TATA CONSULTANCY SERVICES

DIGICARE
Hospital Appointment System

Final Project Report

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INTRODUCTION

Technology has transformed many aspects of life in the 21st century. It is the needed to develop a web application which would facilitate the patients or user to book an appointment to a Doctor through an effective way. Apart from booking appointments, through system a user can search for the Doctors in different hospital in different cities as per the specialization.

The various advantages of using the hospital appointment system are as follows:

- Convenient – While this is convenient for most people, it has made things particularly easier for people residing in remote locations.
- Saves Time and Effort - You can save the time needed to book appointment earlier and waiting in the queue for your turn.
- Availability-Knowledge about availability of doctor in the particular city and particular hospital.

User can cancel or modify the appointments. Only authorised users with valid credentials are allowed to make booking. New user can register by providing mandatory details with secured password. Admin of this application can make update in the database of the doctor, hospital and generate report for appointment in given period.

TECHNOLOGIES USED

A. WEB Server

Apache: The Apache HTTP Server, colloquially called Apache, is the world's most used web server software. Apache played a key role in the initial growth of the World Wide Web. Apache supports a variety of features, many implemented as compiled modules which extend the core functionality. These can range from server-side programming language support to authentication schemes. Some common language interfaces support Perl, Python and PHP. Apache features configurable error messages, DBMS-based authentication databases, and content negotiation. It is also supported by several graphical user interfaces (GUIs). It supports password authentication and digital certificate authentication. Because the source code is freely available, anyone can adapt the server for specific needs, and there is a large public library of Apache add-ons.

Performance:

Instead of implementing a single architecture, Apache provides a variety of Multi Processing Modules (MPMs), which allow Apache to run in a process-based, hybrid (process and thread) or event-hybrid mode, to better match the demands of each particular infrastructure. This implies that the choice of correct MPM and the correct configuration is important. Where compromises in performance need to be made, the design of Apache is to reduce latency and increase throughput, relative to simply handling more requests, thus ensuring consistent and reliable processing of requests within reasonable time-frames.

B. Database Server:

MySQL is an open-source relational database management system (RDBMS). The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open-source web application software stack (and other "AMP" stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl /PHP/Python".

MySQL Workbench: phpMyAdmin

phpMyAdmin is a free and open source tool written in PHP intended to handle the administration of MySQL with the use of a web browser. It can perform various tasks such as creating, modifying or deleting databases, tables, fields or rows; executing SQL statements; or managing users and permissions. The software, which is available in 78 languages, is maintained by the phpMyAdmin Project. It can import data from CSV and SQL, and transform stored data into any format using a set of predefined functions, like displaying BLOB-data as images or download-links.

C. Software Technologies:

1. **Front End Development: HTML, CSS, Javascript, JQuery**

   JavaScript

   - JavaScript was basically used for client-side validation.
   - JavaScript is compatible with all versions of Microsoft Internet Explorer and Netscape Navigator.
   - We have small java scripts, which are lightweight and will not hinder the download time of the HTML document significantly.

2. **Backend Development: PHP**

   PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP: Hypertext Preprocessor

MODULE INFORMATION

Administrator

The Administrator module consists of the following services:

- **Login:** Person with admin authority can log in into the Hospital Appointment web application with valid credentials i.e. username and valid admin password.

- **Add a hospital:** In this process, depending upon on managerial decision or public demand the administrator may add new hospital in the database.

- **Add a Doctor:** Administrator of the application has task to add the new entry of the doctor in the particular hospital with their proper information like name, age, qualification, specialization and experience.

- **Remove Hospital:** Any hospital can be removed by the admin from the given list of hospital in that particular city.

- **Remove Doctor**: Doctors belonging to particular hospital of particular city can be removed from list.

- **Change Password**: Administrator can change his/her password at regular basis to enhance the security of the application.

- **Logout:** After all the work Administrator must log out from the application so no one else can breach the security.

User

The user module consists of the following services:

- **Login:** Existing user with correct credentials must log in into the web application to avail the services provided by the system.

- **Register:** New User must register to the application by providing mandatory details like Name, Email-ID and one password which will be stored in database.

- **Edit Profile:** User can edit his/her profile and may provide other details like Mobile No., Date of Birth, and Profile Image etc.

- **Appointment List:** User can view the list of appointment made by him/her and access the further services provided by application.

- **Book an Appointment:** User can book appointment by searching for the doctor in the particular city and particular hospital selected by user. After selecting the doctor from available list user can proceed to book appointment by filling the details of the patient, patient age, patient gender. Appointment date and appointment time slot.

- **Check Availability:** Check is the important feature to get the knowledge about availability of doctor before heading towards the hospital.

- **Modify Appointment:** User can modify the appointment made before and change the date, time slot of the appointment.

- **Cancel Appointment:** User can cancel appointment he made before, if he/she wants to discontinue the service from particular doctor.

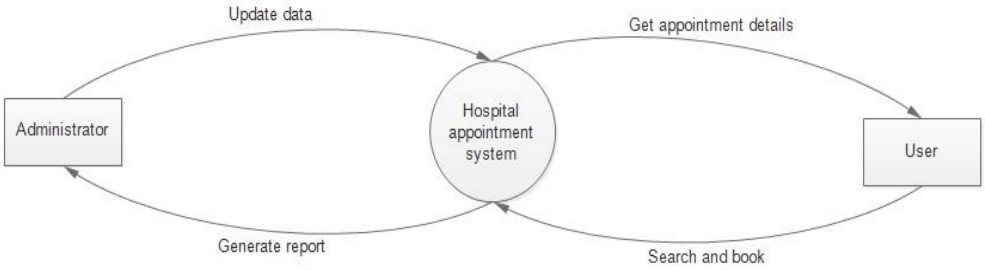
- **Download Appointment Slip:** User can download slip of the appointment made and can present the slip at time of appointment.

- **Logout:** User must logout from the application to ensure that no one else can make use of service from your account.

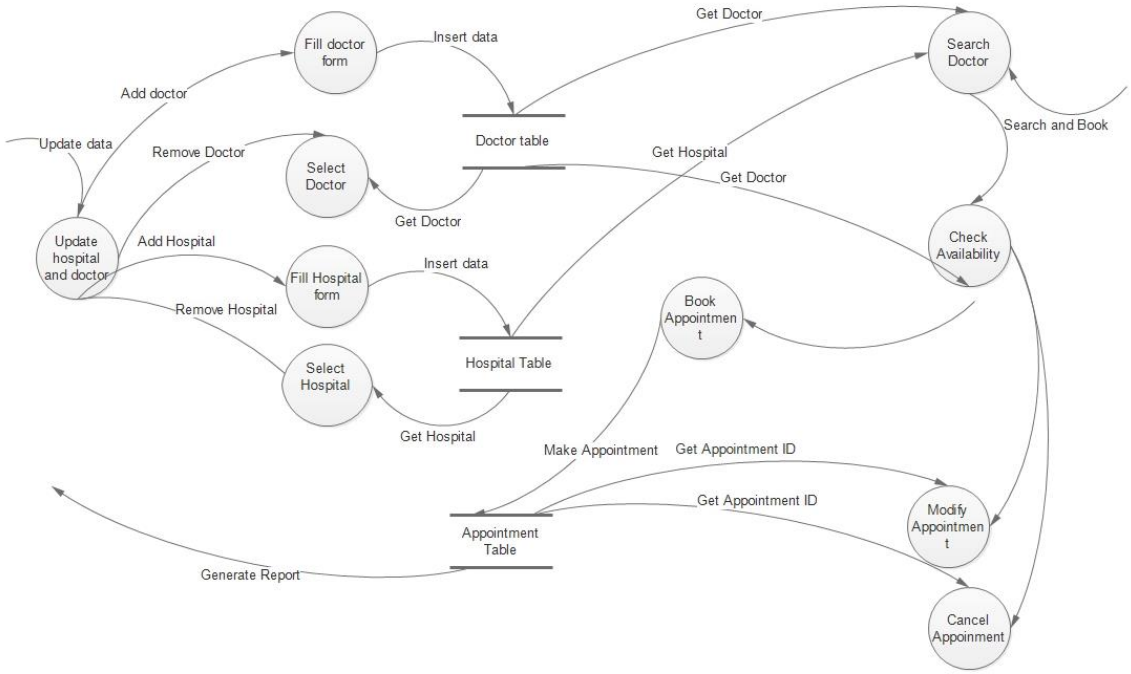
DATA FLOW DIAGRAM

A **data flow diagram (DFD)** illustrates how data is processed by a system in terms of inputs and outputs. As its name indicates its focus is on the flow of information, where data comes from, where it goes and how it gets stored.

0-Level Data Flow Diagram



1-Level Data Flow Diagram



TEST CASES

A test case is usually a single step, or occasionally a sequence of steps, to test the correct behaviour/functionality, features of an application. An expected result or expected outcome is usually given. Additional information that may be included are test case ID, test case, description test step or order of execution number related requirement(s.) depth test category, author, check boxes for whether the test can be or has been automated, pass/fail and remarks.

USER TEST CASES

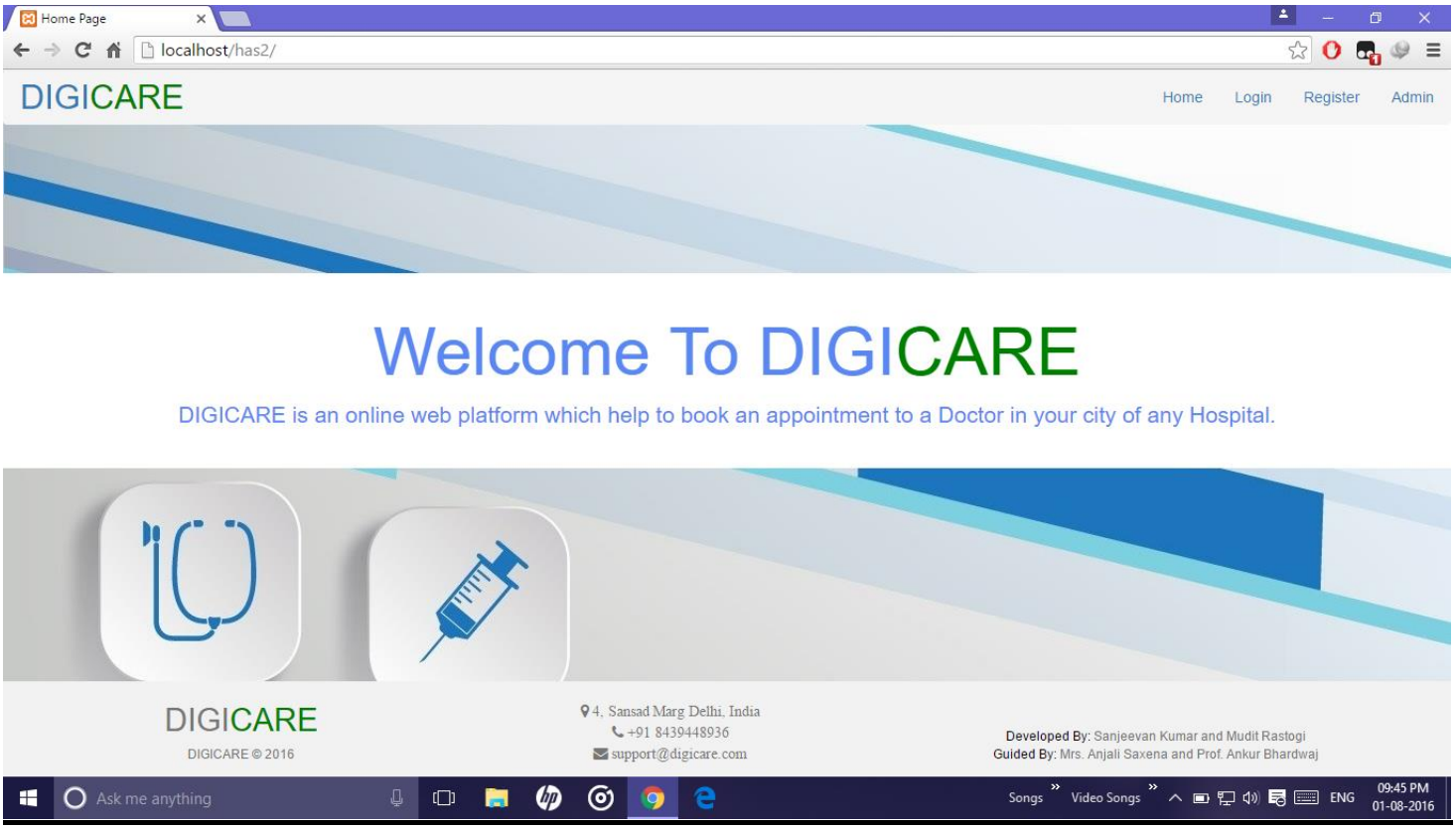
CASE ID	TEST CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	PASS/FAIL
1	**Login Test**	**Login with proper credentials**	**Successful**	**Pass**
2	**Register Test**	**Proper register with all Validation**	**Successful**	**Pass**
3	**Edit Profile**	**Update profile information**	**Successful**	**Pass**
4	**Book Appointment**	**Entry in database for with unique appointment Id**	**Successful**	**Pass**
5	**Modify Appointment**	**Change in details for particular appointment id**	**Successful**	**Pass**
6	**Cancel Appointment**	**Deletion of that appointment**	**Successful**	**Pass**
7	**Download Appointment Slip**	**Generation and Download of slip pdf format**	**Successful**	**Pass**
8	**Appointment List**	**List of available appointment**	**Successful**	**Pass**
9	**Check Availability**	**List of available and booked slot**	**Successful**	**Pass**

