

DESIGN AND DEVELOPMENT OF A HOSPITAL MANAGEMENT SYSTEM

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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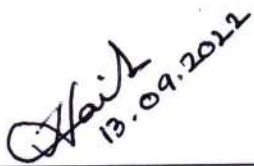
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APPROVAL

This Project titled “**Design and Development of a Hospital Management System**”, submitted by **Raju Ahmed**, ID No: **182-15-11734** 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 13 September 2022.

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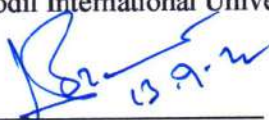
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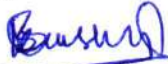
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I hereby declare that this project has been done by us under the supervision of Dr. **Sumit Kumar Banshal, Assistant Professor, Department of CSE** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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ABSTRACT

The owner-to-user aspect of Hospital Management System is the most visible medical use of the World Wide Web. The primary goal of a hospital site is to provide their services online. This project deals with developing a hospital website for booking appointment and others uses. It provides the user with a catalog of different doctor available schedule for booking appointment. The system is implemented using a 3-tier approach, with a backend MySQL database, a middle tier Apache server and a web browser as the front-end client. This is a project with the objective to develop a basic website where user is provided with is information to admin and to know about the technologies used to develop such an application. In this project we have developed many special features such as doctor available time schedule. So, our project is very user interactive because user can find any doctor fees by clicking new appointment button or their preferable fees range. Admin has many facilities in our project such as admin can analysis appointments of the Hospital Management System by selecting date picker by weekly, monthly, and yearly basis. He has also the option to see which specialist are booked very much. The most important feature of the admin panel is control whole system. The results of this study show that the developed Hospital web site provides considerable benefits for both user, doctor, and owner to do their services. Certainly, Patients can save traveling expense by choosing their choices of appointment and seen others information of our hospital.

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CHAPTER 1

Introduction

1.1 Introduction

The human body is a mind-boggling and refined structure; what's more, it includes a large number of capacities. All these convoluted capabilities have been understood by man, through their assessments and investigations. Medication became a crucial area of study as science and innovation advanced. Slowly, clinical skill transformed into a new part of learning. Nowadays, the Health Sector contains medical foundations, for example, Clinics, Medical clinics and many more innovative work foundations, and clinical universities. Consequently, the health section focus on giving the finest clinical jobs to the daily individual. Yet being a developing country has seen an enormous development of the health area in the field of the examination just as in the field of improvement of various enormous and little scope emergency clinic foundations ailing in between structure offices. The reason for the task entitled " HOSPITAL MANAGEMENT SYSTEM" is to modernize the Front Office Management of the Hospital to create software development, which is simple to identify the basic, rapid, and cost-compelling. It runs the assortment data of the patient, finding subtleties, and many customarily, it was done physically [1]. The fundamental feature of the framework is to register and accumulation obstinate subtleties and specialist subtleties and recover these subtleties as and at what time essential and coordinate these subtleties definitively System input confines quiet subtleties, analysis subtleties, while framework yield is to acquire these subtleties onto the screen. The Hospital Management System be able to go through applying a username and secret key. This is open both by an overseer or assistant. Only they able to add information to the information base. There is no problem to recover the data. The handling of the data is very quick and secure for individual use. The undertaking Hospital Management framework comprehends enrollment of patients, integrating their subtleties into the structure, and modernized charging in the medicine department store and test center. The product holds the workplace provide a special id for every one patient and stores the intricacies of each patient and the personnel subsequently. It includes a hunt office so you can always know how each room is doing. Using the ID, the client can check a specialist's availability and a patient's specifics. The Hospital Management System be able to enter utilizing a username and secret word. This is accessible by a director or an assistant. Someone who cannot sum up data to the dataset. There are no difficulties in recovering the information. The user interface is very simple to understand. The

information is completely safe for personal use and speeds up information management. Hospital Management System is ground-breaking, easygoing, and simple to operate and is planned and designed to deliver genuine probable advantages to emergency Hospitals. Emergency Hospital Management System is aimed for multi-specialty Hospitals to deal with an extensive scope of emergency Hospital organizations and the executive's measures. It is a managed start-to-finish Hospital Management System that delivers considerable data over the Hospital to aid powerful self-motivated for tolerant consequence, emergency Hospital institute, and fundamental cost-related accounting in a steady stream. Hospital Management System is a product detail suite planned to progress the excellence and the board of emergency Hospitals and the executives in the zones of Hospital cycle analysis and case-based valuation. Emergency Hospital Management System enables you to make up your organization and enhance its adequacy and sort of work. Dealing through the key cycles productively is essential to the attainment of the Hospital affects you to contract with your cycles.

1.2 Objectives

- Defining medical Hospital system module.
- Recording information about incoming patients.
- Securing appointments.
- Recording data identified with conclusions provided to patients.
- Preserving records of the inoculation given to kids/patients.
- Preserving data about different illnesses and meds accessible to fix them.

These are the different positions that should be completed in a hospital by the functioning staff and Doctors. Every one of these efforts is performed on paper.

The extent of the Project: -

- Data regarding Patients is finished by composing the Patients age, name, and sexual orientation. At no matter what aspect, the Patient appears up, their data is put away anew.
- Securing appointments in an efficient way.
- Diagnosis information to patients is normally recorded on the account, which encompasses Patient records. It is wrecked next to some timeframe to lessen the paper weight in the office.
- Immunization records of young people are withheld up in previously designed sheets, which are maintained in a paper.
- Essential Information.

This job is accomplished physically by the personal assistant and additional operational member and a parcel of documents should have been allocated. Professionals need to recall various medications available for the assumption and occasionally wish for better preferences as they can't recollect them across then[2].

1.3 Modules

The whole venture chiefly comprises modules, which are:

- Admin module
- User module
- Doctor module
- Appointment module

1.3.1 Admin module

Manage the information of users, specialists, appointments, and doctor details.

- Watch arrangement of specialists
- Watch status of doctor's appointments
- Watch patient's details
- Watch analysis report
- Watch and manage appointment status.

1.3.2 User module (patient)

Point of view layout list and category with professionals

- View remedy subtleties
- View medicine from specialist
- View specialist list
- View activity history

1.3.3 Doctor module

- Manage tolerance. Account starting and refreshing
- Create, and oversee meetings with the understanding
- Create solutions for understanding
- Deliver prescriptions or essentials for patients
- Concern for the activity of patients as well as makes activity report

1.3.4 Appointment module:

- Watch history of patients
- Fees for doctors

- Specialization information about doctors
- Appointment timing information.

1.4 Motivation

We don't usually go to emergency hospitals with the exception if we must, yet this appointment doesn't usually provide us with a great understanding. We face distinct disputes there. There is a mechanized hospital on the board structure, but they still don't provide any suitability to us. Certainly, the experts don't get in touch with their patient's data even though they are at home. It will be remarkably meant for the patients to come up with an application that will immediately maintain their own info, such as results, examination reports, and other important materials. Patients will have the option to examine through all the specialists within reach and wish arrangements for their perfect expert. A high-quality will as well encounter comparable benefits. This will diminish a lot of document work and do things easy for each person associated to it. I have several close-to-home encounters paying a visit to the medical clinic, moreover, come up with assembled insight as of others by questioning them and noticing them for quite a while. Individuals experience their most noticeably terrible bad dream when they must visit the emergency clinic. Nobody visits the clinic except if it is amazingly fundamental. Individuals get distraught yet they don't have anything to do at that point. This gave me the ideal inspiration to construct something for them and offer them some assistance at their most required time.

1.5 Expected Outcomes

- Regardless, the mix of the product in our framework has done the connection extra gainful in the medicinal care framework. So subsequently each data can be found to from wherever due to the permitted to sign in. Away from all these, the technique of association has found a lot of reasons.
- Many limitations have been constrained with the effective deployment of the invention. It has been set up that topographical restriction is the ultimate issue in the medical care framework. This has been cunningly traded with the accumulating of the clinic the panel framework. The reports can be dispatched by means of email, and texts thus nobody passes up a major opportunity for an appraisal hence.
- Here, the data is accessible 24 hours, everywhere on seven days. This implies that the reports can be dispatched whenever and on quickly. So, the likelihood of deferral in getting treatment is no more solace as an issue.

- One more preferred position of the emergency clinic the executive's framework is expense feasibility just as advanced productivity. We understand how gainful a matter can be run naturally when distinguished and former days finished with one's hand set up.
- Various balances have been led to the framework and the head things are the adjustment in the schooling framework. This has been offered formed to new rather the framework also.

1.6 Project Layout

In chapter 2 explains about the Supporting Literature and the main structure analysis of our project. We learned details about the systems and languages that we used to develop our system. Also, we discussed about various diagrams which represent the structure of our system. We also discussed about existing systems and the workflow of their system.

In chapter 3 explains about Methodology of our system, here we can discuss feasibility analysis, requirement analysis, system design, implementations, etc. In chapter 4 explains about Implementation and testing of our project. In chapter 5 explains about user manual of our project. Here, we can discuss system requirements, user interface etc. In chapter 6 explains Conclusion and future scope of our project. Here, we can discuss our project future work and limitations of our project.

1.7 Conclusion

From this chapter, we came to know about the importance of the hospital management system. We also learned about the structure flow of our project and main modules. Our aim is to create a user-friendly system where the user interfaces will be user-friendly, and people can have all the basic features that they need. We are developing a hospital management system. So, it's necessary to make it a full-proof system.

CHAPTER 2

Literature Review

2.1 Introduction

We came to know the basic structure and system analysis of the hospital management system. Our project is an existing system. So, we had the opportunity to learn a lot of things from online resources. We came to know about the functionality and system flow in this chapter also. Now a day's hospital management system is an on-demand system. In this chapter, we discuss the existing system and the basics of ER diagram, DFD diagram, Database system, and supporting literature.

2.2 Related Works

2.2.1 Features of the existing system

Improve visibility and transparency:

Existing HMS frameworks improve permeability; it implies the approved individual can get to the information with no limitations and adjust the information. The records kept up will be straightforward and basic, so it is straightforward by all.

Streamline accurate reporting:

Smooth out is a procedure of working in a more straightforward, compelling, and effective way. It keeps the information secure and exact and snappy reports at whatever point is required. Some current HMS changes over convoluted work into less complex work.

Improved quality control:

Quality control is fundamental to assembling the accomplishment of any business. Brilliant quality control assists with lessening the danger of the business and upgrading a superior working environment with well-being measures. Some current HMS assists with controlling the nature of the item and administrations that are needed in the business.

Limitless clients uphold:

Some current HMS gives limitless client uphold by associating limitless end-clients continuously. At whatever point the customers need help by the help they give appropriate rules and proposals to their issues.

Improve client administration:

Client care is addressing the necessities and prerequisites of the client. It is a definitive objective of the emergency clinics and the executive's programming to give exact and complete data or information on the double. Some current HMS builds client assistance administrations.

Single database management system:

Some current HMS deals with all the information in a solitary information base. Online exchange preparation (OLTP) is the most utilized information base administration framework in the HMS.

Improved management visibility:

All the information identified with the patient, specialist, medication, clinical reports, and so forth can be seen by any division that has the power to log in. A few HMS can oversee perceivability productively.

Improved time the executives:

Time the executives are decent expertise that assists with being more gainful and diminishes pressure and nervousness. The information or the data required can be gotten inside a single tick. It additionally permits adding or refreshing the data inside a couple of snaps so the time can be overseen without any problem.

2.3 Limitations of the existing system

One of the significant drawbacks of existing HMS is marked with protection. It is a common matter of concern if individuals ought to get online deprived of adequate guards which can add up to a key security concern. Data interference is one of the considerable matters of the health care industry and is considered the highly edified question. The method of programming implementation is a powerful undertaking. At any cost, the way toward getting to prepare sufficiently is another strain. It has been set up that it's primary to become familiar with everything worried to the product for utilizing it to the extremely. So, besides the amalgamation of the outcome for your hierarchical demand, ensure that the representatives are very much prepared for that.

2.4 Supporting Literature

We developed our system using various tools and languages. At the back end of our system, we used PHP and MySQL, and JavaScript mainly. For the front end, we used PHP language. The main supporting tools that we used are Notepad++ and Sublime text. We used the XAAMP server also[3].

2.4.1 PHP

Hypertext Preprocessor(PHP) is a broadly employed open resource in a common case scripting programming language that is mainly suited for web expansion and can be rooted into HTML. That has been used to create Stable sites, or Web deploys. So, in short, we can say PHP represents Hypertext Pre-processor and is a worker-side coding language. Readily available

are plentiful motivations to employ PHP for worker-side coding, just off the strike it is a open language with no authorizing charges so the expense of applying it is minimal. An acceptable benefit of using PHP is that it can work together with a comprehensive variety of information base dialects counting MySQL. Both PHP and MySQL are viable with an Apache worker which is additionally allowed to permit. PHP can also run-on Windows, Linux, and Unix workers. For this reason that each one of these languages is free, and it is reasonable and effortless to arrange and makes a site applying PHP. PHP as well has generally excellent online documents with a proper structure of abilities to put up. This becomes the language usually uncomplicated to understand and very much sustained on the web [4].

