account Process

- HealthCare System should provide the function which makes the account updated for Hospital.

- The information Hospital could update is described below.
        1. Login information

2. User information
3. Security Question Information

- The Login information
  The updatable items as described below.
  1. First Name
  2. Last Name
  3. E-mail address

  ➢ All items are compulsory demanded, but updating is optional.

- The User information
  The updatable items as described below.

  1. User Name
  2. User Phone No
  3. E-mail address
  4. Permanent address

  ➢ All items are compulsory demanded, but updating is optional.

- The Security Question information
  The updatable items as described below.
  1. Selected Question
  2. Answer

  ➢ All items are compulsory demanded, but updating is optional.

2.3.6 Publish Treatment

- Hospital should able to add/manage all the Treatment.
- Daily report of enrolment to Hospital.
- Monthly report of enrolment as per the states to Hospital.

2.3.7 Delete Treatment

- Hospital should able to manage all the accounts with following activities:
  a. Enable services
  b. Disable services

2.3.8 Browse existing Patients

- Hospital should able to:

1. Keep existing patient record
2. Manage appointment dates

2.3.8 Manage Doctor's Account

- HealthCare System should provide the function which makes the Hospital manage Doctors account.

- The information Hospital could update is described below.

    1. Add information
    2. Update information
    3. Delete account

2.4 Admin Module

- The Healthcare Management System should provide all functions to the admin about how to handle the System i.e. patients, visiting doctors and hospitals.
- Hospital Administrations as well as visiting doctors will be authorized and verified by the admin.
- Admin will be connected to the government health bodies (like ICMR) directly.
- They could know about all the transactions that happen through the system and generate reports.
- Add, remove and update options will be given to the Admin to manage Hospitals and visiting Doctors.

2.4.1 Login Process

- HealthCare Management System always compels user authentication before using itself except when a new account is successfully created.

- The user authentication demands UserID and Password. The UserID and the Password should be checked in three ways.

    ➢ First, The UserID and the Password should be existed and correct.
        ✓ If The UserID and the Password are not equal to what the admin has registered, the Admin authentication cannot be provided.

    ➢ Second, the User Type linked to the UserID should be "Admin".
        ✓ When the User Type is "Admin", user can be placed on "Admin Home".

    ➢ Finally, UserID should be available.

       ✓ The Administrator can decide whether the UserID is available or suspended – Refer to t

       ✓ The SRS of the Admin part.

       ✓ If user is rejected, user authentication is not provided for system user.

- The Admin account should alive for so long as the duration decided by Admin.

- Only when the three checks are successfully completed, Admin can be placed on respected page.
- The "Admin Home" provides the some items described as below.
    1. A trigger to logout
    2. A trigger to update Account
    3. A trigger to Change Password
    4. A trigger to Generate Reports
    5. A trigger to Add Visiting Doctors
    6. A trigger to Remove Visiting Doctors
    7. A trigger to Update Visiting Doctors
    8. A trigger to Verified the Visiting Doctors
    9. A trigger to Verified the Hospitals
    10. A trigger to Add Hospitals
    11. A trigger to Remove Hospitals
    12. A trigger to Update Hospitals
    13. Government Notifications

2.4.2 Forgot Password Process

- When Admin lost their Password, the recovery method should be provided by HealthCare Management System.
  The recovery method is described as below.

  - First, Admin enters their UserID for HealthCare Management System.

  - He will enter the E-mail id since when the Account was created.

  - Only when the E-mail Id is correct, Admin get the new password by E-mail which also has been registered since when the Account was created.

  - The new password is automatically generated by HealthCare Management System.
    - ✓ Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.

- As a consequence, The Admin could get the Admin authentication using the new password.
  - Then, the Admin had better change the new password manually.

2.4.3 Change Password Process

- When Admin wants to change his Password, the measure should be provided by HealthCare Management System.

- Therefore, HealthCare Management System should provide the function which is available after getting the Admin authentication.

- The function demands the current password and the new password.

    ➢ Of course, the new password should consist of more than or equal 8 and less than or equal 16 characteristics including at least a numeric figure, a capital alphabet, a small alphabet, and a special character.
    ➢ The current password and the new password are masked by using dummy characters.
    ➢ The new password is demanded to enter twice to avoid a typing error.

- Only when the current password is correct, Admin could change his Password.

- When the current password is changed into new password, HealthCare Management System compels user authentication again.

2.4.4 Update Account Process

- HealthCare Management System should provide the function which makes the account updated for Admin.

