e_Health portal

A Project Submitted in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science in Computer Science and Engineering

by

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Abstract

E-Health Portal is a web based system by which someone can find all the doctors chambers, private or govt. clinic and hospitals in a specific location at anywhere of this country by means of location. Specialized doctors and services are also categorized here. I design and implement such an e-Health portal which can integrate many backend medical services effectively. Using this system one can easily get a specialist in nearby location in ones emergency case and get appointment. The doctors can also track the history of the patients and can use the information in any need. The basic features of my system which make it most eligible are: quick search result for the nearest health services in any place at any time. So, it is so much efficient in case of an emergency state, doctors are also found according to their specialty and the system has got a user friendly interface so that common people may find it easy to us e-Health Portal is cost effective, easy to use and have got high traffic capacity. My system will undoubtedly reduce the unnecessary costs, unwanted harassing situations and save valuable times of a patient in an emergency state to get proper healthcare.

Approval

The project report "e_Health portal" submitted by Tania Akter ID: 05206650,to the Department of Computer Science & Engineering, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc.) in Computer Science & Engineering and as to its style and contents.

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Declaration

I, hereby, declare that the work presented in this Project is the outcome of the investigation performed by me under the supervision of Tanveer Ahmed, Lecturer, Department of Computer Science \& Engineering, Stamford University Bangladesh. I also declare that no part of this Project and thereof has been or is being submitted elsewhere for the award of any degree or Diploma.

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Date:01-02-2018

Dedication

To my Parents

Acknowledgements

At first, I praise to almighty Allah for his kindness to complete the project.
I am very grateful to my project supervisor, **Tanveer Ahmed**, lecturer, Department of Computer Science & Engineering, for the guidance, inspiration and constructive suggestions that helps me in the preparation of this project. He has always encouraged me and invested a lot of time overseeing my progress. I also give thanks to all our honorable teacher of our department

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Chapter 1

1 Introduction

1.1 Motivation

e_health Portal is the use of modern information and communication technologies to meet needs of citizen, patients, healthcare professionals, healthcare providers, as well as policy makers. It is an automated version of manual health care system. It is a web application that provides better and efficient services and reduces the workload of patients and doctors. It saves time and creates a better communication platform between them.

1.2 Background

e_heath is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies [1]. The emergence of Web-based e-Health portals is a natural result of such changes because such portals provide patients and healthcare professionals easy accesses to information no matter where they are. According to a recent survey, most patients say they are very interested in and capable of accessing healthcare information and services via a Web-based portal system [1][2].

There are some local websites in our country for medical news, advice or hospital management and many foreign doctors searching websites. We can get online consultancy from the mobile operators which is costly. There are also some applications in smart technology devices like iPhone, iPad, android platform etc. to get doctors location which performs best in foreign countries. But the fact is, they are not complete solutions and in case of our country those foreign websites are inefficient. So, here are the basic features of this system which makes it most eligible: quick search result for the nearest health services in any place at any time, so it is so much efficient in case of an emergency state. It can be easily accessed from pc or simple mobile devices and user friendly interface so that common people may find it easy to use

1.3 Objective

I have tried to build a website by which someone can find all the doctors chambers, private or govt. clinic and hospitals in a specific location at anywhere of this country by means of location. Then, it will also show the doctors schedules and services of the hospitals and clinics. Specialized doctors and services will be categorized. So, it will be a complete online health portal with a user-friendly interface which also finds all the health services in a place and it can be visited through a browser using pc, mobile or any other compatible devices. Using this system one can easily get a specialist in nearby location in ones emergency case and get appointment. The doctors can also track the history of the patients and can use the information in any need.

1.4 Significance:

In Bangladesh, a common scene is that patients waste their time searching eligible services and going through many inappropriate tests. As a result, the patient has to suffer a lot with all kinds of harassments which also includes unnecessary expenses, lives miserably with many side-effects and sometimes he finds nothing to do but die. This system will be time-consuming as we all know how valuable every single moment can be for an emergency patient. When the patient case is worst, it would be better to take the patient in the nearest healthcare center. But, presently there is no easy way to find out the location of the appropriate doctor or find out a specialist in a short period of time. Our service is cost effective, easy to use, have got high traffic capacity and user friendly. In addition, I hope it will also be used for latest medical news, doctors blog and patients feedback and suggestions for any medical related areas. It will undoubtedly reduce the unnecessary tests, unwanted harassing situations and save valuable times of a patient in an emergency state to get proper healthcare.

1.5 Functionalities

The system is for automation of searching doctors, hospitals, diagnostic centre, getting appointment from doctors, storing history of patients. It provides following facilities to-

1.5.1 Super Admin

i) Can approve doctors request.

ii) Can manage the details of doctor, hospital, diagnostic centre

iii) Can add or update the hospitals, diagnostic centre.

iv) Can add or update medicine store

1.5.2 Doctor

i) Can add new patients.

ii) Can process patients appointment.

iii) Can process patients prescription.

iv) Can view his/her patients.

1.5.3 User

i) Can view doctors details.

ii) Can take doctor's appointment in advance.

iii) Can view details of hospital, diagnostic center, and medicine store.

1.6 Scope

Any user such as doctor, patient can use it in their emergency case. It can be used in any doctors chamber, clinic and modifications can be easily done according to requirements.

1.7 Technology Used

Front End: HTML, CSE, Java Script and JQuery.

Back End: MySQL database and PHP as server side scripting language.

1.8 Features:

The system forms an online visiting platform for doctors and patients. Use of this application

roots out the problems such as data missing, information miss-match, long lane of patients in

hospital etc.

- User can search for doctors help at any point of time.
- It provides complete healthcare service in a specific location.
- Doctors are also categorized according to their specialty in this system.
- The system is designed in such a way that it can handle a lot of traffic.
- All details will be available on a click.
- It is a complete online health portal with a user-friendly interface which also finds the entire healthcare services in a place and it can be visited through a browser using pc, mobile or any other compatible devices.

1.9 Chapter Summary

The e- Health Portal is an end user support and online healthcare project. Here I propose a

system that connects patients to available doctors. My proposed system aims to build an environment where various patients needing doctor help at their crying need can communicate doctors, find all details of their nearby hospital, diagnostic centre and medicine store. It also consists of a doctors login panel where doctor may login to the system and then see patient requests for appointment. The system then schedules those requests and serves them to doctor one after another. This allows doctors to see the patients on a particular day. The doctor can keep all history of a patient and keep track of the prescription. The system will prove helpful to urgent cases that do not find hospital, for emergency cases. Only the admin can manage the system and approve the doctor request, add all detail of hospital, diagnostic centre. User can view doctors details, nearby hospital and diagnostic centre details and send request to doctor for appointment.