ADMIN TEST CASES

CASE ID	TEST CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	PASS/FAIL
1	Add Doctor	Entry to doctor table with unique doctor Id	Successful	Pass
2	Remove Doctor	Deletion of doctor id from doctor table	Successful	Pass
3	Add Hospital	Entry to hospital table with unique hospital Id	Successful	Pass
4	Remove Hospital	Deletion of hospital id from hospital table	Successful	Pass

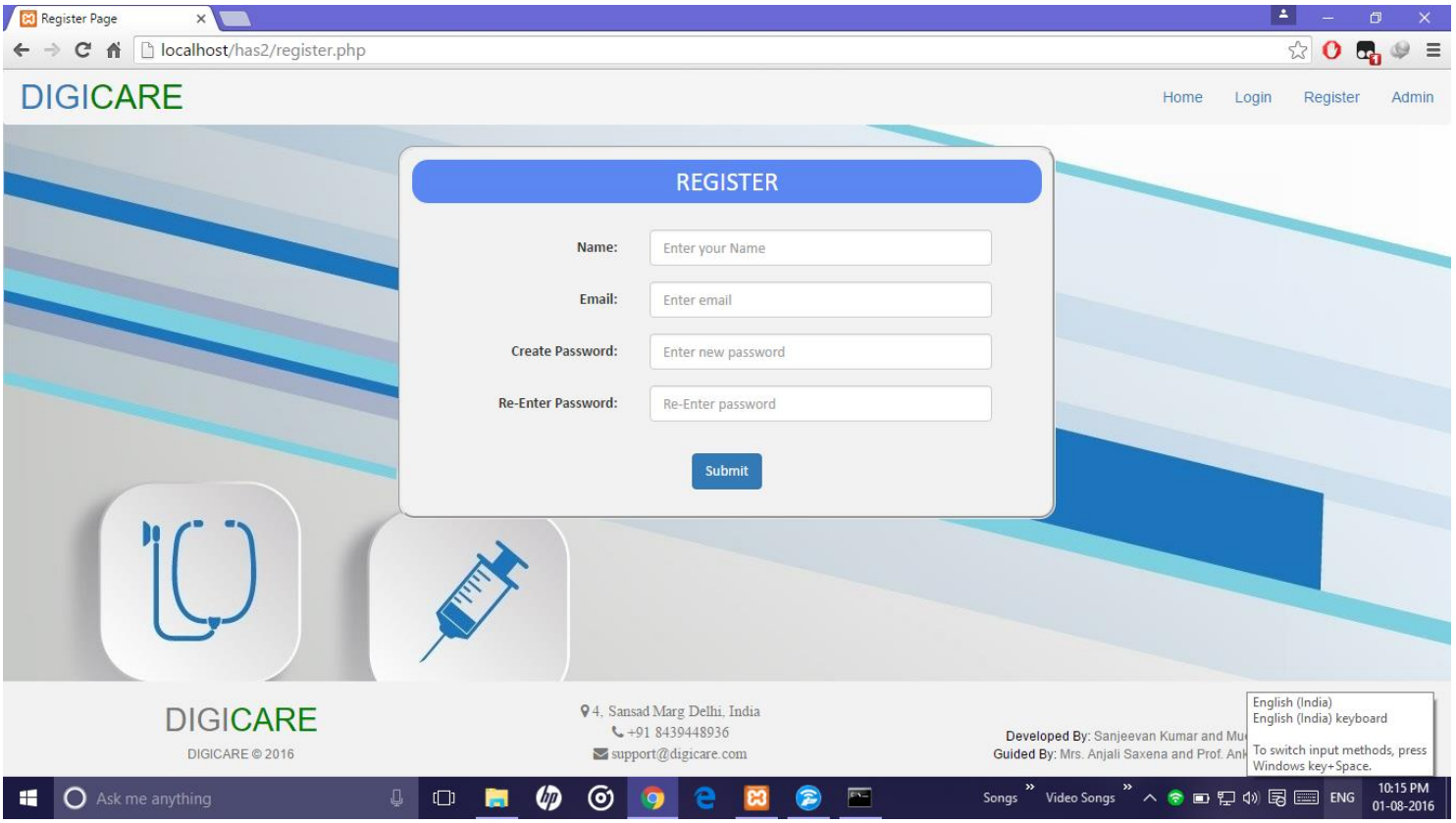
SCREENSHOTS

1.Home Page:



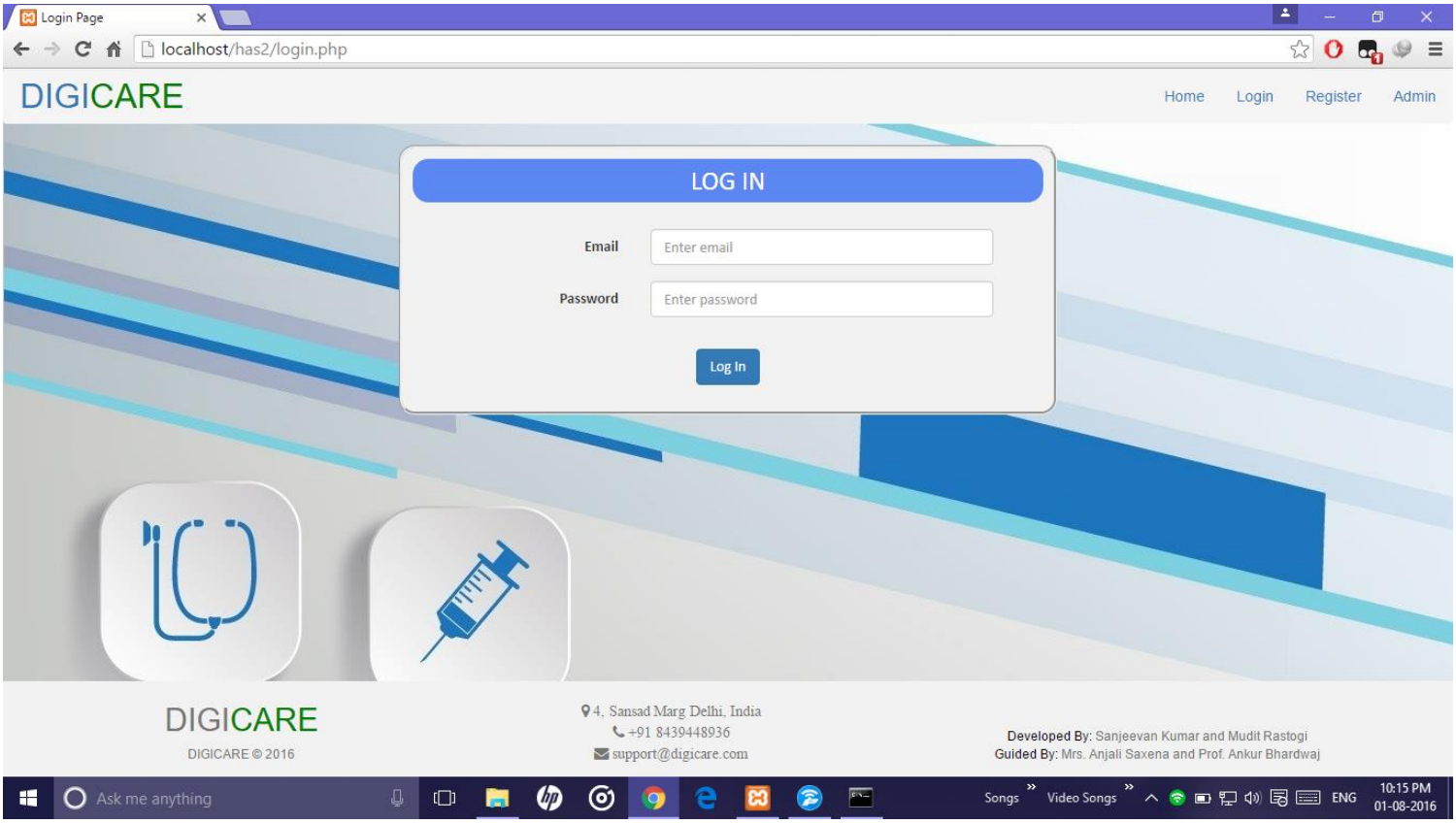
2.Register Page:

Here User Register himself/herself by providing details like Name, Email Address, and Password to authenticate in future login. All the details get stored in database in registered user table.