- The information Admin could update is described below.

    3. Login information
    4. User information
    5. Security Question Information

- The Login information
  The updatable items as described below.

    6. First Name
    7. Last Name
    8. E-mail address

    ➢ All items are compulsory demanded, but updating is optional.

- The User information
  The updatable items as described below.

9. User Name
10. User Phone No
11. E-mail address
12. Permanent address

➢ All items are compulsory demanded, but updating is optional.

- The Security Question information
  The updatable items as described below.

13. Selected Question
14. Answer

➢ All items are compulsory demanded, but updating is optional.

2.4.5 Record Generation

• Admin should able to see all the records from any users.
• Daily report of enrolment to admin.
• Monthly report of enrolment as per the states to admin.

2.4.6 Accounts Management

• Admin should able to manage all the accounts with following activities,
1. Enable accounts
2. Disable accounts

2.5 Use Case Diagram

Admin:
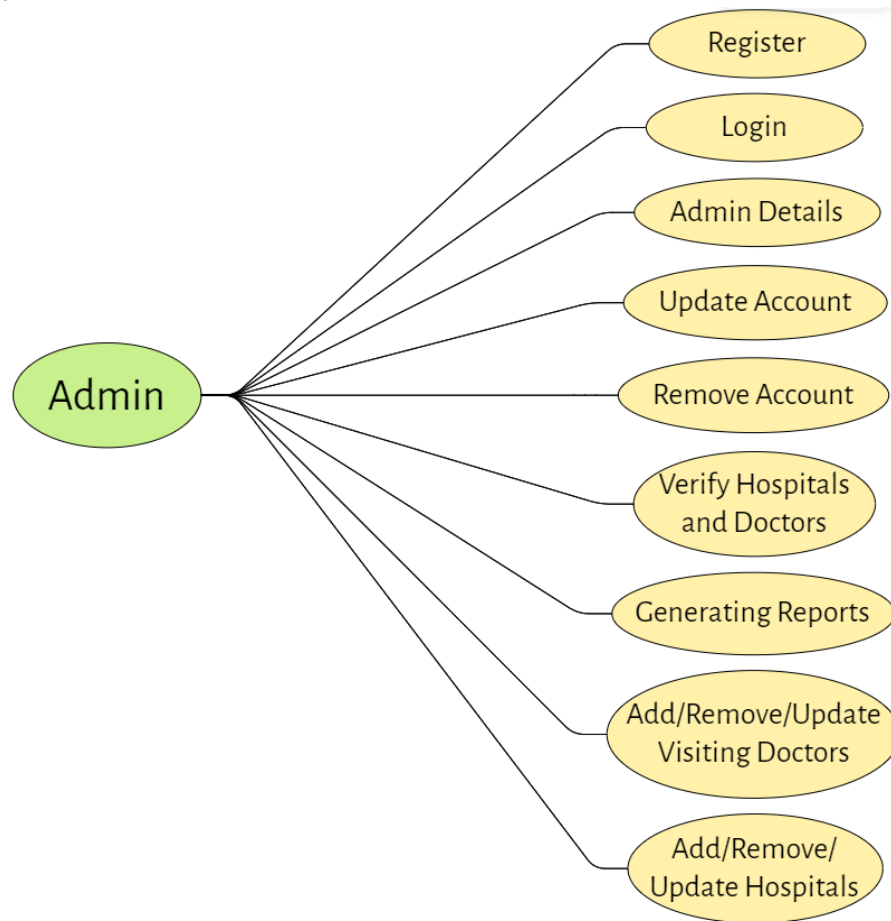
Fig. Use case diagram for admin

1. In Admin use case diagram Admin is the Actor.
2. Admin can handle following use cases:
   a. Register
   b. Login
   c. Admin Details
   d. Update Account
   e. Remove Account
   f. Verify Hospitals and Doctors
   g. Report Generation
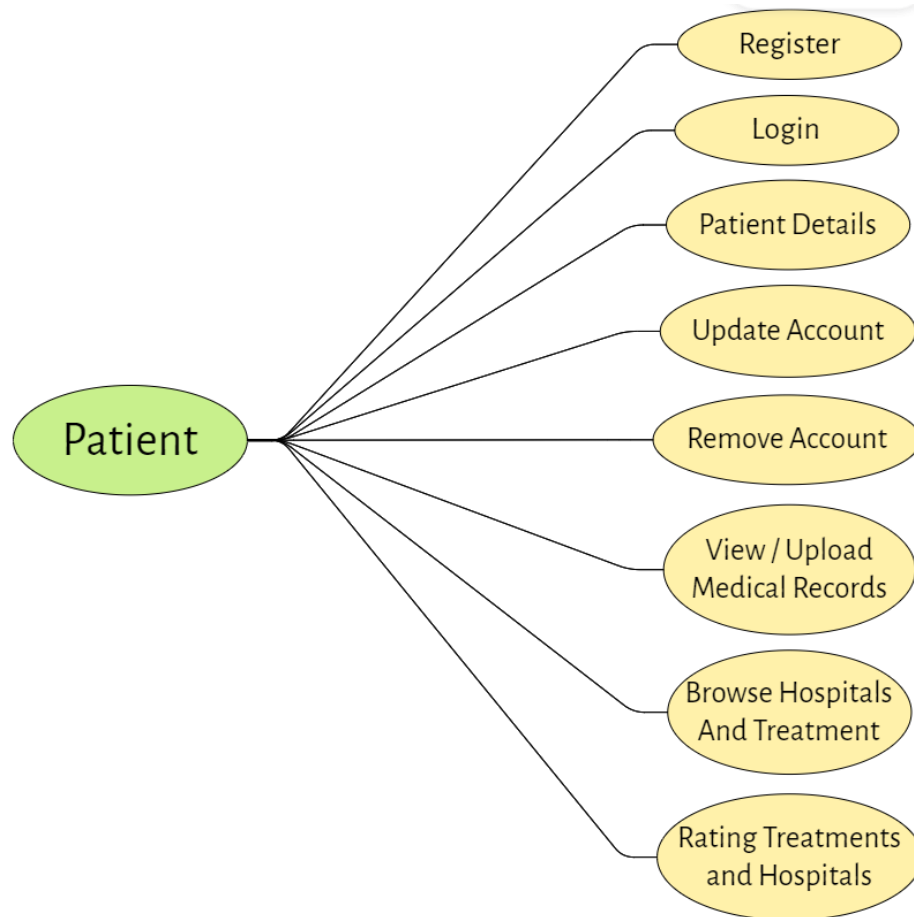   h. Add/Remove/Update Visiting Doctors
   i. Add/Remove/Update Hospital

Patient:

Fig. Use case diagram for Patient

1. In Patient use case diagram Patient is the Actor.
2. Patient can handle following use cases:
   a. Register
   b. Login
   c. Patient Details
   d. Update Account
   e. Remove Account
   f. View/Upload Medical Records
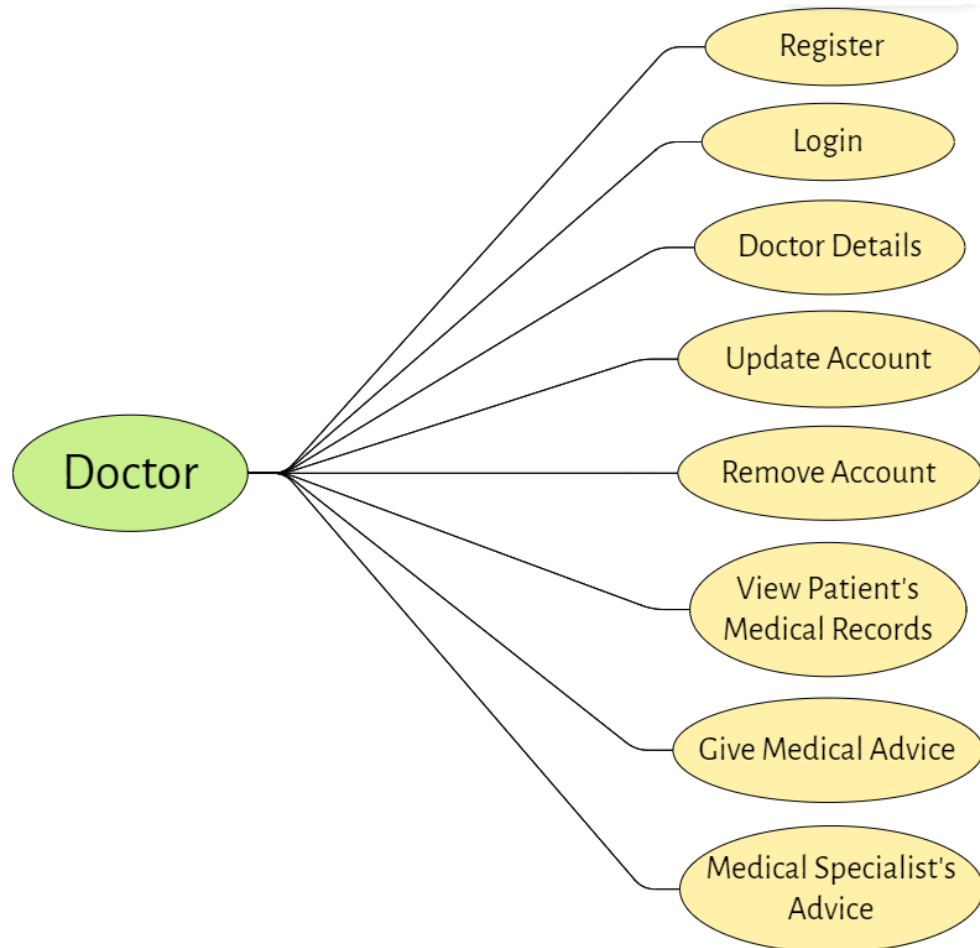   g. Browse Hospitals and Treatments
   h. Rating Treatments and Hospitals