2.4.2 MySQL

MySQL is presently the world's generally well-known and broadly utilized open-source information base innovation and information stockpiling framework. MySQL offers extraordinary unwavering quality and convenience [2]. MySQL operates on mainly all steps, together with UNIX, Linux, and Windows. MySQL is created, upheld, and advertised by MySQL AB. The information base is accessible for nothing under the particulars of the GNU General Public License (GPL) or on the other hand for a charge to the individuals who don't wish to be limited by the provisions of the GPL. MySQL is utilized for the accompanying reasons.

- Web and Data Warehouse Strengths
- Versatility and Flexibility.
- Data Protection.
- Open-Source Freedom and 24 x 7 Support
- High Availability
- Exhaustive Application Development

2.4.3 XAMPP

XAMPP Cross-Platform (X), Apache (A), MySQL (M), PHP (P), and Perl (P) represent. It is a straightforward, frothy Apache circulation that does it incredibly easy for designers to put together in an area of web development for assessment purposes. For these consequences, the need to put up a web developer – operative deployed (Apache), information base (MySQL), and scripting coding language (PHP)–is considered for a forthright extractable document. XAMPP is the same platform that refers to it purposes excellently on Mac, Windows and Linux.

2.4.4 JavaScript

JavaScript is a ground-breaking and famous language for programming on the web. JavaScript moreover known as ECMAScript is a powerful coding language. It is mostly employed as a part of net browsers, whose executions enable client-side substances to cooperate with the customer, monitor the coding, convey not concurrently, and change the report content that is demonstrated. JavaScript can be set in the <body> and the <head> areas of a HTML page. In HTML, JavaScript code must be embedded among <script> and </script> labels. Significance of JavaScript:

- All programs have JavaScript translators underlying. No different dialects have this colossal favorable position.
- It's free and simple to set up.
- It's anything but difficult to investigate.
- It has more remarkable and free structures and libraries [5].

2.5 Relational Database

A relational database (RDB) is a collective composition of various data collections coordinated by records, tables, and sections. RDBs build up an all-around characterized relationship between information base tables. Each column in this table would at that point speak to a request. Subtleties may be entered in a table, much like a spreadsheet, and the coming about level record information base would contain the yield for all the documents and the entirety of their subtleties. In spite of the fact that this may forestall a lot of client mistakes by compelling the information input, each bit of data may seem on numerous occasions. For instance, if a request contains numerous things, the entire line may be copied aside from the thing requested segments[4]. Plainly, this isn't a proficient utilization of extra room, and refreshing information, however, speedier than looking through different documents, would at present be tedious.

2.6 Analysis of Existing System

Hospital Management System is basic and compulsory for health care organizations similar to take care of homes, renovation focuses, accommodations, health practitioners, security centers, dispensaries, and so on.

Benefits of Hospital Management System:

Get the best quality appraisals: At the point when your centers or emergency clinic should be the first class and top favored ones by insurance agencies, at that point, you should execute a Hospital Management framework in your medical clinic. Insurance agencies and government health care organizations rely upon computerized information just when there is a robotized

framework in the clinic. On the off chance that your center is fit for sending and accepting the data of the patients, their clinical records carefully, at that point it implies your clinic will be the most elevated inclination among the patients. A precise and fast Hospital Management System stands apart at the top among other nursing homes, clinical focuses, and other medical clinic contenders. It enhances your clinic and furthermore gives a standing on the lookout. Improved information security: The specialists have strengthened and featured the way that the medical clinics, clinical focuses, and facilities rely upon the manual framework. It can prompt higher information spillage and burglary when contrasted with robotized ones. Introducing a total and mechanized HMS showed that your bits of the data remain sheltered and shielded from any unapproved sources and gets to. Fundamentally, Utilization of the best-in-class framework with unified controls. Ensure you are not executing an independent local one. There are no odds for mistakes when an entrance-controlled framework oversees everything as data accessibility depends on client rights. It's additionally one pivotal motivation behind why emergency clinics, recovery focuses, facilities, ERs, and nursing homes utilize the high caliber and mechanized Hospital Management systems like the Modoc, Hospital Management system. Notwithstanding its advantages, the medical services industry faces numerous difficulties; Implementation of HMS falls flat in certain emergency clinics because of the hindrances[6].

2.7 Challenges

- While thinking about human elements, they incorporate.
- Familiarity with HMS points of interest and importance.
- PC application usage information
- Helpless acknowledgment of HMS Software.
- Another couple of huge issues for fruitless HMS usage incorporate.
- Numerous investigations outline that HMS needs more exertion; time adds more work. There are high odds of HMS getting delayed down and causing abatement in efficiency[7].

2.8 Conclusion

From this chapter, we came to know the basic structure and system analysis of the hospital management systems. Existing system is an our project. So, we had the opportunity to learn a lot of things from online resources. We came to know about the functionality and system flow in this chapter also. Nowadays hospital management system is an on-demand system. So, developing and improving is important as the hospital is such a place where people come to cure themselves. Implementation of a well-developed HMS is important.

CHAPTER 3

Methodology and Proposed Model

3.1 Introduction

Hospital Management System (HMS) is a modern technology designed to make information available for a patient easily than the existing manual system. The new system will includes some major factor like: Patient information, Doctor Information, Doctor Availability, Patient Appointment History, Sign-up and sign-in status for employee, doctor and patient, appointment time schedules for patient, and Payment Information. These services will be very efficient for all of the patient and hospitals employee, and will cost-effective manner with the aim of reducing the time and resources for all kind of requirements. Using this software, patients can take an appointment with a hospital doctor, they can save time using this software. Firstly, patients can sign up on the patient login menu then they can log in to HMS as a patient and they can see their information and they can update any information. Patients can take any appointment easily. When they can take an appointment, they can see doctors' time schedules and their fees. If any appointment needs to cancel, then the patient can do it easily. Also, the doctor login menu in HMS doctor needs login first, then the doctor can see their information and they can update any information. Doctors can see appointments and they can cancel any appointment. This software is very essential for a hospital and also important for patients and doctors.

3.2 Feasibility Study

The feasibility study is very important to measure for a system to its workability, work impact on the organization, effective use of resources and ability to meet user needs. The feasibility study is not a solution but can achieve a sense of its scope to solve a problem, it's is an official proposal. Finally, the feasibility study is a proposal that can select the best system which will meet the require performance [8].

The objectives of feasibility study are as follows:

- Identify the limitations in the running system.
- Apprehend the outcome of new proposed system.
- Acquire knowledge of the scope for new system.
- Identify the indebted users.
- Determine the possibilities to develop the system.

Three types of feasibility study:

1. Technical Feasibility
2. Operational Feasibility.
3. Economic Feasibility

3.2.1 Technical feasibility

Technical feasibility is the formal process of assessing whether it is technically possible to manufacture a product or service. Before launching a new offering or taking up a client project, it is essential to plan and prepare for every step of the operation. Technical feasibility helps determine the efficacy of the proposed plan by analyzing the process, including tools, technology, material, labor and logistics.

- Is it possible to develop the product with the available technology in the company?
- Is the organization equipped with the necessary technology for project completion?
- Are there technically strong employees who can deliver the product on time and within budget using the available technology?
- Is there scope in the company's budget to add more technical resources?
- Is the available technology the right choice to help the product team save time and complete development within budget?
- Does the client require specific technology, or is the client open to developing the product, irrespective of the technology?

3.2.2 Economic Feasibility

The economic feasibility step of business development is that period during which a break-even financial model of the business venture is developed based on all costs associated with taking the product from idea to market and achieving sales sufficient to satisfy debt or investment requirements.

During the economic feasibility step, the following activities must be completed:

- Develop a financial analysis that identifies break-even scenarios based upon unit prices, volume of sales, and costs
- Determine whether the business opportunity presents sufficient profit margins to justify a business venture
- Assess the merits of licensing the opportunity compared to venturing
- No information gaps.
- System will be user friendly.

3.2.3 Operational Feasibility

Operation feasibility is the willingness and ability of the management, employees, customers, suppliers, and others to operates use and support a proposed system. It refers to the measure of solving problems with the help of a new proposed system.

Operational feasibility also performs the following tasks:

- Determines whether the problems anticipated in user requirements are of high priority
- Determines whether the solution suggested by the software development team is acceptable
- Analyzes whether users will adapt to new software
- Determines whether the organization is satisfied with the alternative solutions proposed by the software development team[9].

3.3 Experiment Requirements

The current scenario of HMS needs to establish the quality process to increase the work efficiency which will leads its productivity. It is very importance for an organization to make all operations automated for time-consuming and monotonous. As the running system takes more time and manpower to resolve a problem. We propose a philosophy of hospital management system, firstly we need to identify each group who will be affected by this project and understand the basic needs. With that information, an initial list of the desired functional and non-functional requirements will be put into the appointment backlog in the form of patient's stories. Nonfunctional Requirements of HMS are the characteristics or qualities that make the appointment attractive, usable, fast, or reliable. The fundamental activities of non-functional properties which includes count, manipulating data, and so on. But the client wants the fundamental principles to perform in a sure manner. Nonfunctional requirements is not the alternative of appointment function. So, we need to think about the functional requirements as they do the work, and invalid requirements make up a significant part of the specification. They are important as the client and user may well judge the HMS on its non-functional properties. Think of the functional requirements as the hospital requirements. We can speak with a user or one of the hospital people, they will describe the things that the HMS appointment must do in order to complete some part of their work.

3.3.1 Non-Functional Requirements

There are a lot of non-functional requirements of our system. The first nonfunctional requirement is the efficiency requirement. When a Hospital Management System has

implemented users can appointments in an efficient manner. The next functional requirement is the reliability requirement of a hospital. The system will provide an easy access to users, doctors, and admin for their daily work. All appointments should be complete at the admin without any errors. Now another nonfunctional requirement is usability requirement. This system is designed for user interactive environment or ease of use. The database part is developed by MySQL. In the first stage, a hospital template is required to analyze their platform capabilities, see the code examples from developers, and make practice with their potential users. For this reason, all invalid request are highly experienced on those areas. Other areas are compatibility and performance that are left aside from the current project because of the too much workload. From a developer's point of view, the quality of the code takes a very important role, so it should be well organized, easy to understand, and reusable. In order to prove it is allowed, the template should be completed with automated effective tests, being careful of keeping these tests independent from the backend data in use. That way a change in the data, very likely to happen in a template web hospital, will not affect the results.

3.3.2 Functional Requirements

Now our system composed of many functional requirements. Our first functional requirement is an admin login system. Admin can manage all systems. Admin can add doctor's specialization and doctor scheduled time. Moreover, the admin can add the new doctor and also can check all the patient's information and all doctor's information. Apart from admin can check all appointments. In our system there are many functional requirements are existing for the user. Users can see the details of the doctor's specialization and can see doctors' scheduling times. Users can take an appointment at our hospital. Moreover, if the user can have any query about our HMS, he can message our system, and our system is replied to him for his query. That's all about the effective requirements of our project. In order to measure the performance of the application and finding any possible lack of functionality, this application have all the common features which will find lacking. Accordingly, it has been considered that the initial set of effectiveness for this project includes the project related browsing and purchasing products, as well as management of a user/patient account. The administration is highly secured. This section is maintained by only those who have permission to access our project. All secured manipulation transactions will be dominated by this module. There is a login system for the admin who handles the website and database. Admin can add, delete, and update information. Doctor, he can update his profile and update his username or password. He can see his all-appointment history and he can delete any appointment from his appointments. This

is all about doctor, he can update his profile and update his username or password. He can see his all-appointment history and he can delete any appointment from his appointments. This is all about the functional requirements of our project[10].

3.4 System Design

System design is the way to designing a new system. Phase focuses describe the detail implementation information of the feasible system. It emphasizes the translating design, specifications to performance. System design has two part (1) logical design and (2) physical design. During the first phase, we have described the inputs (sources), outputs (destinations), databases (data stores), and procedures (data flows) all in a format that meets the user requirements. We have also specified the needs of the user at a level that practically determines the information flow in and out of the system and the data resources. The first phase of logical design is done through database design and information flow diagrams and the second phase of physical design produces the working system by defining the design specifications which specify right what the candidate system must do. We have written the necessary programs that receive input from the user and produce the required report on a hard copy or display it on the screen.

3.4.1 Entity Relationship Diagram

An Entity-Relationship (ER) diagram represents the relationships between entities in a database. ER diagrams use the symbols to portray three kinds of information. Boxes are commonly used to portray entities. Diamonds are normally used to represent relationships and ovals are used to represent characteristics.