Chapter 2

Literature Review

Background study:

This chapter describes the literature which is relevant to the purposes of the study. Many theorists have offered their ideas as to what they think works when it comes to E- healthcare. After reading the work of these theorists, several ideas began to emerge. This study will review recent literature regarding E-healthcare.

Purpose:

1. Healthcare is among the fastest-growing sectors in both developed and emerging economies. E-healthcare is contributing to the explosive growth within this industry by utilizing the internet and all its capabilities to support its stakeholders with information searches and communication processes. The purpose of this paper is to present the state-of-the-art and to identify key themes in research on e-healthcare.

Design/methodology/approach – A review of the literature in the marketing and management of e-healthcare was conducted to determine the major themes pertinent to e-healthcare research as well as the commonalities and differences within these themes.

Findings – Based on the literature review, the five major themes of e-healthcare research identified are: cost savings; virtual networking; electronic medical records; source credibility and

Privacy concerns and physician-patient relationships.

Originality/value – Based on these major themes, managerial implications for e-healthcare are formulated. Suggestions are offered to facilitate healthcare service organizations' attempts to further implement and properly utilize e-healthcare in their facilities. These propositions will also help these stakeholders develop and streamline their e-healthcare processes already in use. E-healthcare systems enable firms to improve efficiency, to reduce costs, and to facilitate the coordination of care across multiple facilities.

2. e_healthcare is the use of web-based systems to share and deliver information across the internet. With this ability, privacy and security must be maintained according to the Health Insurance Portability and Accountability Act (HIPAA) standards [4]. The reasonable approach to developing a system that can meet these requirements is a system that utilizes role-based models. Role-based access control (RBAC) is important because personnel could change but the position and access to the safe information keeps stable. With a role-based model it becomes easier to maintain access control, assign privileges, and personnel to the appropriate role .

Implementation is based off the security policy, which is a critical component of any system because it defines which roles or people have access to what information. An extensible markup language (XML) is used to enforce this policy because it is a web-based technology that is good for data transportation and security. Within this research project, we are able to give an overview for the state-of-art of secure e-healthcare system, and better understand a way of implementing a secure e-healthcare system that meets HIPAA standards and can share information to patients and healthcare facilities via the web service [5].

3. Large-scale distributed systems, such as e-healthcare systems, are difficult to develop due to their complex and decentralized nature. The service oriented architecture facilitates the development of such systems by supporting modular design, application integration and interoperation, and software reuse. With open standards, such as XML, SOAP, WSDL and UDDI, the service oriented architecture supports interoperability between services operating on different platforms and between applications implemented in different programming languages. In this paper we describe a distributed e-healthcare system that uses the service oriented architecture as a basis for designing, implementing, deploying, invoking and managing healthcare services. The e-healthcare system that we have developed provides support for physicians, nurses, pharmacists and other healthcare professionals, as well as for patients and medical devices used to monitor patients. Multi-media input and output, with text, images and speech, make the system more user friendly than existing e-healthcare systems [4].

Chapter

Summary:

In this chapter the overview of e-health portal being describing..how it work and why it good for any doctor or patient. The e_health portal is a complete web directory which is beneficial both for public and doctor. This kind of webpage will help people to make first communication in case of emergency issue.

Chapter 3

System Design

In Our country, a common scene is that patients waste their time searching eligible services and going through many inappropriate tests. As a result, the patient has to suffer a lot with all kinds of harassments which also includes unnecessary expenses, lives miserably with many side-effects and sometimes he finds nothing to do but die. When the patient case is worst, it would be better to take the patient in the nearest healthcare center. But, presently there is no easy way to find out the location of the appropriate doctor or find out a specialist in a short period of time. This system is cost effective, easy to use, have got high traffic capacity and user friendly. It will save valuable times of a patient in an emergency state to get proper healthcare.

3.1 Modules

In e-Health portal System, I have divided the system into three modules. These modules are-

1) Admin
2) Doctor
3) User

3.1.1 Admin

Admin has the permission to manage the whole system. Admin must have a username and a password to login to the system. This module contains the following parts which are discussed below:

1. Login:

Here, admin can login to the system using a valid username and a password.

2. Doctor Request:

When Doctor sends a request, admin can approve or reject doctor request.

3. Add Hospital, Diagnostic, Medicine centre:

Admin can insert the details of hospital, diagnostic and medicine centre.

4. Edit Hospital, Diagnostic, Medicine centre:

Admin can update the details of hospital, diagnostic and medicine centre.

5. Remove Hospital, Diagnostic, Medicine centre: Admin can delete the details of hospital, diagnostic and medicine centre if needs.

3.1.2 Doctor

In this module, Doctor can view his/her patients who takes appointment from him, can update his/her information. Here, he/she can give a print copy of a prescription to the patient, and store the prescription. He /she can also see the history of all his/her patients. It contains the following parts:

1. Doctor Registration:

Here, Doctors can registration to become a member of the system. Doctor can enter into the system only when the admin accept his/her request.

2. Doctor Login:

From here doctor can login to the system using his/her username and password .

3. Profile:

Doctor can view his/her profile and can update his/her profile.

4. Todays patients:

Doctor can view his /her patients in a particular day. Here doctor can insert the prescription against a patient.

5. All patients:

Doctor can view the history of his/her Patients.

6. Insert patients:

Doctor can insert the patients to the database who are not appointed by online.

3.1.3 User

User can View the details of a doctor and can take an appointment from a doctor. It contains the following parts:

1. Doctor:

Here, User can view the doctors who are registered to this system. User can see the details of a doctor and can take decision from whom he/she will take treatment.

2. Doctor Appointment:

Here, User can send appointment request to a doctor.

