Chapter 1
INTRODUCTION

K.K.Memorial Hospital is one of the premier health hospital of Pathankot, Punjab. It is functioning with its full effect from last 2 years, for providing quality service at reasonable price. It was established in 2013. It is situated in Pathankot, opposite big cinemas. The best part of this hospital is its location, one can reach this hospital from any corner of the city, within an hour. Also the AMBULANCE facility, provided by the owners of hospital make it quite easy for the patient and their close ones, to feel safe and relax.

The hospital has been designed especially for child birth and child care. One can find the low cost dormitory, private rooms for patient and their relatives and AC rooms are also available. The hospital is supervised regularly by the health authorities and is a government approved institute. The hospital constitutes following facilities in the campus:

a) Residential facilities- AC, Non-AC rooms.
b) Ambulance
c) Well-equipped P.I.C.U and N.I.C.U.
d) Well-equipped Operation theaters.
e) Healthy food
f) Pharmacy
g) Maternity ward
h) Admission/Billing
i) Waiting area
j) Consultants Rooms
k) Communication facilities
l) Central Sterile Supply Department (CSSD)
m) Laundry

The hospital is owned by Dr. Vipula Sharma and his Co-partner Dr. Ashok Sharma. It runs on the tagline of **"We understand how precious for you your child is".** The policies and work culture of the hospital is Patient oriented, and the key to their success.

The hospital is a four story building. On ground floor there is running OT pediatrics, N.I.C.U.(neonatal intensive-care unit) with six bedded & four bedded and is well equipped with radiant warmer (carry new born baby). Double surface LED photo theorist CPAP(Continuous positive airway pressure)machine ,air purifiers ,infusion pumps(An infusion pump is a medical device that delivers fluids, such as nutrients and medications, into a patient's body in controlled amounts. Infusion pumps are in widespread use in clinical settings such as hospitals, nursing homes, and in the home.) , electronic weighing machines, pulse oximeters, central oxygen supply meter ,P.I.C.U(Pediatric intensive care unit) with five bedded P.I.C.U. On first floor OTD is well equipped operation theatre - table ,anesthesia machine ,continuous oxygen supply ,suction machine ,bipolar unipolar cautery ,defibrillator ,OT lights ,cardiac monitor ,radiant warmer for the new born. On third and fourth floor third floor, we have 10 rooms (all ACs), one ward, one common kitchen, and nursing station.

1.1 Vision and Mission of Hospital

Future Plan

a) Expansion in field of surgery.
b) Laparoscopic surgery for infertility (in vitro fertilization).
c) Expansion in cosmetic surgery.
d) Secondary level NICU.
e) Introduce tertiary level NICU equipped with mechanical ventilators.
f) Cutaneous bilirubin meter.
g) Jaundice blood gas analysis machine and portable x-ray machine, defibrillate meter.
h) Planned to get an accredited purchasing unit from NNF (National Neonatology Forum of India).

As the website of this hospital is not available online so hospital is showing keen interest in the development of its website as well as its android application. The Permission by the owner has already been granted to run the website in Live Environment. With an eye on the future, the Senior Management of ‘K.K MEMORIAL PRASHAR MOTHER AND CHILD CARE HOSPITAL’ has decided to invest into a computerized Hospital Management & Information System which keeps the records of its patients, employees, medical store, doctors.

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already been granted to run the website in Live Environment. With an eye on the future, the Senior Management of 'K.K MEMORIAL PRASHAR MOTHER AND CHILD CARE HOSPITAL' has decided to computerized Hospital Management System which keeps the records of its patients, employees, medical store, doctors.

The Proposed system is online website and android application. This project is good to carry out with the help of PHP, HTML 5, CSS-3, MySQL and Android Technologies that are available in-house. HTML 5, CSS-3 Will be used as Front-End to carry out this website where MySQL, PHP will be used as Backend of the website. For android application, we are using Android Studio.

The project Hospital Management System includes registration of patients, storing their details in database. The website and application has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.

With growing population and advancement in the medical technology and increasing expectation of the people especially for quality curative care, it has now become imperative to provide quality health care services.

1.2 OBJECTIVES

This project is aimed to automate the hospital management system. This project is developed mainly to administrate doctor's appointment with the patients. The purpose of the project entitled as HOSPITAL MANAGEMENT SYSTEM is online website and android application to store staff information, for taking online appointments, feedback etc. form. It was done by people for the management and maintenance of the critical information. The current system requires numerous paper works, so multiple copies of the same information exist in the hospital and it leads to inconsistencies in data in various data stores and also leads to misplacement of important data. So, we are developing the website which will help them to reduce these redundancies and will provide them with smooth functioning with their web interface.

