

ONLINE PRESCRIPTION AND DRUG 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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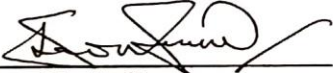
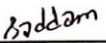
DHAKA, BANGLADESH

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APPROVAL

This Project titled “Online Prescription and Drug Management System”, submitted by Sudipta Saha, ID No: 161-15-7593 and Mohammad Nazmul Hossain, ID No: 161-15-7145 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 7 December 2019.

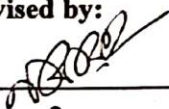
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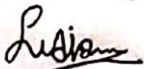
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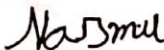


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ABSTRACT

Our project title is “Online Prescription and Drug Management System” which is a web based application specially for efficient medicine distribution. The modern world is always accelerating forward and looking for various new methods in order to gain access to every form of freedom possible. The greatest form of freedom provided to man in the modern century is through use of the Internet for various tasks. And considering this as a great advantage a large number of people are now moving on to the Internet in order to get medicine or medication. Our aim is to propose a secure and safer Prescribing System that allows prescriptions’ authentication and protects the patient data, keeping their identity confidential.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This online prescription and drug management system brought the concept of safer, smarter, and cheaper medication management systems.

In this project, we are working to ensure the quality use of medicines and provide guidance and direction for the safe and wise use of medicines to make sure people can stay healthier. We are trying to develop a web application that create proper medicine distribution and prevent the mistakes and also prevent use of extra medication. It is a safe prescribing system that allows easily creating and printing prescriptions quickly and efficiently that makes life more productive.

This system will also craft relationships between physician, patients and pharmacies with the help of efficient prescription management system.

1.2 Motivation

The traditional way of patient health recording system is paper-based. For that reason patient need to carry his/her previous medical history to doctor. Sometimes the record may be lost or damaged. Also sometimes it is hard to read out doctors hand writing. In our country, peoples can buy medicine from pharmacy without prescription and doctors permission which is really dangerous for patient's health. This can cause really bad situation for our health in future. That's why we are working to provide a secure and safer Prescribing System that allows no one can buy medicine without doctor's prescription. We believe that this prescription management system can satisfy the user and both doctor and pharmacy as well.

1.3 Objectives

We are going to develop an online web application where doctor can provide prescriptions to the patient through online. The patients NID/Birth certificate number is their unique identifier and they can buy medicine from pharmacy with access of their NID number. By using this system no one can buy medicine without doctor's prescription. Through our website user will be benefited in various sectors.

Wasting of time will be under control

Privacy of users will be so strong

User interface will be easy and efficient

Proper medicine distribution

Medicine misusing will be so hard as admin can easily able to monitor
whole system clearly

1.4 Expected Outcome

After successful development we believe that this concept will create a safe prescribing system that can be a good option for every smart citizen of our country. This distribution system can avoid misuse of medication because by this system no one can buy medicine without doctor registered prescription. Our main expectation from this projects is

Connecting all in one platform

Making communication easier

Saving time

Reduce risk of extra medication

Misuse of medication

We are working to connect doctors, patients and pharmacy to create a suitable environment

in one platform so that the system will be much easier for patient to get proper medical prescription from doctor and collect it securely. This prescribing system can save users valuable time.

By using this management system we can assure that no person can buy medicine from

pharmacy without doctor prescription. Without proper doctor provided prescription pharmacy can not see patients prescription and can not deliver the medicine. This system can reduce risk of extra medication for patient which is really bad for our health.

1.5 Report Layout

After arrange further discussions in several chapters in our report, which are:

In chapter 1 we try to say about our project what actually it about.

In chapter 2 we discuss about our related works, limitation and future work.

In chapter 3 we discuss about different types of model and diagram that actually represent our web application. .

In Chapter 4 we discuss about our project layout where the front-end and back-end visual appears to be represented.

In Chapter 5 we discuss about our project on basis of testing and implementation.

In Chapter 6 we discuss about Conclusion and Future Scope.

CHAPTER 2

BACKGROUND

2.1 Introduction

Now a days in our society everything becomes easier than before for technical improvement. Our online prescription service is a model of deployment where an application is hosted a system to the patients across the internet. For this we need to Doctor registration on doctor server or computer, patients registration and own mobile or computer & pharmacy's registration and own computer. It was developed by ScriptPro LLC for project management. But it was not the web Based so here we made it as a web Based system.

2.2 Related Works

The main experience we learn from this Project is to work in group. We also learn about new software like PostGrade SQL in database management system. We used HTML and CSS in the previous web application project. We also implement the AI project in web series searching application. We work more designing in bootstrap and JavaScript.

2.3 Comparative Studies

We know that our web application “online prescription and drug management system” is simple concept, but very effective. We want to create a platform for medicine and medical related distribution system for efficient and effective for user. We think our concept will work very much in a specific area.

Because in those platform which described in above all kind of people are connected in one category. In recent years Internet-based daily life is obvious for everyone. By using our prescribing system user can easily access their prescription anytime when need and patient can buy medicine without copy of prescription, just need to know their NID/ Birth certificate number. It's just an example, like this lots of feature will be added in our web application. So we think it will work very much good and hope for the best.