3. Search Hospital, Diagnostic: User can search of the hospital, diagnostic centre by location.

3.2 Flow Chart of the System

Flow chart of the system is shown below:

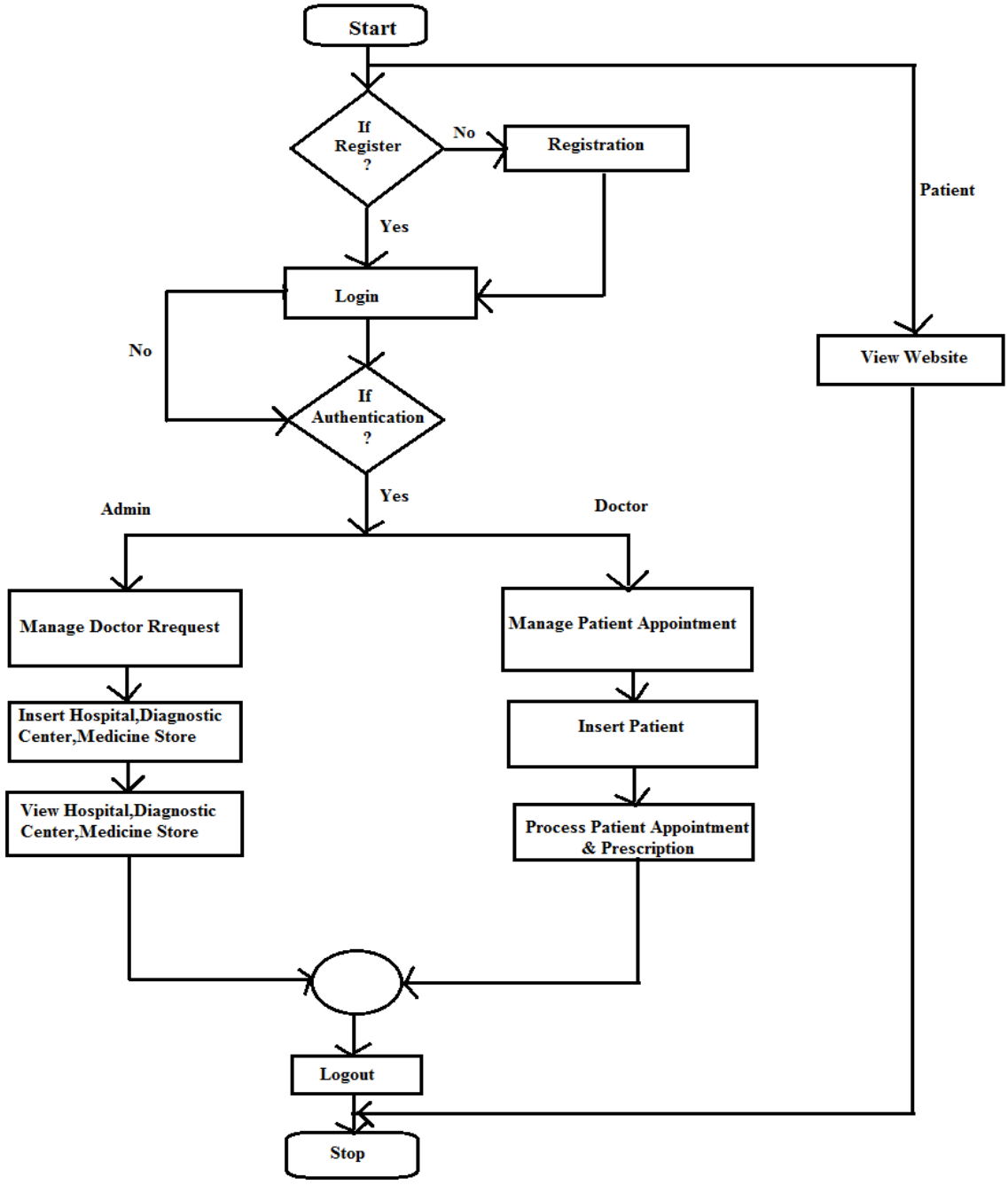

Figure 3.1: Flow chart of the system

3.3 Data Flow Diagram of the System

In this system communication between admin, doctor and user can be shown by the following DFD:

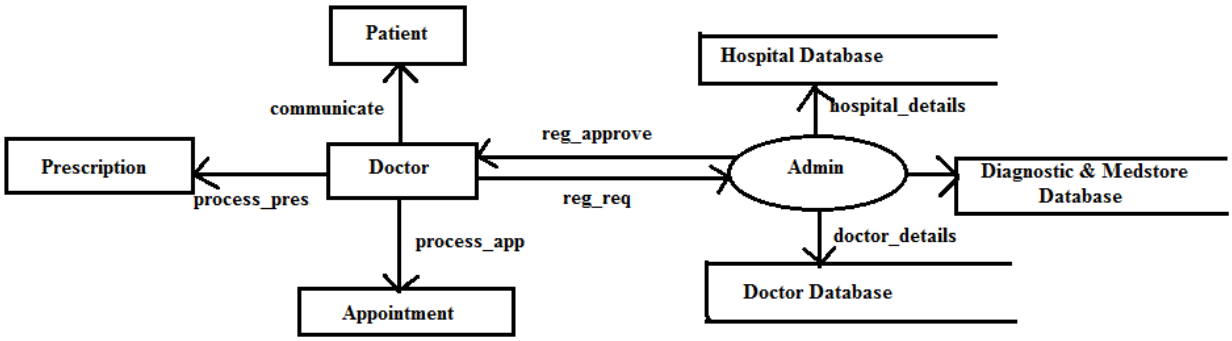

Figure 3.2: Data flow diagram of the system

3.4 Entity Relationship (E-R) Diagram of the Database

The Entity Relationship (E-R) Diagram of my designed database is given bellow:

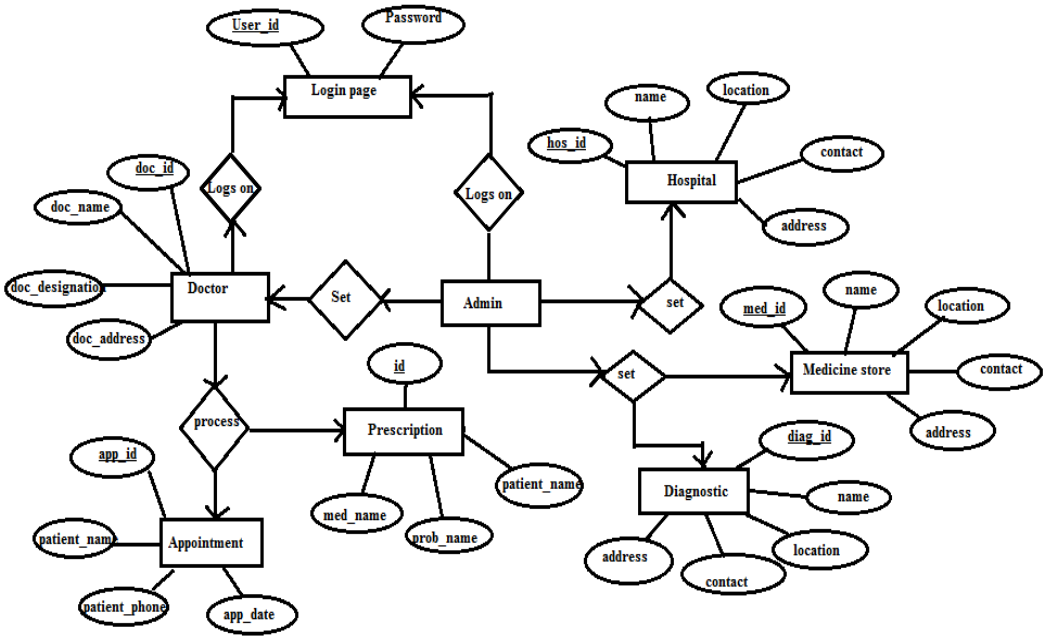

Figure 3.3: Entity Relationship (E-R) Diagram

3.5 Use case Diagram of the system

Use case diagram for admin, doctor, and visitor is given below:

3.5.1 Use case diagram for Admin

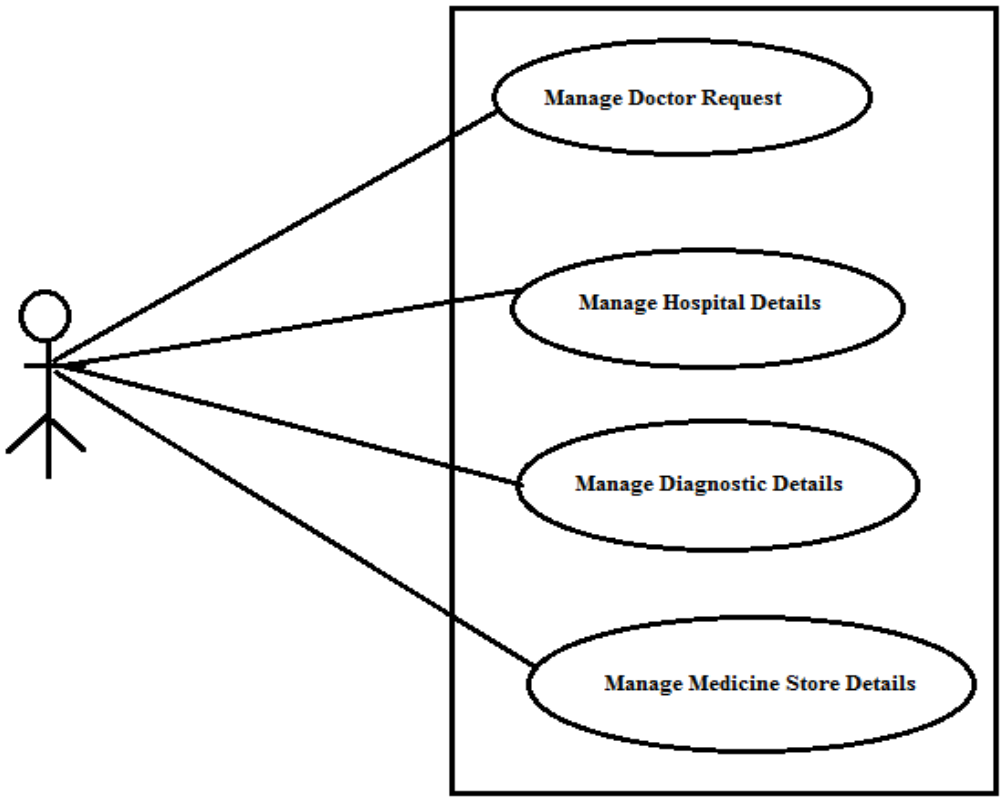

Figure 3.4: Use Case Diagram for Admin

3.5.2 Use case diagram for Doctor

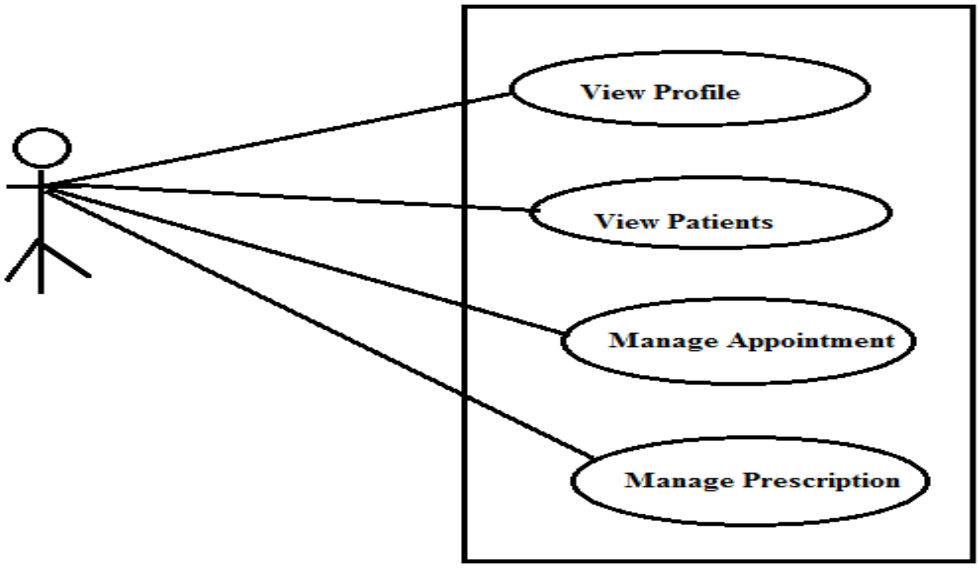

Figure 3.5: Use Case Diagram for Doctor

3.5.3 Use case diagram for User

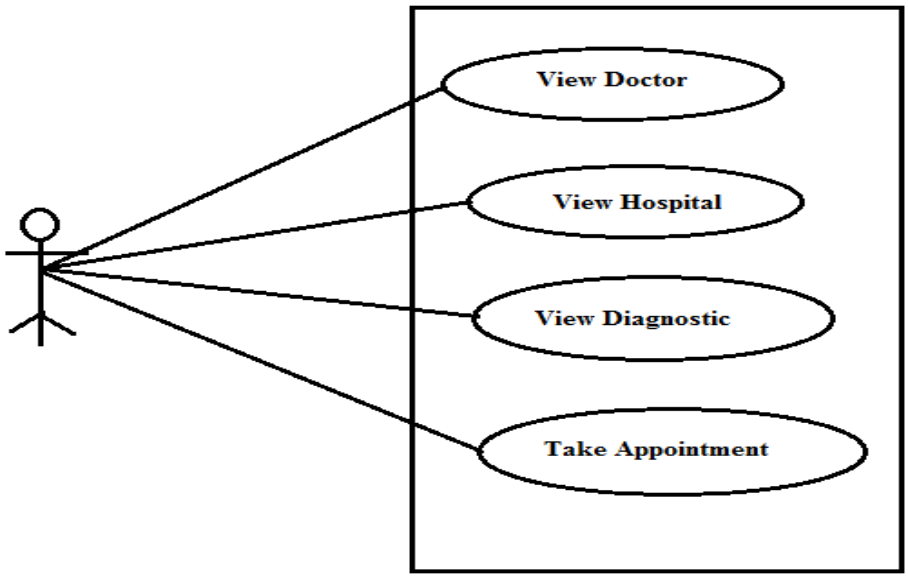

Figure 3.6: Use Case Diagram for User

Chapter 4

Results

4.1 Home Page:

User can view the home page after running the system where he/she gets the details of doctors, hospital, diagnostic and medicine centre. User can take appointment from here in advance. From this page doctor and admin can access their own working areas.

Figure 4.1: Home Page

4.2 Doctor page

This page contains all the doctors whom requests are accepted by the admin.

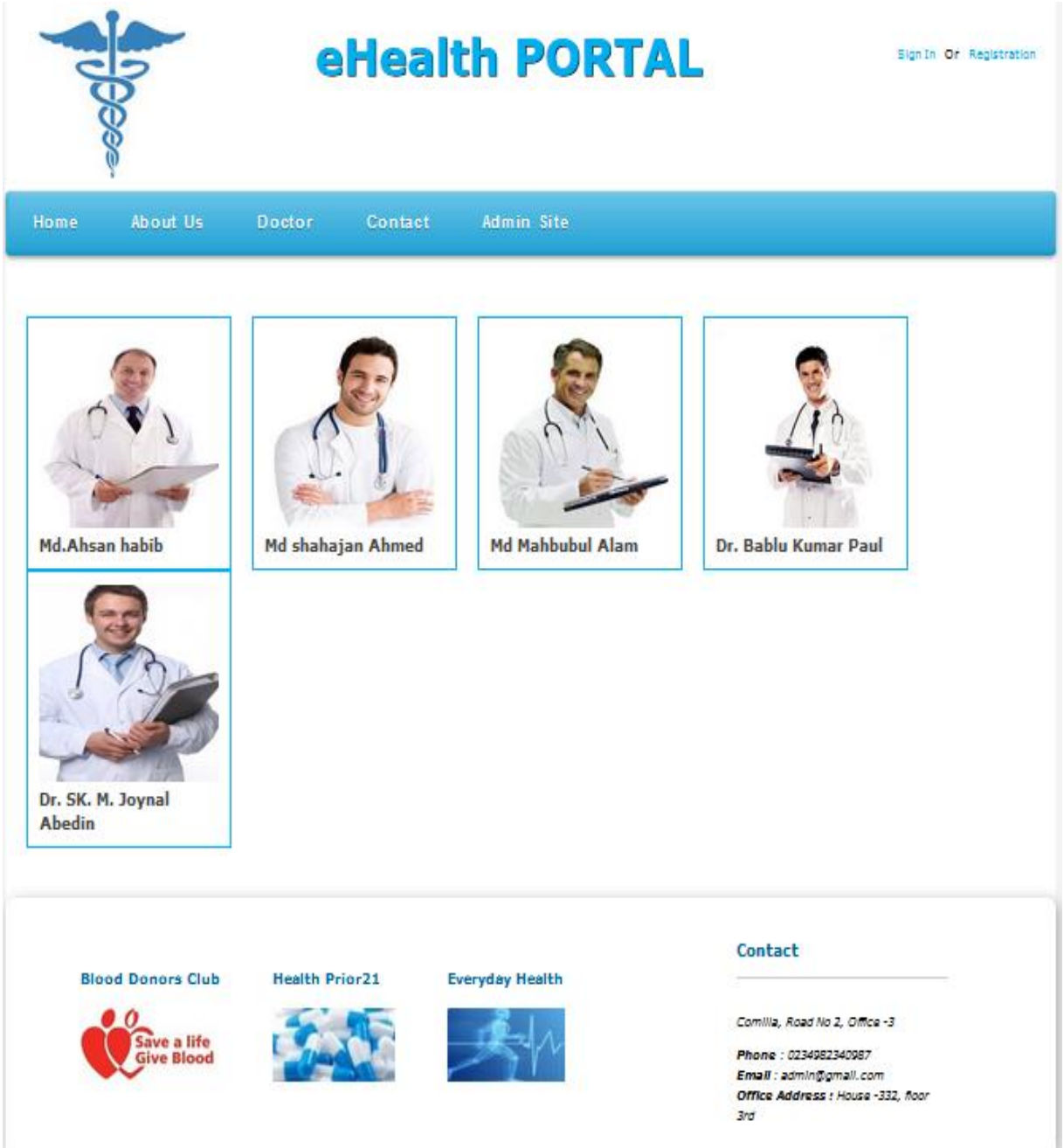

Figure 4.2: Doctor Page

By clicking a doctor name, user can know the details of him and take appointment from him.

