

SMART HEALTH SERVICE

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DAFFODIL INTERNATIONAL UNIVERSITY

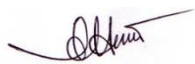
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APPROVAL

This Project titled “**Smart Health Service**”, submitted by **Sudipta Malaker** (ID No: 162-15-8132) and **Md. Rakibul Islam** (ID No: 162-15-8142) to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on October 7, 2020.

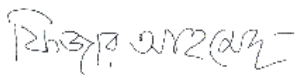
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We hereby declare that, this project has been done by us under the supervision of **Mr. Shah Md. Tanvir Siddiquee, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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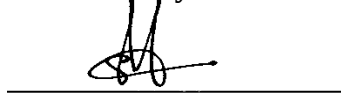
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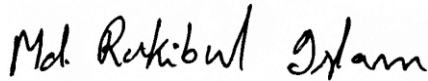
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ABSTRACT

This is a web application & the title of this web application is "Smart Health Service". The intention to develop this web application to solve health service related problems around us. In our society, there are many fake doctors, unauthorized medicine companies, fake medicines, unauthorized diagnostic centers, unauthorized diagnostic tests & unauthorized medicine shops. Beside those problems, other problems are price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion & shortage of medical history or document. By using web application "Smart Health Service", it is possible to solve all above those problems easily. This web application has ten types of users who are patient, doctor, medicine company, medicine shop, diagnostic center, admin(doctor), admin(medicine company), admin(medicine shop), admin(diagnostic center), super admin. Super admin can control all admins. Admin (doctor) can approve registered doctors. Approved doctor can prescribe medicine & test to patient. By this way patient will be confirmed about registered doctors. Admin (medicine company) can approve medicine company & add medicine to medicine company which can be sold by medicine company to medicine shop. Admin (medicine shop) can approve medicine shop. Approved medicine shop can sell authorized medicine to patient. By this way, patient will be confirmed about authorized medicine shop & authorized medicine. Patient also can see the price of medicine & registered doctor must prescribe that medicine. Admin (diagnostic center) can approve diagnostic center & add test to diagnostic center & diagnostic center can sell the test report of that test to patient. By this way patient will be confirmed about authorized diagnostic Center & authorized diagnostic test. Patient also can see the price of test which is prescribed by registered doctor. No patient can buy medicine & test report without prescription of any registered doctor. By those ways, all above problems will be solved by this application. Therefore, web application "Smart Health Service" is very effective to solve health service related problems around us in our society.

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CHAPTER 1

INTRODUCTION

1.1 Introduction:

This is a web application & the title of this web application is "Smart Health Service". It is very user friendly, responsive, much secured & very fast. This web application has been developed based on laravel framework. The intention to develop this web application to solve health service related problems around us. In our society, there are many fake doctors, unauthorized medicine companies, fake medicines, unauthorized diagnostic centers, unauthorized diagnostic tests & unauthorized medicine shops. Beside those problems, other problems are price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion & shortage of medical history or document. By using web application "Smart Health Service", it is possible to solve all above those problems easily.

1.2 Motivation:

Now days the health service of our society is not so good because we are facing some problems which are below:

- Fake doctor
- Unauthorized Medicine Company & Fake Medicine
- Unauthorized Diagnostic Center & Unauthorized Diagnostic Test
- Unauthorized Medicine Shop
- Price Problem of Drug & Diagnostic Test
- Intoxication by Taking Drugs
- Tax Evasion
- Shortage of Medical History or Document

So many people do not get proper health services. As a result, many people die in every year especially in villages. It is sometimes impossible to solve those problems. Therefore, this is a huge challenge to solve those problems.

1.3 Objectives:

By using " Smart Health Service " It is possible to solve health service related problems such as fake doctor, unauthorized medicine company, fake medicine, unauthorized diagnostic center, unauthorized diagnostic test, unauthorized medicine shop, price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion, shortage of medical history or document.

1.4 Expected Outcome:

Human life is extremely significant. So by using the online based health service "Smart Health Service (SHS)" It is possible to solve the major problems related to health service like fake doctor, unauthorized medicine company, fake medicine, unauthorized diagnostic center, unauthorized diagnostic test, unauthorized medicine shop, price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion, shortage of medical history or document.

Finally, we will be able to stop death for wrong treatments & ensure the proper healthcare of the people in society.

1.5 Project Management and Finance

Project Management:

Integration Management:

- Develop the project charter
 - It helped to use others resources.
- Develop the project management plan
 - It included schedule plan, scope plan etc.
- Direct and manage project work
 - It included lead & manage development work.
- Manage project knowledge
 - The existing health service was manual.
 - "Smart Health Service" is automated.
 - The knowledge of this project came from manual existing health service.
- Monitor and control project work

It included track, review, regulate of the project's progress.

- Perform integrated change control

If it is need to change or add any option, we will change or add.

- Close the project or project phase

Finally, we have completed our project.

Scope Management:

The development of this project was according to defined features and functions. Those features & functions came from the developer's mind & from other people.

Time Management:

Time schedule fixed to complete this project.

Cost Management:

Estimated cost calculated to complete this project.

Quality Management:

This project is quality full. Because it is user friendly, responsive, secured & fast. All things are possible for quality management.

Human Resource Management:

The designer, developer & tester of this project are very expert.

Communication Management:

Because of collaboration & good communication the project has been successfully completed.

Risk Management:

Project manager has managed all risk to develop this project.

Procurement Management:

The developing time of this project manager did not need to procurement.

Finance:

The founder of this project has managed all costs to develop this project.

1.6 Report Layout:

Pre Factory Information:

- Approval
- Board of Examiners
- Declaration
- Acknowledgement
- Abstract
- Table of Content
- List of Figures
- List of Tables

Main Body:

- Introduction
- Background
- Requirement Specification
- Design Specification
- Implementation and Testing
- Conclusion and Future Scope

End Section:

- Appendix
- Reference

CHAPTER 2

BACKGROUND

2.1 Preliminaries/Terminologies:

In this chapter, we will discuss about related works to health service of our society. Then we will discuss about problems of existing system & compare with our system. We will discuss about the benefits of our system. Then we will discuss about boundary of our project & about functionalities, we offered in our system. At last, we will discuss about major challenges to overcome.

2.2 Related Works:

In our society, there is no application as like as our application. Therefor in our society, there are lots of fake doctors, unauthorized medicine companies, fake medicines, unauthorized diagnostic centers, unauthorized diagnostic tests & unauthorized medicine shops. Beside those problems, other problems are price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion & shortage of medical history or document.

2.3 Comparative Analysis:

In our society, the exiting health service is analog. Therefor in our society, there are lots of fake doctors, unauthorized medicine companies, fake medicines, unauthorized diagnostic centers, unauthorized diagnostic tests & unauthorized medicine shops. Beside those problems, other problems are price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion & shortage of medical history or document. By using web application “Smart Health Service”, it is possible to remove all those problems. Therefore, it is very effective to give proper health care to the people in our society.

2.4 Scope of the Problem:

The users of our proposed web application are patient, doctor, medicine company, medicine shop, diagnostic center, admin (doctor), admin (medicine company), admin (medicine shop), admin (diagnostic center), super admin.

All operations of those users are describing below:

Patient:

- Sign Up With Email Verification, Sign In
- Profile Operations Of Patient (Update, Delete)
- Patient's Permission
- View Prescribed Medicines With Price (Delete Medicines)
- Delete Prescribed Medicine
- View Prescribed Tests & Test Reports With Price (Delete Tests & Test Reports)
- Delete Prescribed Test
- View Doctor List & Details of Doctor
- Buy Medicine from Medicine Shop
- Medicine Buying History
- Test Report Buying History
- Change Log In Password
- Send Feedback

Doctor:

- Sign Up with Email & Admin(Doctor) Verification, Sign In
- Profile Operations of Doctor (Update)
- Doctor's Permission
- View Medicine List & Details of Medicine
- View Test List
- Prescribe Test to Patient
- Delete Prescribed Test
- Prescribe Medicine to Patient
- Delete Prescribed Medicine
- Test Given History
- Medicine Given History
- Change Log In Password
- Send Feedback

Medicine Company:

- Sign Up with Email & Admin(Medicine Company) Verification, Sign In
- Profile Operations of Medicine Company (Update)
- Approved Medicine List with Stoke
- Update Medicine Stoke
- Sell Medicine to Medicine Shop
- Medicine Sold History
- Change Log In Password
- Send Feedback

Medicine Shop:

- Sign Up with Email & Admin(Medicine Shop) Verification, Sign In
- Profile Operations of Medicine Shop (Update)
- Medicine Shop's Permission
- Medicine Stoke Details
- Medicine Order to Medicine Company
- Cancel Ordered Medicine
- Medicine Buy from Medicine Company
- Medicine Buying History
- Sell Medicine to Patient
- Medicine Sold History
- Change Log In Password
- Send Feedback

Diagnostic Center:

- Sign Up with Email & Admin(Diagnostic Center) Verification, Sign In
- Profile Operations of Diagnostic Center (Update)
- Approved Test List
- Sell Test Report to Patient
- Test Report Sold History
- Change Log In Password
- Send Feedback

Admin (Doctor):

- Message for Doctor
- Medical Doctor Confirmation (Update, Delete, Approved, Disapproved)
- Dental Doctor Confirmation (Update, Delete, Approved, Disapproved)

Admin (Medicine Company):

- Message for Medicine Company
- Medicine Company Confirmation (Update, Delete, Approved, Disapproved)
- Add Medicine to Medicine Company
- Medicine (Update, Delete, Approved, Disapproved)

Admin (Medicine Shop):

- Message for Medicine Shop
- Medicine Shop Confirmation (Update, Delete, Approved, Disapproved)

Admin (Diagnostic Center):

- Message for Diagnostic Center
- Diagnostic Center Confirmation (Update, Delete, Approved, Disapproved)
- Add Test to Diagnostic Center
- Test (Update, Delete, Approved, Disapproved)

Super Admin:

- Add Admin
- Admin Operations (Update, Delete)
- View Feedback

2.5 Challenges:

Web application “Smart Health Service” is very complex & big project. For this reason, maintenance cost is very high. Initially it is running in free hosting as a result the bandwidth is low. Therefore, it is need to increase bandwidth & need own high configuration servers to serve a big community of people. For buying high configuration servers, need lots of money. For solving, the health service related problems it is mandatory to use this web application by all types of users.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling:

Business process modeling is graphical representation of any system, which helps to understand the workflow or mechanism of any kind of complex system. It is used by technical & none technical people all over the world to understand easily of any kind of system. The users of this web application are patient, doctor, medicine company, medicine shop, diagnostic center, admin (doctor), admin (medicine company), admin (medicine shop), admin (diagnostic center), super admin. “Smart Health service” is very complex & big application. For this reason, the total system has converted into three scenarios & represented in business process model for better understanding.

- BPM Scenario 1 includes the users who are Patient, Doctor, Admin (Doctor), Super Admin.
- BPM Scenario 2 includes the users who are Patient, Diagnostic Center, Admin (Diagnostic Center), Super Admin.
- BPM Scenario 3 includes the users who are Patient, Medicine Shop, Admin (Medicine Shop), Medicine Company, Admin (Medicine Company), Super Admin.

BPM Scenario 2 includes the users who are Patient, Diagnostic Center, Admin (Diagnostic Center), Super Admin.

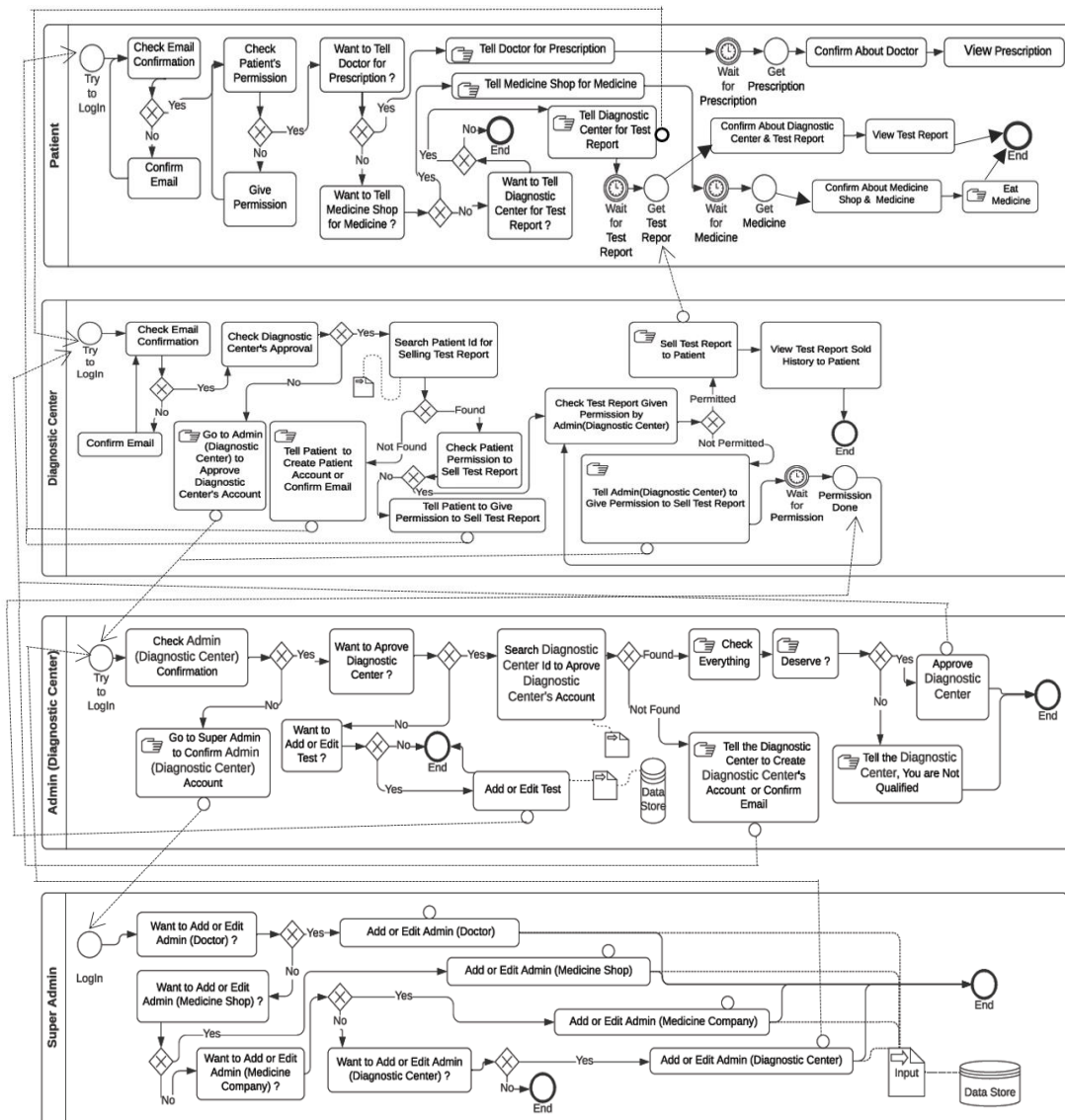


Figure 3.2: BPM Scenario 2

BPM Scenario 3 includes the users who are Patient, Medicine Shop, Admin (Medicine Shop), Medicine Company, Admin (Medicine Company), Super Admin.