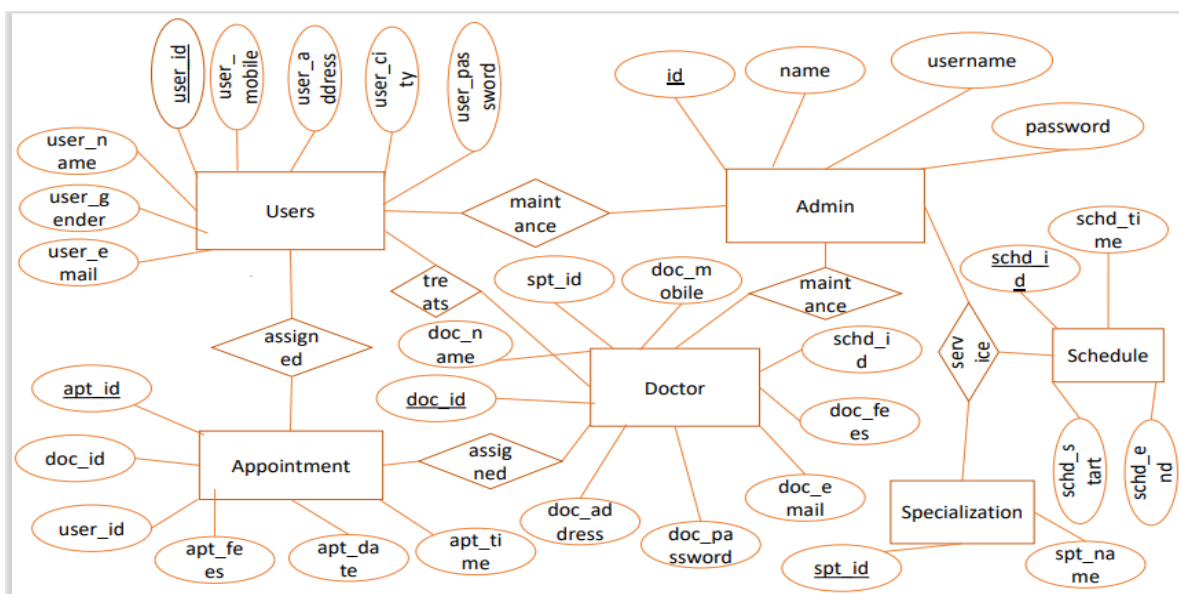


Figure 3.1: E-R Diagram for HMS.

Here the figure 3.1 symbols are represented as follows:

- ❖ Rectangles to portray entity sets: It emphasizes translating design, specifications to performance.
- ❖ Diamonds represent relationship sets: During the first phase of logical design, we have described inputs (sources), outputs (destinations), databases (data stores), and procedures (data flows) all in a format that meets the user.
- ❖ Lines link virtues to entity sets and entity sets to relationship sets: The logical design is done through database design and information flow diagrams.
- ❖ Underline indicates primary key attributes: ER diagrams often use symbols to portray three kinds of information. Boxes are commonly used to focus on portray design.

3.4.2 Data Flow Diagram (DFD)

A data flow diagram (DFD) is used to determine the flowchart. A DFD network describes the stream data and the whole processes which can change the data throughout a system. This network is designed by using a set of emblems without any physical implementation. The purpose of DFD is to clarify the system requirements and identify major transformations. So, it is the initial point of that design that functionally decomposes with the requirement down to the lowest level of details. DFD can be an abstraction of the logic of a process-oriented system flowchart or an information-oriented. For these reasons, DFDs are often mentioned to as logical data flow diagrams.

DFD for 0 level context diagram

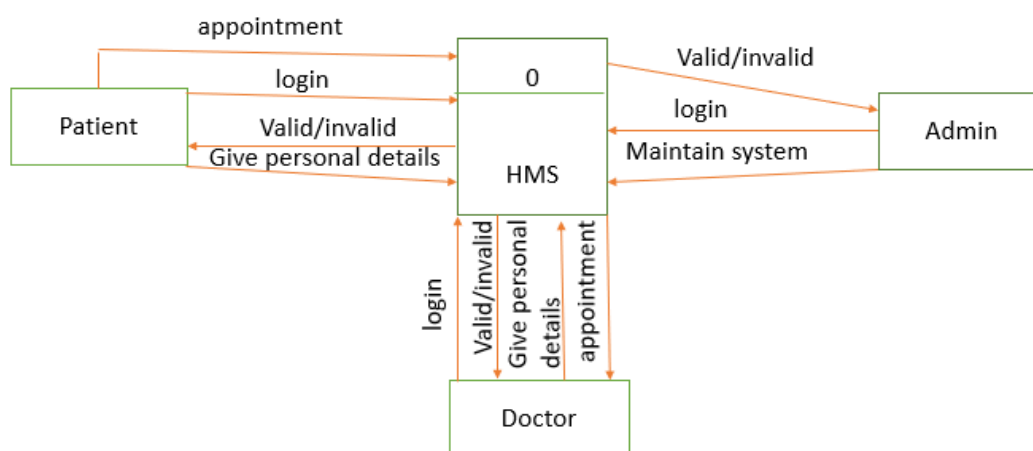


Figure 3.2: DFD for 0 Level Context Diagram

DFD for 1 Level

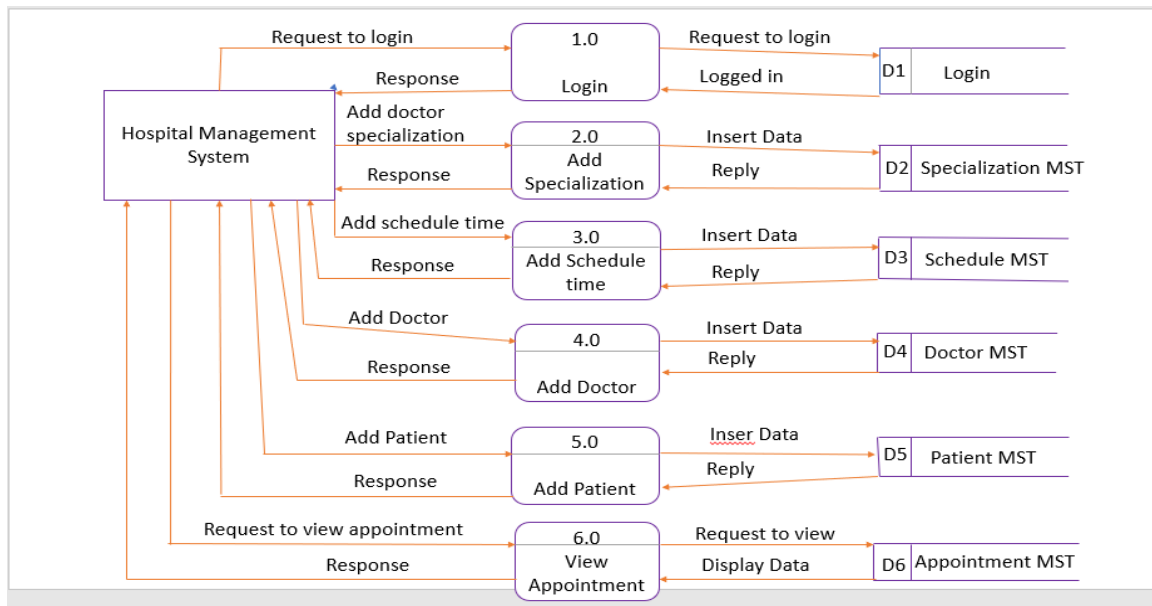


Figure 3.3: DFD for 1 level

3.4.3 Use Case Diagram

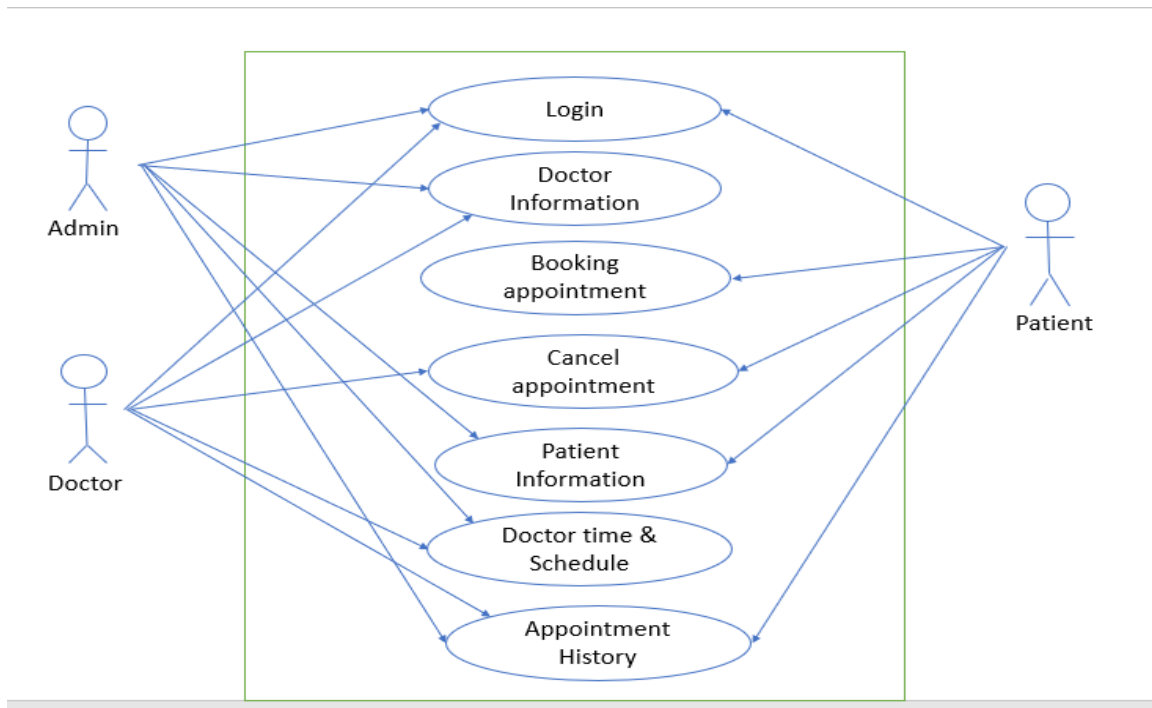


Figure 3.4: Use Case Diagram for HMS

3.4.4 Database Design

Databases are the heart of an experiment from where data is used in software systems. The data is collected in the mentioned tables inside from the database. Few tables are made only for

manipulating the data for the system. Normalization is used in this table to avoid the amplitude. Two important settings for a database is used for all the record occurrences and the foreign key used to set relations between tables [11].

3.4.4.1 Admin Login Table

id	name	username	password	created_at	update_at
1	Admin	admin	Rm0zeW1YRHILU	2022-05-29 00:00:00	2022-01-16 11:06:47

Table 3.1: Admin Login Table

In this table, the fields are admin id, name, username, and password, created at i.e., admin login id creation time and updated at i.e., admin id updating time. Admin can log in by this database table. Here admin name, username, password, login time, and admin update time can be stored in our database. Here, we need to input the username and password in the database before login into our system. Here, another attribute of this table is the username. We need to be stored the username of admins. The next attribute is password, and this is text type. We must store passwords in our database.

3.4.4.2 Doctors Table

doc_id	doc_name	spt_id	doc_mobile	doc_email	doc_password	doc_address
12	Shahiduz zaman Rony	9	01755415542	rony@gmail.com	Q0dnemNNYU5 kRUt	Jashore
10	Dr. Abul Kalam Azad	16	01982015255	abul@gamil.com	eVdLdUdoYkZO	Dhaka

Table 3.2: Doctors Table

This is the doctor's database table. Here database will be created for the doctor's id, doctor name, doctor mobile no, doctor email address/doctor username, doctor password, doctor address, doctor fees, schedule id, doctor status, doctor id creation, and id updating time. Here, doc_id is the primary key and this attribute is an integer type. We can identify any doctor by this id. Another attribute of this table is doc_name and this is text type. Here, we can see the doctor's name. The doctor's table shows us the doctor's information in this database table.

3.4.4.3 User Table

user_id	user_name	user_mobile	user_address	user_city	user_gender	user_email	user_password
7	Mehedi	01981208255	Chuadang a	Dhaka	Male	Mehedi@gmail.com	JMTFFpSnZ
2	Sumona	01521458900	Alamdanga	Dhaka	Female	sumona@gmail.com	VHEX YUdHaj
5	Shale	01712846435	Rajshahi	Rajshahi	Male	shale@gmail.com	UdHajY5

Table 3.3: User Table

This is the user/patient database table. Here, the user means patient. Here, a database will be created for user id, username, user mobile, user address, user city, user gender, user email, user password, user creation time, and user updating time. Here, user_id is the primary key and this attribute is an integer type. We can identify any patient by this id. Another attribute of this table is user_name and this is text type. Here, we can see the patient's name. user table shows us patient information in this database table.