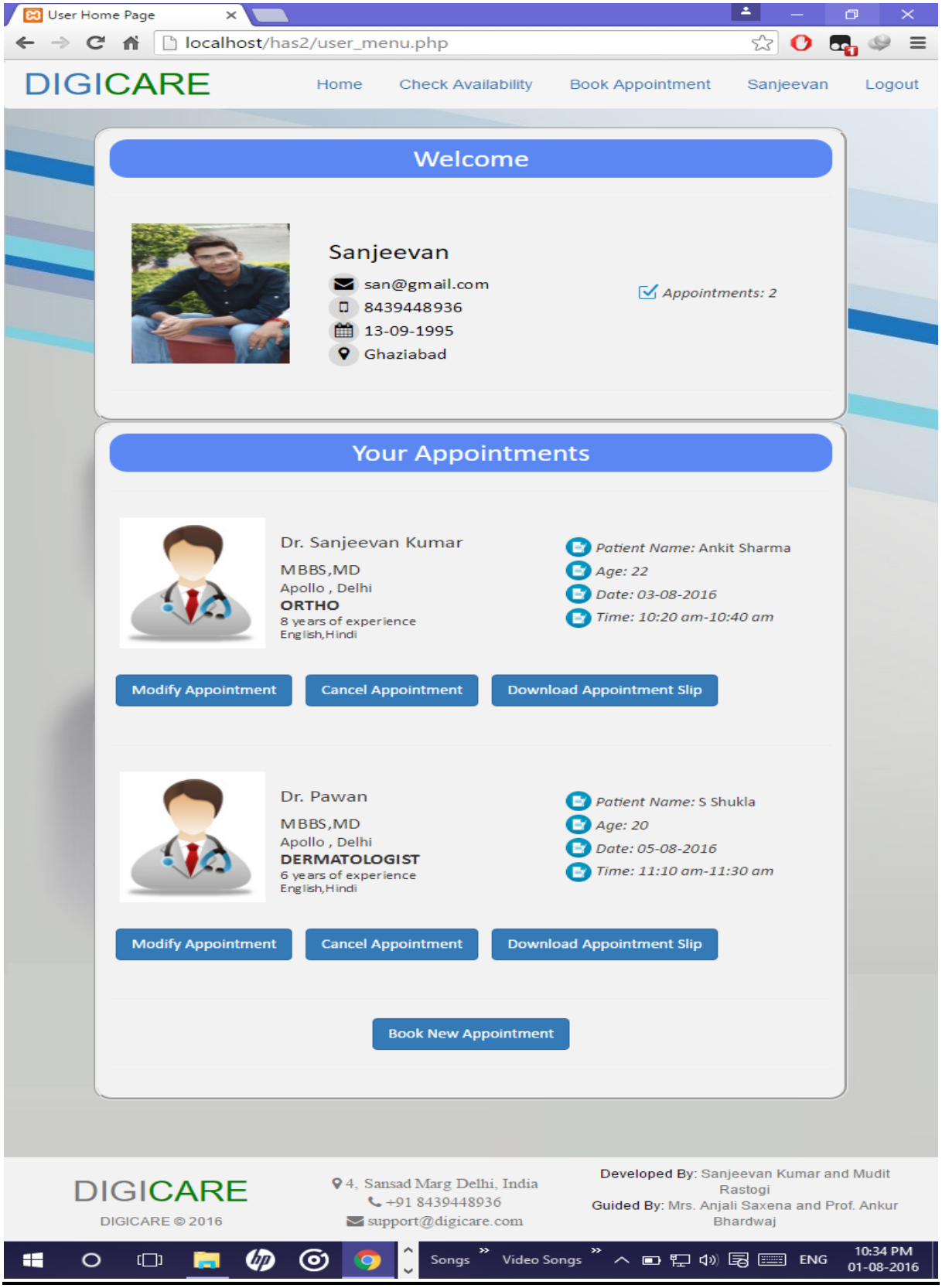
3.Login Page:

User enters the correct credentials to login into his/her account. Proper validation of E-mail and password verification ensure authenticated user.



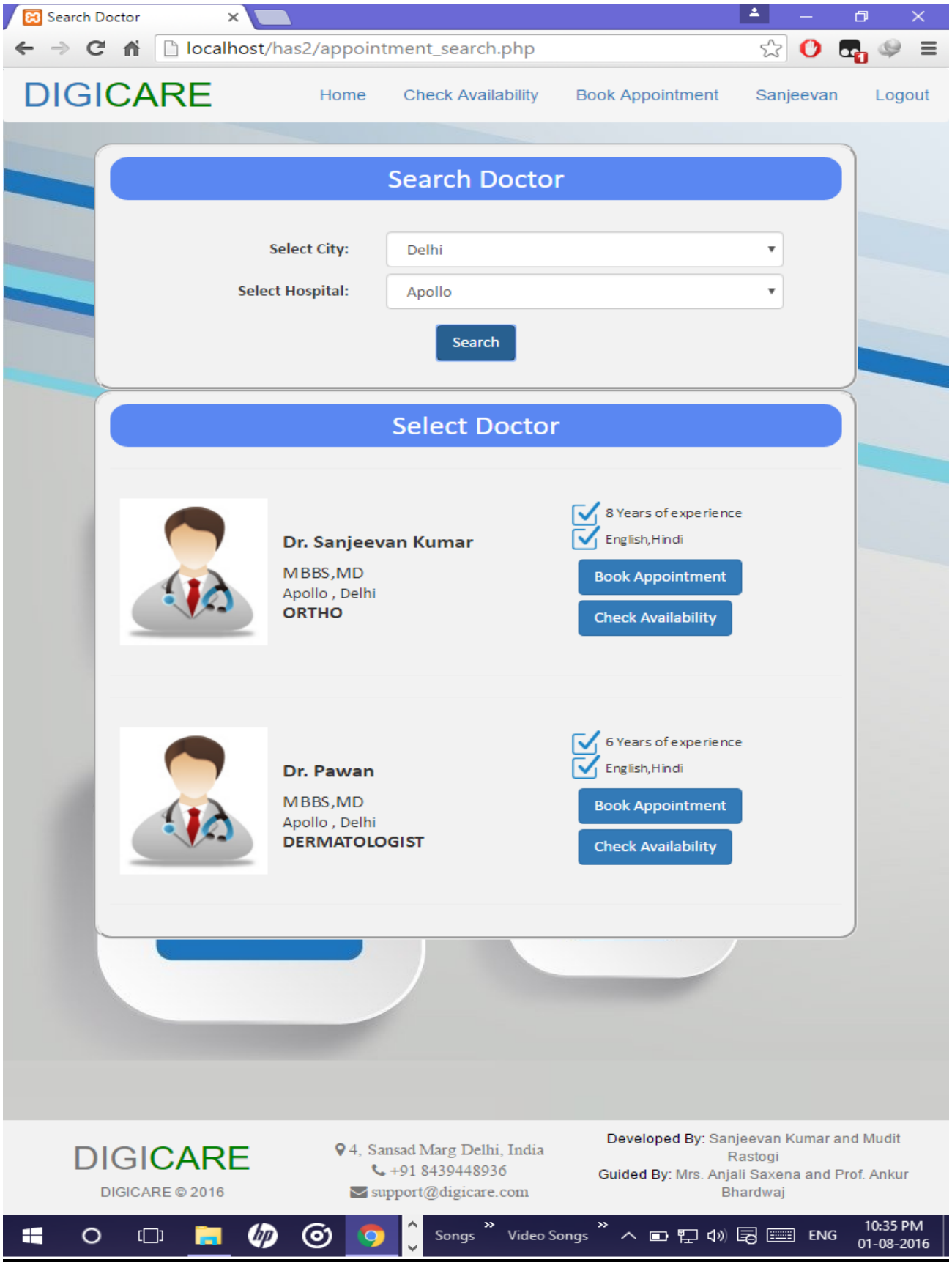
4.User Home Page:

Here, you will see your profile details and your past appointments that you have made. Also it gives “Book Appointment” butto n to book for a doctor. You can cancel any appointment or modify it. You can able to download appointment slip of the booking made which you can present at the hospital site. USER can also edit his Profile and Update his or her details.



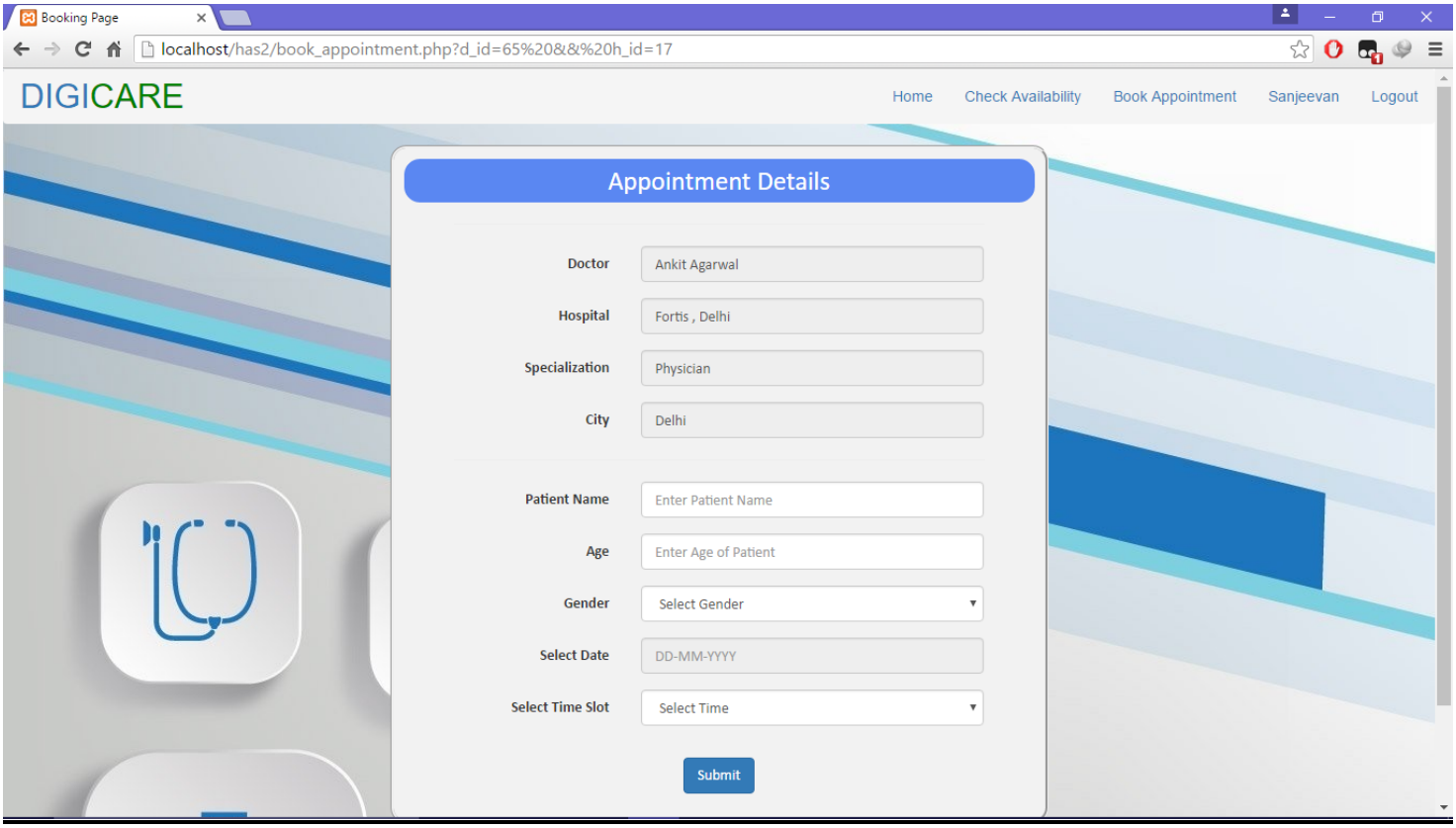
5.Doctor Search:

You will require selecting the City and Hospital Name to search for doctor in that hospital. You will see the list of doctors with their qualifications, experiences, language of communication. You will able to book appointment and Check Availability of Doctor.