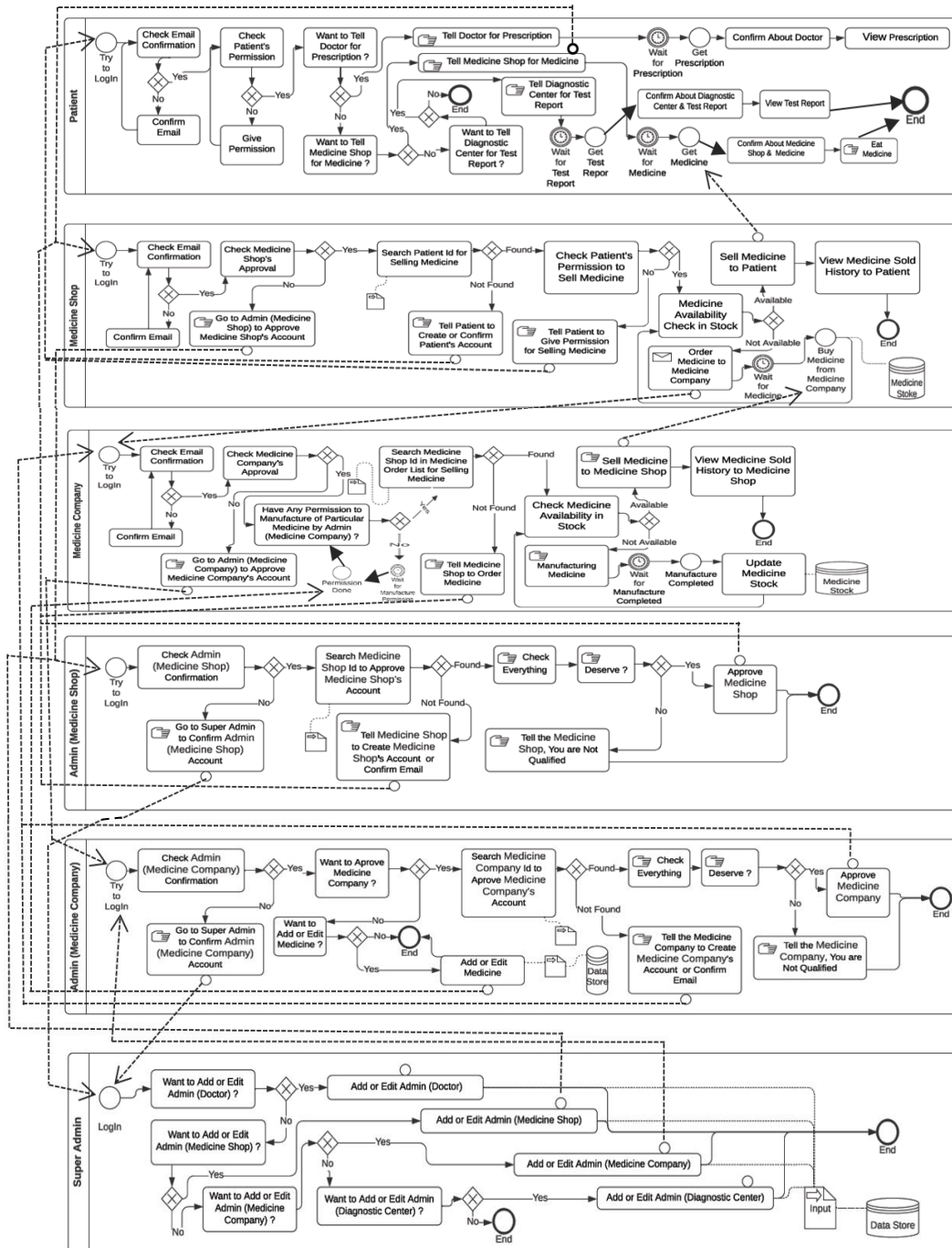


Figure 3.3: BPM Scenario 3

3.2 Requirement Collection and Analysis:

Functional Requirement:

Web Application “Smart Health Service” has ten users who are patient, doctor, medicine company, medicine shop, diagnostic center, admin (doctor), admin (medicine company), admin (medicine shop), admin (diagnostic center), super admin.

Here are user based functional requirement bellow:

Patient:

- Sign Up With Email Verification, Sign In
- Profile Operations Of Patient (Update, Delete)
- Patient's Permission
- View Prescribed Medicines With Price (Delete Medicines)
- Delete Prescribed Medicine
- View Prescribed Tests & Test Reports With Price (Delete Tests & Test Reports)
- Delete Prescribed Test
- View Doctor List & Details of Doctor
- Buy Medicine from Medicine Shop
- Medicine Buying History
- Test Report Buying History
- Change Log In Password
- Send Feedback

Doctor:

- Sign Up with Email & Admin(Doctor) Verification, Sign In
- Profile Operations of Doctor (Update)
- Doctor's Permission
- View Medicine List & Details of Medicine
- View Test List
- Prescribe Test to Patient
- Delete Prescribed Test
- Prescribe Medicine to Patient
- Delete Prescribed Medicine

- Test Given History
- Medicine Given History
- Change Log In Password
- Send Feedback

Medicine Company:

- Sign Up with Email & Admin(Medicine Company) Verification, Sign In
- Profile Operations of Medicine Company (Update)
- Approved Medicine List with Stoke
- Update Medicine Stoke
- Sell Medicine to Medicine Shop
- Medicine Sold History
- Change Log In Password
- Send Feedback

Medicine Shop:

- Sign Up with Email & Admin(Medicine Shop) Verification, Sign In
- Profile Operations of Medicine Shop (Update)
- Medicine Shop's Permission
- Medicine Stoke Details
- Medicine Order to Medicine Company
- Cancel Ordered Medicine
- Medicine Buy from Medicine Company
- Medicine Buying History
- Sell Medicine to Patient
- Medicine Sold History
- Change Log In Password
- Send Feedback

Diagnostic Center:

- Sign Up with Email & Admin(Diagnostic Center) Verification, Sign In

- Profile Operations of Diagnostic Center (Update)
- Approved Test List
- Sell Test Report to Patient
- Test Report Sold History
- Change Log In Password
- Send Feedback

Admin (Doctor):

- Message for Doctor
- Medical Doctor Confirmation (Update, Delete, Approved, Disapproved)
- Dental Doctor Confirmation (Update, Delete, Approved, Disapproved)

Admin (Medicine Company):

- Message for Medicine Company
- Medicine Company Confirmation (Update, Delete, Approved, Disapproved)
- Add Medicine to Medicine Company
- Medicine (Update, Delete, Approved, Disapproved)

Admin (Medicine Shop):

- Message for Medicine Shop
- Medicine Shop Confirmation (Update, Delete, Approved, Disapproved)

Admin (Diagnostic Center):

- Message for Diagnostic Center
- Diagnostic Center Confirmation (Update, Delete, Approved, Disapproved)
- Add Test to Diagnostic Center
- Test (Update, Delete, Approved, Disapproved)

Super Admin:

- Add Admin
- Admin Operations (Update, Delete)
- View Feedback

Nonfunctional Requirement:

- Secure access of confidential data
- Maximum time availability
- Better component design to get efficiency at peak time
- Flexible service based architecture will be highly desirable for future extension
- Response time will be very fast
- Data will be very secure
- User Friendly
- Responsive
- Reduce time complexity

Those all above requirements had to analysis for next step of developing “Smart Health Service” web application. Because of good developing skill, it was possible to cover all above requirements.

3.3 Use Case Modeling and Description:

Use Case Modeling:

“Smart Health service” is very complex & big application. For this reason, the total system has converted into three scenarios & represented in Use Case modeling for better understanding.

- Use Case Scenario 1 includes the users who are Patient, Doctor, Admin (Doctor), Super Admin.
- Use Case Scenario 2 includes the users who are Patient, Diagnostic Center, Admin (Diagnostic Center), Super Admin.
- Use Case Scenario 3 includes the users who are Patient, Medicine Shop, Admin (Medicine Shop), Medicine Company, Admin (Medicine Company), Super Admin.

Use Case Scenario 1 includes the users who are Patient, Doctor, Admin (Doctor), Super Admin.

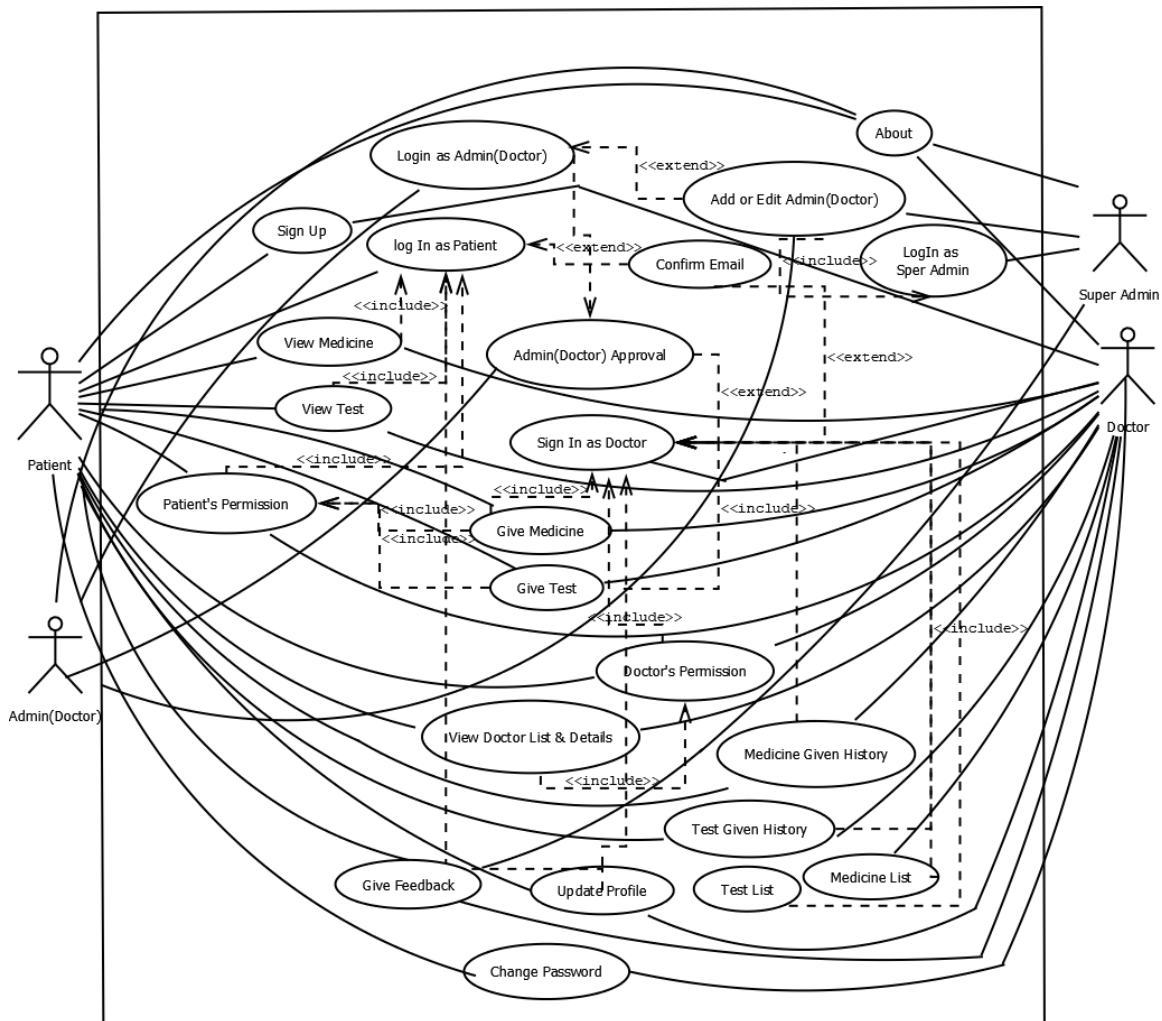


Figure 3.4: Use Case Scenario 1

Use Case Scenario 2 includes the users who are Patient, Diagnostic Center, Admin (Diagnostic Center), Super Admin.

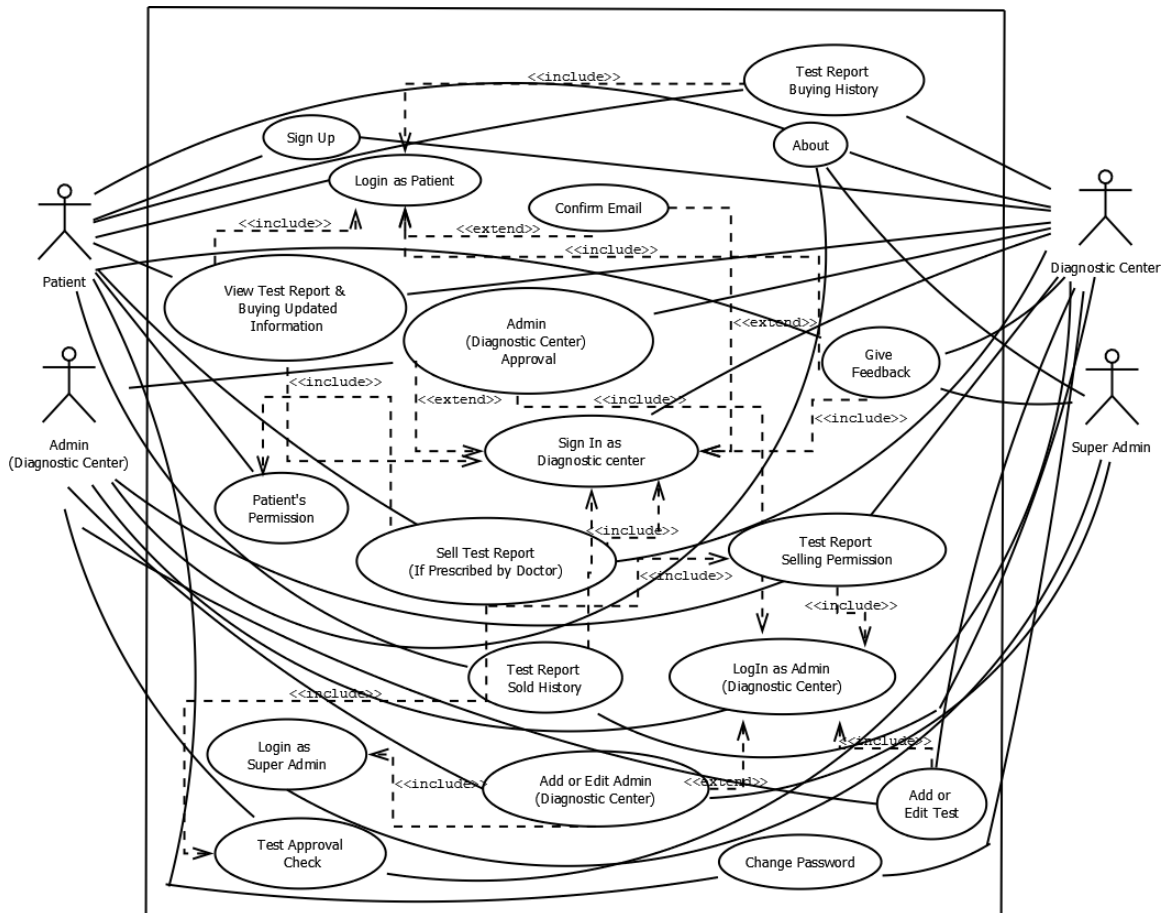


Figure 3.5: Use Case Scenario 2

Use Case Scenario 3 includes the users who are Patient, Medicine Shop, Admin (Medicine Shop), Medicine Company, Admin (Medicine Company), Super Admin.