2.4 Scope of the Problem

Internet connection is most needed requirement to use this system. This system also has some limited feature that need to update and we are working to develop the system as soon as we can. patients information privacy and prescription handling system is also causes some problem that we need to handle.

2.5 Challenges

It's very common that in every new step challenges always wait to welcome. But we were determined to make our goals visible. So day by day we able to overcome many problems some are still present we also confident against it. We have experience that if we will organize our resource according to requirements then we can make the project successful. The main challenges of this development project is

- Information Collection

- Reliability

- Stay up to date with recent technology

- Comfortable user interface

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

In this model here is four major parts such as user(patient), admin, doctor and pharmacy. In user panel user can create an account. User can edit, update and delete his/her account information. In doctor panel doctor can login to access the doctor page, doctor can create prescription and submit is to patient profile database. Doctor also can see patients information and previous medical details. In pharmacy panel pharmacy need to login to access pharmacy page, when patient go to pharmacy, pharmacy executor search patient NID and see last provided prescription and deliver the medicine. Without doctor provided prescription pharmacy cannot provide and deliver medicine and any other medical related things to patient. Admin panel can verify user's account request. Admin can monitor and removed user panel's action. Admin can add/delete doctor and pharmacy from the system as well.

Why the model of business process?

Business process system user various area in development project. There some advantages of using this business process system to a project. Some of them are given below:

Specific user roles can comprehend what they need to do with their particular assignment.

To represent a system graphically

Improve Operational Efficiencies

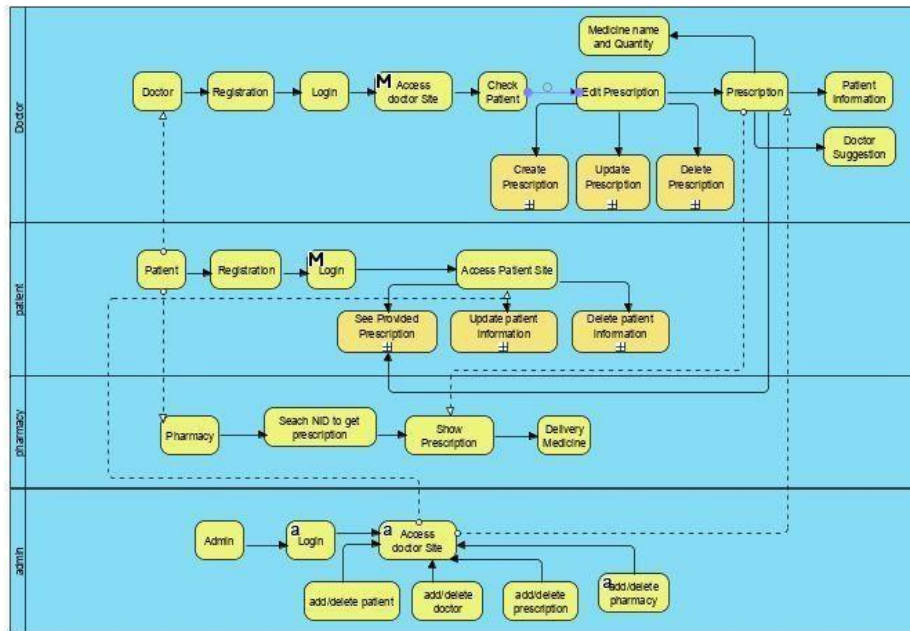


Figure 3.1: Business Process Modeling

3.2 Requirement Collection and Analysis

Initial requirements

Initial conditions we need to operate our system without this being difficult to execute.

The following are provided

We need a database storage for web application

User device (computer/laptop or mobile)

Data validation requires some advance database query so that patient and doctor information can be validated by each other

Admin requirements

Admin performs the system's most significant job. His actions specifications and roles are set out below:

Administrators can monitor and act

Administrators can monitor and act

Solve problems faced by different users, doctors, pharmacy of the stage

Admin can add/ remove prescription

Admin can add/remove doctor

Admin can add/remove patient

Admin can add/remove pharmacy

User's requirements

The user can understand the details of the feature by using our systems. The following are their conditions:

They need any type of browser with a Smartphone / PC.

Need internet connection to check the prescription and search.

They need NID number to registrations

Doctor requirements

Doctor can easily prescribe the user by using our system. The following are their conditions

They need any type of browser with a smartphone / PC.

They need registered number to access

Pharmacy requirements

They need any type of browser with a smartphone / PC

Pharmacy need registered email address to access

Need internet connection to see the prescription

Software requirements

Sublime text (Code editor)

Xampp

Hardware requirements

Internet accessible desktop or laptop

Smartphone with any browser

3.3 Use Case Modeling and Description

Its become easy to describe any systems using the use case model. Use case describes a discrete unit of the user and system interaction. The use case provided below where we attempt to define certain techniques for specifying, identifying and organizing our system requirements that can enable a correct perspective of our entire system. It also specifies goals of different types of users and their boundaries. For describing any system with user interfere, using use case modeling is always a better option because it is reasy to create, edit and understand.