3.4.4.4 Appointment Table

apt_id	doc_id	User_id	apt_fees	apt_date	apt_time	apt_status	apt_created_at	apt_updated_at
13	12	7	800	2022-08-14	09:40:00	ACTIVE	2022-08-24 03:01:25	2022-08-24 03:01:25
12	11	8	1000	2022-08-26	15:40:00	ACTIVE	2022-08-24 03:08:47	2022-08-24 03:08:47
9	8	5	600	2022-08-20	09:00:00	ACTIVE	2022-08-16 02:42:06	2022-08-16 02:42:06

Table 3.4: Appointment Table

This is the appointment database table. Here database will be created for appointment id, doctor id, user id, appointment fees, appointment date, time, appointment status, appointment creation time, and appointment updating time. When a patient creates an appointment then the information stored in this database table. Here, apt_id is a primary key.

3.4.4.5 Schedule Table

schd_id	schd_time	schd_start	schd_end
1	09:00AM-12:00AM	09:00:00	11:59:00
2	12:00PM-12:00PM	12:00:00	14:59:00
5	03:00PM-15:00PM	15:00:00	17:59:00

Table 3.5: Schedule Table

This is the Schedule database table. Here, a database will be created for schedule id, schedule time, scheduled start time, and schedule end time. When the admin creates a schedule then the schedule information is stored in this database table. Here, schd_id is a primary key.

3.4.4.6 Times Table

Id	tm_id	tm_title
1	09:00:00	09:00 AM
2	09:10:00	09:10 AM
3	09:20:00	09:20 AM
4	09:30:00	09:30 AM

Table 3.6: Times Table

This is the Times database table. Here, the database will be created for user/patient id and show start and end times. Here id is a primary key. This database will be created to schedule times for individual appointments.

3.4.4.7 Specialization Table

spt_id	spt_name
15	Medicine Specialist
7	Gynecologist/Obstetrician
12	Dentist
8	General Physician

Table 3.7: Specialization Table

This is the Specialization database table. Here, the database will be created for specialization id and name. here, spt_id is a primary key. When the admin creates a new specialization than the information stored in this database table.

3.4.4.8 Users_log Table

user_id	user_name	user_mobil	user_address	user_city	user_gender	user_email	user_password
7	Mehedi	01981208255	Chuadanga	Dhaka	Male	Mehedi@gmail.com	JMTFFpSnZ
2	Sumona	01521458900	Alamdanga	Dhaka	Female	sumona@gmail.com	VHExYUdHaj
5	Shale	01712846435	Rajshahi	Rajshahi	Male	shale@gmail.com	UdHajY5

Table 3.8: User_log Table

This is the user log status database table. this table is show us the user log-in status. If log id shows status=0 then we have to log id is not active at this moment, if status=1 then we have to log id is active at this moment.

3.4.4.9 Doctors_log Table

log_id	doc_id	sign_in_time	sign_up_time
12	11	2022-08-24 03:09:42	2022-08-24 03:10:04
13	9	2022-08-24 02:41:18	2022-08-24 02:41:42
14	11	2022-08-24 03:09:42	2022-08-24 03:10:04

Table 3.9: Doctors_log Table

This is the doctor's log status database table. This table is show us the doctor's log-in status. If log id shows status=0 then we must log id is not active at this moment, if status=1 then we must log id is active at this moment.

3.5 Implementations

Execution is the situation wherever the hypothetical model is transformed into a performing system. The most reliable stage in realizing a new productive system and in delivering credit to the latest system for the customers is that it will operate effectively and realistically. The method can be fulfilled simply after thorough analysis is performed and work out subsequent the requirement. Two main tasks of constructing the execution are education and training of the users and testing of the system. The website, designed as Hospital Management System is separated into two sections: the front end and the back end. We have implemented our project in two parts. Now we are describing these two parts in the following.

3.5.1 Front End

The front-end section, consisting of piece of paper that users can see, is generated by utilizing templates to facilitate it hit pleasantly layout and inserting methods. In this section, the arrival of the main menu is reliable, that is user friendly. Take into account the frequently accessed when compared with the rest of the section of the website; front-end piece of paper must use templates, and in turn, save bandwidth and the number of the database entry. For the database action concern, targeting for lessening the amount of entries, it requires only four queries to show off all features. Individuals enquiries consist of linked SQL arguments, which request about sheer main info from the database. This part is consisting of HTML, CSS, JavaScript, jQuery, etc. In the front end, we have developed and designed many function modules such as admin login form, Doctor login form, patient login form, HMS home, Contract, etc. by using

java script and jQuery. We have designed our project from a template. All within a single interface to complete similar user operations. Clicking muse can easily realize creating a new account and log in, appointments, see doctor’s specializations, see doctor scheduled times, and other functions. Easy to understand and use. If users can create an appointment or see our hospital doctor's information, firstly he/she can sign up as a patient and log in. Also, if someone/any user can contact our hospital or any query he can click on the contract option and submit his opinion, HMS admin can reply to his opinion/query. The home page is the starting page of our project. If anyone enters our project at first, he can see the home page. On the home page, users can see admin login, doctor login, patient login, contract, home option, etc. Steps of contact page design at the right and top place and step of home page design beside contact page design etc. When the users can’t find the needed appointment information, they can use the search option that’s why we have developed a search module function. We also developed this search option for doctor’s appointments and developed a search option for admin. That’s all about our project designing development and front-end part[12].

3.5.1.1 Forms Design

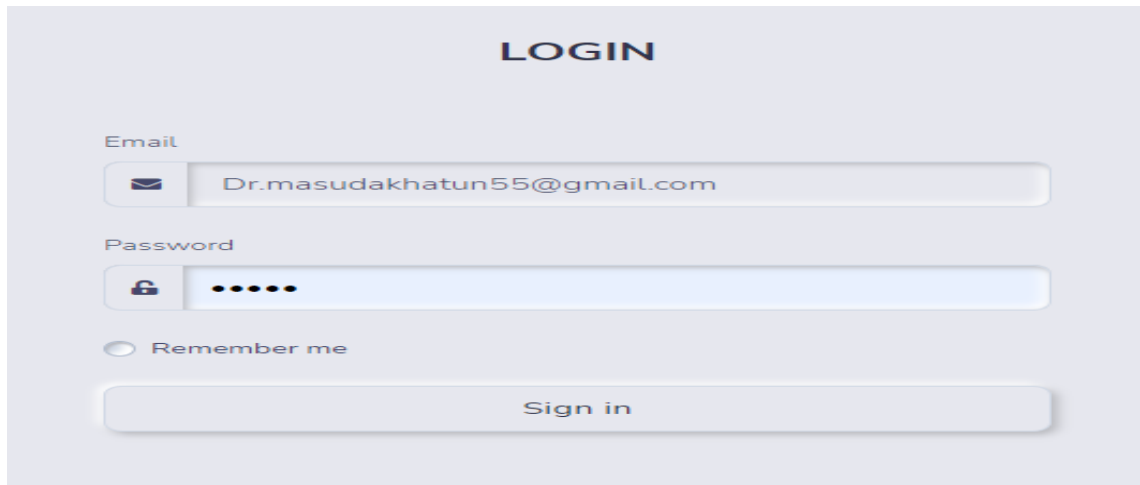
Admin Login Form



Figure 3.5: Admin Login Form

This is admin login form. In this form, the admin can log in by giving his username and password. This username and password can be stored in the database to access the admin panel. After successfully logging in the admin can manage the admin panel. Admin can see five options in his dashboard menu they’re My profile, appointment history, patient, doctor and specialization, and schedule, and admin can update and delete any information. Admin can add the new doctor to this Hospital Management System and add a new doctor specialization and add a new schedule for the appointment time schedule.

Doctor Login Form



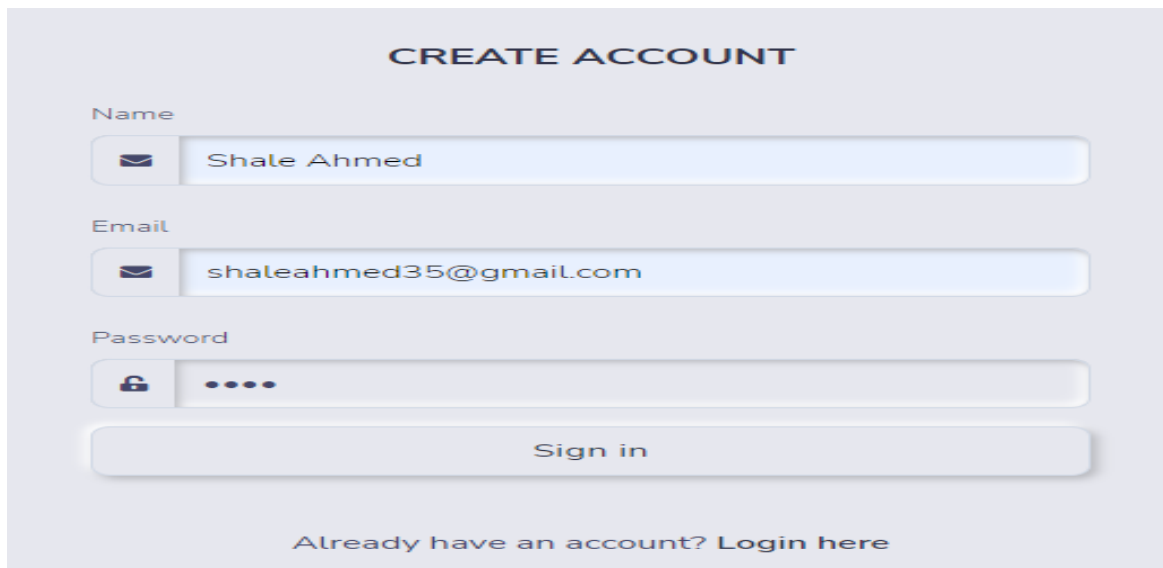
The screenshot shows a login form with the following elements:

- Header:** LOGIN
- Email:** Input field containing "Dr.masudakhatun55@gmail.com".
- Password:** Input field with masked characters (dots).
- Remember me:** Radio button next to the text "Remember me".
- Sign in:** A large button at the bottom of the form.

Figure 3.6: Doctor Login Form

This is the doctor's login form. In this form, the doctor can log in by giving his email and password. This email and password can be stored in the database to access the doctor's database table. After the successfully logged in doctor can manage the doctors' panel. The doctor can see two options in his dashboard menu they're My profile and your appointment the doctor can update his profile information also changed his password and cancel any appointment.

Patient Sign Up and Login Form

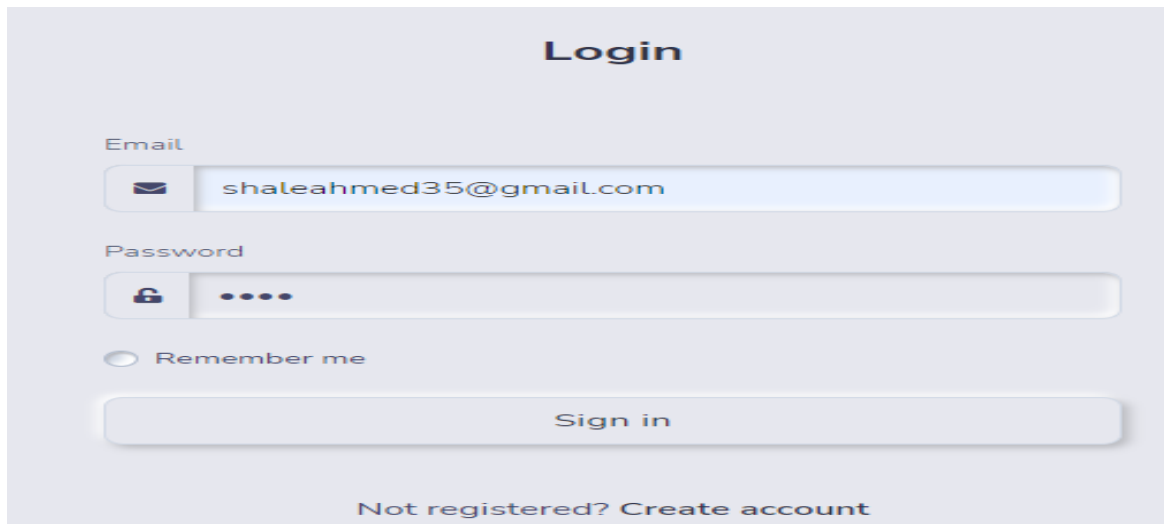


The screenshot shows a sign-up form with the following elements:

- Header:** CREATE ACCOUNT
- Name:** Input field containing "Shale Ahmed".
- Email:** Input field containing "shaleahmed35@gmail.com".
- Password:** Input field with masked characters (dots).
- Sign in:** A large button at the bottom of the form.
- Footer:** "Already have an account? [Login here](#)"

Figure 3.7: Patient Sign Up Form

This is the Patient sign-up form. When the user can first time log into the patient login menu then firstly, he/she can click on the login form and click on create an account and sign up by giving his full name, email address and password then click on sign in and he can log in as a patient in this HMS.