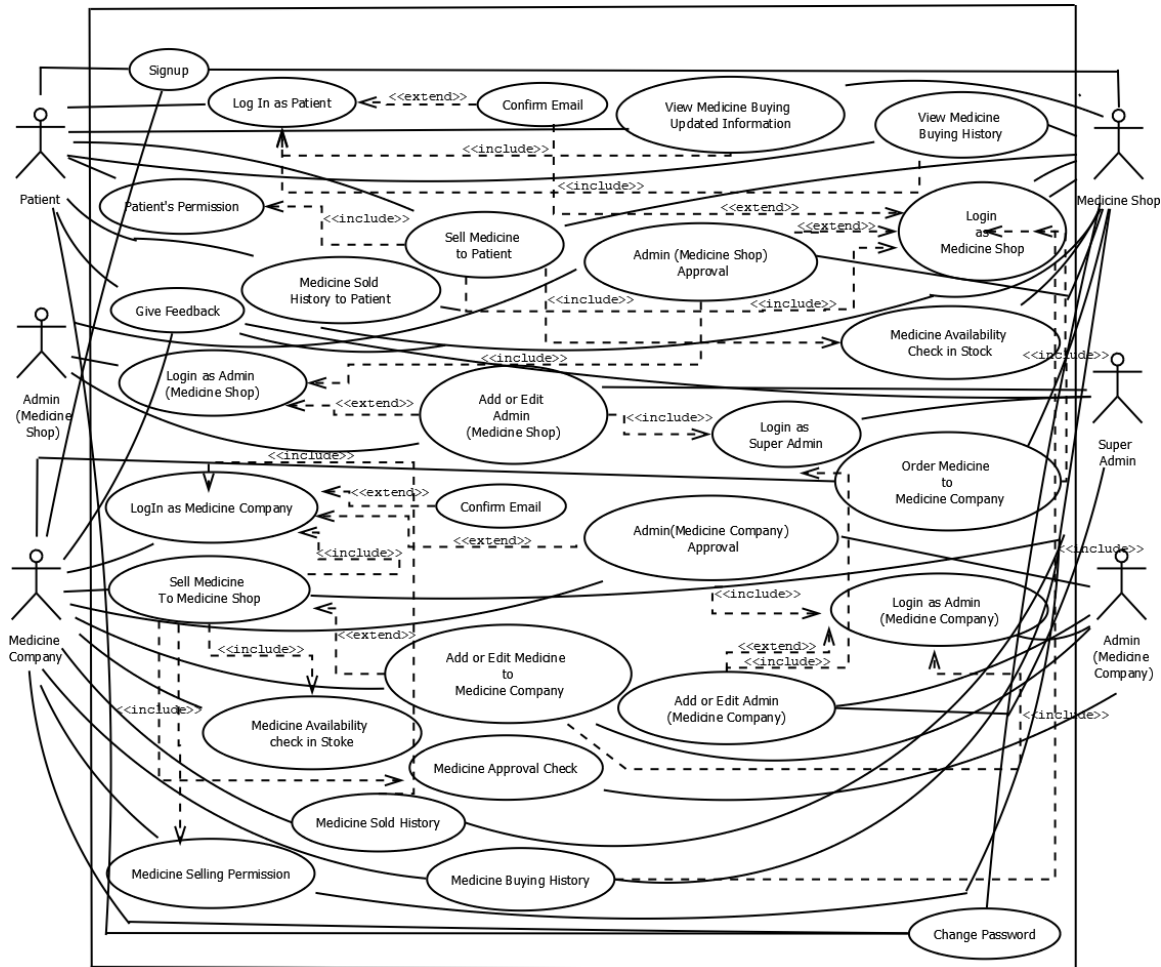


Figure 3.6: Use Case Scenario 3

Use Case Description:

User based Use Case descriptions for better understanding, which are mentioning below:

Patient:

Table 3.1: Use Case Description for Patient

Use Case No	1.1
Use Case Name	Patient's Permission
Actor	Patient
Description	User can give permission to doctor to prescribe, User can give permission to medicine shop to sell medicine and User can give permission to diagnostic center to sell test report to him or her.
Precondition	Have to log in to system.
Trigger	Click the “yes” or “No” button.
Flow Of Events	➤ Go to “Patient's Permission” page ➤ Click “yes” or “No” button
Post Condition	None.

Use Case No	1.2
Use Case Name	View Test, View Medicine
Actor	Patient
Description	User can see the tests, medicines which given by registered doctor & confirm about registered real doctor. User can also see the diagnostic test reports which given by authorized diagnostic center & confirm about authorized diagnostic tests, diagnostic center, authorized medicines & medicine shop.
Precondition	Have to log in to system.
Trigger	Click the “View Tests”, “View Medicine” in navbar menu.
Flow Of Events	➤ Go to “View Tests”, “View Medicines” page ➤ View tests, test reports & medicines ➤ Confirm about registered doctor, authorized diagnostic tests, diagnostic center, authorized medicines & medicine shop.
Post Condition	None.

Use Case No	1.3
Use Case Name	Doctor's List & Details
Actor	Patient
Description	User can see the doctor's list & details.
Precondition	Have to log in to system.
Trigger	Click the “Doctor's List” in navbar menu then click “View Details” button.
Flow Of Events	➤ Go to “Doctor's List” page ➤ Click “View Details” button & view details about doctor
Post Condition	None.

Use Case No	1.4
Use Case Name	Medicine Buying History, Test Report Buying History
Actor	Patient
Description	User can see all information related to medicine buying & confirm about authorized real medicine, authorized medicine shop, user can see all information related to test report-buying history & confirm about authorized diagnostic test, authorized diagnostic center.
Precondition	Have to log in to system.
Trigger	Click the “Medicine Buying History”, “Test Report Buying History” in navbar menu.
Flow Of Events	➤ Go to “Medicine Buying History” page, “Test Report Buying History” page ➤ View information & confirm about authorized real medicine, authorized medicine shop, authorized diagnostic test & authorized diagnostic center.
Post Condition	None.

Doctor:

Table 3.2: Use Case Description for Doctor

Use Case No	2.1
Use Case Name	Doctor's Permission
Actor	Doctor
Description	User can give permission to show his or her profile in public.
Precondition	Have to log in to system.
Trigger	Click the “yes” or “No” button.
Flow Of Events	➤ Go to “Doctor's Permission” page ➤ Click “yes” or “No” button
Post Condition	None.

Use Case No	2.2
Use Case Name	Give Test, Give Medicine
Actor	Doctor
Description	User can prescribe test, medicine to patient.
Precondition	Have to log in to system & need patient's permission.
Trigger	Click the “Submit” button.
Flow Of Events	➤ Click “Give Test”, “Give Medicine” in navbar menu ➤ Search correct patient id ➤ Input correct test name, medicine name ➤ Click the “Submit” button
Post Condition	None.

Use Case No	2.3
Use Case Name	Test Given History, Medicine Given History

Actor	Doctor
Description	User can see the test given history including patients & prescribed tests, prescribed medicines.
Precondition	Have to log in to system.
Trigger	Click the “Test Given History”, “Medicine Given History” in navbar menu.
Flow Of Events	➤ Click “Test Given History”, “Medicine Given History” in navbar menu ➤ See every thing
Post Condition	None.

Use Case No	2.4
Use Case Name	Medicine List, Test List
Actor	Doctor
Description	User can see the authorized medicine list, test list & details.
Precondition	Have to log in to system.
Trigger	Click the “Medicine List”, “Test List” in navbar menu.
Flow Of Events	➤ Click the “Medicine List”, “Test List” in navbar menu ➤ See the authorized medicine list, test list & details
Post Condition	None.

Medicine Company:

Table 3.3: Use Case Description for Medicine Company

Use Case No	3.1
Use Case Name	Medicines
Actor	Medicine Company
Description	User can see all approved medicines which approved by Admin (Medicine Company).
Precondition	Have to log in to system.
Trigger	Click the “Medicines” in navbar menu.
Flow Of Events	➤ Click to “Medicines” in navbar menu ➤ See approved medicines
Post Condition	None.

Use Case No	3.2
Use Case Name	Sell Medicine, Medicine Sold History
Actor	Medicine Company
Description	User can see the order, confirm about authorized medicine shop and sell medicine. User can also see medicine sold history.
Precondition	Have to log in to system, need of medicine shop’s buying permission, available in stoke.
Trigger	Click the “Sell Medicine”, “Medicine Sold History” in navbar menu.

Flow Of Events	➤ Click to “Medicine Shop” in navbar menu ➤ Click “View Ordered Medicines” button ➤ Click “Try to Sell Medicine” button ➤ Sell Medicine ➤ Click to “Medicine Sold History” in navbar menu ➤ View everything related to sold information
Post Condition	None.

Medicine Shop:

Table 3.4: Use Case Description for Medicine Shop

Use Case No	4.1
Use Case Name	Medicine Shop 's Permission
Actor	Medicine Shop
Description	User can give permission to medicine company to sell medicine to that medicine shop.
Precondition	Have to log in to system.
Trigger	Click the “yes” or “No” button.
Flow Of Events	➤ Go to “Medicine Shop 's Permission” page ➤ Click “yes” or “No” button
Post Condition	None.

Use Case No	4.2
Use Case Name	Order Medicine
Actor	Medicine Shop
Description	User can place order for medicine-to-medicine company for buy medicine & buy ordered medicine.
Precondition	Have to log in to system.
Trigger	Click the “Place Order Now” button.
Flow Of Events	➤ Click “Medicine Order” in navbar menu ➤ Chose medicine company from company list ➤ Click “View Medicines” ➤ Chose medicine from medicine list ➤ Click “Try to Order Now” button ➤ Input the order amount ➤ Click “Place Order Now” button ➤ View ordered medicines in Medicine Order List option ➤ Buy medicine from medicine company
Post Condition	Medicine company have to sell the ordered medicines.

Use Case No	4.3
Use Case Name	Medicine Buying history
Actor	Medicine Shop
Description	User can see all buying information.
Precondition	Have to log in to system.

Trigger	Click the “Medicine Buying History” in navbar menu.
Flow Of Events	➤ Click the “Medicine Buying History” in navbar menu ➤ See everything
Post Condition	None.

Use Case No	4.4
Use Case Name	Sell medicine, Medicine Sold history
Actor	Medicine Shop
Description	User can sell medicine to patient. User can also see all medicine sold information.
Precondition	Have to log in to system, need patient’s permission to sell medicine to patient, available in stoke, medicine must prescribed by any registered doctor.
Trigger	Click the “Sell Medicine”, “Medicine Sold history” button.
Flow Of Events	➤ Click the “Sell Medicine” in navbar menu ➤ Search valid patient’ Id ➤ Click “Try to sell” button ➤ View the prescribed medicines ➤ Sell Medicine ➤ Click the “Medicine Sold history” in navbar menu ➤ See sold information
Post Condition	None.

Diagnostic Center:

Table 3.5: Use Case Description for Diagnostic Center

Use Case No	5.1
Use Case Name	Test
Actor	Diagnostic Center
Description	User can see authorized tests.
Precondition	Have to log in to system.
Trigger	Click the “Test” in navbar menu.
Flow Of Events	➤ Click the “Test” in navbar menu ➤ See authorized tests
Post Condition	None.

Use Case No	5.2
Use Case Name	Sell Test Report, Test Report Sold History
Actor	Diagnostic Center
Description	User can sell test report to patient. User can also see all test report sold information.
Precondition	Have to log in to system, test must authorized, test must prescribed by authorized doctor & need patient’s permission.
Trigger	Click the “Upload Test Report”, “Test Report Sold History” in navbar button.

Flow Of Events	➤ Click “Sell Test Report” in navbar menu ➤ Input valid patient id & test code ➤ View the prescribed test for patient ➤ Choose test report soft file ➤ Click “Upload Test Report” button ➤ Click the “Test Report Sold History” in navbar menu ➤ See sold information
Post Condition	None.

Admin (Doctor):

Table 3.6: Use Case Description for Admin (Doctor)

Use Case No	6.1
Use Case Name	Message for Doctor
Actor	Admin(Doctor)
Description	User can set any message for doctor for completing doctor’s registration, which send to doctor’s email.
Precondition	Have to log in to system
Trigger	Click the “Update” button.
Flow Of Events	➤ Click “ Message for Doctor” in navbar menu ➤ Write any message for doctor ➤ Click “Update” button
Post Condition	None.

Use Case No	6.2
Use Case Name	Admin(Doctor) Approval
Actor	Admin(Doctor)
Description	User can approve applied doctors
Precondition	Have to log in to system
Trigger	Click the “Approve” button.
Flow Of Events	➤ Go to confirmation ➤ Approve or Disapprove doctors
Post Condition	None.

Admin (Medicine Company):

Table 3.7: Use Case Description for Admin (Medicine Company)

Use Case No	7.1
Use Case Name	Message for Medicine Company
Actor	Admin(Medicine Company)
Description	User can set any message for medicine company for completing medicine company’s registration, which send to medicine company’s email.
Precondition	Have to log in to system
Trigger	Click the “Update” button.

Flow Of Events	➤ Click “ Message for Medicine Company” in navbar menu ➤ Write any message for medicine company ➤ Click “Update” button
Post Condition	None.

Use Case No	7.2
Use Case Name	Admin(Medicine Company) Approval
Actor	Admin(Medicine Company)
Description	User can approve applied medicine companies
Precondition	Have to log in to system
Trigger	Click the “Approve” button.
Flow Of Events	➤ Go to confirmation ➤ Approve or Disapprove medicine companies
Post Condition	None.

Use Case No	7.3
Use Case Name	Add or Edit Medicine
Actor	Admin(Medicine Company)
Description	User can add or edit medicines to medicine companies
Precondition	Have to log in to system
Trigger	Click the “Add or Edit” button.
Flow Of Events	➤ Search valid medicine company Id ➤ Write medicine information ➤ Add medicine ➤ Also edit if want
Post Condition	None.

Admin (Medicine Shop):

Table 3.8: Use Case Description for Admin (Medicine Shop)

Use Case No	8.1
Use Case Name	Message for Medicine Shop
Actor	Admin(Medicine Shop)
Description	User can set any message for medicine shop for completing medicine shop’s registration, which send to medicine shop’s email.
Precondition	Have to log in to system
Trigger	Click the “Update” button.
Flow Of Events	➤ Click “ Message for Medicine Shop” in navbar menu ➤ Write any message for medicine shop ➤ Click “Update” button
Post Condition	None.

Use Case No	8.2
Use Case Name	Admin(Medicine Shop) Approval

Actor	Admin(Medicine Shop)
Description	User can approve applied medicine shops
Precondition	Have to log in to system
Trigger	Click the “Approve” button.
Flow Of Events	➤ Go to confirmation ➤ Approve or Disapprove medicine shops
Post Condition	None.

Admin (Diagnostic Center):

Table 3.9: Use Case Description for Admin (Diagnostic Center)

Use Case No	9.1
Use Case Name	Message for Diagnostic Center
Actor	Admin(Diagnostic Center)
Description	User can set any message for diagnostic center for completing diagnostic center’s registration, which send to diagnostic center’s email.
Precondition	Have to log in to system
Trigger	Click the “Update” button.
Flow Of Events	➤ Click “ Message for Diagnostic Center” in navbar menu ➤ Write any message for diagnostic center ➤ Click “Update” button
Post Condition	None.

Use Case No	9.2
Use Case Name	Admin(Diagnostic Center) Approval
Actor	Admin(Diagnostic Center)
Description	User can approve applied diagnostic centers
Precondition	Have to log in to system
Trigger	Click the “Approve” button.
Flow Of Events	➤ Go to confirmation ➤ Approve or Disapprove diagnostic centers
Post Condition	None.

Use Case No	9.3
Use Case Name	Add or Edit Test
Actor	Admin(Diagnostic Center)
Description	User can add or edit test to diagnostic centers
Precondition	Have to log in to system
Trigger	Click the “Add or Edit” button.
Flow Of Events	➤ Search valid diagnostic center Id ➤ Write test information ➤ Add test ➤ Also edit if want
Post Condition	None.