Why do we use our application use case model?

We use case model in our project report so that by seeing that a non-technical person can also get an idea of what is happening and how the system's different functionalities work and interact with each other.

Smoother project execution

Build test instances

System context specification

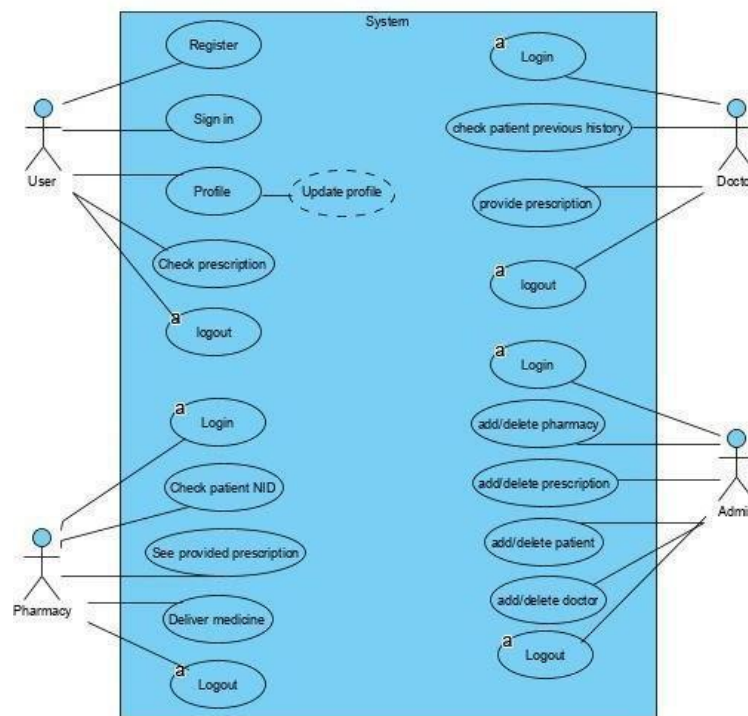


Figure 3.3: Use Case Modeling

3.4 Data Model

Logical data model also called ERD by seeing that we can comprehend how all the information at the back end of the systems interact with each other. Since we are using XAMPP, we have a

free and open-source web server, we have a lot of relationships with different database tables. Instead, we have unique object Id for each entry here, and these information are also formatted as JSON format. So, we can easily retrieve all the data from our collections.

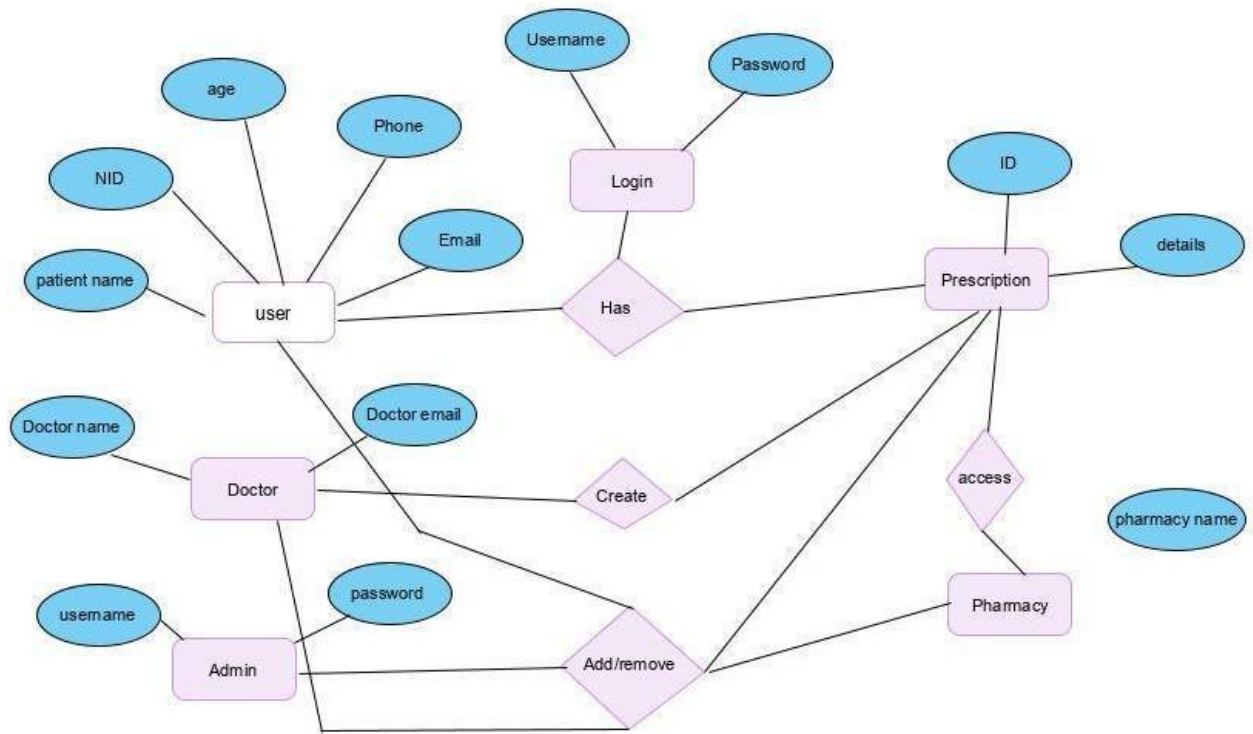


Figure 3.4: Logical Data Model

3.5 Design Requirements

Design specifications are a crucial player between any system or application being developed. If we follow design criteria exactly, many other tasks become simple to perform automatically, such as project management, technical growth and system testing.