We provide with a system that can more accurately save the data of patients and staff allow the user to easily book appointment with the doctors. The doctors will also be notified immediately about any kind of booking being done in their accounts.

The objective of "Hospital Management System" is to easily track the information of all the staffs, patients, treatment provided, and prescription and also for online appointment. The main goal of the system is to build a good management tool to reduce the time taken through manual system in order to maintain all the records.

Following are the objectives providing by proposed system:

i. Providing them a website to work more efficiently.
ii. Providing easy access to doctors as well as patients.
iii. Scheduling the appointment of patients with doctors to make it convenient for both.
iv. Easy handling of hospital work online rather than doing it on papers or registers i.e. to computerize all the information of patient and employees.
v. To have immediate storage of information.
vi. Navigation to hospital.
vii. To computerize all the information of patient and employees.
viii. We aim on making a system that a system that provides data which is perfectly organized and well managed. We have provided with the information that is completely accurate and does not disturb any kind of working.
ix. As the work done by people is manually so the system can be full of errors the computerized system will further enhance the accuracy of the project and hence making the project more reliable and efficient.
x. The system is very reliable as it has been tested through all the case and provides a very large efficiency in comparison to that of the given system. The work from the manual culture system will shift to computerized system which is faster and reliable.
xi. While the offline system of hospital, they use record or documents to store information of patients or staff which is time complex, it wastes time. So for checking any kind of existing document they have to manually search all the documents which is very time consuming. Since the proposed system uses the MySQL as the database to store information, so the procedure of data retrieval becomes much faster as compared to manual procedures of retrieving the required information etc.
xii. The system we aim to make is to reduce the amount of cost that is being utilized by other system already present in the industry.

xiii. To promote the development of high quality of hospital care in the community and the country so as to provide a satisfactory environment to the patient and also to the doctors for clinical research. To aware the user about the hospital and technologies used by them.

xiv. In today's world the system, the records are maintained manually in different formats and documents, there is no system to check the security in the existing work done, which result in loss of important data and many of the documents are lost. So it is very important to secure data, which is being completed by the project made by us. As in today's world we need security as a main purpose for implementing any logic so as to keep it safe. Thus we need to authenticate the user for using or accessing the data of the hospital management system and for that we provide a USERNAME & PASSWORD to the admin and user so to keep the data safe.

xv. The system aim is providing a system which is easy to use for the user, the user involved is performing the least work and hence the user can easily use the system.

xvi. The proposed system aims at minimizing redundancy of patient's information.

Chapter 2

PROFILE OF THE PROBLEM

The organization has a work culture of pen and paper. Also most of the calculation is done manually, thus waste lots of time. And in health services time is precious. Hence to remove the legacy of pen and paper, and automate the system, the organization (K.K.Memorial Mother and child care unit), wanted a system that would provide timely delivery of facilities and also can communicate with patient easily. Hence, one can be in direct contact with the hospital authority and their care can be done, through e-services. The hospital has been built with new technology and hence we make all the new techniques available to you. The hospital has newly been developed in Pathankot so it also needs publicity. It is using all the latest technologies and very well developed and equipped. So we are publishing this website in the hope people feel more ease in taking appointments and save their lot of time. This is one of our way to publicize the hospital.

Chapter 3
EXISTING SYSTEM

3.1 INTRODUCTION

3.1.1 Introduction to the System

As stated in the problem statement, the organization had a manual work culture. Thus no automatic system exists in the organization. Hence, the implementation of a new automatic system is crucial for the development and future of the organization. Hence the responsibility of creating an automatic window application for them was given to us, and the system had following facilities:

a) Separate module for doctor and patient.
b) Storing the detail of doctors, patients and staff of hospital.
c) Appointment booking.
d) Central mailing service.
e) Login portal.
f) Locate us.

Thus the system-modules would be like this:

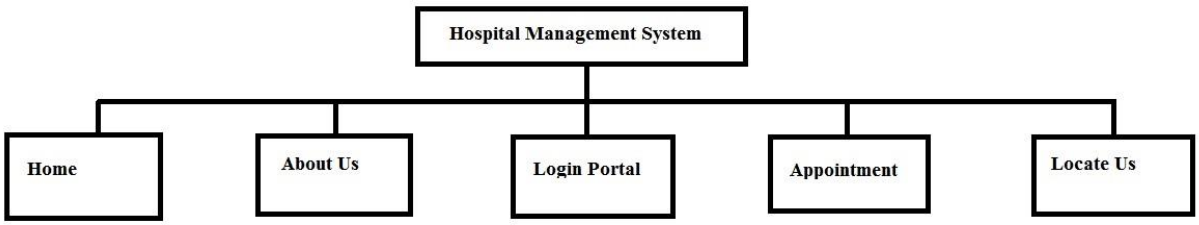


Figure 1 Hospital Management System

3.1.2 Languages Used

3.1.2.1 HTML (Hyper Text Markup Language)

HTML stands for Hypertext markup language. It is used to create static websites. HTML provides the browser with the default setting of how the data has to be placed on the browser screen. It is basically used for providing structure to the document.