Super Admin:

Table 3.10: Use Case Description for Super Admin

Use Case No	10.1
Use Case Name	Add Admin
Actor	Super Admin
Description	User can add any number of admins for different type of admins.
Precondition	Have to Log In to system
Trigger	Click the “Add” button.
Flow Of Events	➤ Select Admin Type ➤ Input Admin Id & Password ➤ Add Admin
Post Condition	None.

Use Case No	10.2
Use Case Name	Edit & Delete Admin
Actor	Super Admin
Description	User can edit & delete admins.
Precondition	Have to Log In to system
Trigger	Click the “Update” or “Delete” button.
Flow Of Events	➤ Go to Admin Type ➤ Go to Operation ➤ Update or Delete
Post Condition	None.

Use Case No	10.3
Use Case Name	View Feedback
Actor	Super Admin
Description	User can see feedbacks of different kind users.
Precondition	Have to Log In to system
Trigger	Click the “View Feedback” in navbar menu.
Flow Of Events	➤ Go to View Feedback ➤ See feedbacks from different users
Post Condition	None.

For All Users:

Table 3.11: Use Case Description for all Users

Use Case No	11.1
Use Case Name	Sign Up
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center
Description	Registration to the system.
Precondition	Have to go to “Sign Up” page.
Trigger	Click the “Sign Up” button.

Flow Of Events	➤ All information have to fill up ➤ Select profile picture ➤ Input unique email ➤ Password and Confirm password must be same & at least eight characters ➤ Click “Sign Up” button
Post Condition	User have to confirm email.

Use Case No	11.2
Use Case Name	Log In
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center, Admin(Doctor),Admin(Medicine Sop),Admin(Medicine Company),Admin(Diagnostic Center), Super Admin
Description	Log In to the system.
Precondition	Have to go to “Log In” page.
Trigger	Click the “Log In” button.
Flow Of Events	➤ Select user type ➤ Give valid email & password ➤ Click “Log In” button
Post Condition	None.

Use Case No	11.3
Use Case Name	Change password
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center
Description	User can change password in the system.
Precondition	Have to go to “Change Password” page.
Trigger	Click the “Change Password” button.
Flow Of Events	➤ Select user type ➤ Input registered email ➤ Input new password & confirm password ➤ Click “Change Password” button
Post Condition	User have to confirm password change in email.

Use Case No	11.4
Use Case Name	Feedback
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center
Description	User can send feedback to super admin in the system.
Precondition	Have to log in to system.
Trigger	Click the “Send” button.
Flow Of Events	➤ Go to “Feedback” page ➤ Write something ➤ Click “Send” button
Post Condition	None.

Use Case No	11.5
Use Case Name	Update Profile
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center
Description	User can update profile in the system.
Precondition	Have to log in to system.
Trigger	Click the “update” button.
Flow Of Events	➤ Go to “Profile” page ➤ Change something & click “update” button.
Post Condition	None.

Use Case No	11.6
Use Case Name	About
Actor	Patient, Doctor, Medicine Sop, Medicine Company, Diagnostic Center, Admin(Doctor),Admin(Medicine Sop),Admin(Medicine Company),Admin(Diagnostic Center), Super Admin
Description	User can see the all information about operations regarding to all users.
Precondition	None
Trigger	Click the “About” in navbar menu then select user type.
Flow Of Events	➤ Click to “About” in navbar menu. ➤ Select user type ➤ View all information about operations regarding to that user
Post Condition	None.

3.4 Logical Data Model:

Logical data model helps the data base designer to design all tables & relationship among them. It also helps to develop the application. Here representing Entity Relationship Diagram or ERD as Logical Data Model.

ERD is a type of structural diagram, which helps to design the database of web application. ERD helps to implement database, how data storing, what relationship among them in backend of any software project. ERD helps the project team to develop the project successfully.

ERD of “Smart Health Service” Web Application is showing below.

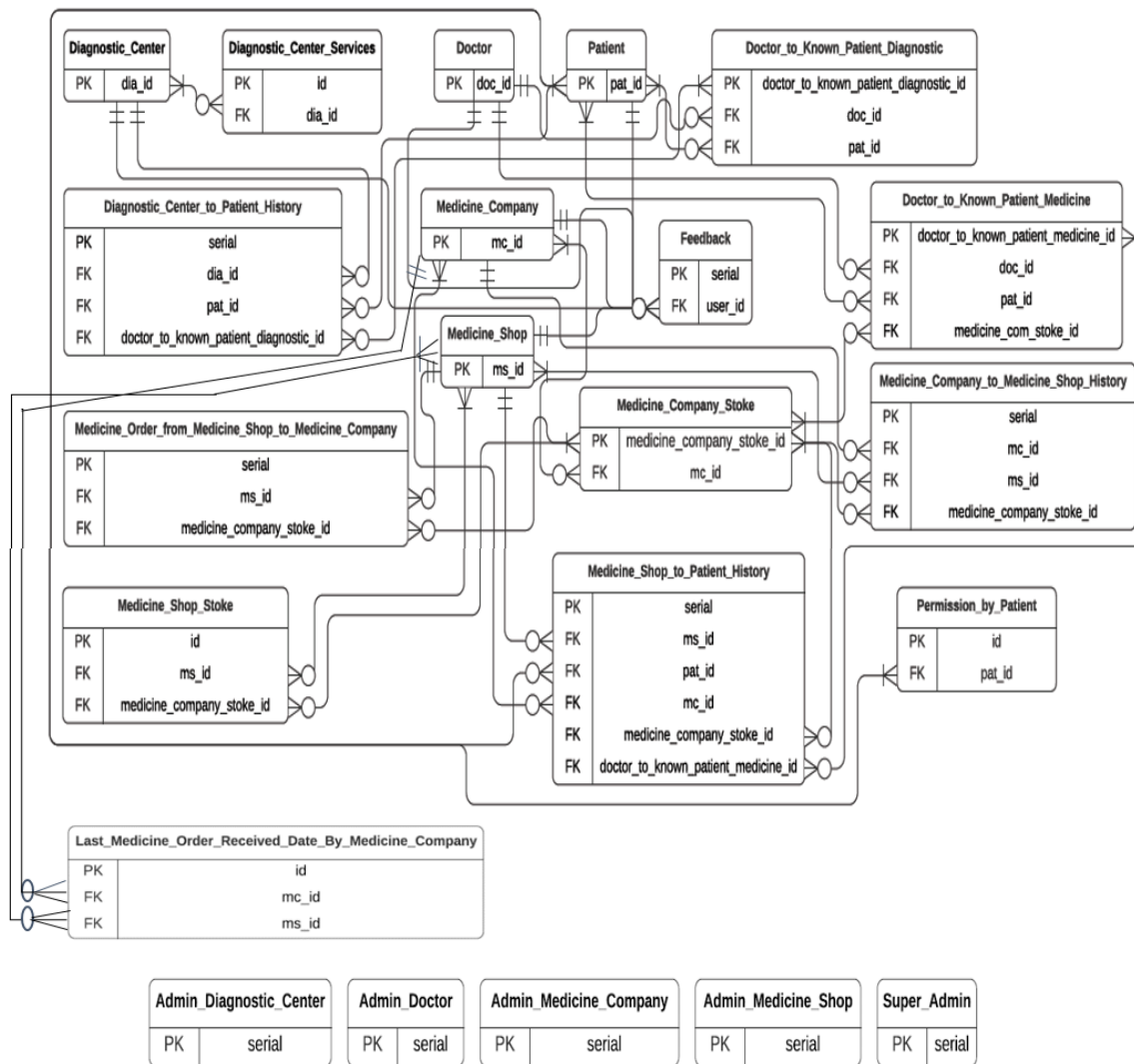


Figure 3.7: ERD of “Smart Health Service” Web Application

3.5 Design Requirements:

Frontend Design:

- HTML
- CSS
- Bootstrap 4
- Java Script
- jQuery
- AJAX

Backend Design:

- PHP
- Laravel Framework
- MySQL Database
- Live Server

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design:

- **HTML**
Used for structure design of web application.
- **CSS**
Used for outlook of web application.
- **Bootstrap 4**
Used for responsive.
- **Java Script**
Used for Interaction Design and User Experience (UX).
- **jQuery**
Used for user friendly.
- **AJAX**
Used for submitting form without refreshing page.

4.2 Back-end Design:

- **PHP**
Used for server programming language.
- **Laravel Framework**
Used for developing project, security & better code understanding purpose.
- **MySQL Database**
Used for data storage.
- **Live Server**
Used for real life use.
- **XAMPP**
Used as local server.

4.3 Interaction Design and User Experience (UX):

“Smart Health Service” is very user friendly, responsive & very interactive web application. Because HTML, CSS, Bootstrap 4, Java Script, jQuery, AJAX used for front-end designing.

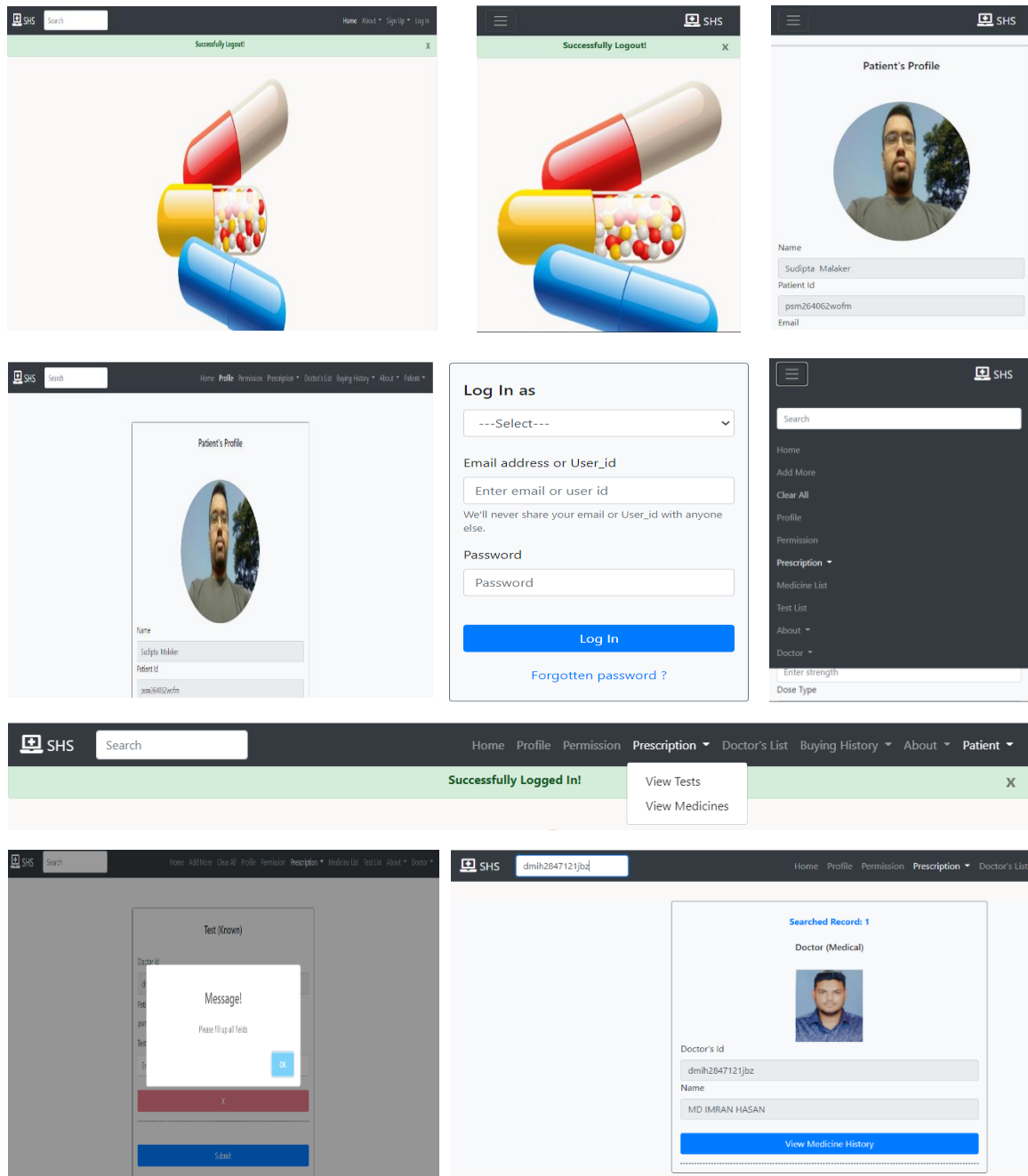


Figure 4.1: Interaction Design and User Experience (UX) 1

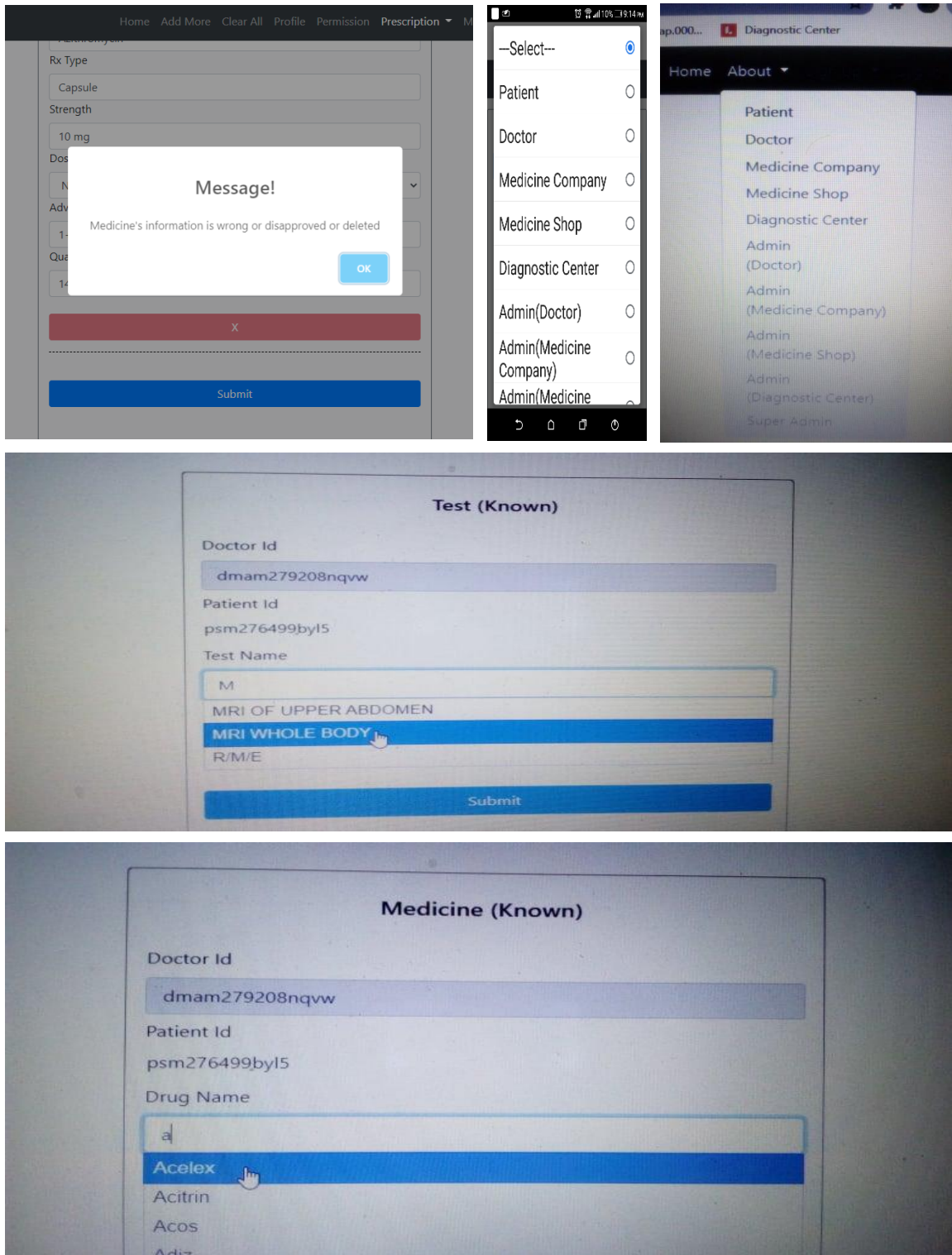


Figure 4.2: Interaction Design and User Experience (UX) 2

4.4 Implementation Requirements:

“Smart Health Service” is very user friendly, responsive, very interactive & secured web application. As per user requirements this web application has developed.