Login

Email

Password

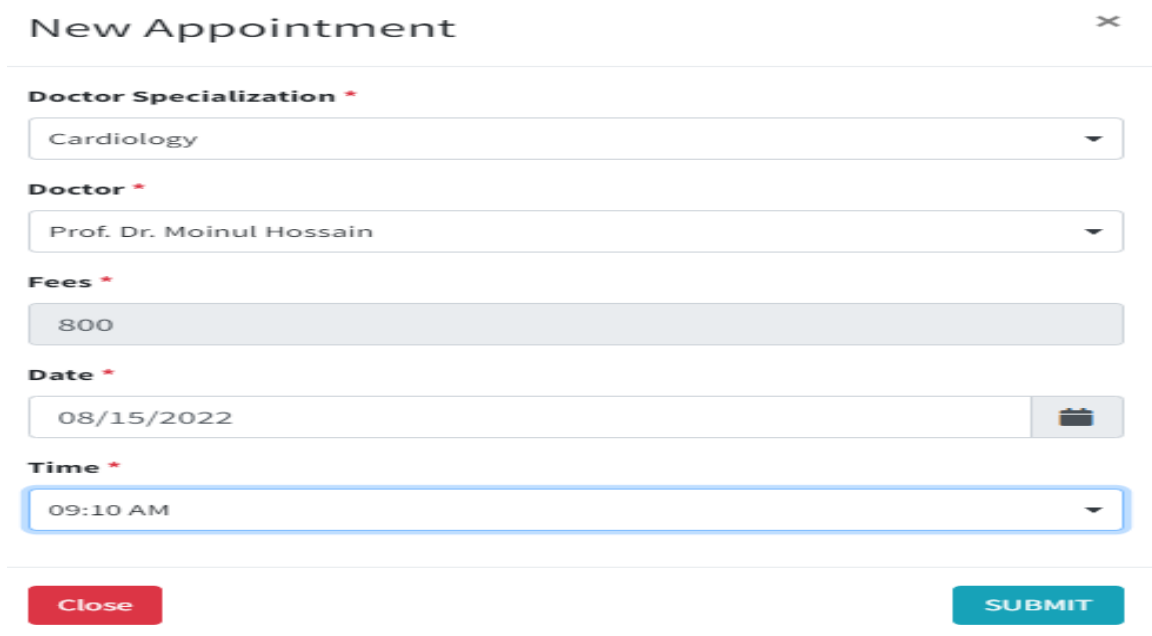
Remember me

[Not registered? Create account](#)

Figure 3.8: Patient Login Form

This is the patient login form after signing up as a patient the patient can log in to this form by giving his email and password. This email and password can be stored in the database to access the patient database table. The patient can see two options on his dashboard menu these're my profile and my appointment. The patient can update his profile information and update his password and can see his/her appointments. The patient can create a new appointment and can cancel any appointment.

Appointment Form



New Appointment x

Doctor Specialization *

Doctor *

Fees *

Date *

Time *

Figure 3.9: Appointment Form

This is the online appointment website for visitors. When the Patient can create a new appointment then fill up this form with his/her information and click on submit then he/she can

complete his appointment. Here patients can select doctor specialization then automatically suggested those selected available doctors' names patient can choose any available doctor then automatically show doctor fees then he can input the date and time and submit then his/her appointment successfully done.

3.5.2 Back End

In this section provides flexibility for every department store vendor to manage and adjust info in his personal store. Shifting authorization checks for staff and store recognition, the back-end approach can firmly protect the user's dominion data. This part consists of MySQL, XAMPP Server, PHP, etc. In the back end, part of every functional part in the system environment utilizes the identical design module, which implies management roles of admin, doctor, patients, and appointments to add, delete, update and check. We have developed an admin login module for the management of our system. To enter the beginning steps, such as the management system, the administrator must sign up (login) into our system by providing a username and password. When the administrator inputs the correct username and password, he can go through the primary interface of the method background. In the background of the system, the admin can manage the doctor's and patient's information and appointment history. All the background system is developed by using MySQL, XAMPP server, and PHP. We have handled the database by using MySQL and handled the server by XAMPP and scripting server and the making dynamic and interactive web pages by PHP. We have developed a doctor specialization and schedule option for an admin so that he can add, delete, and update specialization and schedule. We have also developed an appointment history option for an admin so that he can see all appointment information. Moreover, the back-end part consists of the administrator. Admin can see the doctors' and patients' information in this HMS. Apart from we have developed a search option for admin so that he can find information about any doctor or patient or appointment. That's all about the back-end development of our system[13].

3.6 Conclusion

In this chapter we have discussed the feasibility study of the Hospital Management systems. We have also discussed the system design and implementation here. In system design, the entity relationship diagram and data flow diagram are shown and described. Here, also described the fundamental part of the database table, form a design, and report it. Moreover, database design, forms design, and report design are described briefly in the part of system design. The functional and non-functional requirements of our system are described. That all for our proposed HMS system for a web hosting hospital.

CHAPTER 4

Implementation and Testing

4.1 Implementation Requirements

Requirement analysis is the very early phase of developing a website. project. Requirements analysis is helpful to define the needs or requirements that must meet as a modern or changed product. Therefore, a requirements analyst takes possibly conflicting accounts requirements of the different stakeholders and documents.

4.2 Application

In real-time, Hospital Management System is a very popular system. Every Hospital in the world wants to use this online because of cost consumption. Nowadays customer is not wanting to come to Hospital for booking their appointments or seeing doctors' information, they can save their time by using HMS and they can get their services at home. That's why all the Hospital wants to use this online. Users can take any appointment worldwide; they just need an internet connection. Users can access the online Hospital Management system by smartphone, tablet, and computer. Any user can get his needed services from any country in the world by paying online transaction system. In our system customers can take appointments easily. We will develop online transactions in the future. We have developed some other facilities those are mentioned as our future work option which is very user-friendly. In our system customers can also choose their expected doctor. They can also see the available appointment time schedule and see doctor fees which are very helpful for them. That means our system has very user-friendly. Apart from that, if customers go outside for hospital services, they need to expend on things like eating out, transportation, etc. They can save these expenses by hospital services from our HMS.

4.3 Testing Implementation

Testing is a major part of embedded system implementation. Otherwise, there can be errors when the real user uses the system. There can be some unexpected thing that happens, and the system can be crashed. That's why we need to test our system. In our system, authentication is required to get all access to our system. We have checked different inputs for login credentials. And we got the expected result and after successful login, we enter the main screen of our software. From the main screen, there are three different screens for navigation. And we can navigate successfully without any error. On the Homepage, we can control our hardware device

switches. And we got the desired result. Also, we can successfully be able to update and add a new task to the store without any issue

4.4 Test Results and Reports

We can manage any hospital-related issue using the hospital management system. Basically, our system is designed for various purposes. We will now talk about what the hospital management system actually does. The project manager explains his tasks to his team members. All this we can easily control through our hospital management system. With this system we can easily control any hospital, Admin, Patient, and Doctor can login.

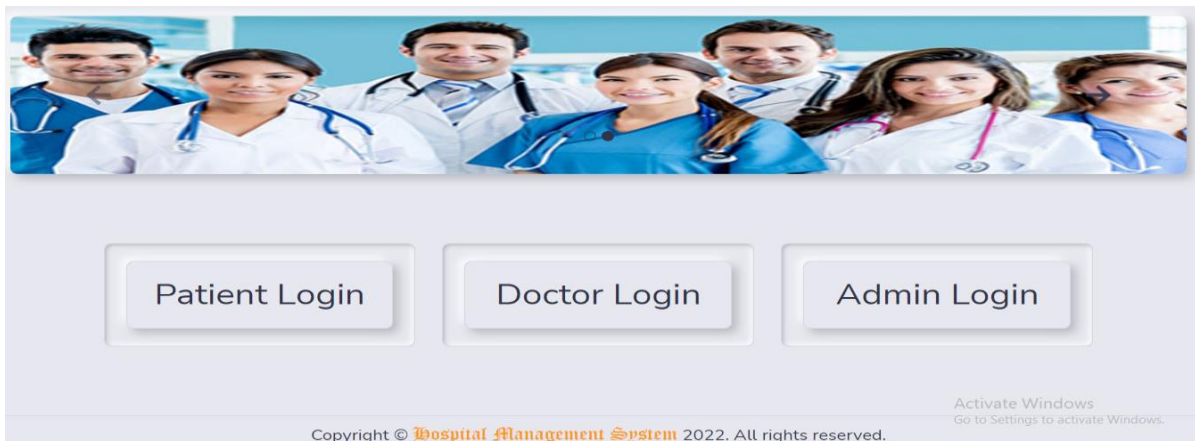


Figure 4.1: Login interface of our project

In this chapter, we have analyzed our system. By analyzing we can see the output of the different types of report such as appointments report, users report, all patient list, all doctor list etc. By analyzing we have understood that out all the modules are working. An admin can handle our system by logged in successfully. Some of the reports are describing as follows.

Doctors pivot chart and pivot table

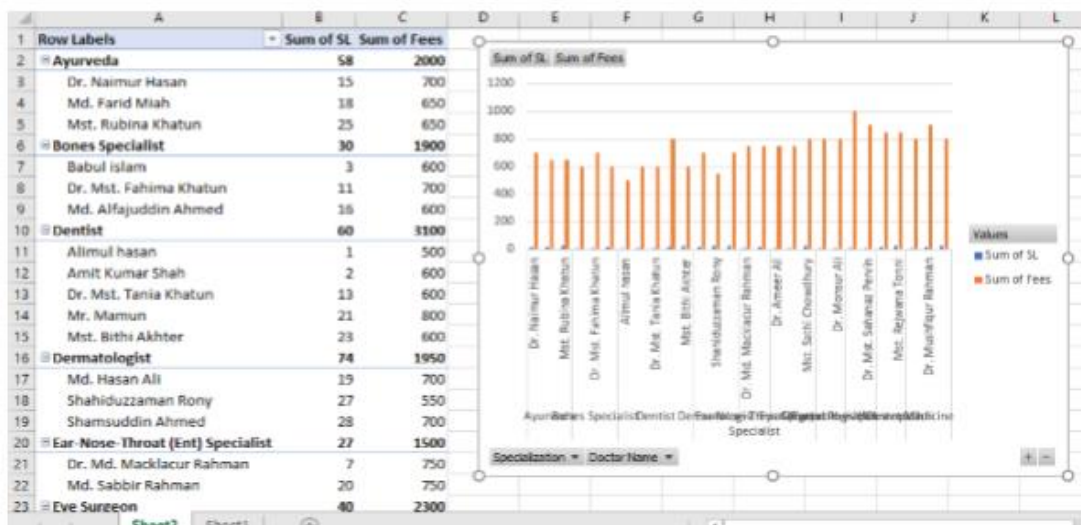


Figure 4.2: Doctors Pivot chart and table

This is doctors pivot chart and pivot table. We collect information of our project, and we make a pivot chart and pivot table according to this information of doctors. This table is given idea about whose specialist is most responsible or important in our hospital.

Appointment pivot table and pivot chart

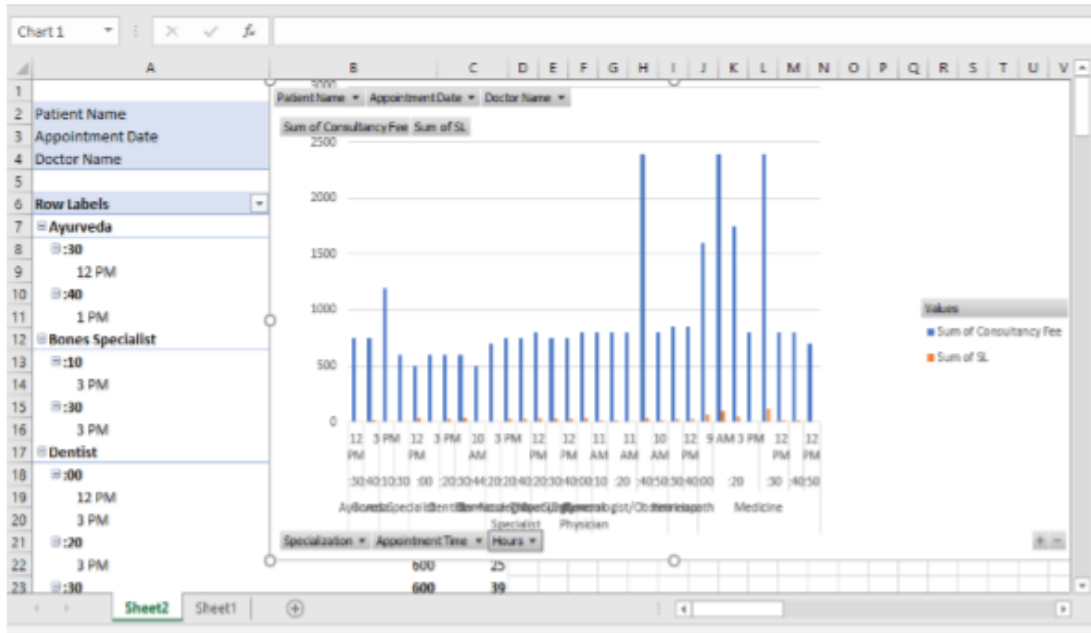


Figure 4.3: Appointment pivot chart and pivot table

This is the appointment pivot chart and pivot table. Here, we collect data from our project appointment table, then we create a pivot table and pivot chart. This helps us to understand whose type of patients admit most in our hospital and whose specialists earn more.