Patient

To access our site each patient has to register with proper information (full name, NID, email, phone number, age etc). Patient also can update their profile information (name, email, password etc.) These details information's are stored in the database and NID (national identity card) number is their unique ID. Patient can see their doctor provided prescription whenever patient want.

Doctor

Doctor have to login to our site to access doctor page. When patient comes to the doctor for treatment, Doctor first check the patient and then doctor enters the patients NID in the search button and additional information of patient with previous medical history is appeared from the database. After checkup, doctor writes the prescription through online and prescription will be saved in the database. Provided prescription is viewable for doctor and patient both.

Pharmacy

Pharmacy also have to login to our site with proper username and password to access pharmacy page. After prescribed, patient goes to the pharmacy and pharmacy search patients NID, after that patients information like medicine and medical related list and other medicine information , name and quantity is appeared to the pharmacy's server and medicine will be provided.

CHAPTER 4

DESIGN SPECIFICATIONS

4.1 Front-end Design

The front-end will be the part with which a user mainly interacts directly. Good application can become a poor application without excellent user interface design. Collaborative Virtual Environments (CVE) design and development is a complex, time-consuming task. In present CVE design practice, there is little flexibility to customize it into various presentations once the user interface (UI) is developed. Users using the same user interface irrespective of the user's platform, position and personal preference [1]. We use multiple instruments and techniques to design the front end for better aesthetics.

Best Interface Design Practices

Everything arises from knowing users, such as their goals, skills, preferences and trends. When developing your interface, be sure to consider the following

- Maintain a straightforward interface
- Consistency creation and use prevalent aspects of the UI
- Be intentional in the design of the page
- Be purposeful in the layout of the page
- Make sure the system is communicating what is going on
- Consider the defaults

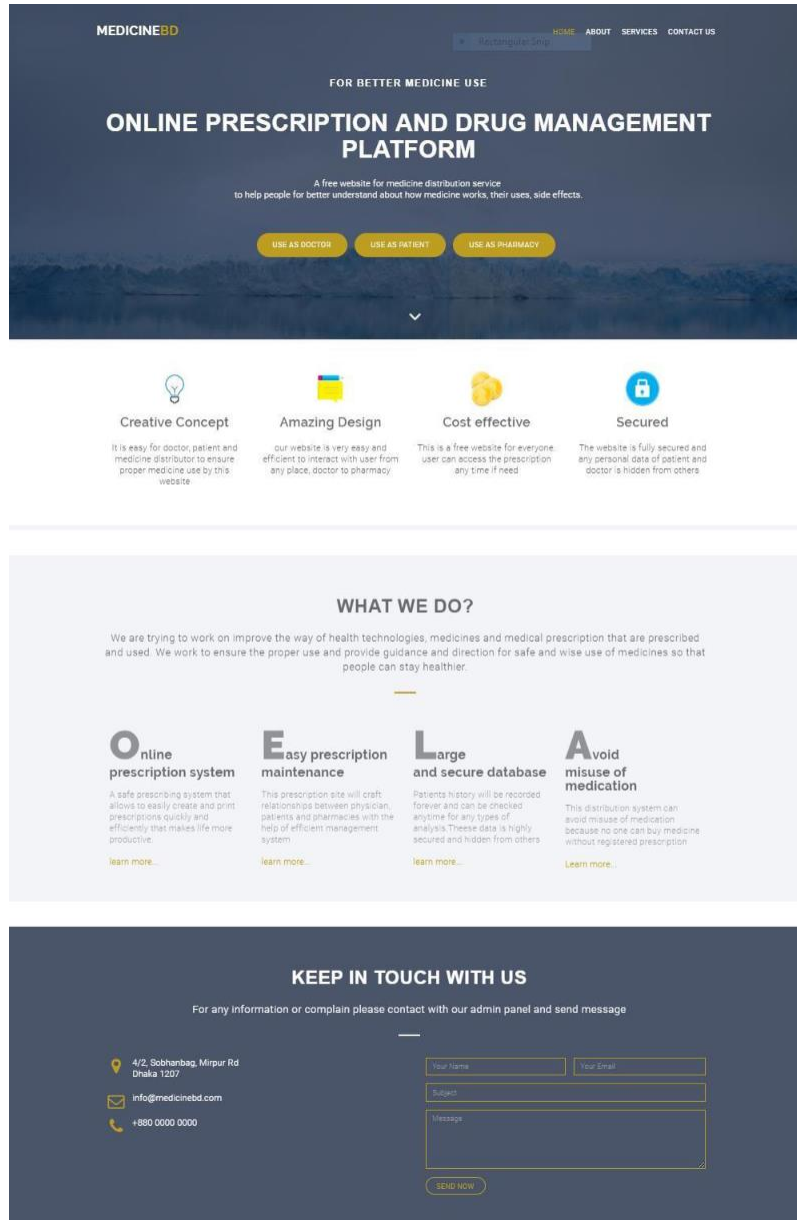


Fig 4.1(a): Index page of our Prescription management system

Online prescription & drugs management system

Add Info

Name

Nid

Age

Email

Address

Phone

medical_history

Password

Fig 4.1(b): Patient Registration Page (patient can register with proper information that given here)