- HTML, CSS, Bootstrap 4, Java Script, jQuery, AJAX used for front-end designing, which help to being user friendly, responsive, very interactive web application.
- PHP, Laravel Framework, MySQL Database, Live Server, XAMPP used for back-end part of this web application, which help to being very fast, secured, understandable, testable & real time able web application.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database:

MySQL database has used for “Smart Health Service” web application.

All implemented database table are showing below:

shs admin_diagnostic_center serial : int(255) admin_diagnostic_center_id : varchar(100) password : varchar(30) requirement : mediumtext # delete : tinyint(1)	shs admin_doctor serial : int(255) admin_doctor_id : varchar(100) password : varchar(30) requirement_mbbs : mediumtext requirement_bds : mediumtext mail_address : mediumtext receive_hour : mediumtext # delete : tinyint(1)	shs admin_medicine_company serial : int(255) admin_medicine_company_id : varchar(100) password : varchar(30) requirement : mediumtext # delete : tinyint(1)
shs admin_medicine_shop serial : int(255) admin_medicine_shop_id : varchar(100) password : varchar(30) requirement : mediumtext # delete : tinyint(1)	shs diagnostic_center serial : int(255) dia_id : varchar(1000) diagnostic_center_name : varchar(500) diagnostic_center_address : varchar(2000) diagnostic_center_license_number : varchar(1000) founder_first_name : varchar(100) founder_middle_name : varchar(100) founder_last_name : varchar(100) founder_mobile_number : varchar(20) founder_national_id_number : varchar(1000) founder_permanent_address : varchar(2000) founder_profile_picture : varchar(1000) shareholder_information : mediumtext email : varchar(300) password : varchar(1000) updated_password : varchar(1000) regtime : varchar(1000) # email_confirm : tinyint(1) # diagnostic_center_confirm : tinyint(1) # v_key : varchar(1000) # updated_password_v_key : varchar(1000) # delete : tinyint(1)	shs diagnostic_center_services id : int(255) dia_id : varchar(1000) test_name : varchar(1000) add_time : varchar(100) selling_price : varchar(100) total_sell_test_report : varchar(1000) # test_confirm : tinyint(1) # test_delete : tinyint(1)
shs diagnostic_center_to_patient_history serial : int(255) dia_id : varchar(1000) pat_id : varchar(1000) doctor_to_konown_patient_diagnostic_id : varchar(1000) test_name : varchar(100) test_code : varchar(100) selling_price_to_patient : varchar(100) test_report_selling_date : varchar(100) # diagnostic_center_delete : tinyint(1)	shs feedback serial : int(255) usertype : varchar(100) user_id : varchar(1000) user_name : varchar(300) user_mobile_number : varchar(15) user_email : varchar(100) massage : mediumtext date : varchar(100) # delete : tinyint(1)	shs doctor_to_konown_patient_medicine id : int(255) doc_id : varchar(1000) pat_id : varchar(1000) given_time : varchar(1000) medicine_com_stoke_id : varchar(1000) given_dose : varchar(100) advice : varchar(10000) given_quantity : varchar(100) buy_quantity : varchar(100) last_buy_quantity : varchar(100) last_buy_price : varchar(100) last_medicine_shop_id : varchar(1000) last_medicine_taken_time : varchar(100) # doctor_delete : tinyint(1) # patient_delete : tinyint(1)
	shs last_medicine_order_received_date_by_medicine_company id : int(255) mc_id : varchar(1000) ms_id : varchar(1000) last_medicine_order_received_date_by_medicine_company : varchar(1000)	

Figure 5.1: Implementation of Database Tables 1

shs doctor serial : int(255) doc_id : varchar(1000) first_name : varchar(50) middle_name : varchar(50) last_name : varchar(50) date_of_birth : datetime gender : varchar(10) religion : varchar(10) house_no : varchar(50) word_no : varchar(50) village : varchar(50) post_office : varchar(50) police_station : varchar(50) postal_code : varchar(50) district : varchar(50) country : varchar(50) visiting_address : varchar(1000) mobile_number : varchar(20) profile_picture : varchar(1000) doctor_type : varchar(10) bmdc_registration_no : varchar(1000) medical_course : varchar(2000) expertness_area : varchar(2000) working_place : varchar(2000) email : varchar(300) password : varchar(1000) updated_password : varchar(1000) regtime : varchar(1000) email_confirm : tinyint(1) doctor_confirm : tinyint(1) v_key : varchar(1000) updated_password_v_key : varchar(1000) public : tinyint(1) delete : tinyint(1)	shs doctor_to_konown_patient_diagnostic id : int(255) doc_id : varchar(1000) pat_id : varchar(1000) given_time : varchar(1000) test_name : varchar(1000) test_code : varchar(1000) test_result : varchar(1000) doctor_delete : tinyint(1) patient_delete : tinyint(1) last_test_report_selling_date : varchar(1000) last_test_report_selling_dia_id : varchar(1000) test_report_delete_by_patient : tinyint(1) test_report_delete_by_diagnostic_center : tinyint(1)	shs medicine_company serial : int(255) mc_id : varchar(1000) medicine_company_name : varchar(500) medicine_company_address : varchar(2000) medicine_company_license_number : varchar(1000) founder_first_name : varchar(100) founder_middle_name : varchar(100) founder_last_name : varchar(100) founder_mobile_number : varchar(20) founder_national_id_number : varchar(1000) founder_permanent_address : varchar(2000) founder_profile_picture : varchar(1000) shareholder_information : mediumtext email : varchar(300) password : varchar(1000) updated_password : varchar(1000) regtime : varchar(1000) email_confirm : tinyint(1) medicine_company_confirm : tinyint(1) v_key : varchar(1000) updated_password_v_key : varchar(1000) delete : tinyint(1)
shs medicine_company_to_medicine_shop_history serial : int(255) mc_id : varchar(1000) ms_id : varchar(1000) medicine_company_stoke_id : varchar(1000) selling_quantity : varchar(1000) selling_date : varchar(1000) generic_name : varchar(100) rx_type : varchar(100) drug_name : varchar(100) strength : varchar(100) medicine_batch_code : varchar(100)	shs medicine_shop_stoke id : int(255) ms_id : varchar(1000) medicine_company_stoke_id : varchar(1000) stok1_medicine_quantity : varchar(1000) stok1_medicine_batch_code : varchar(1000) stok2_medicine_quantity : varchar(1000) stok2_medicine_batch_code : varchar(1000) stok3_medicine_quantity : varchar(1000) stok3_medicine_batch_code : varchar(1000) total_sell_out : varchar(1000) available : varchar(1000)	shs medicine_shop_to_patient_history serial : int(255) ms_id : varchar(1000) pat_id : varchar(1000) mc_id : varchar(1000) medicine_company_stoke_id : varchar(1000) doctor_to_konown_patient_medicine_id : varchar(1000) generic_name : varchar(100) rx_type : varchar(100) drug_name : varchar(100) strength : varchar(100) medicine_batch_code : varchar(1000) total_selling_price_to_patient : varchar(1000) selling_quantity : varchar(1000) selling_date : varchar(1000)
shs medicine_order_from_medicine_shop_to_medicine_company serial : int(255) ms_id : varchar(1000) order_date : varchar(1000) order_quantity_by_medicine_shop : varchar(1000) buy_order_quantity_by_medicine_shop : varchar(1000) medicine_company_stoke_id : varchar(1000) cancel : tinyint(1)	shs permission_by_patient id : int(255) pat_id : varchar(1000) doctor_permission : tinyint(1) medicine_shop_permission : tinyint(1) diagnostic_center_permission : tinyint(1)	

Figure 5.2: Implementation of Database Tables 2

shs medicine_shop	shs super_admin	shs patient
serial : int(255)	serial : int(255)	serial : int(255)
ms_id : varchar(1000)	super_admin_id : varchar(100)	pat_id : varchar(1000)
medicine_shop_name : varchar(500)	password : varchar(30)	first_name : varchar(50)
medicine_shop_address : varchar(2000)		middle_name : varchar(50)
drug_license_number : varchar(1000)		last_name : varchar(50)
founder_first_name : varchar(100)		gender : varchar(10)
founder_middle_name : varchar(100)		date_of_birth : datetime
founder_last_name : varchar(100)		address : varchar(1000)
founder_mobile_number : varchar(20)		mobile_number : varchar(20)
founder_national_id_number : varchar(1000)		profile_picture : varchar(5000)
founder_permanent_address : varchar(2000)		email : varchar(100)
founder_profile_picture : varchar(1000)		password : varchar(1000)
shareholder_information : mediumtext		updated_password : varchar(1000)
email : varchar(300)		regtime : varchar(100)
password : varchar(1000)		confirm : tinyint(1)
updated_password : varchar(1000)		v_key : varchar(1000)
regtime : varchar(1000)		updated_password_v_key : varchar(1000)
email_confirm : tinyint(1)		delete : tinyint(1)
medicine_shop_confirm : tinyint(1)		
v_key : varchar(1000)		
updated_password_v_key : varchar(1000)		
medicine_accept_from_medicine_company : tinyint(1)		
delete : tinyint(1)		

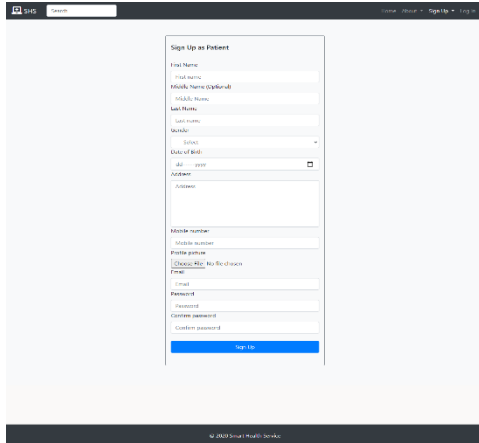
Figure 5.3: Implementation of Database Tables 3

5.2 Implementation of Front-end Design:

HTML, CSS, Bootstrap 4, Java Script, jQuery, AJAX used for implementing of front-end.

User based implemented front-end designs are showing below:

Patient:



A web form titled "Sign Up as Patient" with the following fields: First Name, Middle Name (Optional), Last Name, User Name, Gender (dropdown), Date of Birth (calendar), Address, Mobile Number, Mobile Number (with a "Check No. Reaches" button), Email, Password, Confirm Password, and a "Sign Up" button. The footer reads "© 2020 Smart Health Service".

Figure 5.4: Sign Up as Patient

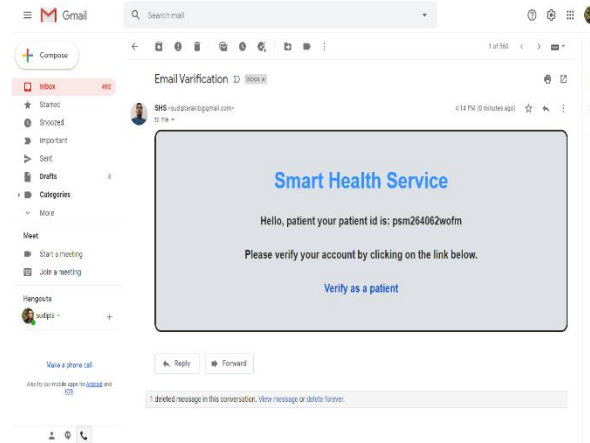


Figure 5.5: Email Confirmation by Patient

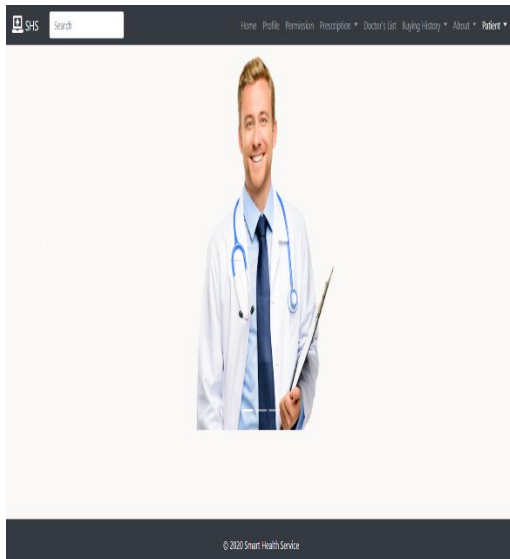
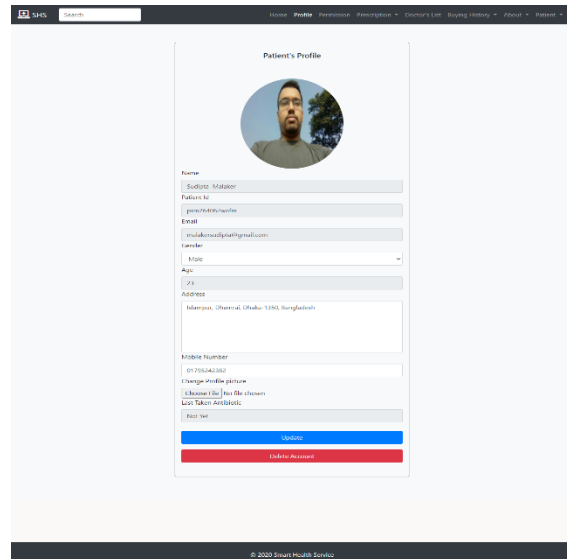


Figure 5.6: Patient Account



A screenshot of a "Patient's Profile" form. It includes a profile picture of a man. The form fields are: Name (Sudhansu Majumdar), Patient ID (psm284062wofm), Email (psm284062wofm@gmail.com), Gender (Male), Age (29), Address (Interpuri, Chhannal, Dhuba-1360, Bangladesh), Mobile Number (01715423032), Change profile picture, Password (123), New file chosen, Last Taken Antibiotic, and a "Not Yet" button. There are "Update" and "Delete Account" buttons at the bottom. The footer reads "© 2020 Smart Health Service".

Figure 5.7: Patient's Profile

Patient's Permission

Do you allow doctor to prescribe you medicine & test ?
Status: Yes

No

Do you allow medicine shop to give you medicine ?
Status: No

Yes

Do you allow diagnostic Center to give you test report ?
Status: Yes

No

Figure 5.8: Patient's Permission

SHS Search Home Profile Permission Prescription Doctor's List Buying History About Patient

Test Code: 1598508054 Report of Test: Urine-HCG

1598510002.pdf 1/2



2011 E. Chakrabarti Park Blvd, Suite 102 P.O. Box 102, Lakeland, FL 33809 Phone: 888.588.5238 Fax: 888.688.5321

Patient: DOE, JOHN	Exam Date: 05/25/2019
MRN - JDAUSARAD	DOB: 01/01/1961
Referring Physician: DR. DAVID LINESBY	FAO: (385) 418-8166

Urine-HCG

INDICATION: Status post work injury and superior will knee pain.