Doctor:

Fig. Use case diagram for Doctor

1. In Doctor use case diagram Doctor is the Actor.
2. Doctor can handle following use cases:
    a. Register
    b. Login
    c. Doctor Details
    d. Update Account
    e. Remove Account
    f. View Patient's Medical Records
    g. Give Medical Advice
    h. Medical Specialist's Advice
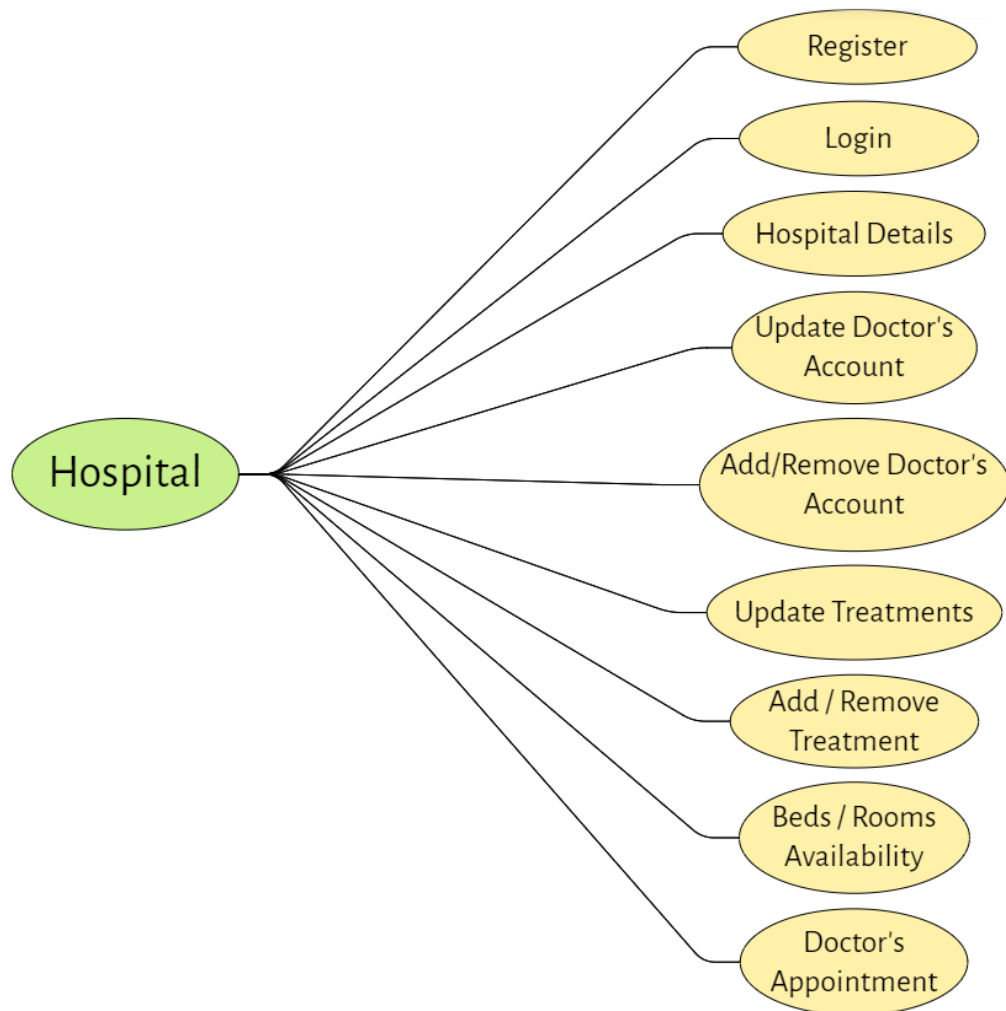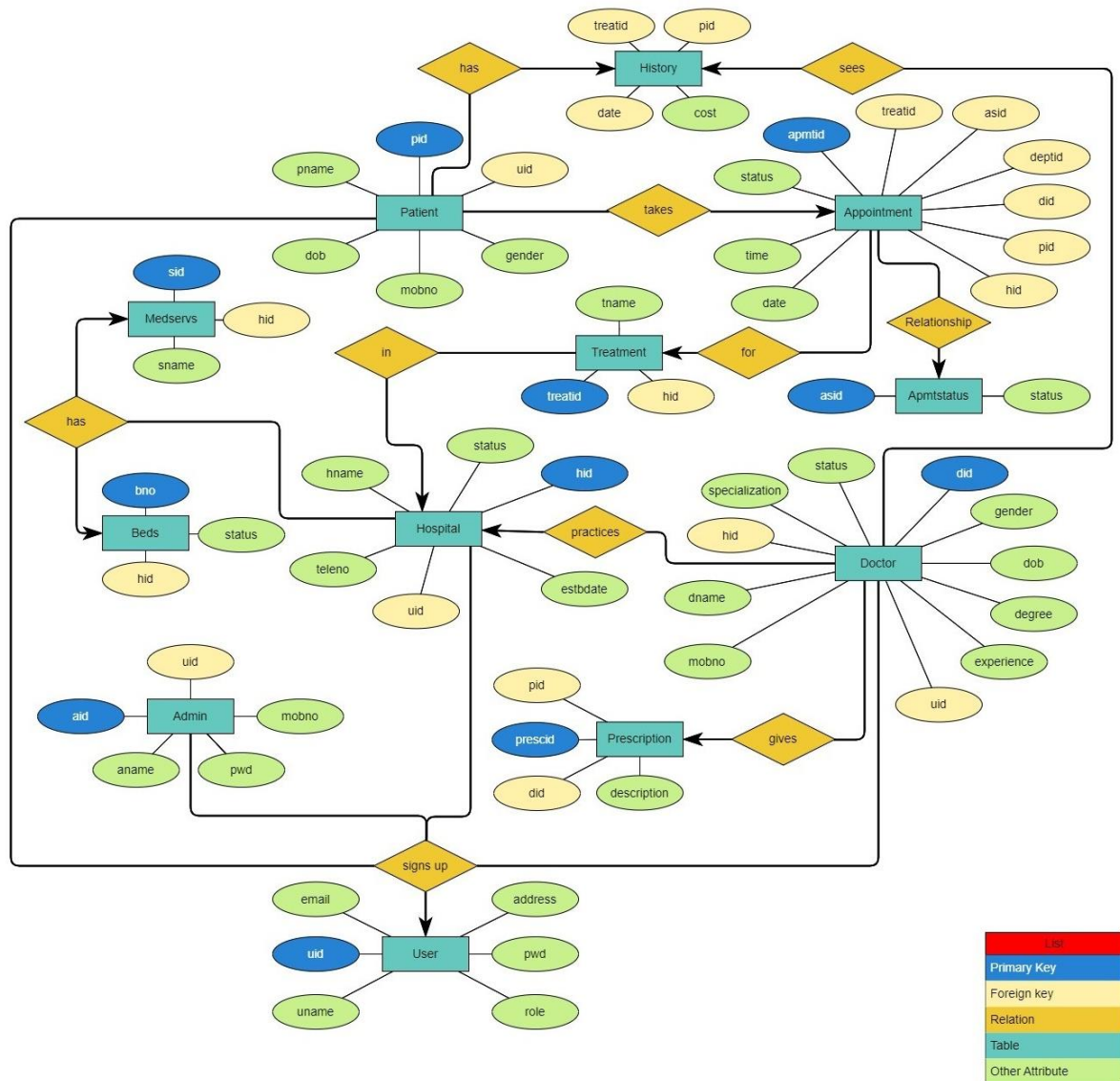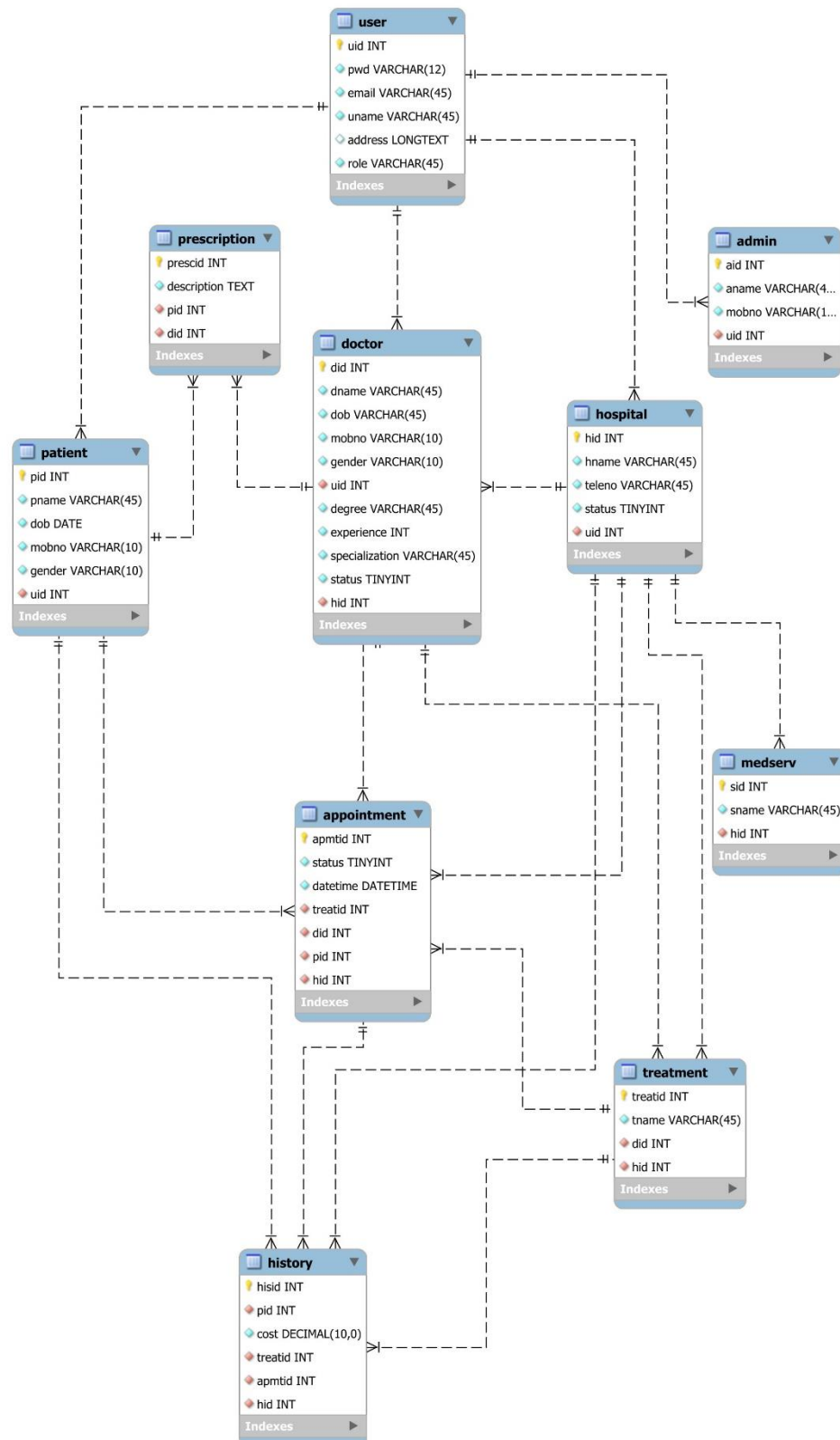
Hospital:

Fig. Use case diagram for Doctor

1. In Doctor use case diagram Doctor is the Actor.
2. Doctor can handle following use cases:
   a. Register
   b. Login
   c. Hospital Details
   d. Update Doctor Account
   e. Add/Remove Doctor Account
   f. Update Treatments
   g. Add/Remove Treatments
   h. Beds/Room Availability
   i. Doctor's Appointment

2.6 ER Diagram:

2.7 Schema Diagram:

THANK YOU...