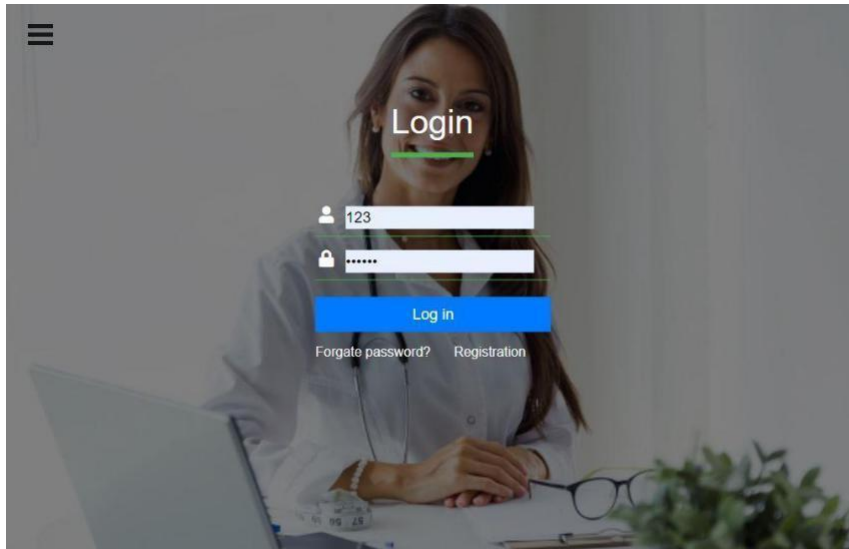


Fig 4.1(c): Patient login Page(patient must login to access user profile and see prescription

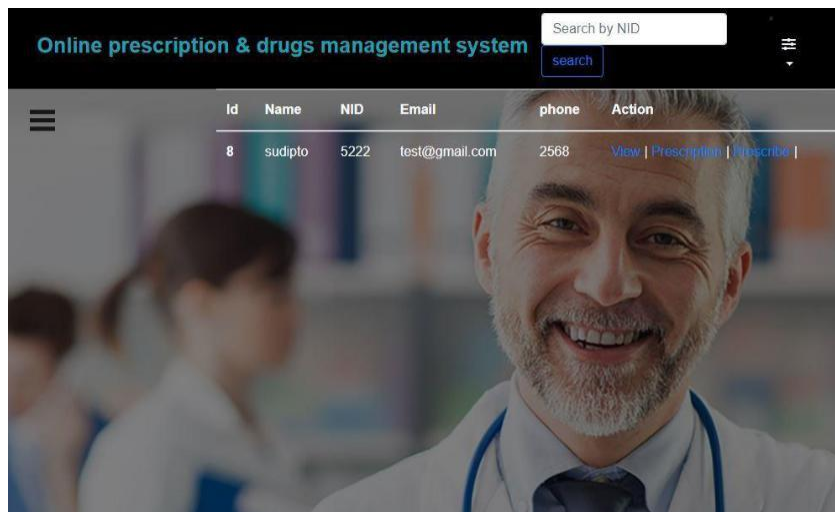


Fig 4.1(d): doctor check prescription that provided to the patient, doctor can edit and delete prescription

4.2 Back-end Design

Website is a mixture of layers on structure, layout, content, and features. The "power" site programming and technology what your end customer doesn't see but What's the site running is called back-end. It is the functionality behind the scene of a website made up of the server, the database, and the server-side applications. The back end of an application is accountable for stuff like calculations, business logic, interactions with databases and efficiency. Most of the software required to do an application job is performed at the back end. The server runs back-end code as opposed to the client. If an implementation is slow, often crashes or throws user mistakes on a constant basis, it is probable due to back end issues.

The back end is the device operating a site that the customer does not see or communicate straight with as with the technology on the client side, but it always operates in the background, providing smooth functionality, desktop-like experience, and browser-right database information.

Since most code use an implementation is written on the back-end, understanding and working with it should be simple. Most back-end languages such as Ruby, PHP and Python have standardized styles and idioms that are more efficient and enjoyable in reading and writing code.

Why use PHP?