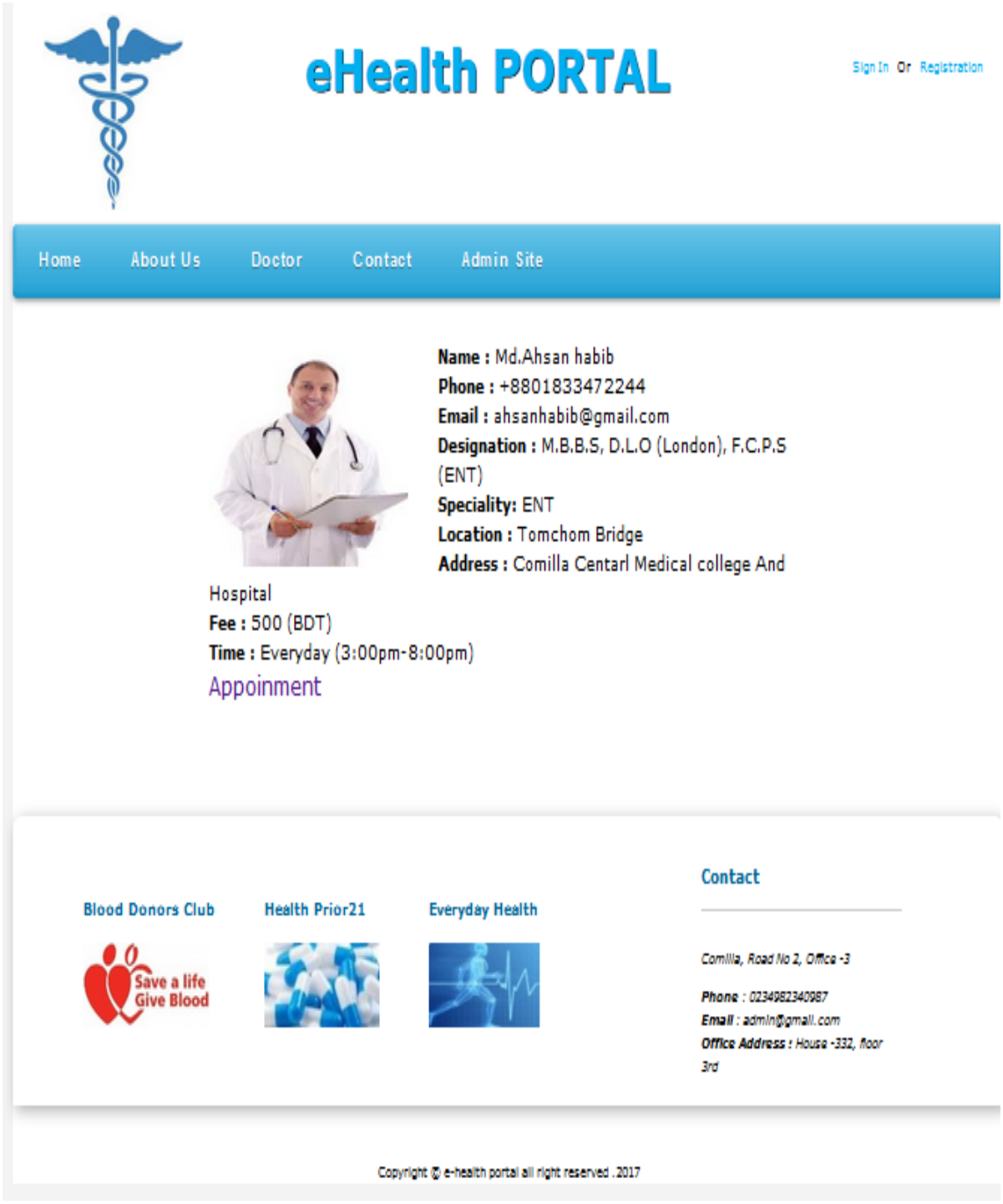

Figure 4.3: Details of Doctor

If any user wants to take appointment from the doctor he/she must click the appointment button and will see the next page. After filling up all the information he/she must submit it. When doctor accept his/her appointment request, he/she will be allowed to meet the doctor in an appoint date.

Figure 4.4: Appointment page

4.3 Search Doctor, Hospital, and Diagnostic by location

From this page user can search doctor, hospital, and diagnostic centre by location.

Figure 4.5: Search Doctor, Hospital, and Diagnostic centre

4.4 Doctor Registration Page

To use this system a doctor has to be registered. To be registered he/she must send request to the admin. After approving request he/she will able to use this system.

Figure 4.6: Doctor Registration Page

4.5 Doctor Login Page

Using valid user id and password a doctor can sign into the system.

Figure 4.7: Doctor Login Page

4.6 Doctor Profile Page

When a doctor signs into the system he/she will see his/her profile page. In this page he/she can update his/her information.

Figure 4.8: Doctor Profile Page

4.7 Insert Patient

From this page doctor can insert patient who are not appoint by online.