4.5 Conclusion

We have discussed the empirical results of our project in this chapter. Apart from, we have analyzed different types of charts in this chapter. Here we have drawn many types of charts from the data table of our HMS. Moreover, we can see the appointment report chart and doctors report chart. We can know about which category of the specialization are important more than others category of the specialization. Here we have also analyzed that which specialized appointment are booking more. Moreover, we have discussed about the application, financial benefits, and advantages of Hospital Management System. That’s all about the experimental results.

CHAPTER 5

User Manual

5.1 Introduction

All computer software requires certain hardware components or other software resources to be present in the computer and to be used efficiently. Mostly software defines two sets of the system needs minimum and proposed. With the increasing demand for higher processing power and resources in latest versions of software, System requirements increase over time. Industry analysts recommend that this tendency performs a greater part in driving upgrades to existing computer methods than technological advancements. Customers can see all products of our shop on the home page. From here customers can select the product category by clicking the category list, brand name, and price range by filtering. Customers can select their required price and brand by price and brand filtering. Moreover, Customers can select the category of the product. In this page.

5.2 System Requirements

5.2.1 Hardware Requirements

General set of requirements defined by every operating system or software application is the physical computer resources, known as hardware. A hardware requirements folder is often accompanied by a hardware compatibility list (HCL), specifically in case of operating systems. An HCL files tested, consistency and sometimes inappropriate hardware devices for a specific operating system or application.

5.2.2 Software Requirements

Software Requirements deal with identify software resource requirements and pre-requisites that need to be installed on a computer to provide bargain functioning of an application. These requirements or pre-requisites are usually not similar to the software installation package and need to be installed individually before the software is installed [14]. In this project, software requirements are:

- XAMPP
- MySQL Server
- Notepad++
- Sublime Text
- Vs Code

5.3 User Interfaces

5.3.1 Home page

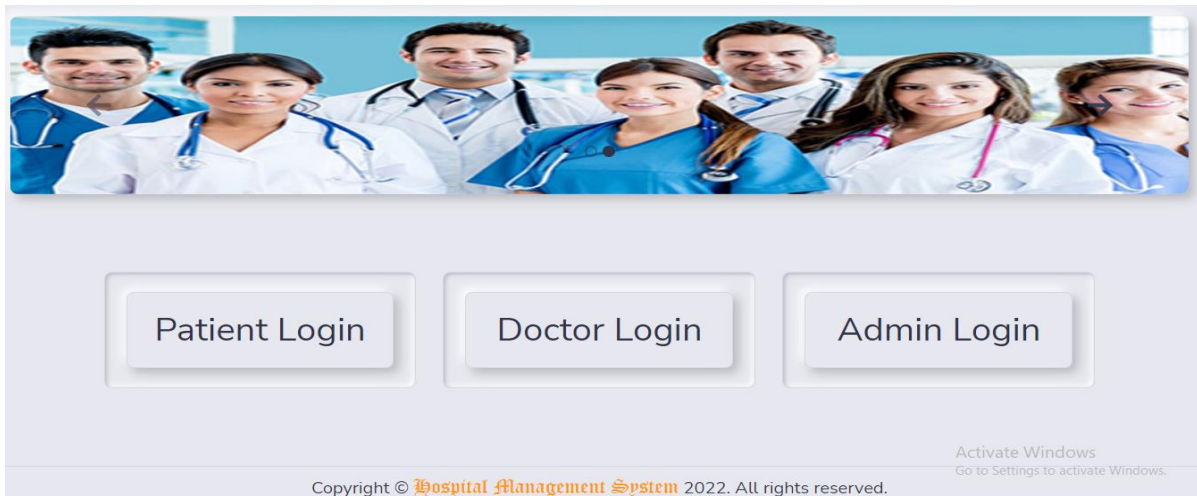


Figure 5.1: Home Page

This is the home page of our HMS project. When any user can enter our website, he can see this page. He/she can see the name of our site and different login menu and see contact our HMS and he/she also can see two random picture of our project those are automatically changed at the requirement time. This all about to home page of our HMS project.

5.3.2 Contact Page

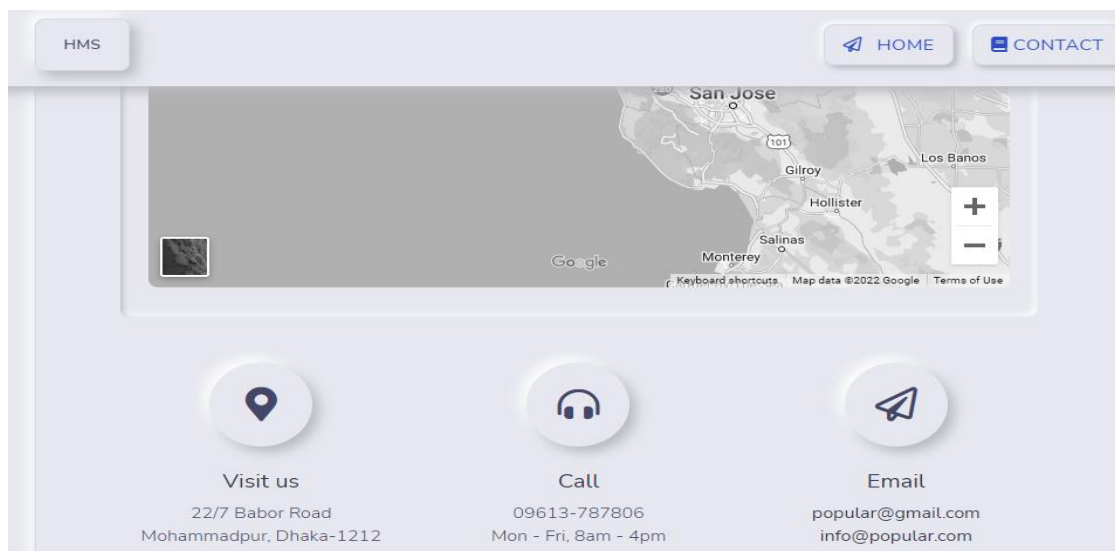


Figure 5.2: Contact Page

Our contact page of HMS project. From here, customer can contact us by filling this form. For contacting with us customer have to fill up all the field of this form. He must put his full name, valid email id, purpose of the contact in Enter your message field and write the message details.

Then he has to click Send message button to send us the message. Also, he can see us about information or address, email address and contact number and our hospital address.

5.3.3 Admin Login page



Figure 5.3: Admin Dashboard page

Our admin login page. In this page admin can login by giving his username and password. This username and password can be stored in database to access the admin panel. After the successfully logged in admin can manage the admin panel.

5.3.4 Admin Dashboard page

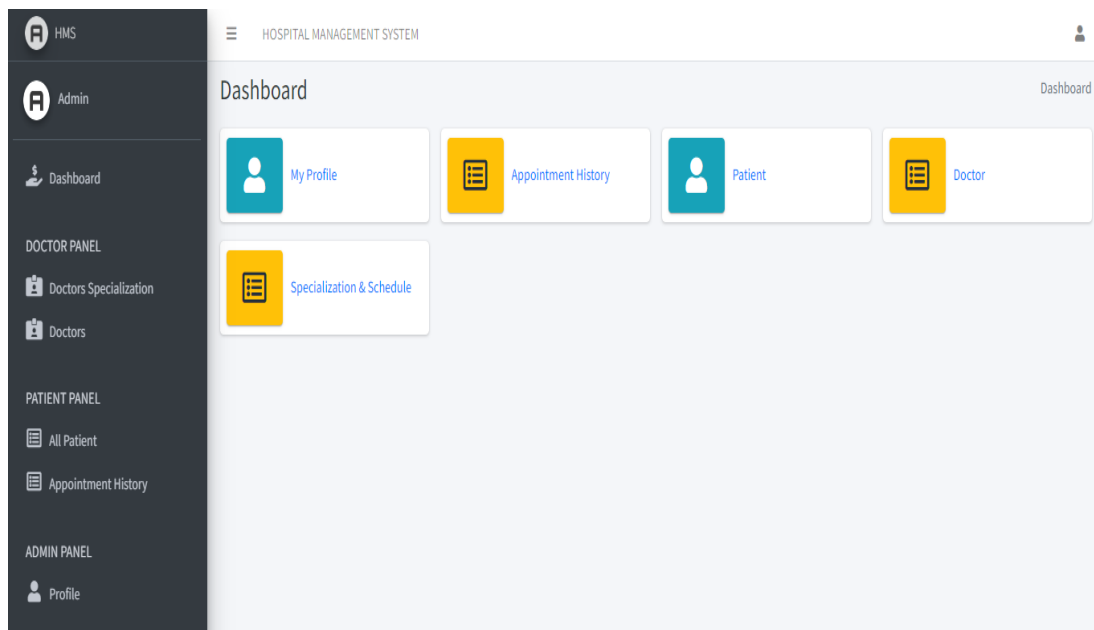


Figure 5.4: Admin dashboard page

Our admin dashboard page. Here admin can see 5 option bar they're My profile, Appointment history, Patient, Doctor, and Specialization & schedule. Admin can see here his profile and

update his profile information and see all appointment history and see all doctor information and also see all patient information and see doctor specialization and scheduling time.

5.3.5 Admin Specialization page

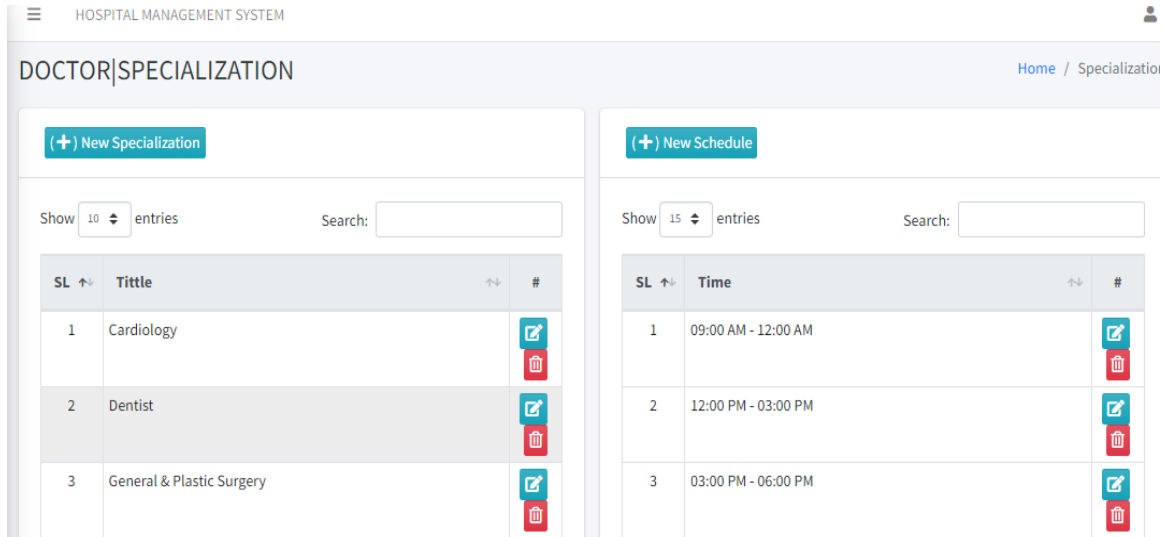


Figure 5.5: Admin Specialization page

This is specialization page. Here, admin can see all specializations and also can see all schedule times. Admin can add new specialization and also add new schedule time and he also can update and delete any specialization or schedule. Here, we implement a search option for admin can easily find out any information in this webpage.