COMPARISON: None.

TECHNIQUE: Multiphasic and multi-sequence imaging of the left knee without intravenous contrast.

FINDINGS: Mild bone marrow edema of the patella noted. Subchondral cystic change of the lateral tibial spine noted with surrounding focal bone marrow edema. Mild degeneration of the anterior cruciate ligament noted, otherwise grossly intact. Posterior cruciate ligament is grossly intact. Signal attenuation of the medial collateral ligament noted. Major components of the lateral collateral ligament complex are grossly contiguous. Popliteus tendon is grossly unremarkable. Mild myxoid degeneration posterior horn lateral meniscus noted. Mild fraying of the peripheral posterior horn medial meniscus noted. No acute meniscal tear. Mild patellar and quadriceps tendinosis noted. Grade III chondromalacia patella noted in the medial facet. Incomplete medial plica noted. No

© 2019 Smart Health Service

Figure 5.10: Test Report Shown by Patient

Home Profile Permission Search Visited Doctor Prescription Doctor's



Doctor's Profile (Medical)

Name: MD IMRAN HASAN
 Doctor's Id: dmih2847121jbz
 Email: sushantamalaker@gmail.com
 Gender: Male
 Mobile Number: 01795242382
 BMDC Registration No: 100025
 visiting Address:
 SATURA SHARIF, P.O.: SATURA SHARIF, P.S.: AKHAURA, DISTRICT:
 BRAHMANBARIA - 3450.
 Medical Course:
 M.B.B.S

Test History

Prescribed Date: 12:00 PM 27-Aug-20
Test Code: 1598508054

Test No 1.
 Test: Urine-PH
 Test Price: 550 Taka
 Last Test Report Buying Diagnostic Center Name: Not Yet
 Last Test Report Buying Diagnostic Center Id: Not Yet
 Last Test Report Buying Time: Not Yet

.....

Test No 2.
 Test: Urine-HCG
 Test Price: 550 Taka
 Last Test Report Buying Diagnostic Center Name: Des Diagnostic Center
 Last Test Report Buying Diagnostic Center Id: dcom3592567rvw
 Last Test Report Buying Time: 12:50 PM 27-Aug-20

View Test Report

Delete Test Report

.....

Delete Tests

Figure 5.9: Prescribed Tests for Patient

Home
Profile
Permission
Search Visited Doctor
Prescription
Do

Doctor's Profile (Medical)

Name: MD IMRAN HASAN
Doctor's Id: dmih2847121jbz
Email: sushantamalaker@gmail.com
Gender: Male
Mobile Number: 01795242382
BMDC Registration No: 100025
visiting Address:
SATURA SHARIF, P.O.: SATURA SHARIF, P.S.: AKHAURA, DISTRICT:
BRAHMANBARIA - 3450.
Medical Course:
M.B.B.S

Medicine History

Prescribed Date: 27-Aug-20 12:29 PM

Medicine No 1.
Medicine: Naprosyn_Naproxen Sodium_Tablet_500 mg (Approved)
Medicine Company Name: Amico Pharmaceuticals Ltd
Advice: 1+0+1 (After Meal)
Medicine Given Dose: Not Continue
Medicine Given Quantity: 14
Medicine Buying Quantity: 14
Medicine Unit Price: 15 Taka
Last Medicine Buying Quantity: 14
Last Total Medicine Buying Price: 210 Taka
Last Medicine Buying Medicine Shop Name: M/s RT Pharma
Last Medicine Buying Medicine Shop Id: msom349567k0jl
Last Medicine Buying Time: 12:39 PM 27-Aug-20

Medicine No 2.
Medicine: Alat_Cetirizine Hydrochloride [Oral]_Tablet_10 mg (Approved)
Medicine Company Name: ACI Pharmaceuticals Limited
Advice: 1+0+0
Medicine Given Dose: Not Continue
Medicine Given Quantity: 7
Medicine Buying Quantity: 0
Medicine Unit Price: 2 Taka
Last Medicine Buying Quantity: 0
Last Total Medicine Buying Price: 0 Taka
Last Medicine Buying Medicine Shop Name: Not Yet
Last Medicine Buying Medicine Shop Id: Not Yet
Last Medicine Buying Time: Not Yet

Delete Medicines

Figure 5.11: Prescribed Medicines for Patient

Home
Profile
Permission
Prescription
Do

Medicine Buying History

Buying Date: 12:39 PM 27-Aug-20
Medicine Shop Name: M/s RT Pharma
Medicine Shop Id: msom349567k0jl
Drug Name: Edicef
Generic Name: Cephalixin
Rx Type: Capsule
Strength: 250 mg
Medicine Batch Code: 1598447318
Buying Quantity: 7
Total Buying Price: 42
Medicine Company Name: Bengal Pharmaceuticals Ltd
Medicine Company Id: mcom3621309b3u

Buying Date: 12:39 PM 27-Aug-20
Medicine Shop Name: M/s RT Pharma
Medicine Shop Id: msom349567k0jl
Drug Name: Naprosyn
Generic Name: Naproxen Sodium
Rx Type: Tablet
Strength: 500 mg
Medicine Batch Code: 1598448001
Buying Quantity: 14
Total Buying Price: 210
Medicine Company Name: Amico Pharmaceuticals Ltd
Medicine Company Id: mcla362576jpk0

Figure 5.12: Medicine Buying History from Medicine Shop

Home
Profile
Permission
Prescription
Do

Test Report Buying History

Buying Date: 12:50 PM 27-Aug-20
Diagnostic Center Name: Des Diagnostic Center
Diagnostic Center Id: dcom3592567rww
Test Name: Urine-HCG
Test Code: 1598508054
Buying Price: 550

Buying Date: 9:22 PM 26-Aug-20
Diagnostic Center Name: Des Diagnostic Center
Diagnostic Center Id: dcom3592567rww
Test Name: R/M/E
Test Code: 1598445854
Buying Price: 150

Figure 5.13: Test Report Buying History from Diagnostic Center

Doctor:

[illegible]

Figure 5.14: Sign Up as Doctor

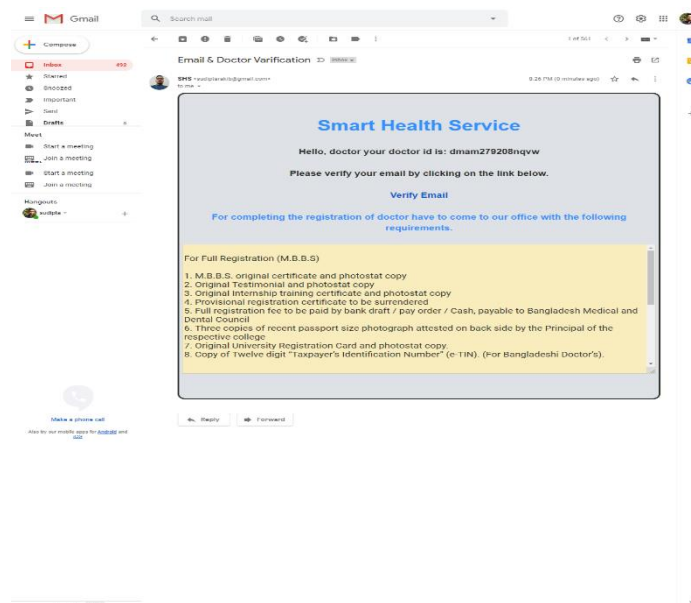


Figure 5.15: Email Confirmation by Doctor

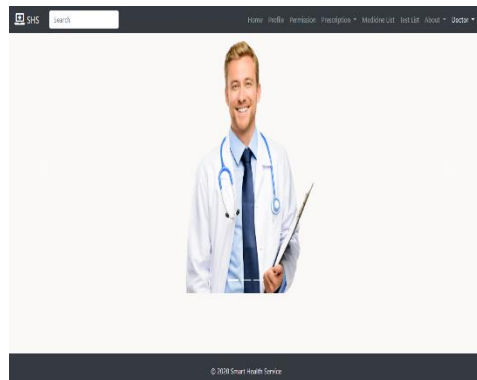


Figure 5.16: Doctor's Account

Doctor's Permission

Do you want to show you as a doctor to public doctor list ?

Status: Yes

No

Figure 5.17: Doctor's Permission

Search Patient Id for giving Test (Known)

Search Patient Id

Search Patient Id

Search

Figure 5.18: Search Patient Id for Prescribing Medicine

Home Add More Clear All Profile Permission Prescriptio

Test (Known)

Doctor Id

dmam279208nqvw

Patient Id

psm276499byl5

Test Name

MRI OF UPPER ABDOMEN

X

Test Name

MRI WHOLE BODY

X

Submit

Figure 5.19: Prescribing Test to Patient

Search Patient Id for giving Medicine (Known)

Search Patient Id

Search Patient Id

Search

Figure 5.20: Search Patient Id for Prescribing Medicine

Home Add More Clear All Profile Permission Prescriptio

Medicine (Known)

Doctor Id

dmam279208nqvw

Patient Id

psm276499byl5

Drug Name

Acelex

Generic Name

Cephalexin

Rx Type

Capsule

Strength

500 mg

Dose Type

Not Continue

Advice

1+0+1

Quantity

14

X

Submit

Figure 5.21: Prescribing Medicine to Patient

[Home](#)
[Profile](#)
[Permission](#)
[Search Visited Patient](#)
[Prescription](#)



Patient's Profile

Name: Sushanta Malaker
 Patient Id: psm276499byl5
 Email: sushantamalaker@gmail.com
 Gender: Male
 Age: 15
 Address:
 Sukrabad, Dhanmondi, Dhaka, Bangladesh
 Mobile Number: 01795242382
 Last Taken Antibiotic:
 Edicef_Cephalexin_Capsule_250 mg

Test History

Prescribed Date: 11:57 AM 27-Aug-20
Test Code: 1598507874

Test No 1.
 Test: MRI WHOLE BODY

View Test Report

Test No 2.
 Test: X-Ray Dental

View Test Report

Delete Tests

Figure 5.22: All Prescribed Tests to Patient

[Home](#)
[Profile](#)
[Permission](#)
[Search Visited Patient](#)
[Prescription](#)



Patient's Profile

Name: Sushanta Malaker
 Patient Id: psm276499byl5
 Email: sushantamalaker@gmail.com
 Gender: Male
 Age: 15
 Address:
 Sukrabad, Dhanmondi, Dhaka, Bangladesh
 Mobile Number: 01795242382
 Last Taken Antibiotic:
 Edicef_Cephalexin_Capsule_250 mg

Medicine History

Prescribed Date: 27-Aug-20 11:46 AM

Medicine No 1.
 Medicine: Fast_Paracetamol_Suppository_125 mg (Approved)
 Medicine Company Name: ACI Pharmaceuticals Limited
 Advice: 1+0+0
 Medicine Given Quantity: 2
 Medicine Given Dose: Not Continue

Medicine No 2.
 Medicine: Edicef_Cephalexin_Capsule_250 mg (Approved)
 Medicine Company Name: Bengal Pharmaceuticals Ltd
 Advice: 1+0+0
 Medicine Given Quantity: 7
 Medicine Given Dose: Not Continue

Delete Medicines

Figure 5.23: All Prescribed Medicines to Patient

Medicine Shop:

[illegible]

Figure 5.24: Sign Up as Medicine Shop

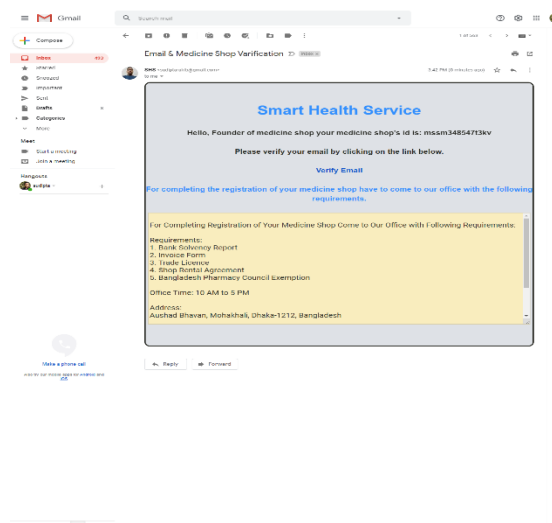


Figure 5.25: Email Confirmation by Medicine Shop

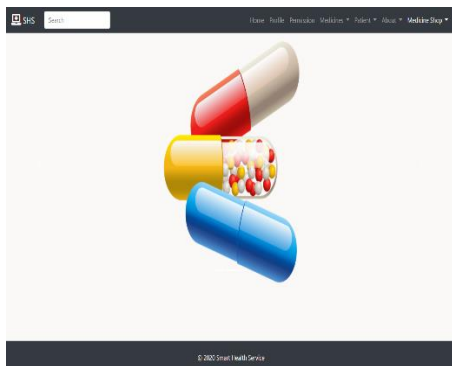


Figure 5.26: Medicine Shop's Account

Medicine Shop's Permission

Do you want to allow medicine company to give medicine ?

Status: Yes

No

Figure 5.27: Medicine Shop's Permission

Search Patient Id for Selling Medicine (Known)

Search Patient Id

Search

Figure 5.28: Search Patient Id for Selling Medicine

Home Profile Permission Me

Amico Pharmaceuticals Ltd

Medicine

Last Order Status: Submitted

Drug Name

Acelex

Generic Name

Cephalexin

RX Type

Capsule

Strength

500 mg

Stok1: 4986 & Batch Code: 1598447792

Stok2: 0 & Batch Code: None

Stok3: 0 & Batch Code: None

Order Quantity

5000

Place Order Now

Figure 5.30: Place Order Medicine to Medicine Company

Home Profile Permission Me

Patient Name: Sushanta Malaker

Patient Id: psm276499byl5

Prescribed Medicines

Prescribed Date: 26-Aug-20 5:57 PM

No 1.

Medicine: Alat_Cetirizine Hydrochloride [Oral]_Tablet_10 mg (Approved)

Medicine Company Name: ACI Pharmaceuticals Limited

Medicine Company Id: mcs361052tex5

Unit Price: 2 Taka

Required Quantity: 14

Last Sold Quantity: Not Yet

Last Sold Date: Not Yet

Sell Quantity

14

Sell Medicine

No 2.