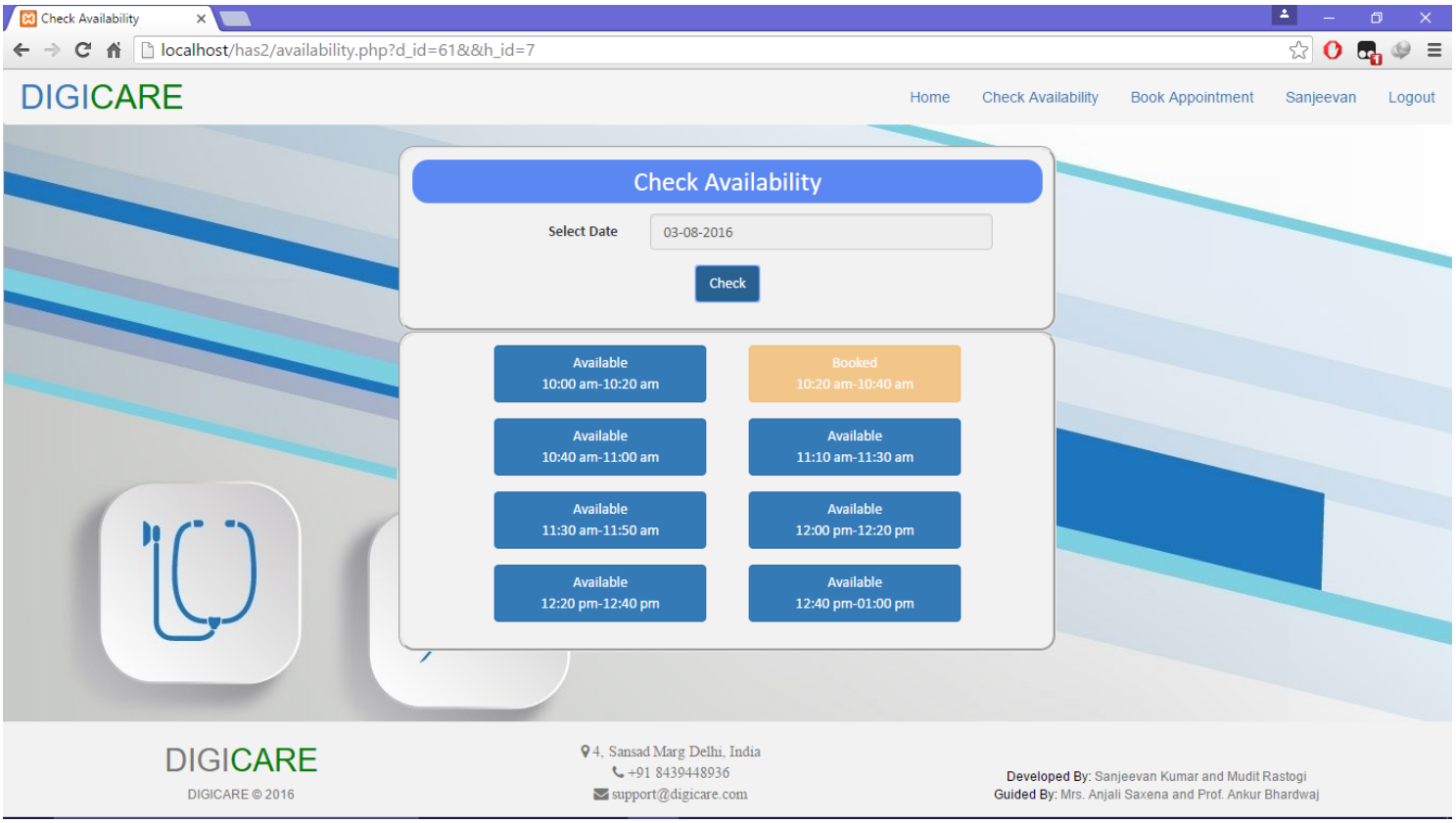


6.Book Appointment Page:

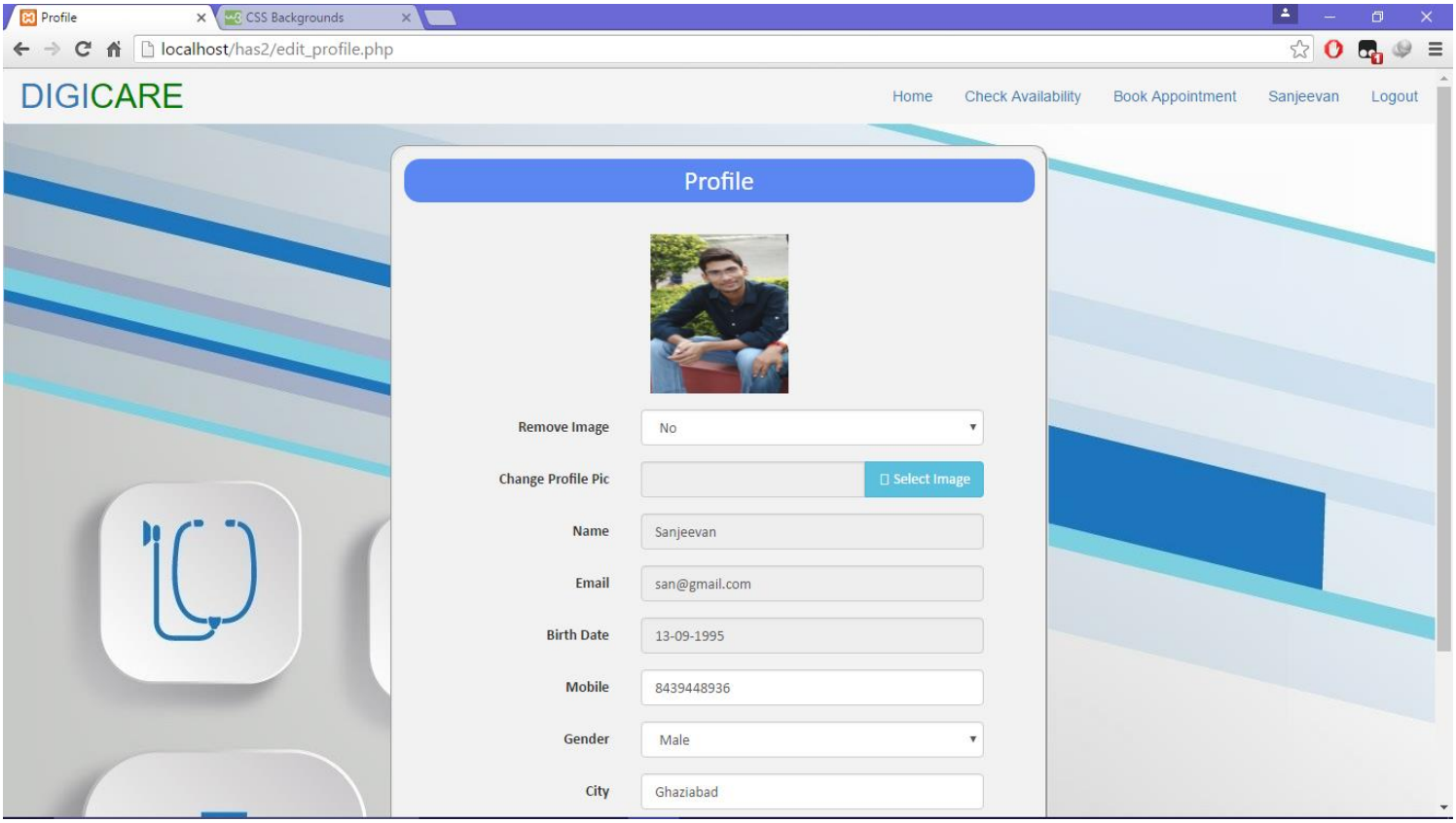
You will ask to fill Appointment Details in the provided form such as patient name, age, gender along with Date and Time of booking after checking the availability of the Doctor.



7.Check Availability:



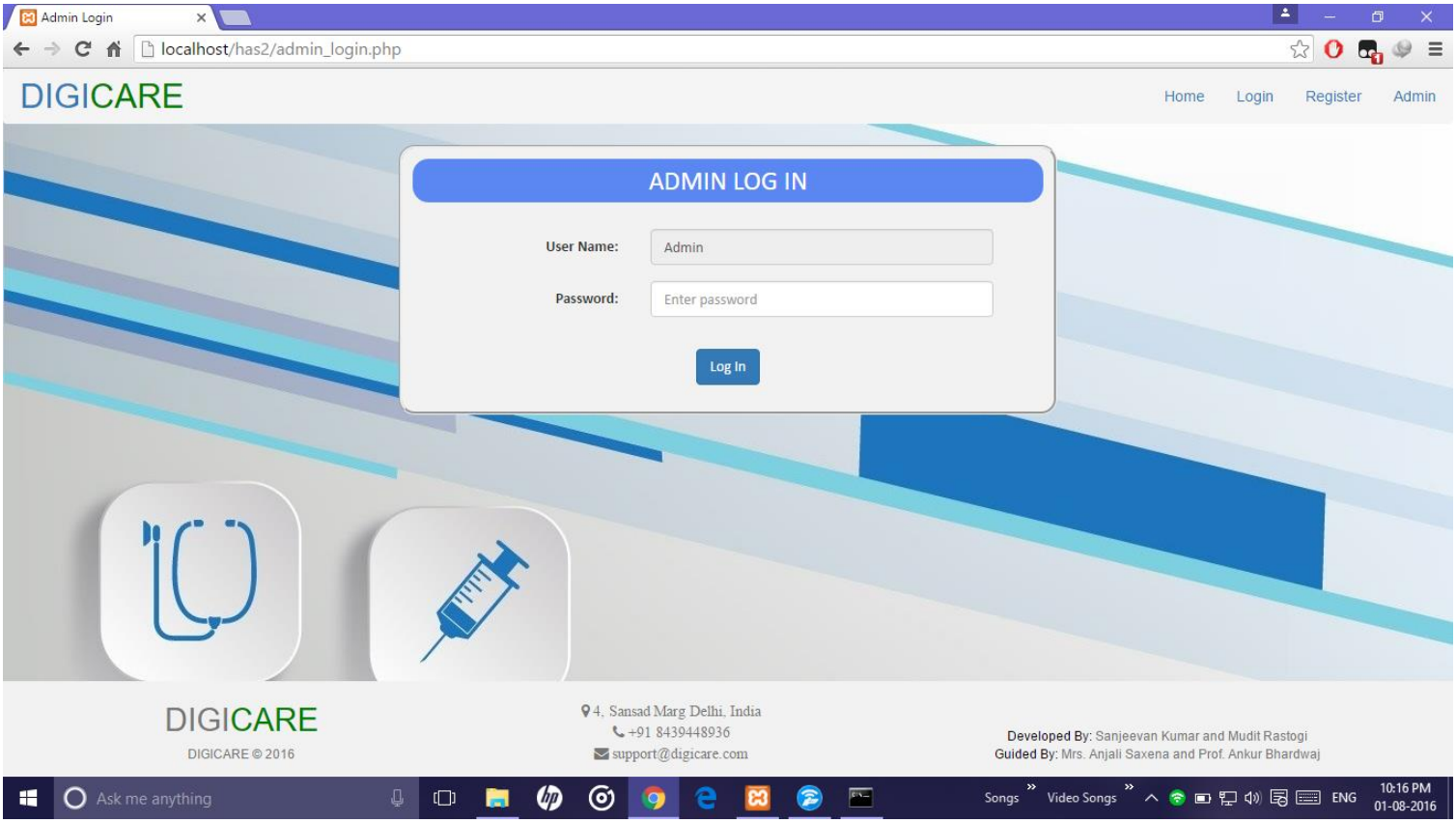
8.Edit Profile:



9.Cancel and Modify Appointment:

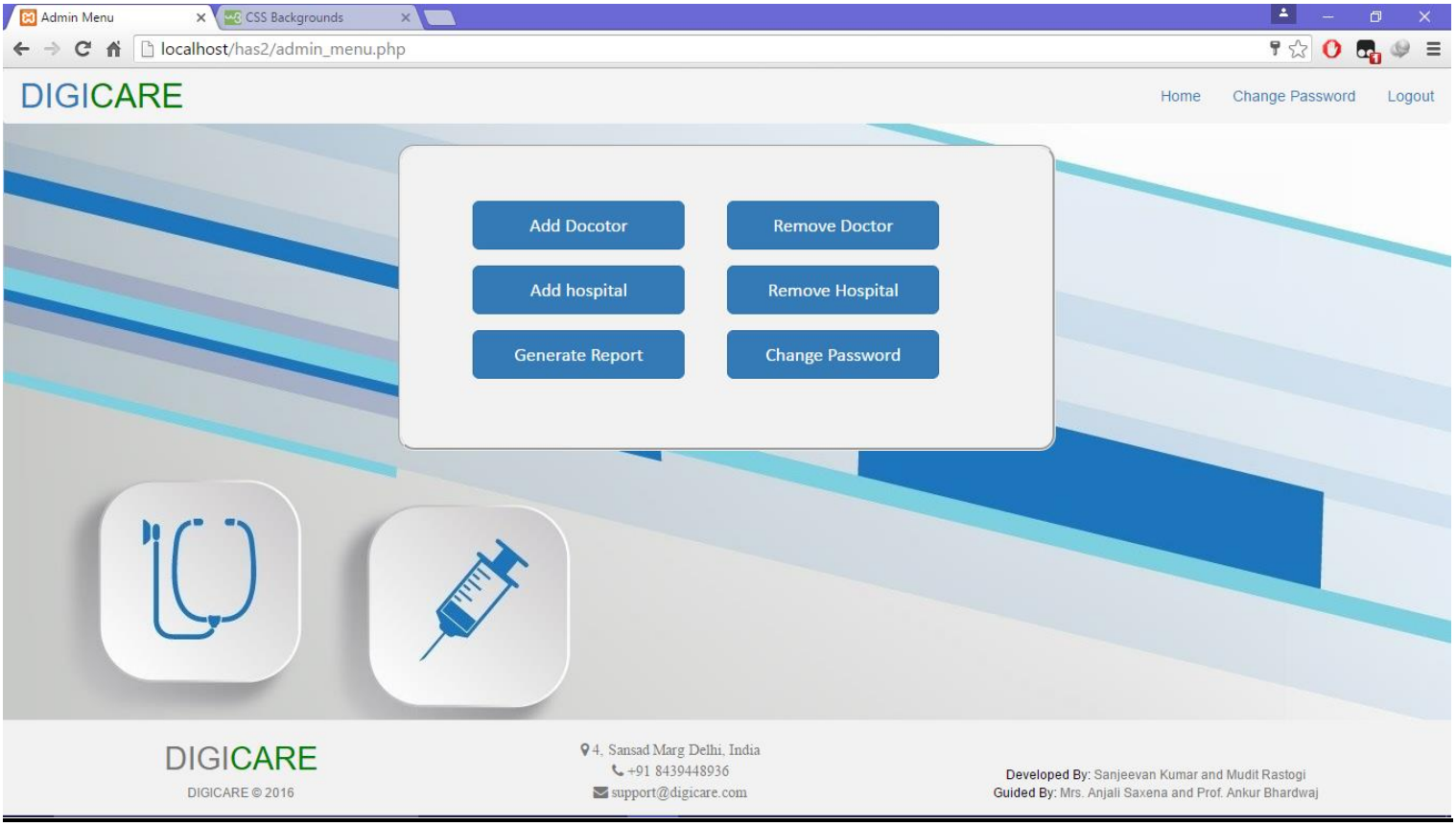
10.Admin Login:

Default password for asmin is : **123**
Admin can change password after first login.

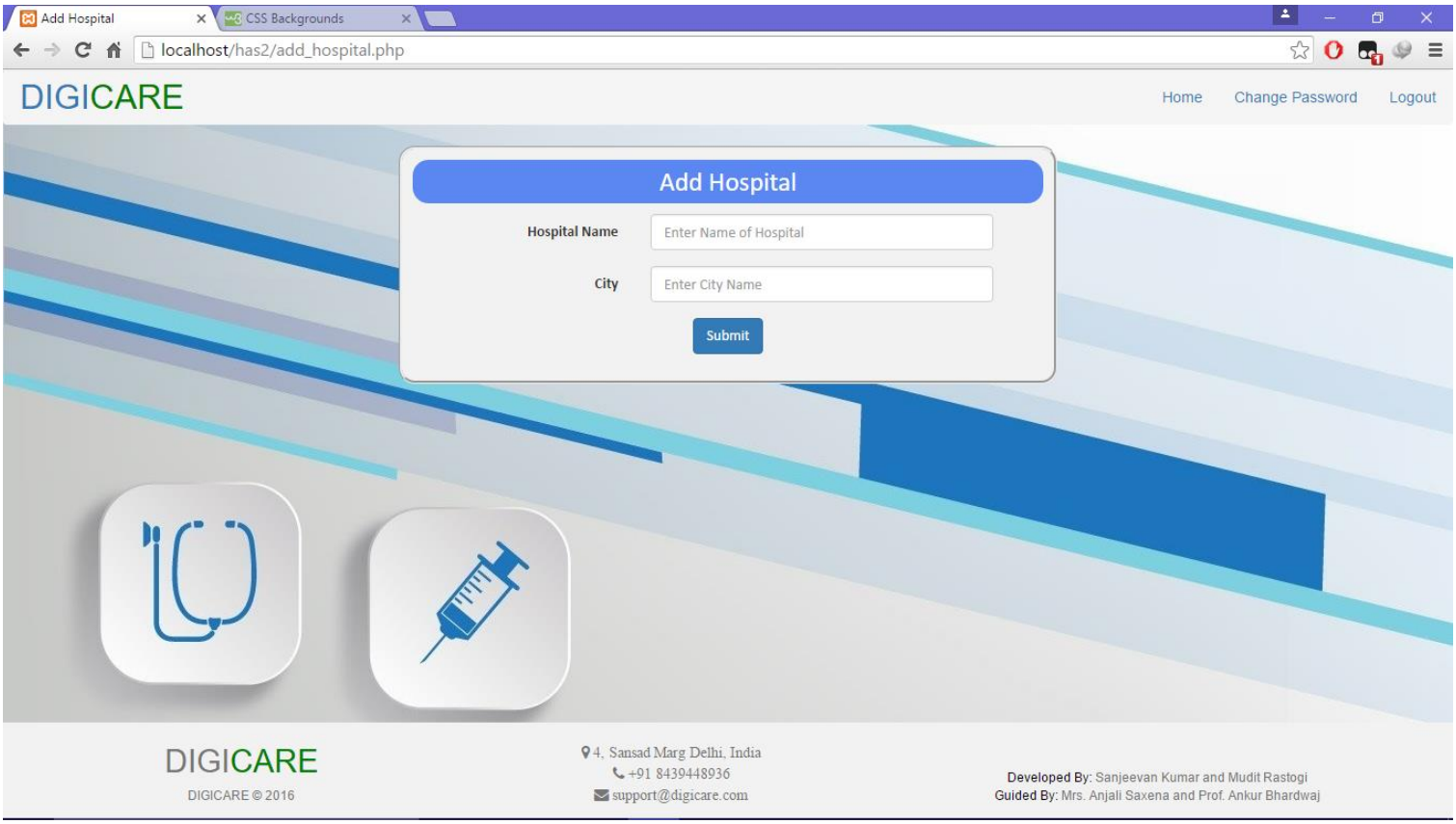


11.Admin Functions:

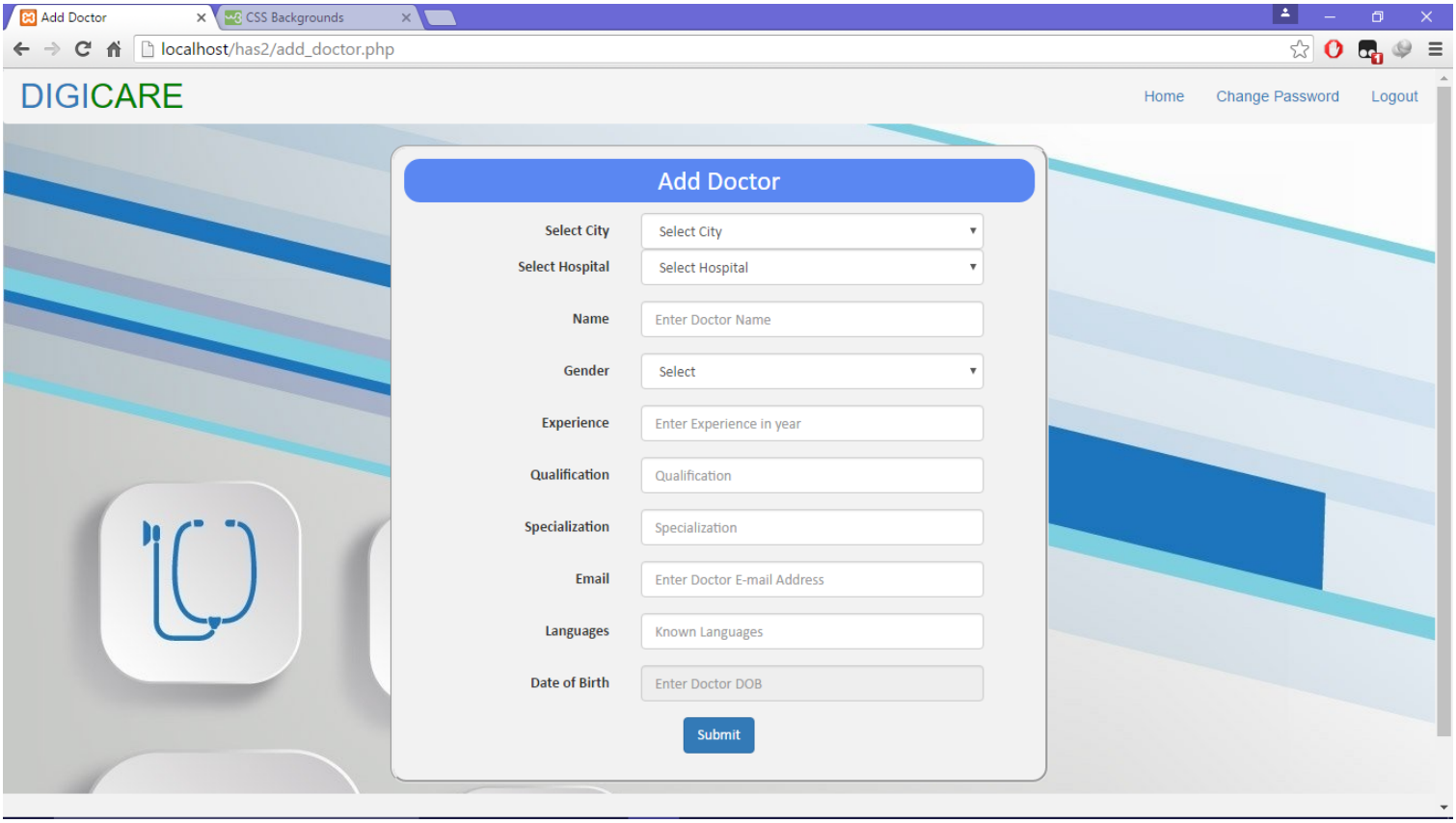
Admin of this system is providing with the functionalities like Add Doctor, Add Hospital, Remove Doctor, Remove Hospital and Generate Report of the appointments.