The reason for PHP's popularity is its various advantages. For web development purposes, PHP is best suited because-

- Cross Platform

- Easy database connection

- Easy to use

- Open source

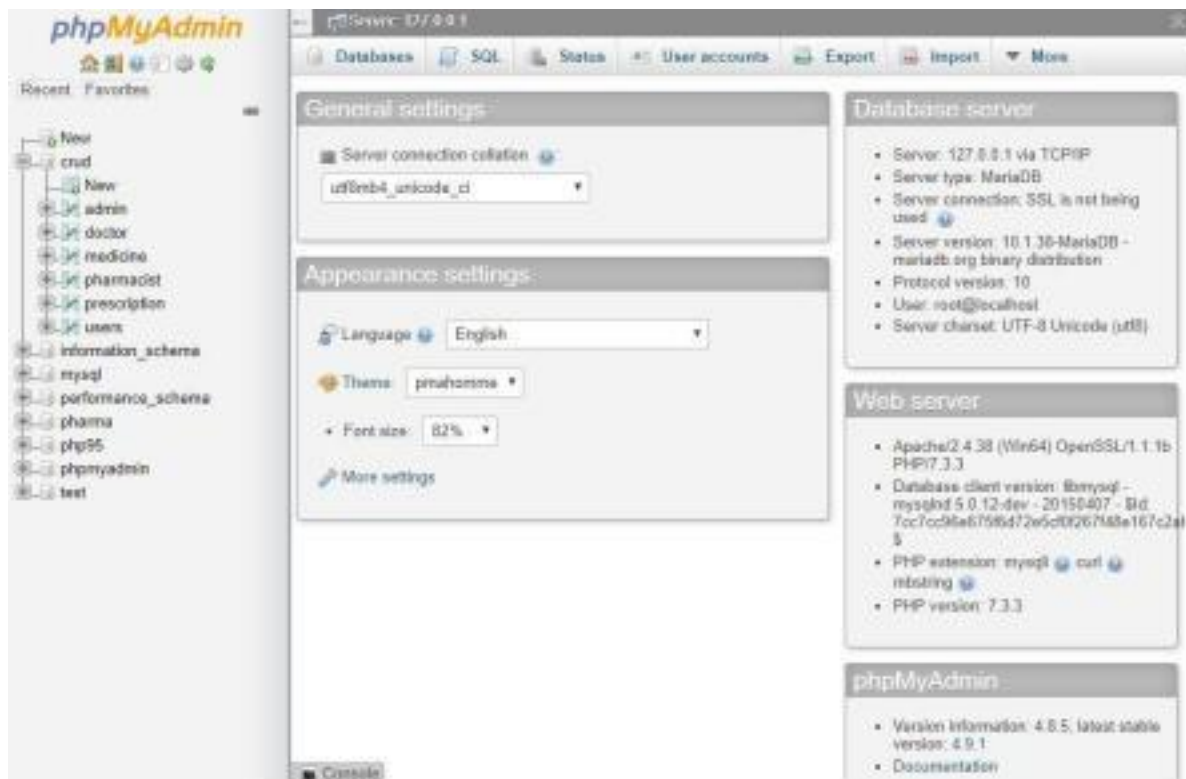


Fig 4.2: Back-end design

We use localhost / phpmyadmin / sql server in this project. Our name for the database is “crud”. We’re creating all kinds of table here that we really need.

4.3 Interaction Design and UX

Interaction design is specifically a restraint that analyzes the interaction between such a system as well as user (through an interface). It may also include design centered on how data should also be presented in such a scheme to allow the user to better comprehend that data, although this is often regarded as the distinct discipline of "data design".

The design of User Experience (UX) focuses on an general experience of user to product. It's not just about the interactive components, but also how some components look, feel or conceive to produce certain outputs.

So, Is Interaction Design a subset of UX Design?

Kind of. There is no doubt that the exercise of an interaction designer must follow some kind of technique of UX design. There is no point in undertaking client research and figuring out what user likes when outputs from UX studies maintain interaction designers at arm's length who react to those requirements