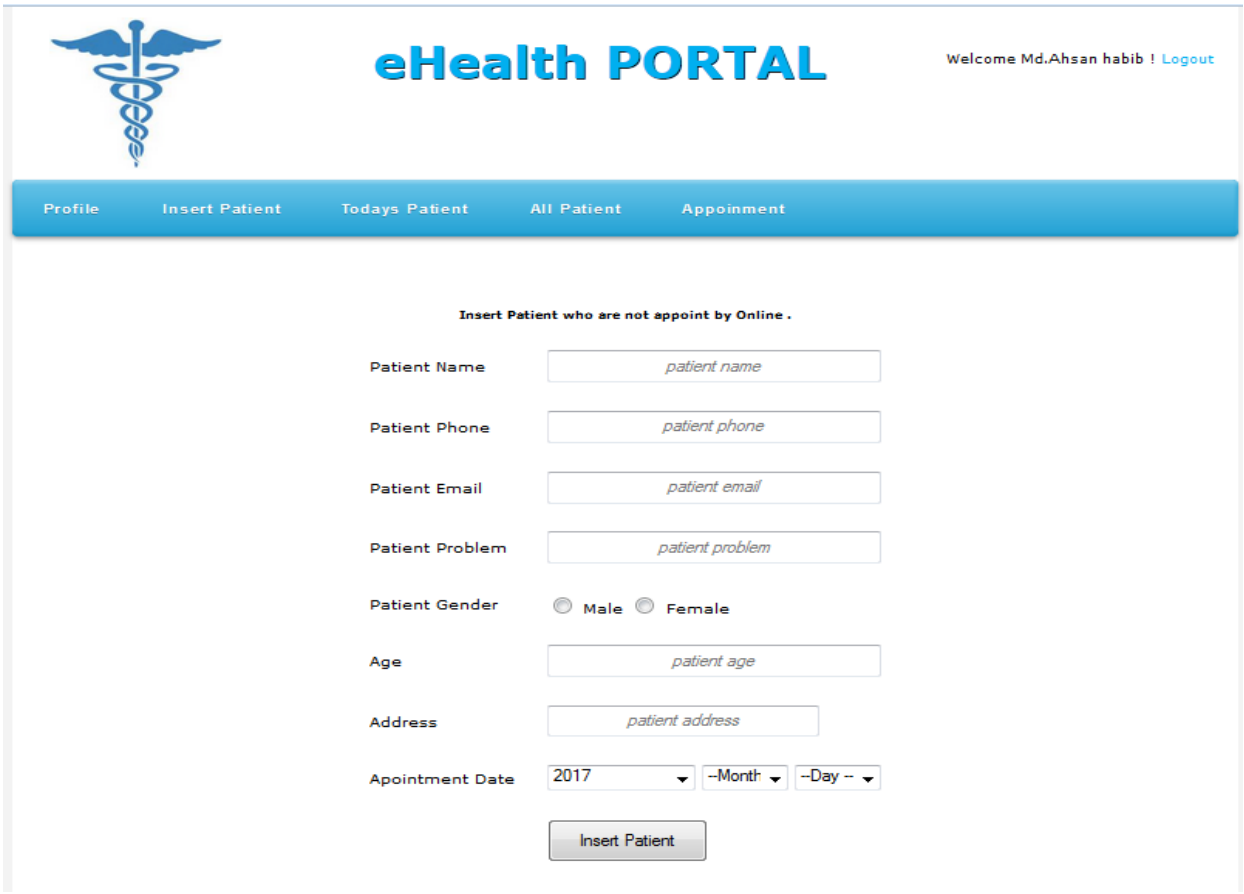

Figure 4.9: Insert Patient

4.8 Today's Patient

Here, doctor can see the patients in a particular day.

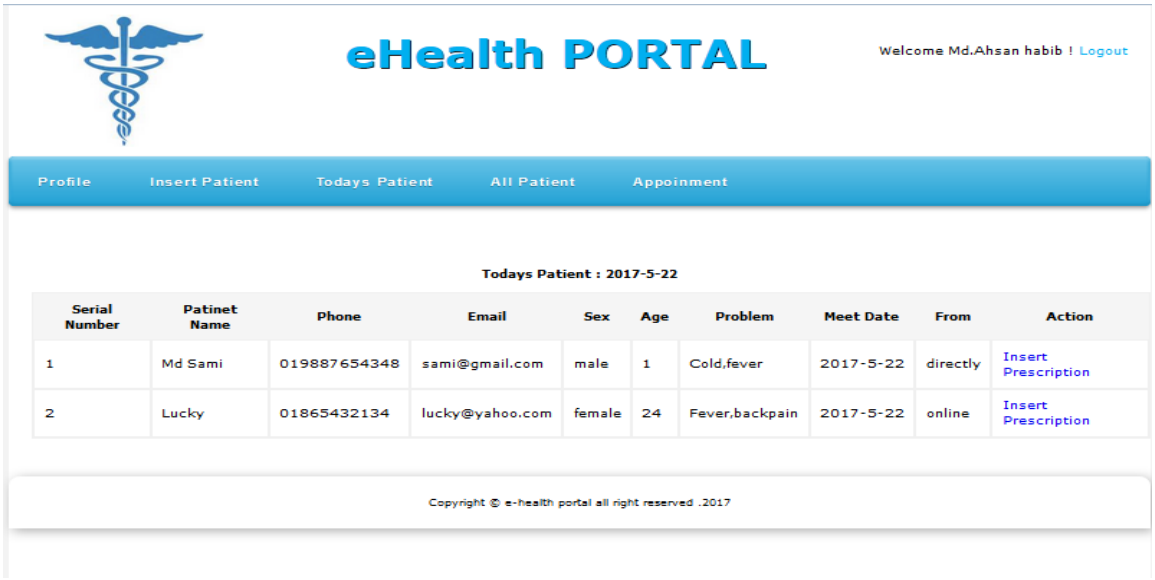

Figure 4.10: Today's Patient

From here he/she can insert the prescription of a patient.

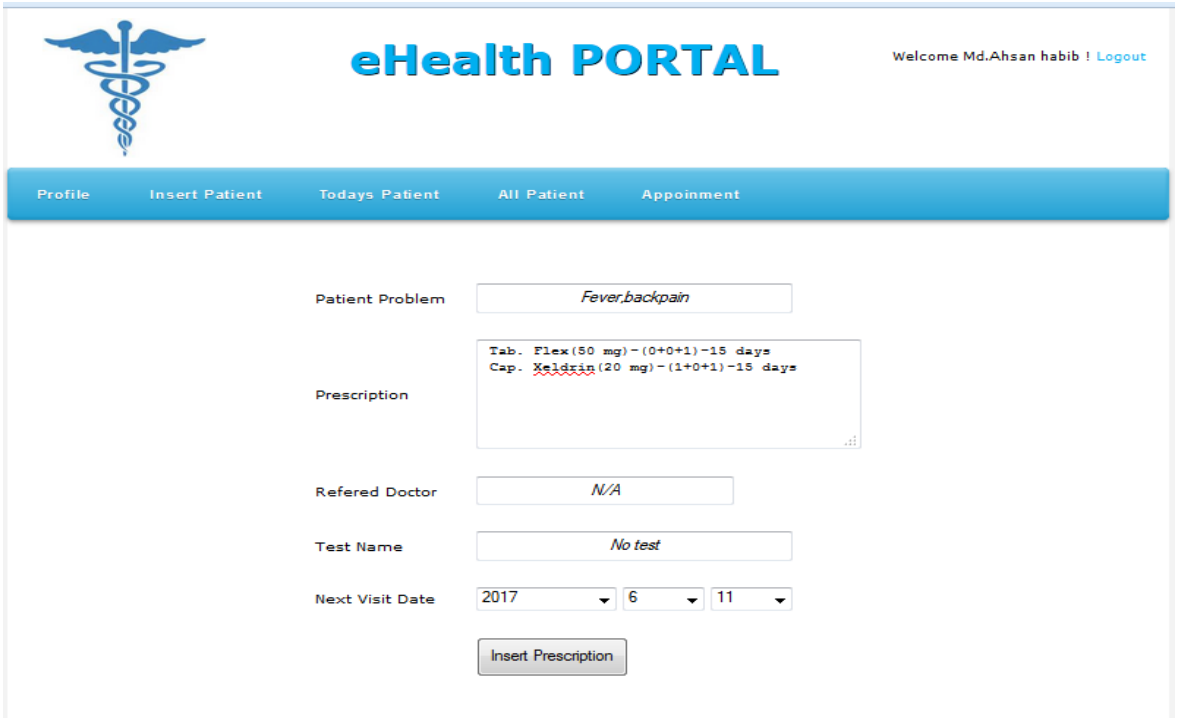

Figure 4.11: Insert Prescription

Then he/she can print the prescription.