Medicine: Acelex_Cephalexin_Capsule_500 mg (Approved)

Medicine Company Name: Amico Pharmaceuticals Ltd

Medicine Company Id: mcla362576jpk0

Unit Price: 12 Taka

Required Quantity: 0

Last Sold Quantity: 14

Last Sold Date: 9:03 PM 26-Aug-20

Sell Quantity

This medicine dose is completed

Sell Medicine

Figure 5.29: Sell Medicine to Patient

Medicine Company:[illegible]

Figure 5.31: Sign Up as Medicine Company

Figure 5.32: Email Confirmation by Medicine Company

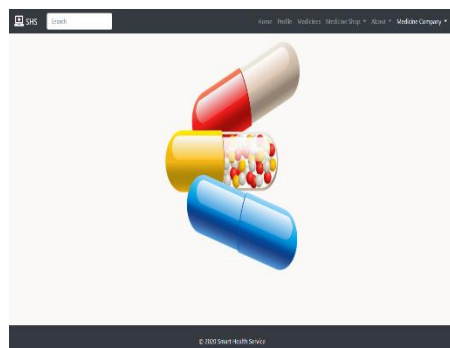


Figure 5.33: Medicine Company's Account

HomeProfileMedicines

Medicine (Approved)

Drug Name

Alat

Generic Name

Cetirizine Hydrochloride [Oral]

RX Type

Tablet

Strength

10 mg

Selling Price (Per Unit)

2

Medicine Batch Code

1598446594

Total Quantity

485000

Sold

15000

Total Sold

15000

Update

Figure 5.34: Update Medicine Company's Stoke

Home
Profile
Medicines

Medicine Shop's Profile (Approved)

Medicine Shop's Id: msom349567k0jl
Medicine Shop's Name: M/s RT Pharma
Founder's Mobile Number: 01795242382
Email: sushantamalaker@gmail.com
Medicine Shop's Address:
123/B, Word No: 7
Baratnagar, Pallabi, Dhaka

Last Order Received Date: 8:04 PM 26-Aug-20

Medicine Shop's Order List

Total Order: 3

Order Date: 8:43 PM 26-Aug-20

Order No 1.
Medicine: Alat_Cetirizine Hydrochloride [Oral]_Tablet_10 mg (Approved)
Order Quantity: 5000
Sold Order Quantity: 0
Required Quantity: 5000

Sell Quantity

5000

Sell Medicine

Order Date: 8:43 PM 26-Aug-20

Order No 2.
Medicine: Ceporal_Cephalexin_Capsule_500 mg (Approved)
Order Quantity: 5000
Sold Order Quantity: 0
Required Quantity: 5000

Sell Quantity

5000

Sell Medicine

Order Date: 8:43 PM 26-Aug-20

Order No 3.
Medicine: Fast_Paracetamol_Suppository_125 mg (Approved)
Order Quantity: 5000
Sold Order Quantity: 0
Required Quantity: 5000

Sell Quantity

5000

Sell Medicine

Home
Profile
Medicines

Medicine Sold History

Sold Date: 8:05 PM 26-Aug-20

Medicine Shop Name: Medicine Corner

Medicine Shop Id: msla357081bgo1

Drug Name: Vinap

Generic Name: Naproxen Sodium

Rx Type: Tablet

Strength: 500 mg

Medicine Batch Code: 1598446946

Sold Quantity: 5000

Sold Date: 8:05 PM 26-Aug-20

Medicine Shop Name: Medicine Corner

Medicine Shop Id: msla357081bgo1

Drug Name: PPI

Generic Name: Omeprazole

Rx Type: Capsule

Strength: 20 mg

Medicine Batch Code: 1598446892

Sold Quantity: 5000

Figure 5.36: Medicine Sold History to Medicine Shop

Figure 5.35: Sell Ordered Medicine to Medicine Shop

Diagnostic Center:

The screenshot shows a web form titled "Sign Up as Diagnostic Center" on the SHS (Smart Health Service) website. The form is divided into several sections with labels and input fields:

- Diagnostic Center's Name:** A single-line text input field.
- Diagnostic Center's Address:** A multi-line text area.
- Diagnostic Center's License Number:** A single-line text input field.
- Founder's Name:** A single-line text input field.
- First Name:** A single-line text input field.
- Middle Name:** A single-line text input field.
- Last Name:** A single-line text input field.
- Founder's Middle Name:** A single-line text input field.
- Founder's National ID Number:** A single-line text input field.
- Founder's National ID Number:** A single-line text input field.
- Founder's Permanent Address:** A multi-line text area.
- Founder's Profile picture:** A button labeled "Choose File" with a note "(No file chosen)".
- Diagnostic Center's Representative's Information (if any):** A multi-line text area.
- Permanent National ID No. Mobile No.:** A single-line text input field.
- Diagnostic Center's Email:** A single-line text input field.
- Phone:** A single-line text input field.
- Password:** A single-line text input field.
- Confirm password:** A single-line text input field.
- Confirm password:** A single-line text input field.

At the bottom of the form is a blue "Sign Up" button. The footer of the page reads "© 2020 Smart Health Service".

Figure 5.37: Sign Up as Diagnostic Center

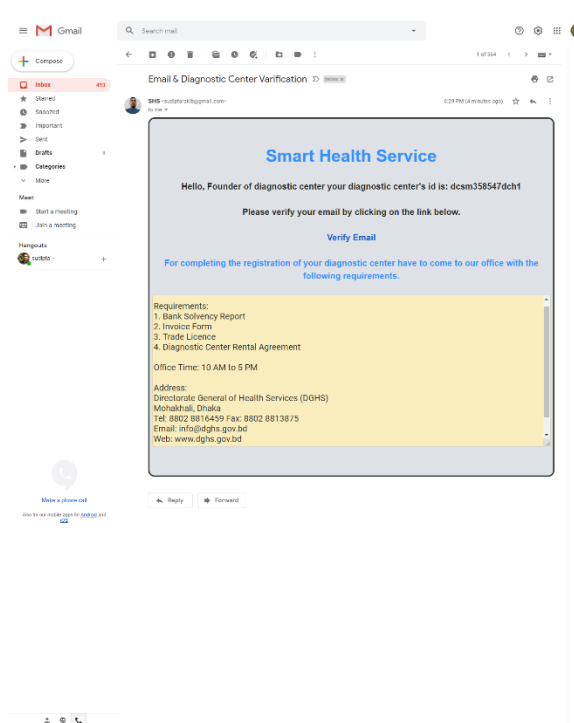


Figure 5.38: Email Confirm by Diagnostic Center

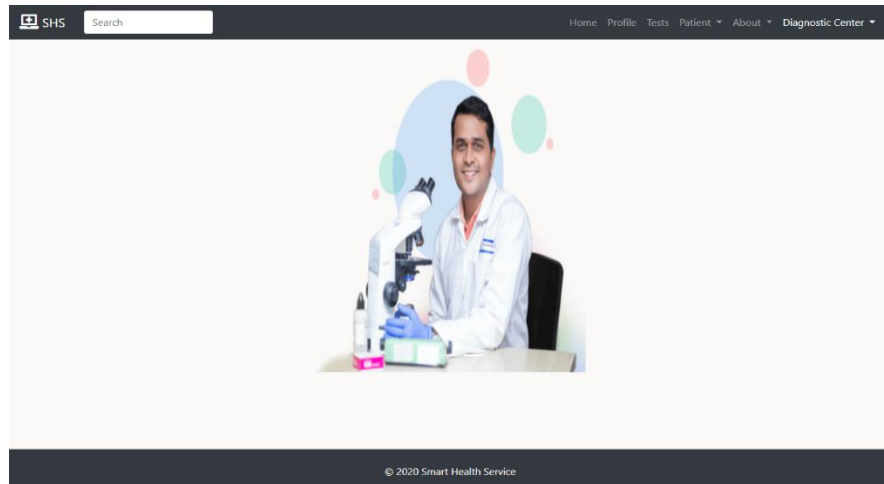


Figure 5.39: Diagnostic Center's Account

Search Patient Id & Test Code for Selling Test Report (Known)

Patient Id

Patient Id

Test Code

Test Code

Search

Figure 5.40: Search Patient Id & Test Code to Sell Test Report

Prescribed Date: 12:07 PM 27-Aug-20
Test Code: 1598508466
Patient's Id: psm276499byl5
Patient's Name: Sushanta Malaker
Patient's Mobile Number: 01795242382

1. Test Name: Urine-HCG (Available)

View Test Report

Delete Test Report

2. Test Name: Urine-PH (Available)

Choose File No file chosen

Upload Test Report

Figure 5.41: Prescribed Test List

Admin (Doctor):

Home Message for Doctor

Message for Doctor

Requirements for M.B.B.S

For Full Registration (M.B.B.S)

1. M.B.B.S. original certificate and photostat copy
2. Original Testimonial and photostat copy
3. Original Internship training certificate and photostat copy
4. Provisional registration certificate to be surrendered

Requirements for B.D.S

For Full Registration (B.D.S):

1. B.D.S. original certificate and photostat copy.
2. Original Testimonial and photostat copy.
3. Original Internship training certificate and photostat copy.
4. Provisional registration certificate to be surrendered.

Mail Address

Mailing Address:

203, Shaheed Sayed Nazrul Islam Sarani (86, Bijoy Nagar), Dhaka-1000, Bangladesh.

Telephone: +88-02-9565669, 9565685, 9565686, 9555538, 9586727

Receiving Hours

Receiving Hours:

Sunday - Thursday, 9:00 AM to 1:00 PM.

Update

Figure 5.42: Set Messages for Doctor

Home Message for Doctor Search Medical Doctor

Medical Doctor's Profile



Doctor's Id

dmih2847121jbz

Email

sushantamalaker@gmail.com

First Name

MD

Middle Name (Optional)

IMRAN

Last Name

HASAN

Date of Birth

01-Jan-1990

Gender

Male

Religion

Islam

Permanent Address

123/B

7

SATURA SHARIF

SATURA SHARIF

AKHAURA

3450

BRAHMANBARIA

Bangladesh

Visiting Address (Optional)

SATURA SHARIF, P.O.: SATURA SHARIF, P.S.: AKHAURA, DISTRICT: BRAHMANBARIA - 3450.

Mobile Number

01795242382

Profile picture

Choose File No file chosen

Doctor's Type

Medical

BMDC's Registration No

100025

Medical Courses

M.B.B.S

Expertness Areas (Optional)

Cardiologist

Working Places with Positions (Optional)

Apollo Hospital
Plot# 81, Block# E, Basundhara R/A, Dhaka-1229, BD
(Cardiologist)

Update

Delete Account

Approve Medical Doctor's Account

Status: Disapproved

Figure 5.43: Doctor's Profile for Approval

Admin (Medicine Shop):

Message for Medicine Shop

Requirements:

1. Bank Solvency Report
2. Invoice Form
3. Trade Licence
4. Shop Rental Agreement
5. Bangladesh Pharmacy Council Exemption

Office Time: 10 AM to 5 PM

Address:
Aushad Bhavan, Mohakhali, Dhaka-1212, Bangladesh

Update

Figure 5.44: Set Message for Medicine Shop

[Home](#) [Message for Medicine Shop](#) [Search Medicine Shop](#) [C](#)

Medicine Shop's Profile



Medicine Shop's Id
mssm348547t3kv

Medicine Shop's Email
malakersudipta@gmail.com

Medicine Shop's Name
M/S Rokeya Medicine Corner

Medicine Shop's Address
123/B, Word No: 7
Baratnagar, Uttara, Dhaka

Medicine Shop's Drug License Number
DHA-06978-A/B

Founder's Name
Sudipta

Middle Name
Malaker

Founder's Mobile Number
01795242382

Founder's National Id Number
099738362623

Founder's Permanent Address
123/B, Word No: 7
Baratnagar, Uttara, Dhaka

Founder's Profile picture
[Choose File](#) No file chosen

Medicine Shop's Shareholder's Information
Naba Paul -01795242383-099738362624
Masud Rana-81795242383-088738362655

Update

Delete Account

Approve Medicine Shop's Account

Status: Disapproved

Figure 5.45: Medicine Shop's Profile for Approval

Admin (Medicine Company):

This screenshot shows a web form titled "Message for Medicine Company". It contains a list of requirements, office hours, and an address field, followed by an "Update" button.

Message for Medicine Company

Requirements:

1. Bank Solvency Report
2. Invoice Form
3. Trade Licence
4. Certificate of Incorporation (Compnay License)

Office Time: 10 AM to 5 PM

Address:

Aushad Bhavan, Mohakhali, Dhaka-1212, Bangladesh

Update

Figure 5.46: Set Message for Medicine Company

This screenshot shows a web form titled "Add Medicine to Medicine Company". It includes fields for Medicine Company's Id, Drug Name, Generic Name, Rx Type, and Strength, followed by an "Add" button.

Home Message for Medicine Company Medicine Company ▾

Medicine Company's Id

mcs361052tex5

Drug Name

Acelex

Generic Name

Azithromycin

Rx Type

Capsule

Strength

125 mg

Add

Figure 5.48: Add Medicine to Medicine Company

This screenshot shows a web form titled "Medicine Company's Profile". It includes a profile picture, various identification and contact fields, and a section for shareholder information, followed by "Update", "Delete Account", and "Approve Medicine Company's Account" buttons, and a status indicator.

Home Message for Medicine Company Search Medicine Company Medicine Co

Medicine Company's Profile



Medicine Company's Id

mcla362576jpk0

Medicine Company's Email

taposhimalaker@gmail.com

Medicine Company's Name

Amico Pharmaceuticals Ltd

Medicine Company's Address

Dhulipitha, Dhamrai, Dhaka

Medicine Company's License Number

DHA-0633

Founder's Name

Liakot

Middle Name

Ali

Founder's Mobile Number

01795242382

Founder's National Id Number

099738362629

Founder's Permanent Address

Dhulipitha, Dhamrai, Dhaka

Founder's Profile picture

Choose File No file chosen

Medicine Company's Shareholder's Information

Naba Paul -01795242383-099738362624
Masud Rana-81795242383-088738362655

Update

Delete Account

Approve Medicine Company's Account

Status: Disapproved

Figure 5.47: Medicine Company's Profile for Approval

Admin (Diagnostic Center):

The screenshot shows a web application interface for an Admin (Diagnostic Center). At the top, there is a navigation bar with links: Home, Message for Diagnostic Center, Diagnostic Center, About, and Admin(Diagnostic Center). Below the navigation bar, there is a search bar and a sidebar with a 'SHS' logo. The main content area displays a form titled 'Message for Diagnostic Center'. The form contains a list of requirements: 1. Bank Solvency Report, 2. Invoice Form, 3. Trade License, and 4. Diagnostic Center Rental Agreement. Below the requirements, there is a text box for 'Office Time: 10 AM to 5 PM'. Further down, there is a text box for 'Address: Directorate General of Health Services (DGH), Mohakhali, Dhaka. Tel: 8802 8816459 Fax: 8802 8813875'. At the bottom of the form, there is a blue 'Update' button. The footer of the page shows '© 2020 Smart Health Service'.

Figure 5.49: Set Message for Diagnostic Center

The screenshot shows a web application interface for an Admin (Diagnostic Center). The main content area displays a form titled 'Add Test to Diagnostic Center'. The form contains a text box for 'Diagnostic Center's Id' with the value 'dcsh359670zyw'. Below this, there is a text box for 'Test Name' with the placeholder 'Enter Test Name'. Further down, there is a text box for 'Selling Price' with the placeholder 'Enter Selling Price'. At the bottom of the form, there is a blue 'Add' button.

Figure 5.51: Add Test to Diagnostic Center

The screenshot shows a web application interface for an Admin (Diagnostic Center). The main content area displays a form titled 'Diagnostic Center's Profile'. The form contains a circular profile picture of a man in a suit. Below the profile picture, there are several text boxes for the following information: 'Diagnostic Center's Id' (value: dcrh3594801ml2), 'Diagnostic Center's Email' (value: ashok.kumar.malaker@gmail.com), 'Diagnostic Center's Name' (value: Life Diagnostic Center), 'Diagnostic Center's Address' (value: 035/C, Nayapaltan, (2nd floor), VIP Road, Dhaka., P.C. 1000, Kotwali, Dhaka.), 'Diagnostic Center's License Number' (value: DHA-069712), 'Founder's Name' (value: Rana), 'Middle Name' (value: Hossan), 'Founder's Mobile Number' (value: 01795242382), 'Founder's National Id Number' (value: 099738362688), 'Founder's Permanent Address' (value: 035/C, Nayapaltan, (2nd floor), VIP Road, Dhaka., P.C. 1000, Kotwali, Dhaka.), 'Founder's Profile picture' (value: Choose File, No file chosen), and 'Diagnostic Center's Shareholder's Information' (value: Naba Paul -01795242383-099738362624, Masud Rana-81795242383-088738362655). At the bottom of the form, there are three buttons: a blue 'Update' button, a grey 'Delete Account' button, and a green 'Approve Diagnostic Center's Account' button. Below the buttons, there is a status indicator: 'Status: Disapproved'.