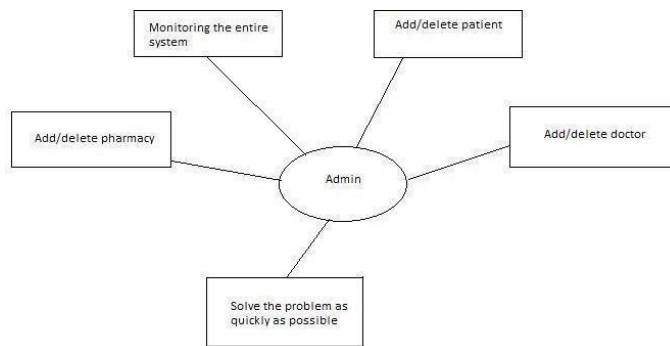


Fig 4.3(a): Admin Interaction and UX design

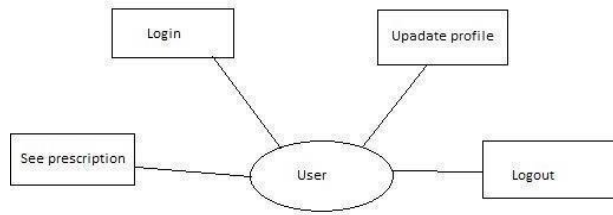


Fig 4.3(b): User Interaction and UX design

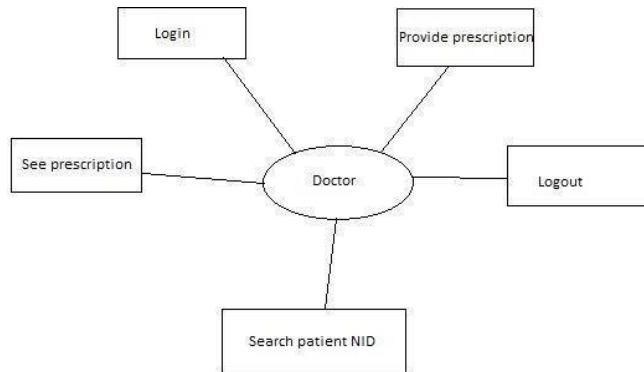


Fig 4.3(c): Doctor Interaction and UX design

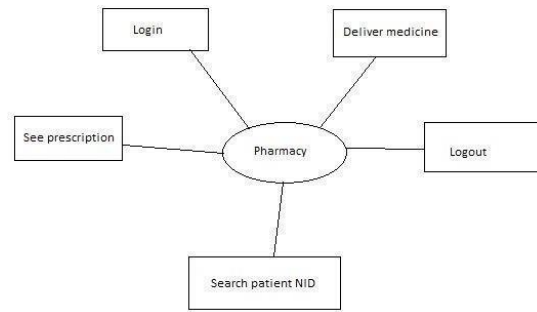


Fig 4.3(c): Doctor Interaction and UX design

Why do we use in our application interaction design and user experience (UX) design?

User experience through a single diagram describes any user's feeling and experience of a system or application. We can improve our system performance and usability by analyzing that diagram. So we need to use integration design and customer experience design in our systems to improve and develop an excellent system.

Processes we used to design our interface design of systems are shown below:

Analyzing different types of users

Graphical interface design (GUI)

Workflow maintenance of the systems (conditional and logical)

4.4 Implementation Requirement

We're studying so many times how we can make our application different. When we study and compare various prescription applications on each other, we're facing a few deficiencies, so we decided to create a platform that would actually solve these problems.