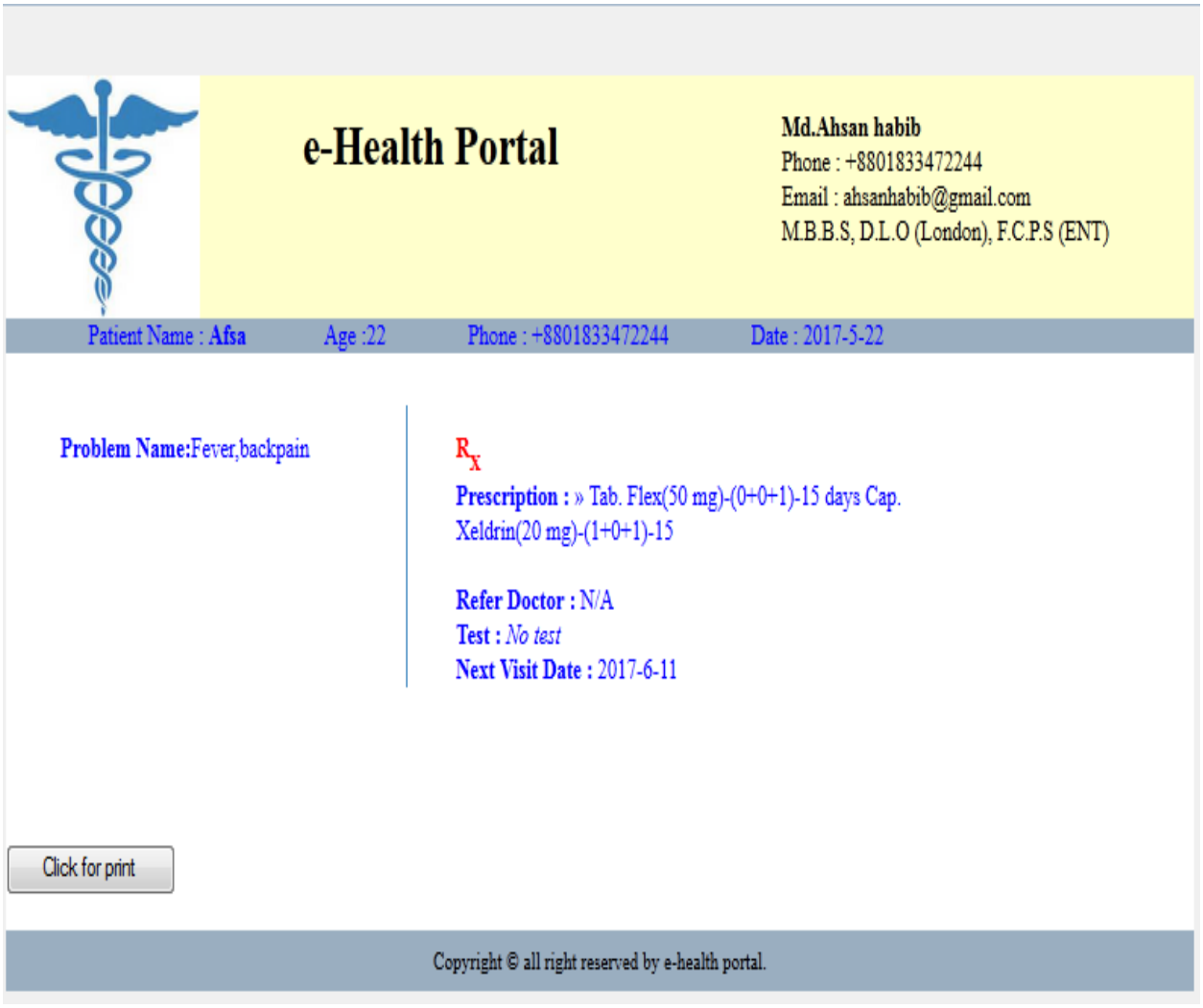

Figure 4.12: View Prescription

4.9 Admin Login

From this page admin can login to the system using valid user id and password.

Figure 4.13: Admin Login

4.10 Doctor Request

In this page the admin shows all the request of doctors.

Figure 4.14: All Doctor

When admin accept the request of a doctor only then a doctor can use his /her working area.

Figure 4.15: Doctor Request

Chapter 5

Conclusion

From the above analysis and discussion I can easily conclude that, this system has got a large area to cover. Because healthcare sector is one of the largest sectors of the modern world. Nowadays this sector is getting a huge technological value as well as has turned into one of the most profitable business sectors from the view of business. People are getting better healthcare services nowadays and remember they have to pay a lot for that. We have tried to make such a system which is really capable of helping people by providing some necessary information regarding healthcare services. We have made it mainly location based and location has got the highest preference. Our aim is to provide services to all classes of people depending on their location.

5.1 Limitation of the study

1. Complete healthcare service is not found.
2. It works on limited data.
3. Although I have worked on e-Health, this does not allow doctors to chat with patients and discuss their problems during emergencies using online.
4. The system is not capable of handling high traffic.
5. It is not device and platform independent.

5.2 Future Work

Some of my future plans are listed below:

1. My present system is not capable of providing online reservation in a hospital for a particular patient. I am thinking to work on it and I am really determined to add this option to my system.

2. This system cannot provide comparative study of different diagnostic test prices. I am also thinking to provide this opportunity through this system. If it is done then anybody will be able to know the price of any test in any diagnostic center only by using his/her device to browse this system.

3. This system is not completely platform and device independent. I am really interested to make an android version of this system.

4. Finally, I want to include a video conferencing system with this system so that anybody can get the consultancy from a doctor through a video call.

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