HTML was developed in 1980 by Tim Berners. HTML consists of two main components that is, opening tag and closing tag. The opening tag use angle brackets < > which specify beginning and ending is specified using a backslash and angle brackets </>. When we click on any provided link on the search engine on the browser, the browser directs us to a new link generated by HTML. The page is fetched by the browser from the server and the setting of the browser helps to display the page.

Latest version of HTML is HTML5 which has introduced many new tags and made the pages work faster. It has also provided us with a local storage which helps the user to locally store some data. The tags are <audio>, <video>, <nav>, <header>, <footer> etc. The HTML5 has become very influential and is also being used in gaming and web development. It has made the designing more structured and secure.

HTML5 has also introduced new functionalities which has reduced the work to the great extent and made the language very easy. One advantage of HTML is that it is very easy to learn and easy to apply.

HTML works in the browser providing proper spacing to all the elements. With the help of HTML many images, videos, song, different files can be embedded and can be shared all across the world. HTML is used to provide structure.

Common features:

a) Tables
b) Frame
c) Form
d) Image map
e) Character Set
f) Meta tags
g) Images, Hyperlink, etc.

3.1.2.2 CSS (Cascading Style Sheet)

CSS stands for Cascading Style Sheet. It is used Design the structure provided by the HTML (Hyper Text Markup Language). From HTML5 the design is completely dependent on the CSS.

CSS is also used for reducing the work done for styling. A single page can be imported to multiple HTML files and the complexity of the documents can be reduced to great extent.

CSS helps us to see or visualize the websites on different gadgets and different screens. As the world has a revolutionizing technology which is making new gadgets every day, these gadgets differ in size, shape and functionality. Their level of complexity also differs but CSS can provide a very simple method to let the user use and view different websites on each of these gadgets.

CSS has many elements for which it forms rule which according to their priority levels are set on the browser window with the help of HTML structuring. CSS has a box model. According to this box model all the elements of the HTML page are arranged. This box has a content area where all the data is put then it has padding. The next element is border and the next is margin. These all elements except the text area or content area are optional and can be removed from the page by setting their value equal to zero.

Cascade is one of the best property of the style sheet. It provides us with the level of priority followed by the elements rule. If there are given multiple rule regarding single elements then the cascading comes into action and accordingly resolve the disputes.

Cascading style sheet is basically used to control the color and different styles in the webpage. It also helps in making documents more responsive.

CSS3 is the new version currently being used in the industry. It has made the web pages look more dynamic and responsive. CSS3 has added many features like swapping of images, transition, transformation, rotation, and many other features. It has improve its look to 3 dimensional level. People can easily have more interest in the application of CSS3. It has taken the designing to a new level. We can make sliders with the help of CSS3 but these sliders are not that responsive or cannot be user controlled like in JavaScript.

It is a rising star and future of this language looks more and more powerful replacing all other designing languages present on the internet.

3.1.2.3 PHP (PHP: Hypertext Preprocessor)

PHP is the open source language developed by the web developers. It is used for web development. PHP stands for PHP: Hypertext Preprocessor which is a self-acronym. It was originally named Personal Home Page Tools. It is basically a server side language. Here the web browser responds to the user request or demand by accordingly serving the web documents according to the dynamic requirements.

PHP is a server-side scripting language. The best feature of PHP is that it can work within a HTML document or it can be embedded in it and this provides the language more flexibility and reliability. It is basically an open source language so it can be edited by any one and any person and hence it is always improving to new levels.

PHP syntax can be introduced within the documents in three ways. So hence we have more flexibility. PHP has different storage variables and session and cookies serve as a very good functionality of the website. It basically is one of the common industrial used languages to produce dynamic webpages on the internet.

PHP script executes on the Web Server and produces pure HTML as its output the PHP script is completely opaque to the requesting Browser. The always dispatches pure HTML code spec to the Browser which is the output of the PHP script. PHP script is therefore Browser Neutral. PHP is quite like a Java Script. PHP is a Parsed Language. It requires a PHP environment to execute in. Every time a client requests a page delivered by PHP code, the Web Server invokes the PHP program delivers this to the PHP parser which executes the PHP statements to produce the desired HTML output. Fortunately this is a fast process. PHP does consume a lot of Web Server resources because everything is executed at the Web Server.