5.3.6 Admin Add Doctor

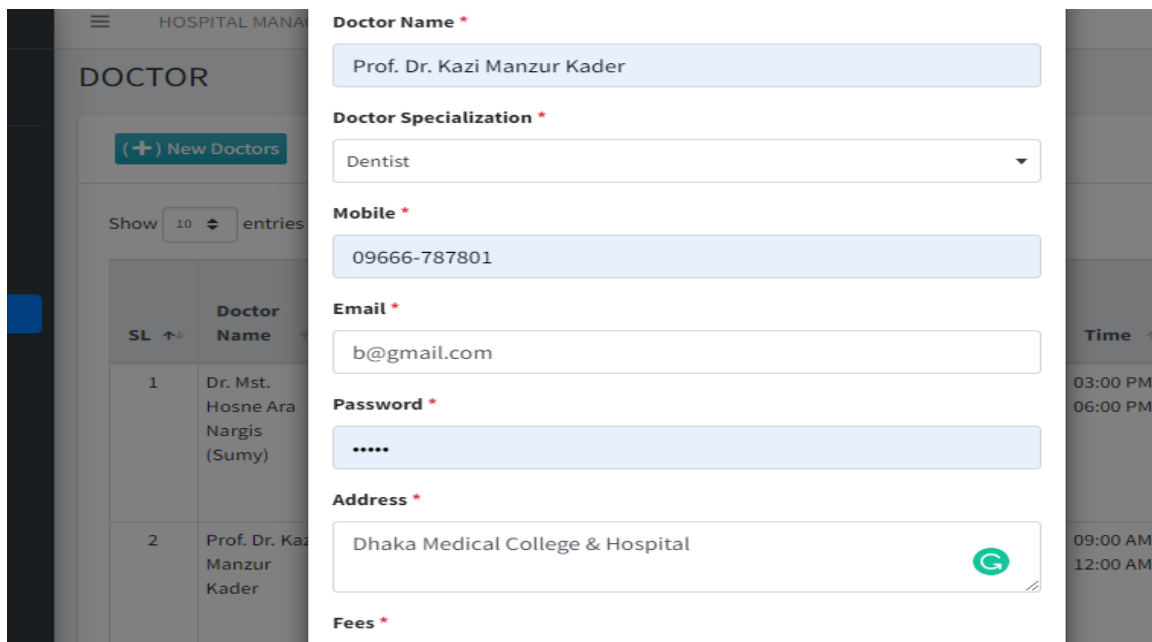


Figure 5.6: Admin add doctor page

This is admin add doctor page. Here, admin can see all doctor's data and can update or delete any doctor data. Also, admin can include a new doctor of our project by doctor information i.e., fill up this form properly and click on submit button then successfully added a new doctor of our system.

5.3.7 Admin Log page

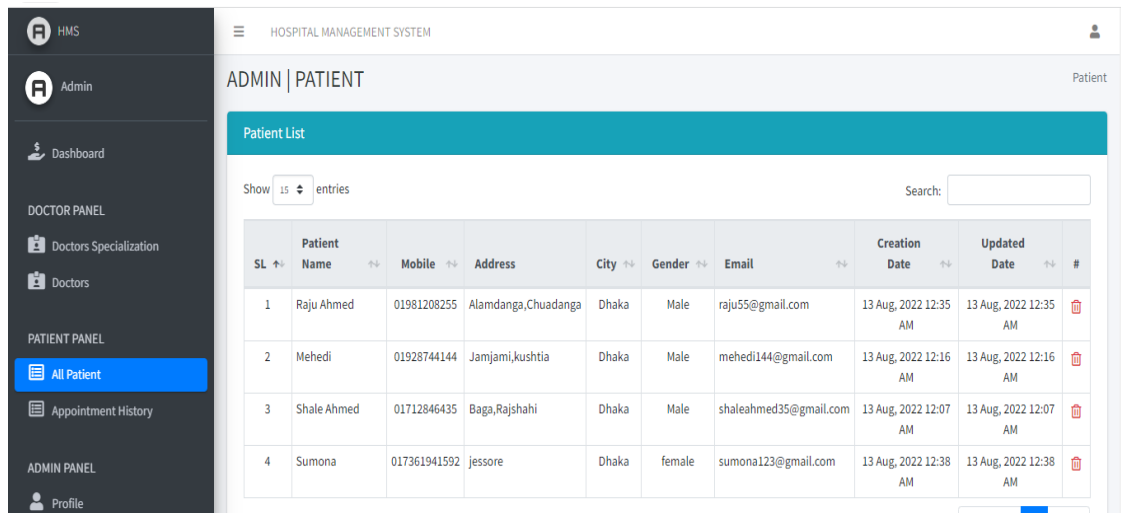


Figure 5.7: Admin log page

This is admin log page. Here, admin can see doctor's login status or login history and also can see user's login status. Here, if status = 0 that means currently not logged in and if status = 1 that means currently logged in our system. Here, we implement a search option he can easily search any information and easily find out that information.

5.3.8 Doctor Login page

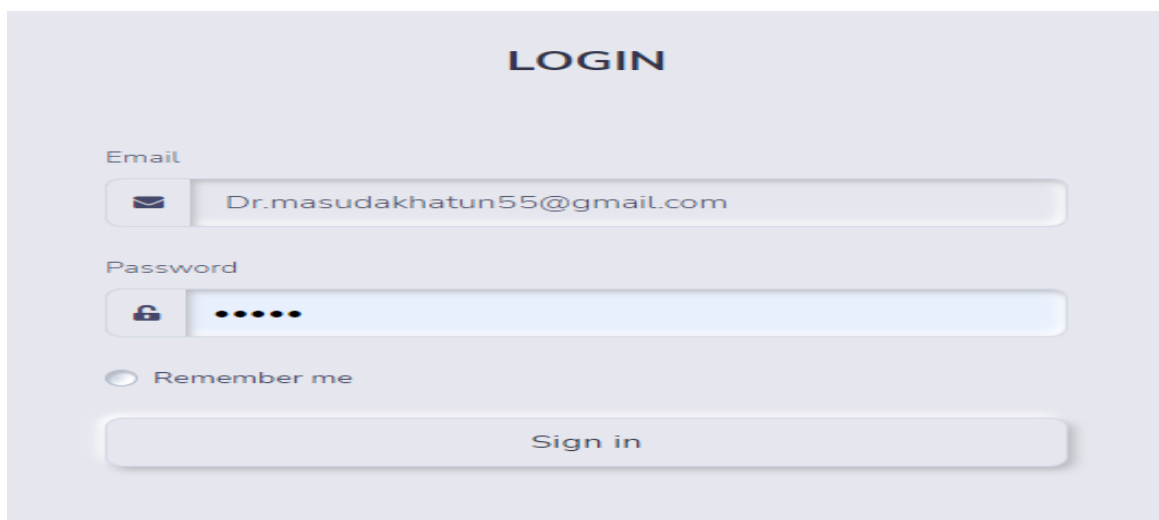


Figure 5.8: Doctor Login page

This is doctor login page. In this form doctor can login by giving his email and password. This email and password can be stored in database to access the doctor's database table. After the successfully logged in doctor can manage the doctors' panel. Doctor can see two options in his dashboard menu they're My profile and your appointment and doctor can update his profile information also changed his password and cancel any appointment.

5.3.9 Doctor Dashboard page

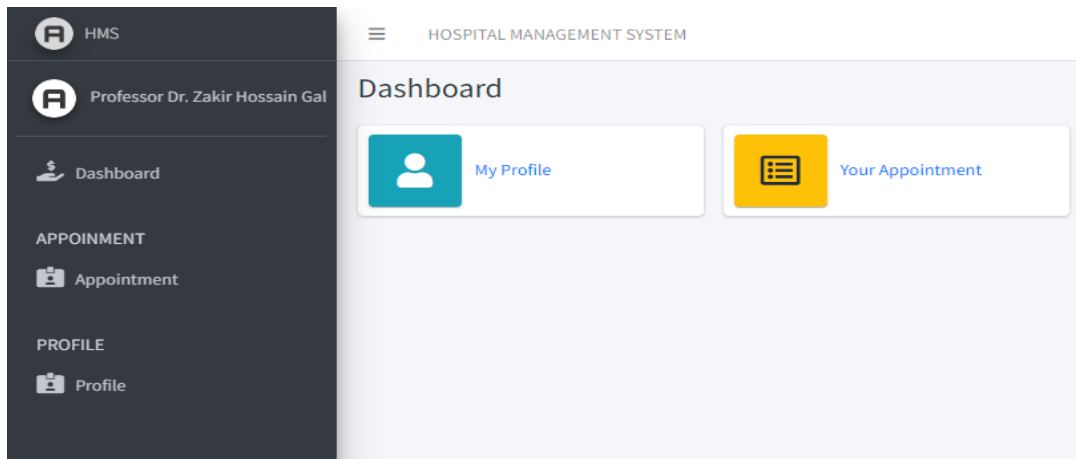


Figure 5.9: Doctor Dashboard page

This is doctor dashboard page. Here, doctor can see two option my profile and your appointment. Here, doctor can see his profile and update his information. Also, he can see his appointments. Also, he can cancel any appointment.

5.3.10 Patient Sign Up and Login page

The image displays a 'CREATE ACCOUNT' form for a patient. It includes three input fields: 'Name' with the value 'Shale Ahmed', 'Email' with 'shaleahmed35@gmail.com', and 'Password' which is masked with dots. Below these fields is a 'Sign in' button. At the bottom of the form, there is a link that says 'Already have an account? Login here'.

Figure 5.10.: Patient Sign Up page

This is Patient sign up page. When user can first time log into patient login menu then firstly, he/she can click on login form and click on create account and sign up by given his full name, email address and password then click on sign in and he can login as a patient in this HMS.

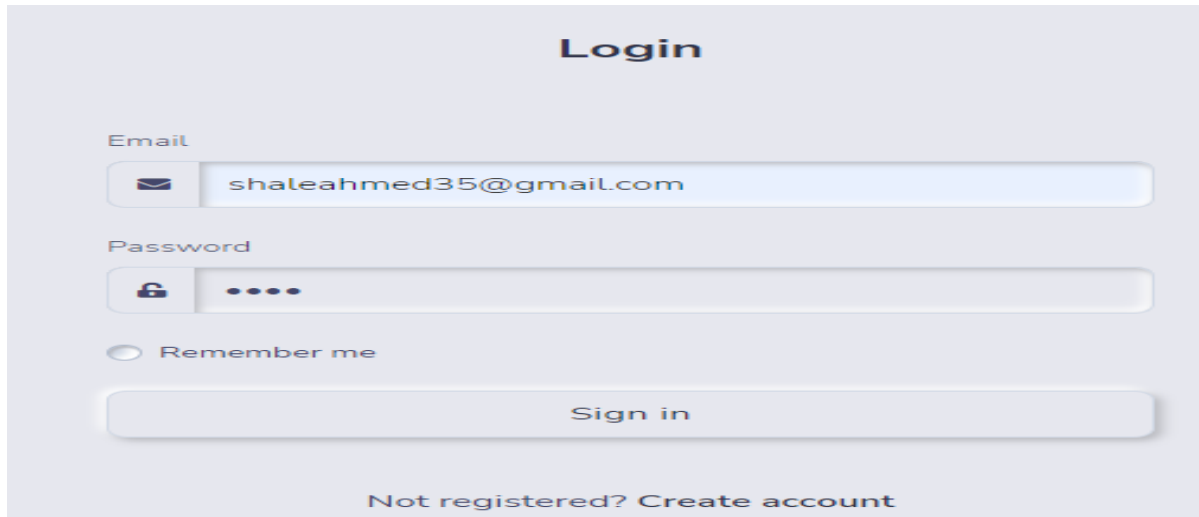


Figure 5.11: Patient Login page

This is patient login page after sign up as a patient then patient can login this page by given his email and password. This email and password can be stored in database to access the patient database table.