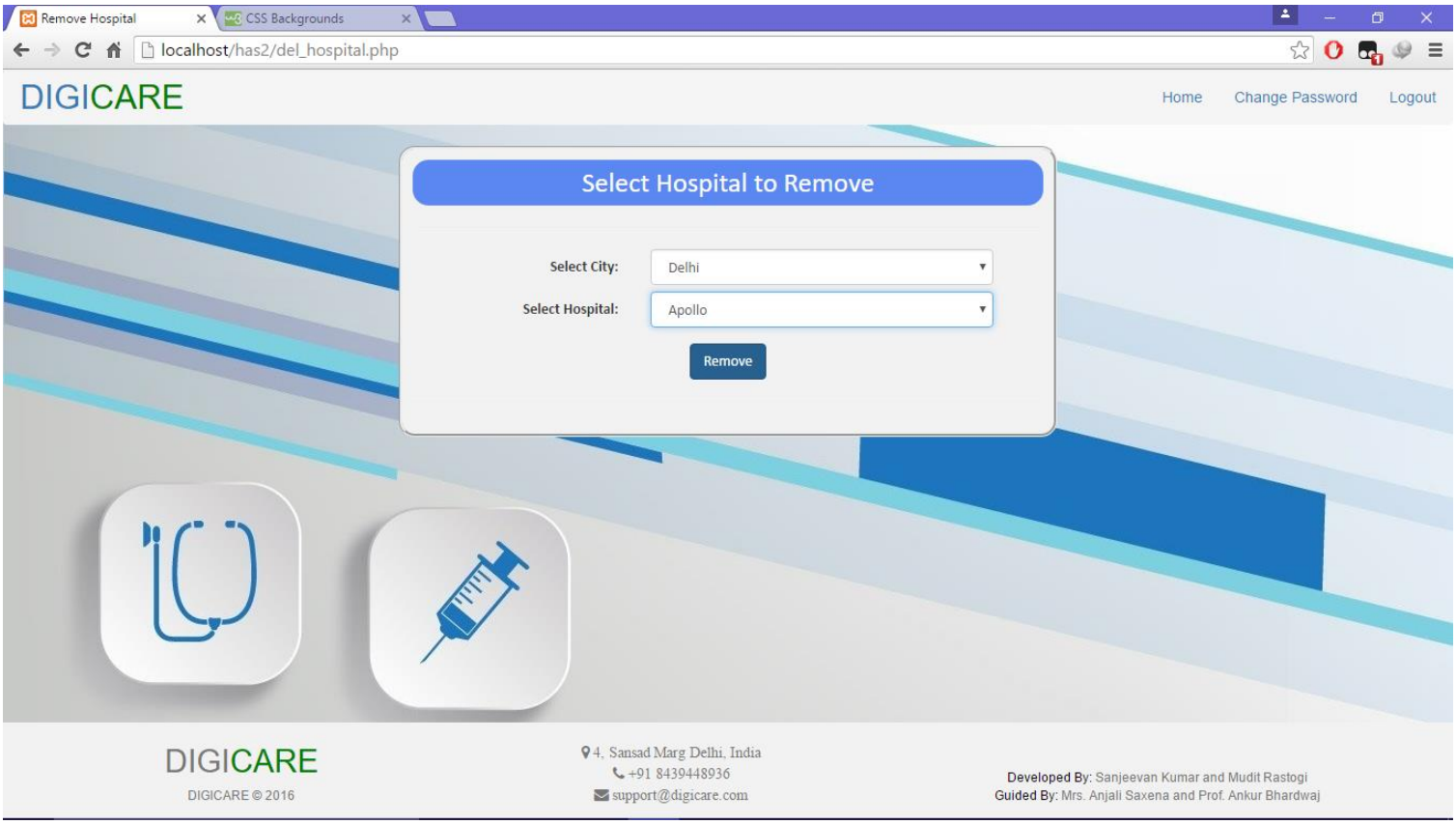
12.Add Hospital:



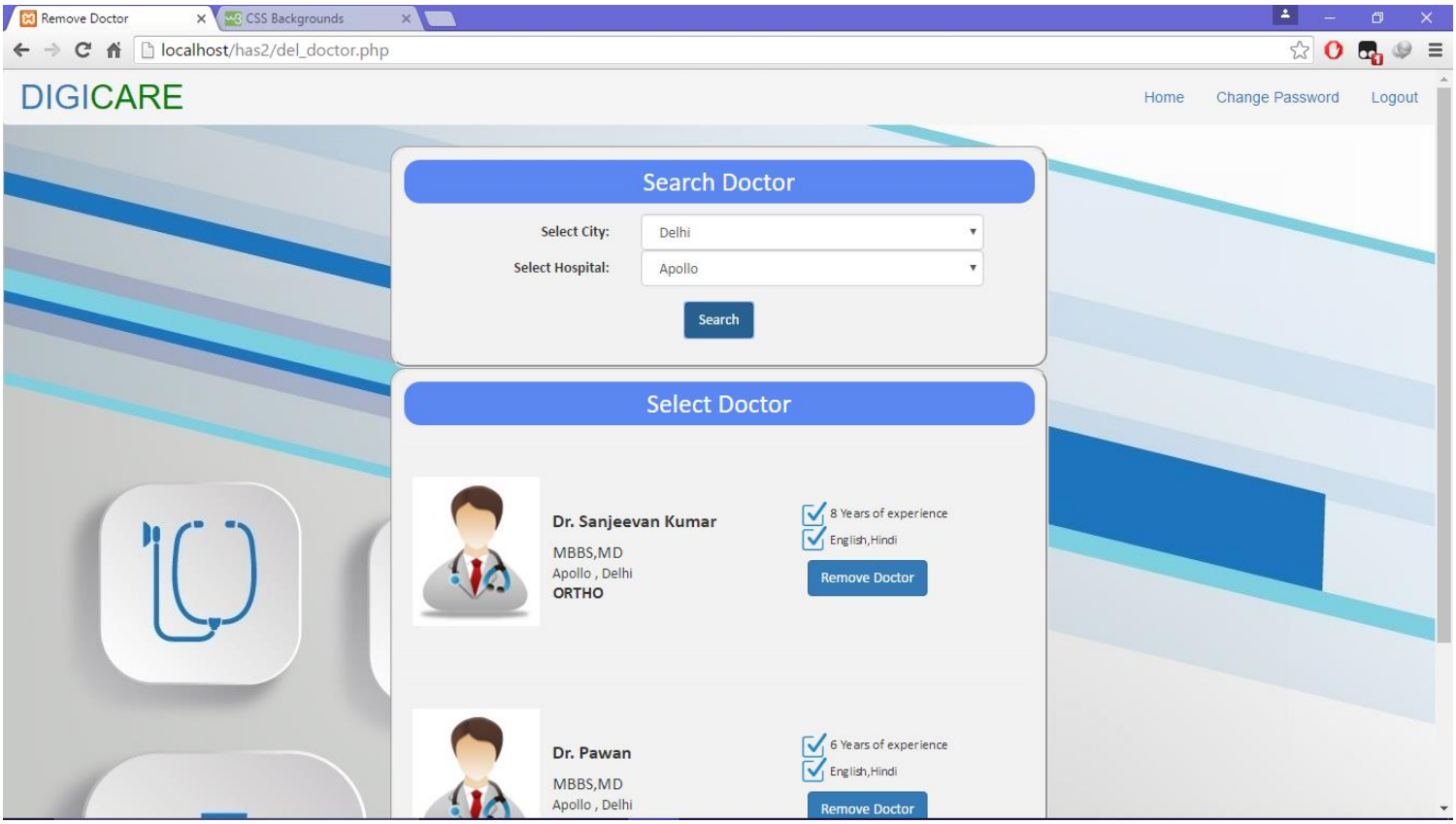
13.Add Doctor:



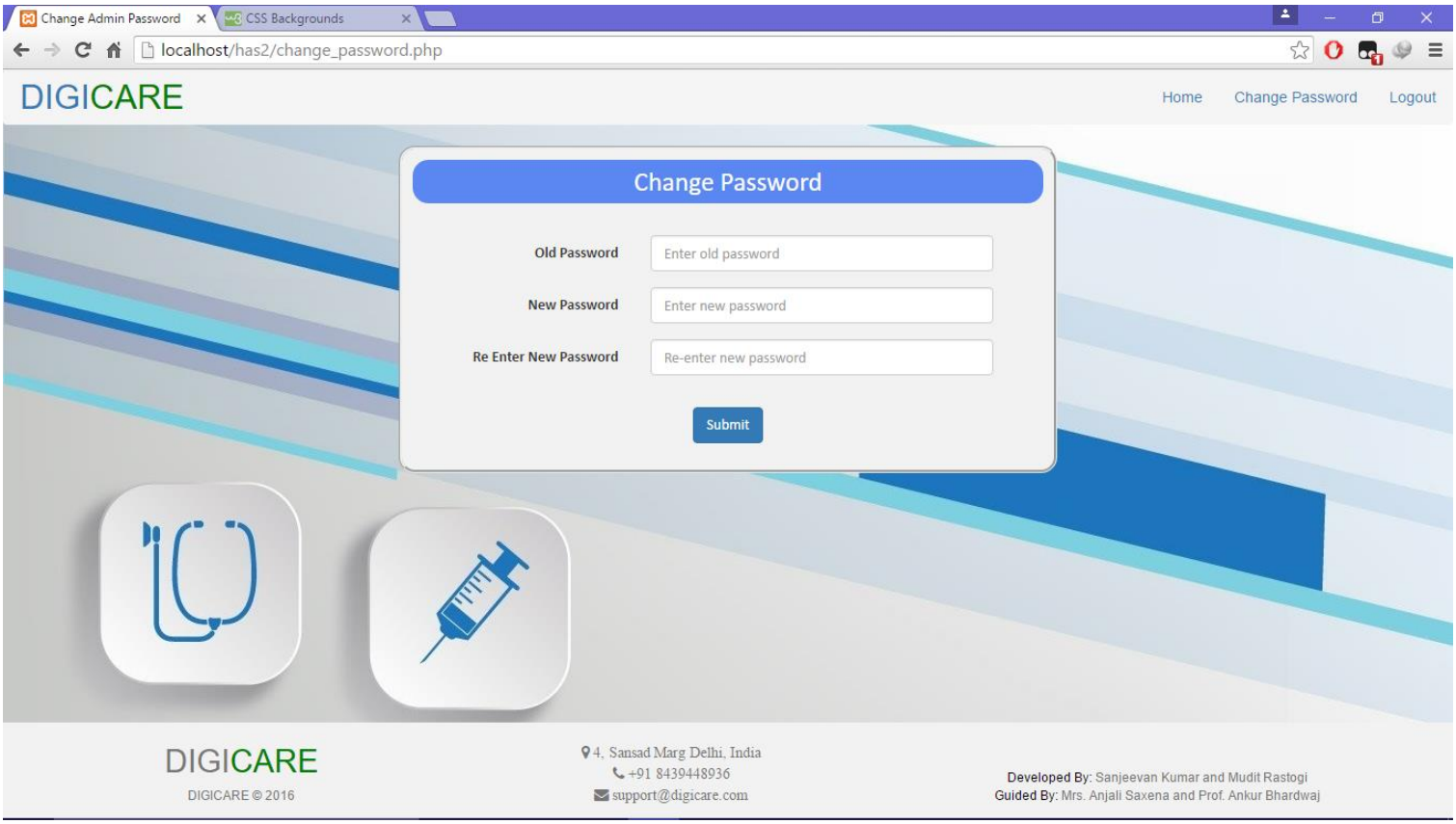
14.Remove Hospital:



15.Remove Doctor:

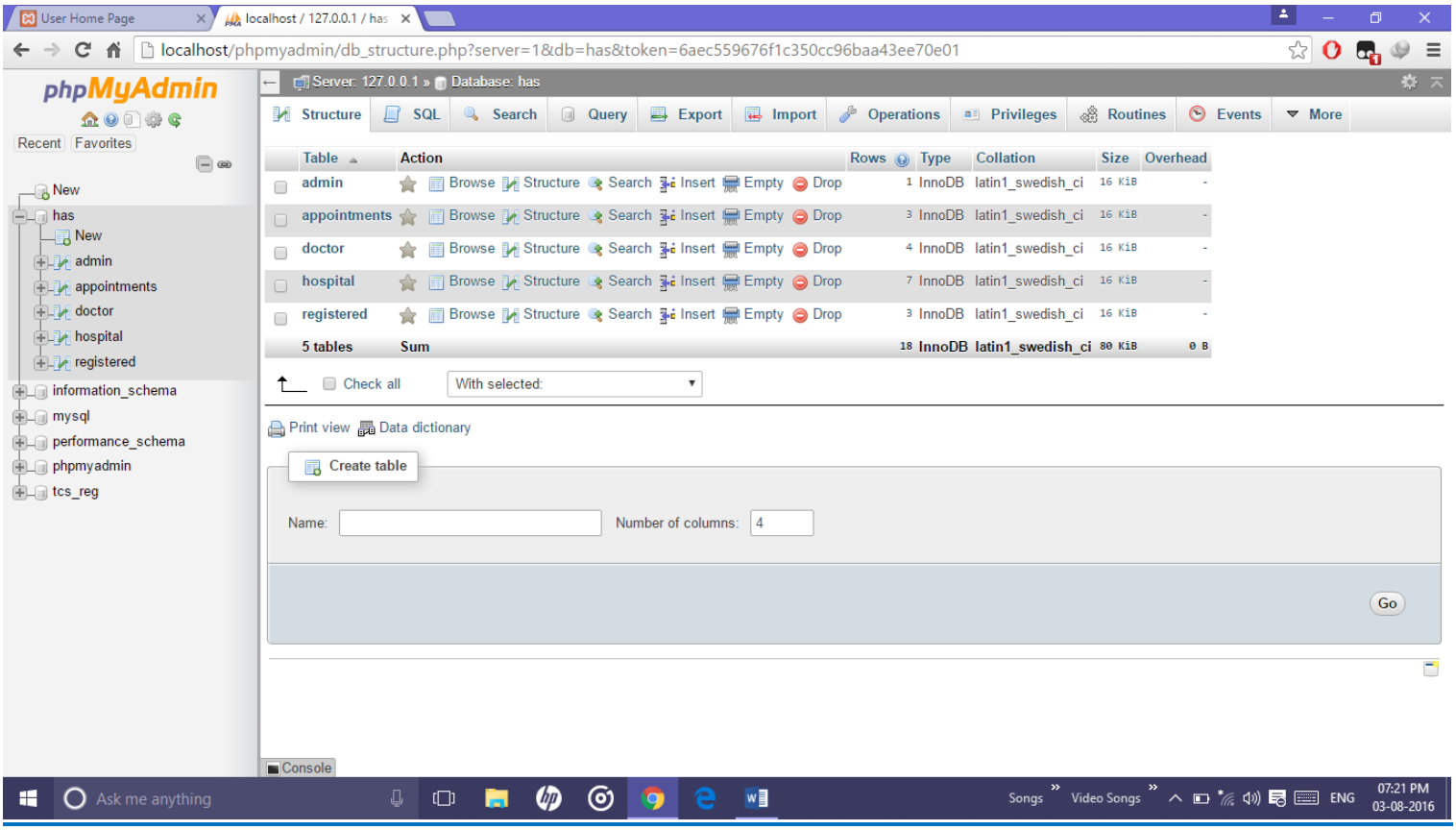


16.Admin Change Password Page:

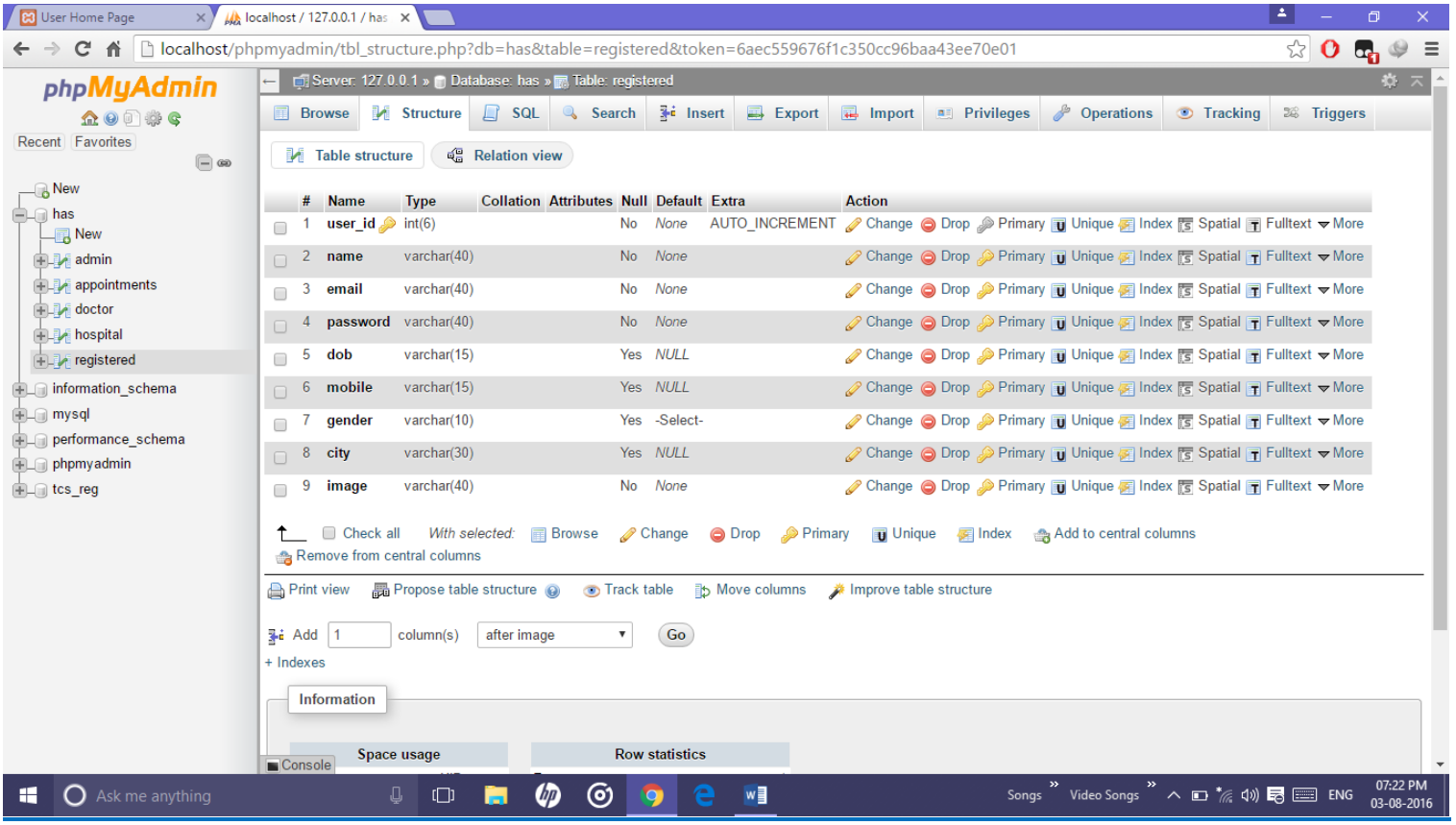


DATABASE

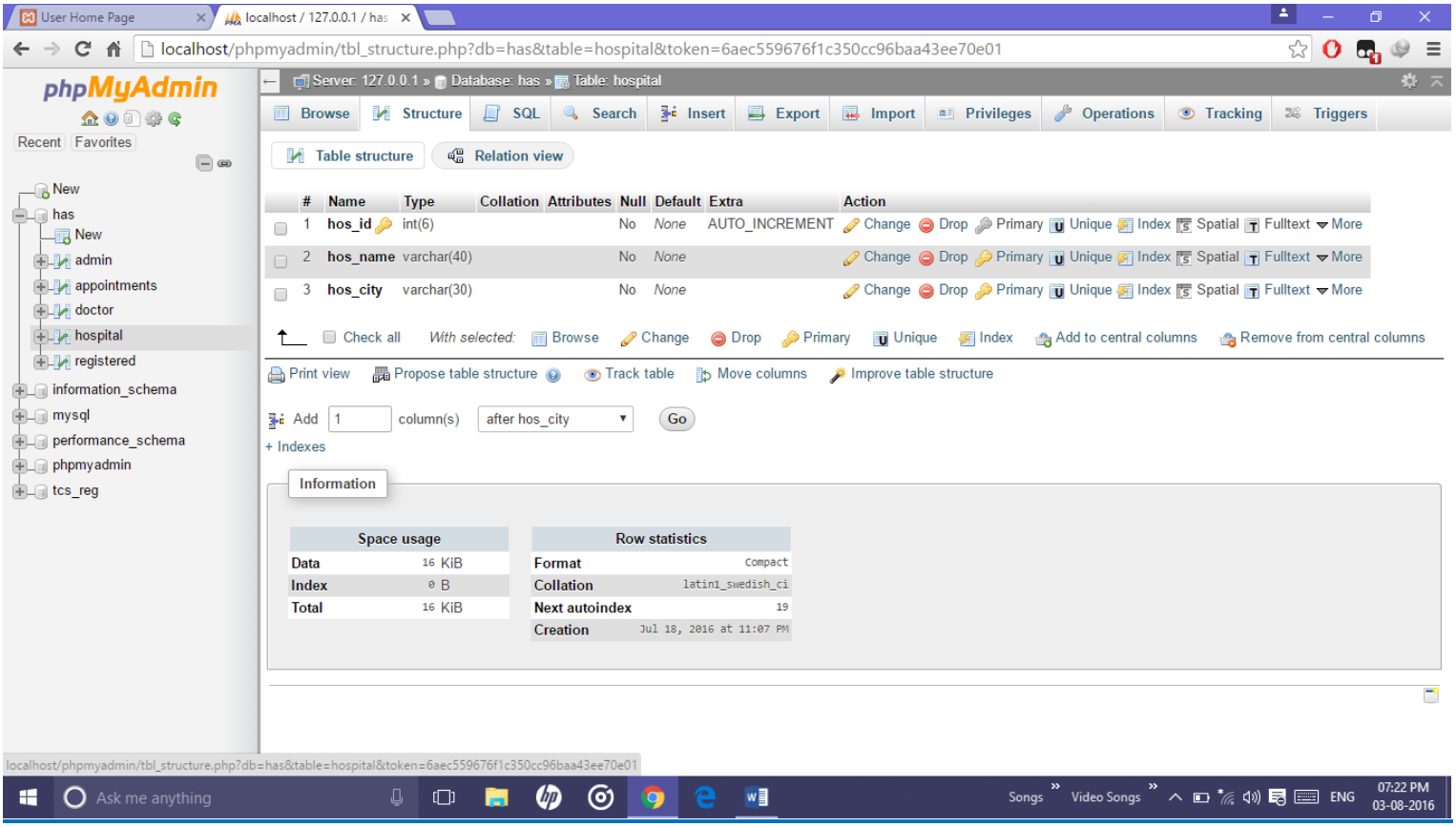
1.Database Tables:



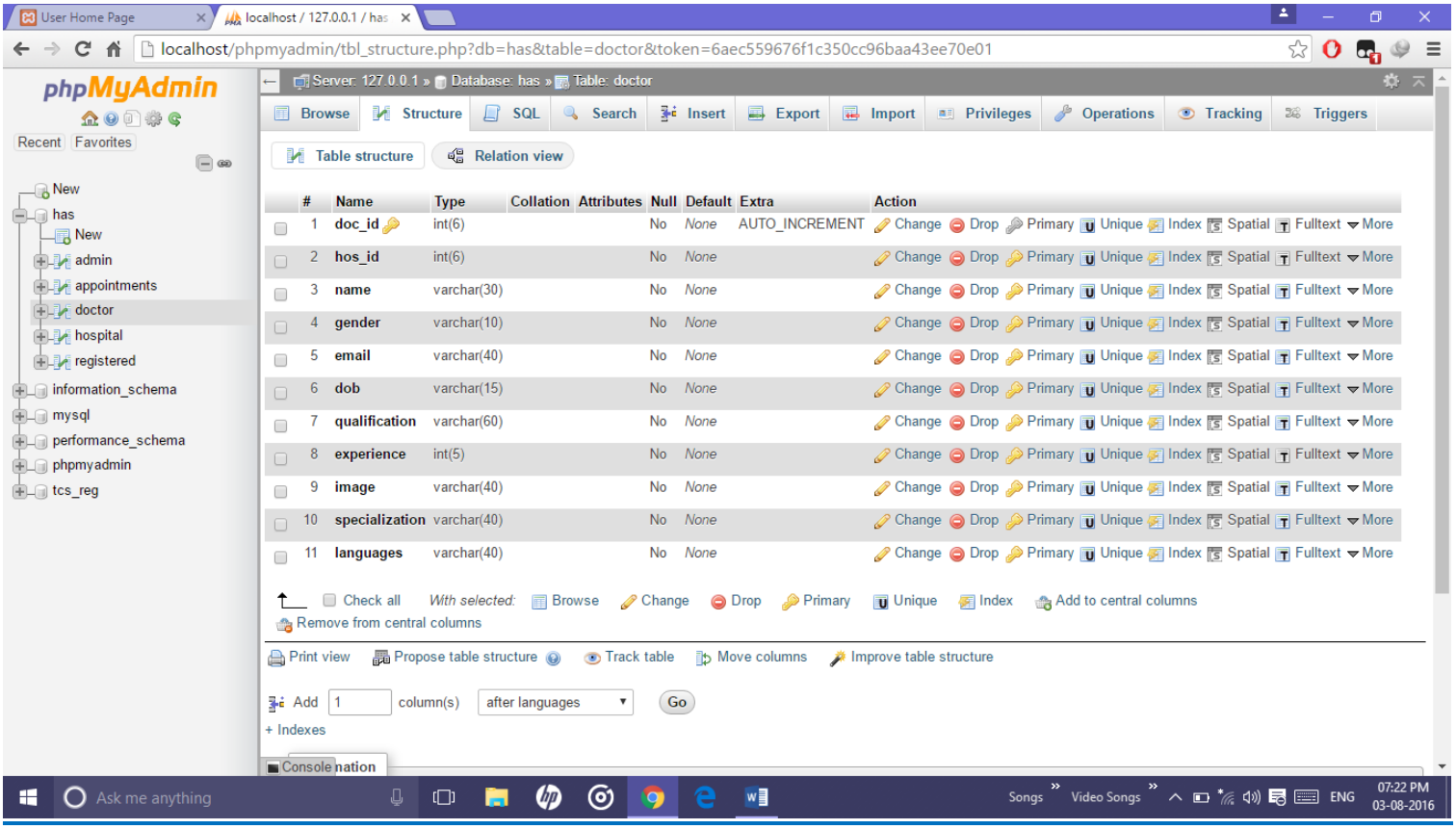
2. Table ‘registered’ :



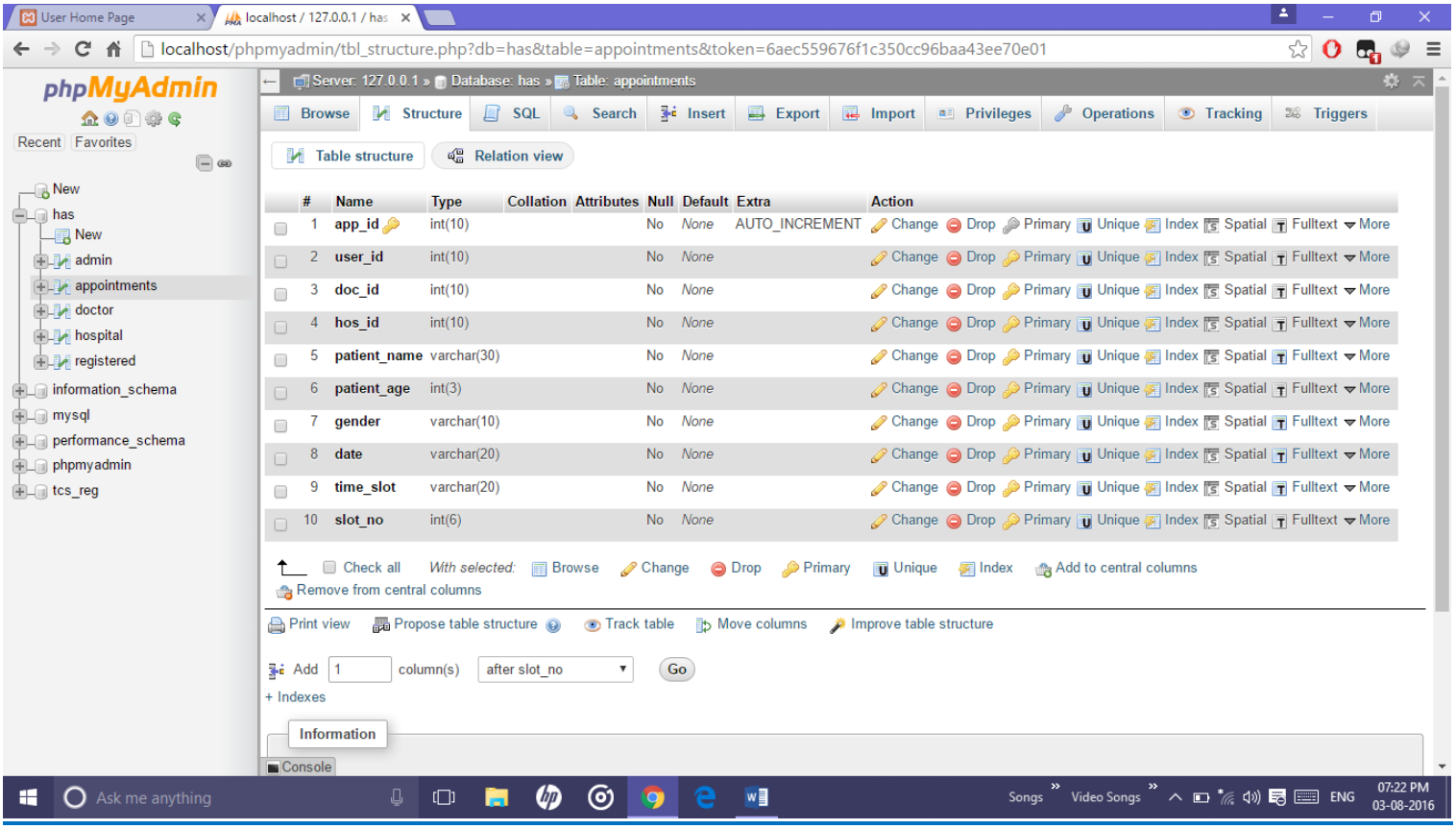
2. Table ‘hospital’ :



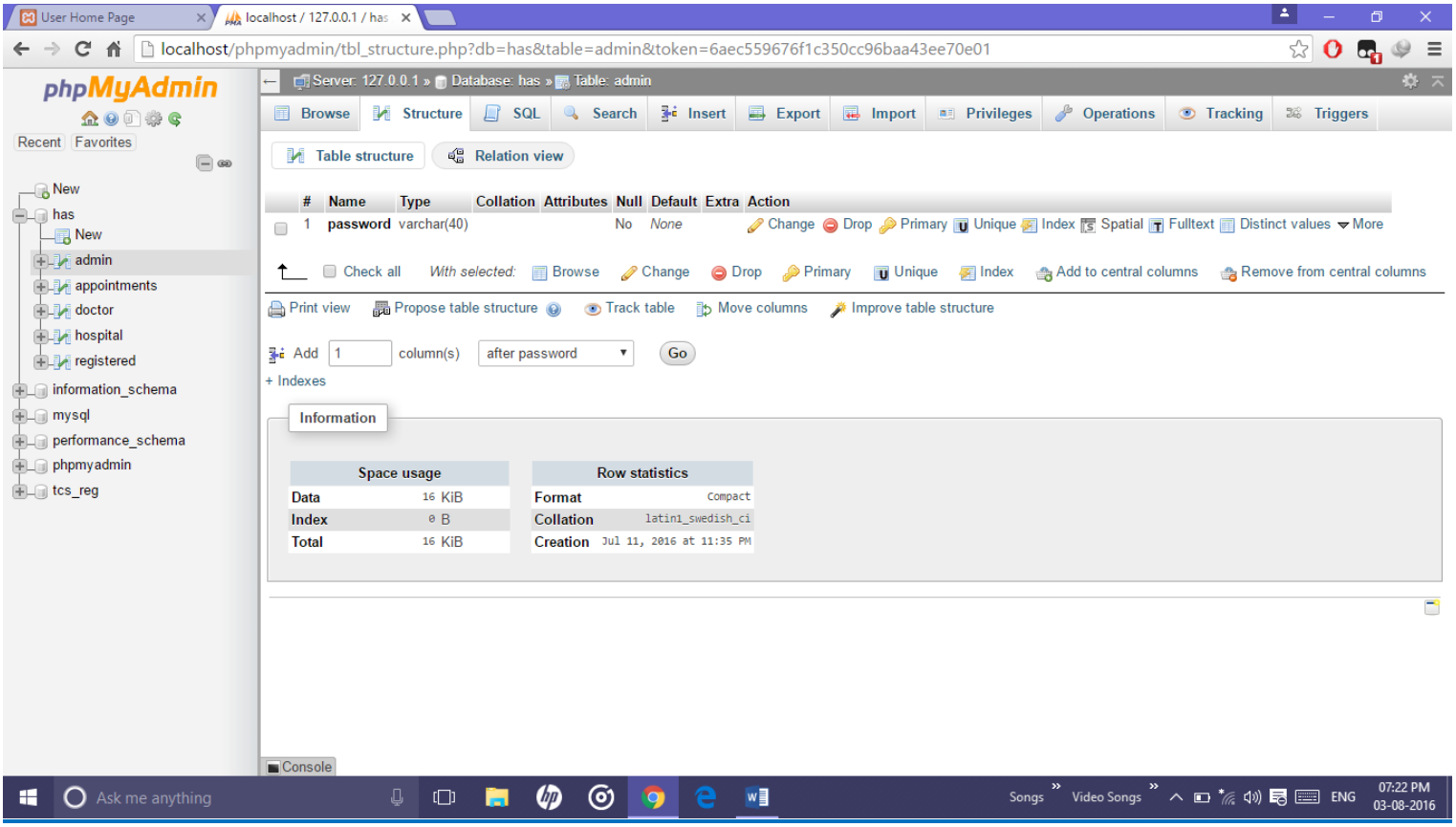
3. Table ‘doctor’ :



3. Table ‘appointments’ :



3. Table ‘admin’ :



FUTURE ENHANCEMENTS

Presently the application is more oriented towards the user and admin basic functions. In this vast population users are supposed to be from various linguistic cultures. In future the problem of accessing of large population can be increased by building application in different application depending upon the wish.

Further enhancements can be made by introducing more facilities like appointment at clinics, blood bank, testing centres etc. and introducing the digital payment platform for people using internet to pay bills.

Admin of the application will have features like generating the user report card, payment bill, test report and dynamically switching the appointments of doctor to respective patients.