Figure 5.50: Diagnostic Center's Profile for Approval

Super Admin:

Admin Type

---Select---

▼

Id

Id

Password

Password

Add

Figure 5.52: Add Admin

Home Add Admin Admin

Feedbacks

Feedback Date: 10:14 PM 27-Aug-20

Usertype: Doctor

Doctor Name: MOHAMMAD AL MAMUN

Doctor Id: dmam279208nqvw

Doctor Mobile Number: 01795242382

Doctor Email: malakersudipta@gmail.com

Message:

Wow
This is Awesome!

Delete

Feedback Date: 10:12 PM 27-Aug-20

Usertype: Patient

Patient Name: Sudipta Malaker

Patient Id: psm264062wofm

Patient Mobile Number: 01795242382

Patient Email: malakersudipta@gmail.com

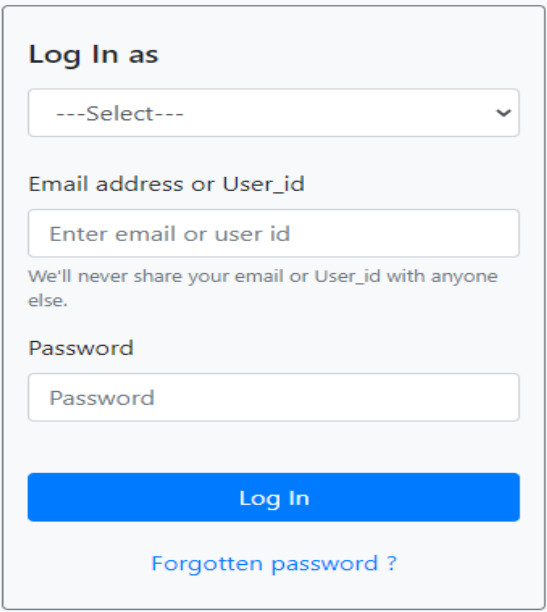
Message:

Hello Founder of SHS,
Your System is Working Well!

Delete

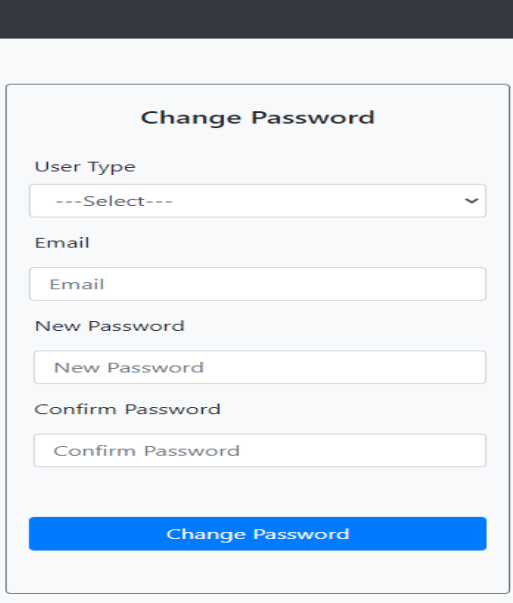
Figure 5.53: View Feedbacks from Different Users

All users also can perform some tasks, which are below:



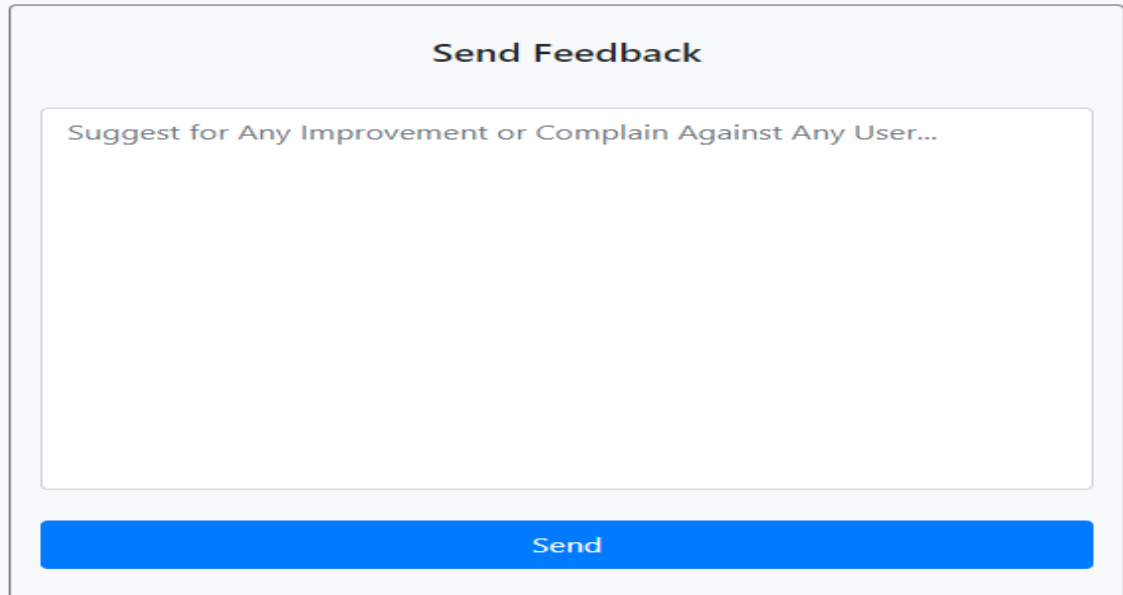
The 'Log In as' form is a light gray rectangular box. At the top, it has the title 'Log In as' in bold. Below the title is a dropdown menu with the text '---Select---' and a downward arrow. Underneath the dropdown is the label 'Email address or User_id' in bold. Below this label is a text input field with the placeholder text 'Enter email or user id'. Below the input field is a small line of text: 'We'll never share your email or User_id with anyone else.' Below this is the label 'Password' in bold. Underneath is another text input field with the placeholder text 'Password'. At the bottom of the form is a large blue button with the text 'Log In' in white. Below the button is a link that says 'Forgotten password ?' in blue.

Figure 5.54: Log In



The 'Change Password' form is a light gray rectangular box. At the top, it has the title 'Change Password' in bold. Below the title is the label 'User Type' in bold. Underneath is a dropdown menu with the text '---Select---' and a downward arrow. Below the dropdown is the label 'Email' in bold. Underneath is a text input field with the placeholder text 'Email'. Below this is the label 'New Password' in bold. Underneath is a text input field with the placeholder text 'New Password'. Below this is the label 'Confirm Password' in bold. Underneath is a text input field with the placeholder text 'Confirm Password'. At the bottom of the form is a large blue button with the text 'Change Password' in white.

Figure 5.55: Change Password



The 'Send Feedback' form is a light gray rectangular box. At the top, it has the title 'Send Feedback' in bold. Below the title is a large text area with the placeholder text 'Suggest for Any Improvement or Complain Against Any User...'. At the bottom of the form is a large blue button with the text 'Send' in white.

Figure 5.56: Send Feedback to Super Admin

5.3 Testing Implementation:

After successfully development, “Smart Health Service” web application had to test the whole system. Therefore, the tester has selected test procedure, test case, and test data. Tester of this web application first analysis the requirements then test planning which included which types of tests have to perform then test case development then environment setup that included which types of software & hardware needed to test. Then test all test cases with randomly generating data. After testing the last stage to show the test results and reports.

5.4 Test Results and Reports:

User based test results & reports are showing here.

Patient:

Table 5.1: Test Results and Reports for Patient

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Patient's permission	Click yes or no button	Permission successfully or not	Permission successfully or not	Passed	18-09-20
2. View prescribed medicines with price, View prescribed tests & test reports with price	Click view medicine button, Click view test report button	view successfully	view successfully	Passed	18-09-20
3. Delete prescribed medicines ,Delete prescribed tests	Click delete medicines button, Click delete tests button	Delete successfully	Delete successfully	Passed	18-09-20

4. View doctor list & details of doctor	Click doctor list & view details button	View successfully	View successfully	Passed	18-09-20
5. Medicine buying history, Test report buying history	Click medicine buying history button, Click Test report buying history button	View successfully	View successfully	Passed	18-09-20

Doctor:

Table 5.2: Test Results and Reports for Doctor

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Doctor's permission	Click yes or no button	Permission successfully or not	Permission successfully or not	Passed	18-09-20
2. View medicine list & details of medicine, View test list	Click medicine list button, Click test list button	View successfully	View successfully	Passed	18-09-20
3. Prescribe test to patient, Prescribe medicine to patient	Input various data & click submit button	Submit successfully	Submit successfully	Passed	18-09-20

4. Delete prescribed tests, Delete prescribed medicines	Click delete tests button, Click delete medicines button	Delete successfully	Delete successfully	Passed	18-09-20
5. View medicine given history, View test given history	Click medicine given history button, Click test given history button	View successfully	View successfully	Passed	18-09-20

Medicine Company:

Table 5.3: Test Results and Reports for Medicine Company

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. View approved medicine list with stoke	Click medicine button	View successfully	View successfully	Passed	18-09-20
2. Update medicine stoke	Change information & click update button	Update successfully	Update successfully	Passed	18-09-20
3. Sell medicine to medicine shop, Medicine sold history	Click sell medicine button, Click medicine sold history button	Sell successfully, View successfully	Sell successfully, View successfully	Passed	18-09-20

Medicine Shop:

Table 5.4: Test Results and Reports for Medicine Shop

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Medicine shop's permission	Click yes or no button	Permission successfully or not	Permission successfully or not	Passed	18-09-20
2. Medicine order to medicine company, Cancel ordered medicine	Input amount & click place order now button, Click cancel order button	Order submit successfully, Order cancel successfully	Order submit successfully, Order cancel successfully	Passed	18-09-20
3. Sell medicine to patient	Input amount & click sell medicine button	Sell successfully	Sell successfully	Passed	18-09-20
4. Medicine buying history, Medicine sold history	Click medicine buying history button, Click medicine sold history button	View successfully	View successfully	Passed	18-09-20

Diagnostic Center:

Table 5.5: Test Results and Reports for Diagnostic Center

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. View approved test list with stoke	Click test button	View successfully	View successfully	Passed	18-09-20
2. Sell test report to patient, Test report sold history	Input information & click upload test report button, Click test report sold history button	Upload successfully, View successfully	Upload successfully, View successfully	Passed	18-09-20

Admin (Doctor):

Table 5.6: Test Results and Reports for Admin (Doctor)

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Set message for doctor	Input some information & click update button	Update successfully	Update successfully	Passed	18-09-20
2. Medical & Dental doctor confirmation (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20

Admin (Medicine Shop):

Table 5.7: Test Results and Reports for Admin (Medicine Shop)

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Set message for medicine shop	Input some information & click update button	Update successfully	Update successfully	Passed	18-09-20
2. Medicine shop confirmation (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20

Admin (Medicine Company):

Table 5.8: Test Results and Reports for Admin (Medicine Company)

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Set message for medicine company	Input some information & click update button	Update successfully	Update successfully	Passed	18-09-20
2. Medicine company confirmation (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20

3. Add medicine to medicine company	Input all information & click add medicine button	Medicine add successfully	Medicine add successfully	Passed	18-09-20
4. Medicine (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20

Admin (Diagnostic Center):

Table 5.9: Test Results and Reports for Admin (Diagnostic Center)

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Set message for diagnostic center	Input some information & click update button	Update successfully	Update successfully	Passed	18-09-20
2. Diagnostic center confirmation (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20
3. Add test to diagnostic center	Input all information & click add test button	Test add successfully	Test add successfully	Passed	18-09-20
4. Test (update, delete, approved, disapproved)	Check every thing	All work	All work	Passed	18-09-20

Super Admin:

Table 5.10: Test Results and Reports for Super Admin

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. View feedback, Delete feedback	Click view feedback button, Click delete button	View successfully, Delete successfully	View successfully, Delete successfully	Passed	18-09-20
2. Admin operations (update, delete)	Check every thing	All work	All work	Passed	18-09-20

For All Users:

Table 5.11: Test Results for All Users

Test Case	Input	Expected Output	Actual Output	Result	Test on
1. Responsive	Run on different types of devices	Run smoothly	Run smoothly	Passed	18-09-20
2. Browser test	Run on different types of Browser	Run smoothly	Run smoothly	Passed	18-09-20
3. Sign up with email verification	Input various data, click sign up button & confirm email	Account created successfully	Account created successfully	Passed	18-09-20

4. Log In	Input various data, click log in button	Log in Successfully	Log in Successfully	Passed	18-09-20
5. Profile operations(update)	Click to the update button	Update successfully	Update successfully	Passed	18-09-20
6. Change log in password	Input information & click to the change password button	Change successfully	Change successfully	Passed	18-09-20
7. Send feedback	Input information & click send button	Send successfully	Send successfully	Passed	18-09-20

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society:

The impact of web application “Smart Health Service” on society is very positive. by "Smart Health Service (SHS)" It is possible to solve the major problems related to health service like fake doctor, unauthorized medicine company, fake medicine, unauthorized diagnostic center, unauthorized diagnostic test, unauthorized medicine shop, price problem of drug, price problem of diagnostic test, intoxication by taking drugs, tax evasion, shortage of medical history or document in society. This application will ensure the proper health care of the people in society.

6.2 Impact on Environment:

The impact of web application “Smart Health Service” on environment is very positive & healthy. This is a software-based project & for using this web application, it reduces the use of paper & this paper is responsible for pollution of environment. Therefore, this project is very environment friendly.

6.3 Ethical Aspects:

Web application “Smart Health Service” developed based on all positive ethical aspects. It does not harm other people’s computer network; it does not harm the file of any personal computer. This application has been developed based on unique idea & not copy others idea. Without permission, the resources not used.

6.4 Sustainability Plan:

Web application “Smart Health Service” developed for solving health service related problems in society. Therefore, the plan is run this web application in any country to solve health service related problems. Therefore, people will get better health service.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion:

Web application “Smart Health Service” is very effective, user friendly, very fast, secured & responsive. This application has all capabilities to solve all health service related problems mentioned in objectives section. Therefore, people will get better health service & lead a healthy life.

7.2 Scope for Further Developments:

“Smart Health Service” is a web application. In future, we will try to develop an android application with latest version for “Smart Health Service”. Currently this web application is running on a free hosting site. If we get any financing support, we will run this web application on paid hosting site or buy own server which will help to give better service to more people.

Appendices:

BPM= Business Process Model

ERD= Entity Relationship Diagram

UX= User Experience

App= Application

Responsive= Look good in any size of output display of smart devices

Server= Very strong configured all time running computer

Client= Computer or computer-controlled device

Web Technologies= Used for building web application

References:

Websites:

- [1] Research Gate, available at << https://www.researchgate.net/publication/252930147_Case_Report_MRI_Whole_Body_Bone_Scan>>, last accessed on 01-05-2020 at 6:00 PM.
- [2] Laravel, available at << <https://laravel.com/>>>, last accessed on 02-03-2020 at 6:02 PM.
- [3] Test name, available at << <https://www.researchgate.net/>>>, last accessed on 03-03-2020 at 6:03 PM.
- [4] Test name, available at << <https://www.researchgate.net/>>>, last accessed on 03-03-2020 at 7:03 PM.
- [5] Project management basics, available at << <https://www.usability.gov/what-and-why/project-management.html?fbclid=IwAR1O8OzxS9gJSOqfP7K66Ea72mV8GQj0O46zsxBxitwvGsfw-g2qcqV4GsU>>>, last accessed on 07-03-2020 at 8:01 PM.
- [6] Bootstrap, available at << <https://getbootstrap.com/>>>, last accessed on 08-04-2020 at 1:01 PM.
- [7] Diagram, available at << <https://app.lucidchart.com/users/login#/login>>>, last accessed on 09-05-2020 at 2:01 PM.

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