5.3.11 User Dashboard page

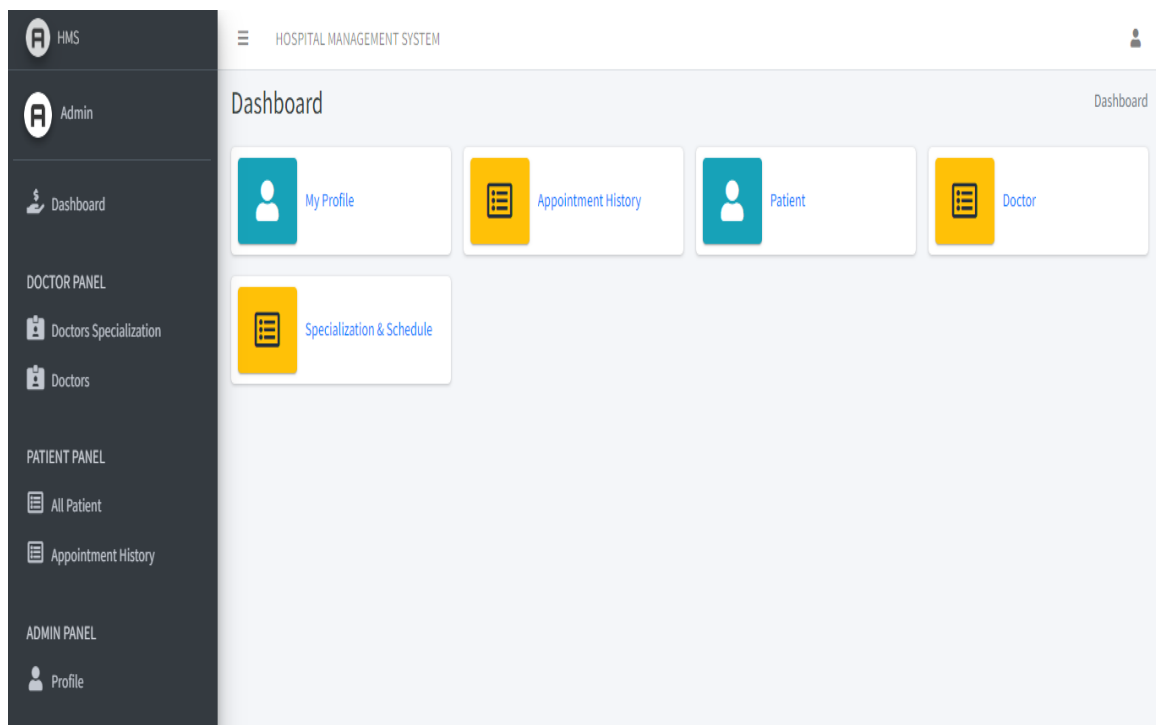


Figure 5.12: User Dashboard page

This is user dashboard. User/patient can see this page my profile and my appointment. He can see his profile and his appointments. And can update his profile and cancel his appointment.

5.3.12 User Appointment page

The image shows a 'New Appointment' form with the following fields and values:

- Doctor Specialization ***: Cardiology
- Doctor ***: Prof. Dr. Moinul Hossain
- Fees ***: 800
- Date ***: 08/15/2022
- Time ***: 09:10 AM

At the bottom of the form, there are two buttons: a red 'Close' button and a teal 'SUBMIT' button.

Figure 5.13: User Appointment page

This is user appointment page. Here, user can see his appointments and also can take a new appointment by fill up this form properly and click on submit button.

5.4 Conclusion

In this chapter, we have discussed the system requirements. From there, anyone can know about the hardware requirements and software requirements. Then we inserted the screenshot of our project's interface and explained the functionalities of our screenshotted pages. Apart from here, we can know about the uses of our system. Our interface is very user interactive. So, any users can use it very easily and appointment without any hesitation. Today the use of website is becoming vital in the field of Hospital Management System. We try our best to develop good looking, powerful, user friendly and secure website for personal or professional use. We think it is helpful for general people of all categories. We try to complete all necessary requirement and feature that provide other online base business shop websites. This is all about of our user manual chapter.

CHAPTER 6

Impact on Society, Environment and Sustainability

6.1 Impact on Society and Environment

The current era of information systems makes good use of computers for the performance. Every one of them is connecting within an adjusted network. Recently, Healthcare Providers being a vital aspect of society, face enormous challenges to offer practical and forceful services to patients. The main problem rests in the multispecialty hospitals where various people enter and exit the hospital in a day. They have to provide a significant amount of data, and data security is important, which becomes a tiresome task. It manages financial, hospital administration, and hospital aspects. HMS also helps mechanize the hospital's process and fulfill it and take care of everything hospitals. In recent years, health information systems have helped develop the quality of life of people in every sector of our society, so it is predictable to follow to this dizzying technological career. There are also an indirect impact on the environment such as because of HMS, the noise of the crowd is lessened by booking online. In addition, fewer people in the hospital help to keep the hospital calm and quiet which helps all faculty members in a friendly workplace. The Hospital Management System is an expected part of hospitals. It helps in systematizing various daily operations that help and enables efficient interactions of the users. HMS helps store all kinds of records, provide coordination and user communication, implement policies, improve day-to-day operations, and manage the financial source and hospital services. It helps fulfill the needs of patients, staff, and the hospital staff that simplifies their interactions. We can also say that HMS has become a usual approach to manage hospitals.

6.2 Ethical Aspects

Every day, patients, families, and health pros face ethical and legal decisions. These difficult predicaments may involve medical treatments, practices, hospital management and more matters that happen in the healthcare industry. Ethical issues in healthcare can require an instant reaction, such as making decisions for patients when they are not able to do so, or can include a protracted, carefully judged decision, such as the discussion over the right to miscarriage or aided suicide. The actions taken in ethical issues in healthcare clearly recognize among what is right and wrong, and often, various of the actions taken today can have permanent effects on healthcare in the future. There are many ethical challenges hospital leaders, health practitioners and patients face in healthcare.

Various examples of common medical ethical issues include:

- Patient Privacy and Confidentiality
- Relationships
- Transmission of Diseases
- Malpractice And Negligence

6.3 Sustainability Plan

Hospitals and Health Networks says that sustainability can reduce fees, reduce risks, and stimulate a positive public perception. Furthermore, by serving as community advisers in sustainability, hospitals show that they acknowledge the impact that improperly handled waste can have on public health.

Hospitals become more sustainable:

- Update your finding and waste management procedures.
- Change how you use sustainable products.
- Switch to wash energy.
- Assume new regulatory requirements.
- Hospitals can adopt eco-friendly policies.

CHAPTER 7

Conclusion and Future Scope

7.1 Conclusion

Working on hospital management system projects exposed our project group to a diversity of technologies and taught us many lessons that apply beyond just the hospital management system development process. As we enter patient details electronically in the "Hospital Management System", our HMS data will be protected. Any user can easily using this application use it and easily booking his appointment, it can save his important time. If, he can't be able to take an appointment on online he must be come to our hospital, use this he can easily take appointment and can see our specialized doctor information. Data processing will be faster. It ensures correct save of patient lists. Simple reduces the bookkeeping task and thus reduces the human effort and increases correctness speed. We think it is helpful for general people of all categories. We try to meet all necessary requirement. This site is not totally dynamic, but it expands. Most of the database needs to be worked on to increase the website. We have the demands of creating a website that takes all things into consideration. Keeping all factors in mind we have tried our good quality to create a website that is secure, dynamic, extensible, and reusable.

7.2 Limitations

Anyhow we tried our level good quality to make our method accurate and client friendly by using the new technologies, some secondary functional and design inconsistencies rife in our structure due to time discipline, model of prototype and cost limitations.

The limitations system are:

- Our Hospital Management System has no online payment system.
- It can't provide any prescription.
- It can't provide test reports.
- Our system has no Blood bank facilities.
- Our system has no Medical Transport services.
- Various limitations, lack of proper domain, network & software issues and so on can affect the uninterrupted performance of an HMS site[15].

7.3 Future Works

Our system is developed founded need of client's amusement and facilities. Our system we have used the modern network technologies to get our system quicker, advantageous and skilled for all of the workers mentioned. Because of time and amount barrier, it was not possible to meet all need and power those were planned. But in the future, it will be possible to follow this designed functionality and further improvements.

The effectiveness to be implemented:

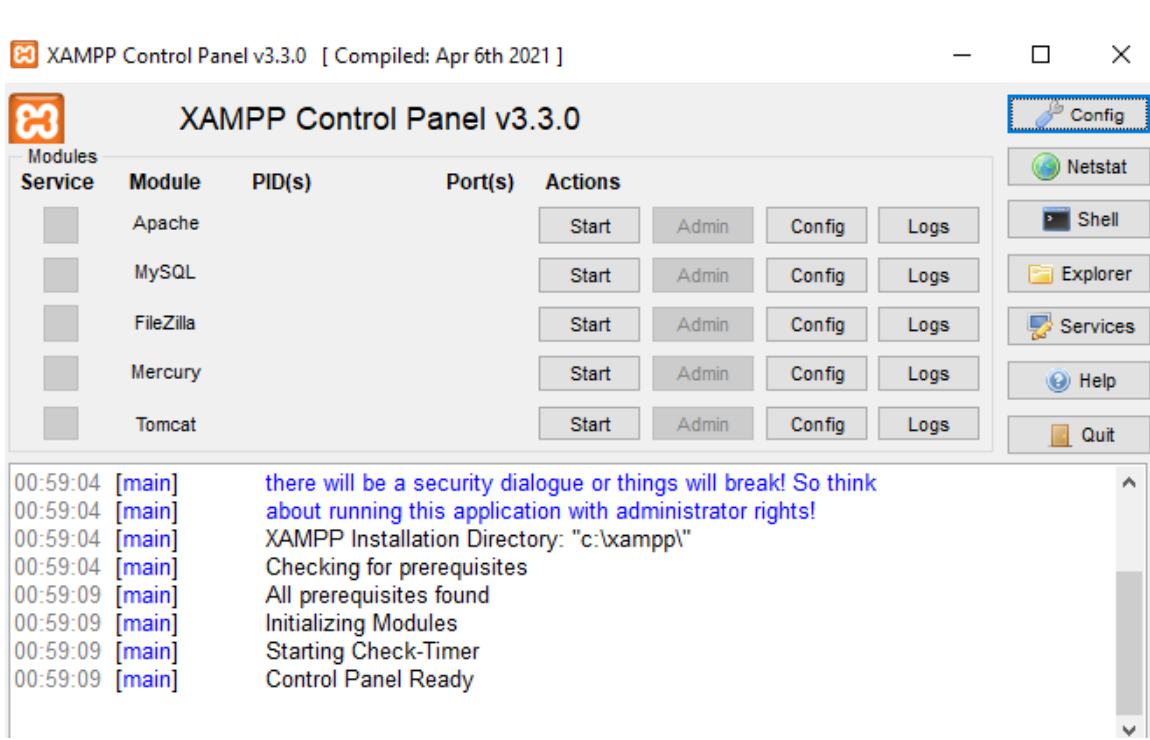
- The get up of HMS has included a new dimension in the total of medical to confirm intelligent and quicker service in related sector.
- The main objective of HMS is to establishment a user-friendly, believable, effective, and skilled method of delivering internet concentrated medical communications.
- Add payment system and add master card and visa card system.
- For future, it'll provide prescription doctor to patient.
- It also can provide test reports.
- Add blood bank services to our system.
- Also add Medical Transport services.

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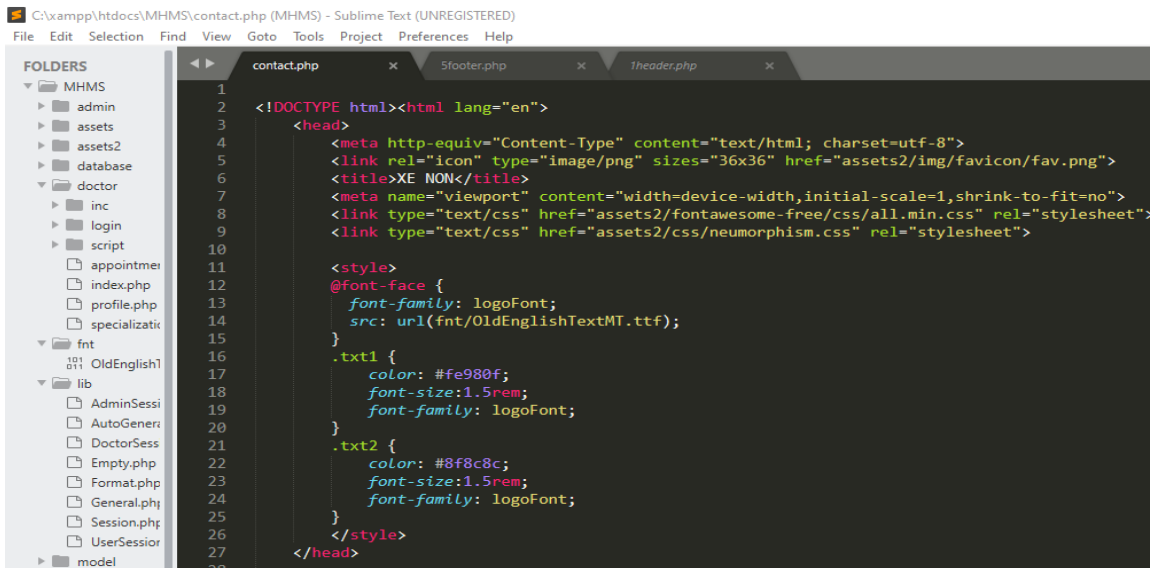
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Appendix:

Xampp Server



Sublime Text 3



HMS

by Dr. Sumit Kumar Banshal

Submission date: 12-Sep-2022 10:05AM (UTC+0600)

Submission ID: 1896821845

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