CHAPTER 5

DESIGN SPECIFICATIONS

5.1 Implementation of Database

Here we used XAMPP sql server to implement the database back-end

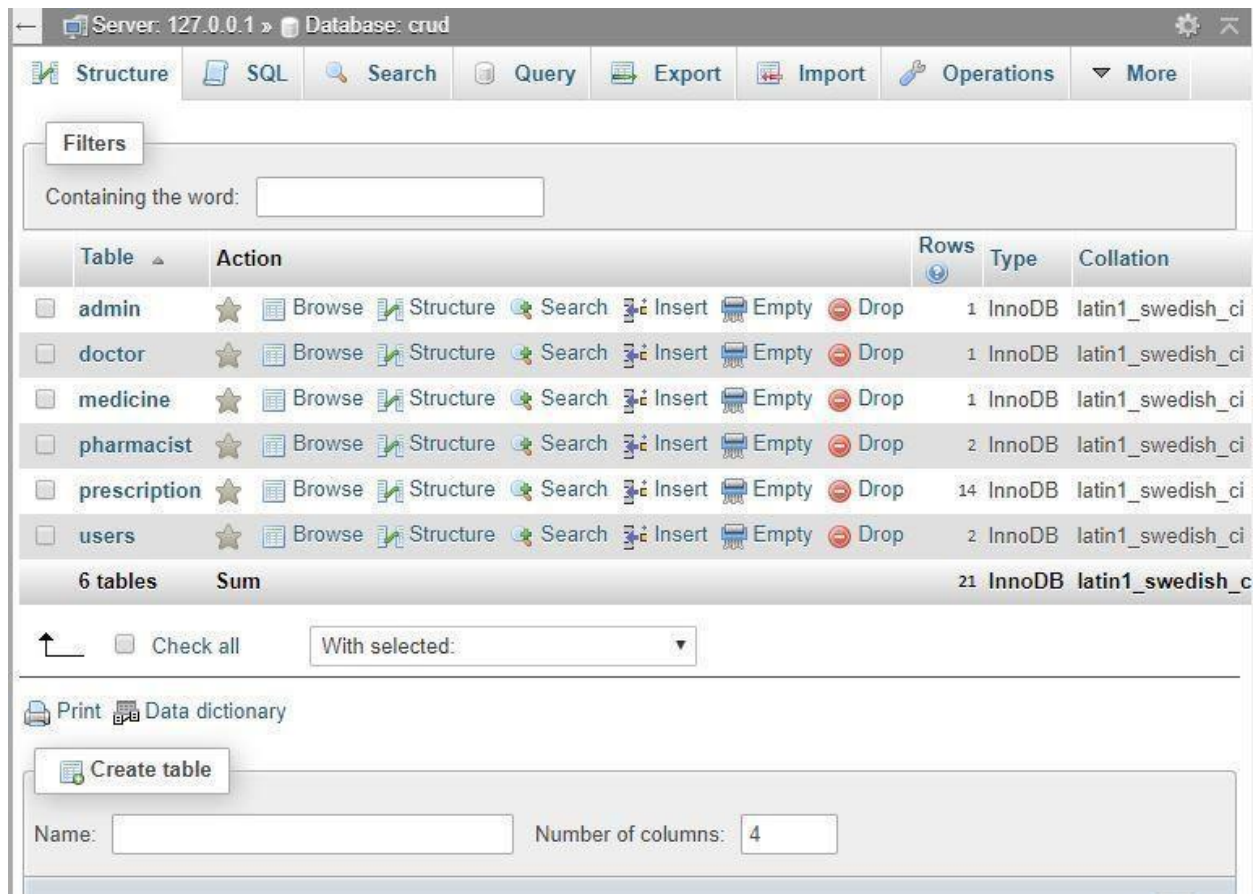


Figure5.1(a):Design Implementation of Database

5.2 Implementation of Front-end Design

We primarily use HTML, CSS, JavaScript and other different internet techniques to implement front-end design. Some used this mostly to develop our scheme in the following.

HTML5(Hypertext markup language)

CSS3(Cascading style sheets)

JavaScript

Bootstrap

5.3 Implementation of Interactions

Then we create a database design for our system after implementing the front end design and observe that the system works perfectly or not. We faced little problem in our system when we implemented that database. Then we decided to do more studies on the table relationship, identify the issue and fix as much as possible. Our database worked perfectly on this. So finally we can say quite effectively implementing our project's interactions.

5.4 Testing Implementation

We cannot discover any system bugs and mistakes without testing. There are no bugs and errors in the systems at times, but in logic and conditions there are some serious flows. To find out that silly errors we need to test our systems. The more and more testing is going to create our system great. Since we handle some significant information in our systems, we take additional care about security of our projects. Two layers of validations were implemented in our data input form.They are validated by query at the front end, back end. Our "Online prescription & drugs

management" systems basically use users at helpful of the day so we built our system and we are trying to get some feedback on our devices.

5.5 Test Results and Reports

We performed some tests to measure our system efficiency. Testing can be a crucial component to dramatically lift any system efficiency. We perform a testing method for evaluating the efficiency of our system which is provided below:

Table 5.1 System test

Functions	Description	%Execute	%Passed	%Pending	Remarks
Data validation	False formatted information will not be recognized	100%	100%	0	
Data entry	For all forms in the systems, data input works perfectly.	100%	100%	0	
Upload information to database	Data uploaded to perfectly And given output also.	100%	100%	0	
Search engine	Search engine operates well and quickly for any user information search by user category	100%	100%	0	
Prescription Show up	Any type of prescription can easily show up	100%	100%	0	
JSON formatted information	Database stores in JSON format and can be easily obtained	100%	100%	0	

CHAPTER 6

CONCLUSION AND FUTURE WORK

6.1 Discussion and Conclusion

The main concept of this project is to ensure a secured platform for medicine user where there is no scope to misuse of proper medical treatment. People must need doctor permission to buy or use medicine when needed. This system is already used in many country around the world. But this type of prescribing system is not yet popular or well known in our country. But for our own health safety we need to use this drug management system properly. We believe that this project can help the people of our country because this type of medical distribution system is not using now-a-days. We are working to develop this platform and add more significant feature as soon as possible.

6.2 Scope for Further Developments

We tried a lot to make our project very much easy, user friendly and efficient to patient, doctor and also pharmacy according to research. Basically in this time we focused to connect all person and audience to react with each other on one platform. Because in those platform which we meant before there are some specific limitations to connect and react with each other Though we have some limitations we are working on these and keep working for more positive output. We are thinking to use the latest tools, techniques, technologies, and frameworks in our website that will make the system easier and more secured. We are thinking about many features to add on this project. Now it's time to see how all work.

Reference:

[1]. J. Ying and D. Gračanin, "Poster: An approach to the development of adaptive 3D user interfaces," 2012 IEEE Symposium on 3D User Interfaces (3DUI), Costa Mesa, CA, 2012, pp. 169-170.doi: 10.1109/3DUI.2012.6184215, last accessed on 24 October 2019

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APPENDIX

Appendix: Project Reflection

Appendix (reflection of the project) provides an introduction to the reflection of the project. Team project management is a wonderful way to know the working structures of the true life software industry and their methods of project management. We attempted to flow them as well.

The truth is without proper planning, hard work, dedication can't be made a good project or any kind of special work. So during build our project also we faced lots of challenges but we didn't give up. From others previous experience we Learn to not give up but working more hardly with proper planning & dedication. For that we worked and researched a lot on our plan So that we can reduce the upcoming challenges as much as possible & it had worked. By passing time we felt that our project is going to visible day by day. Though it was not so easy. But through the grace of Almighty we overcome all the challenges and complete it. In short this was actually our journey to build the system or web application Online prescription system to connect all in one platform for doing better work than previous & we hope it will work. For now we stop our journey here to see how it works and waiting to start again to do more in future.

Plagiarism report



9	Submitted to Coventry University Student Paper	<1%
10	Submitted to NCC Education Student Paper	<1%
11	Submitted to RMIT University Student Paper	<1%
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