Some PHP Attributes Are:-

a) PHP stands for Hypertext Preprocessor.
b) PHP is a Web server-side scripting Language.
c) PHP scripts are executed at the Web Server. Their output, which is pure HTML, is returned to the requesting browser.
d) PHP can connect natively too many database engines such as (MYSQL, ORACLE).
e) PHP is open source software.
f) PHP is totally free of cost to download and use.
g) PHP file can contain body text, HTML tags, with HTML styling commands or binding to an external CSS file and /or JavaScript or Binding to an external JavaScript file.

After PHP files are processed, their output which is pure HTML is returned to the browser. PHP filenames usually have the extension of .php, .phtml.

3.1.2.4 MySQL (My Structured Query Language)

MySQL stands for My Structured Query Language. It is pronounced as my sequel. MySQL is basically a language to join the database to different website and web applications. It is easier in comparison to the SQL. It is more of button oriented language. In SQL we have to type complete queries but in MySQL we simply have to use button to insert and delete the data entries. It is more GUI based. The Graphic User Interface provides the user with an ease to control the information the database insertion are very less complex in comparison to that of query insertion.

Here in our project we are using wamp server which has embedded MySQL in it. Server is a very necessary condition required for the PHP to run. So wamp server is providing us with both features of a server and database connectivity of MySQL.

3.1.2.5 Android

Android is one the fastest growing technology. The operating system occupies 60% of the market. The operating system android has many version like Alpha, Beta were the earliest version then the company made all its further version on name of desserts. The next version was Cupcake accompanied by Donut, Éclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich, Jelly Bean, Kit Kat and the latest version is Lollipop.

Android Development toolkit is being used for the development of the mobile application in our project. This application is basically used for android mobile phones only. Later we will develop the application to be compatible with other operating system like windows and ios. Android has become a very common language and play store provides and ease for the developers to launch their application easily on the internet.

3.2 EXISTING SOFTWARE

For Website:

Front End – HTML, CSS

Back End- PHP, MySQL

Software used-Dreamweaver, Wamp Server

For Android Application:

Language used-Android

Software used-Android Development Toolkit

3.3 DFD FOR PRESENT SYSTEM

3.3.1 DFD Level 0

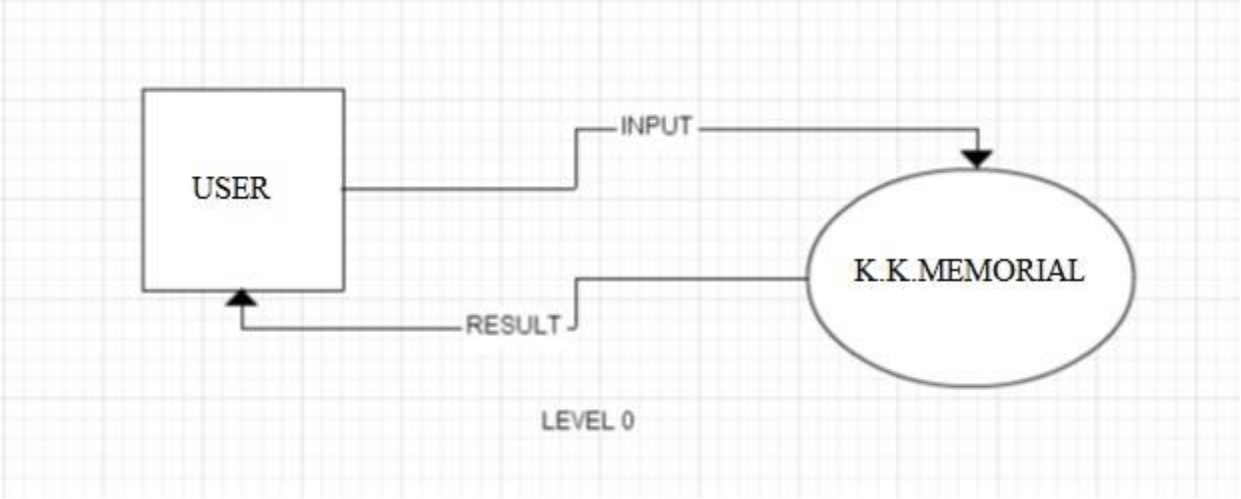


Figure 2 DFD Level 0

3.3.2 DFD Level 1

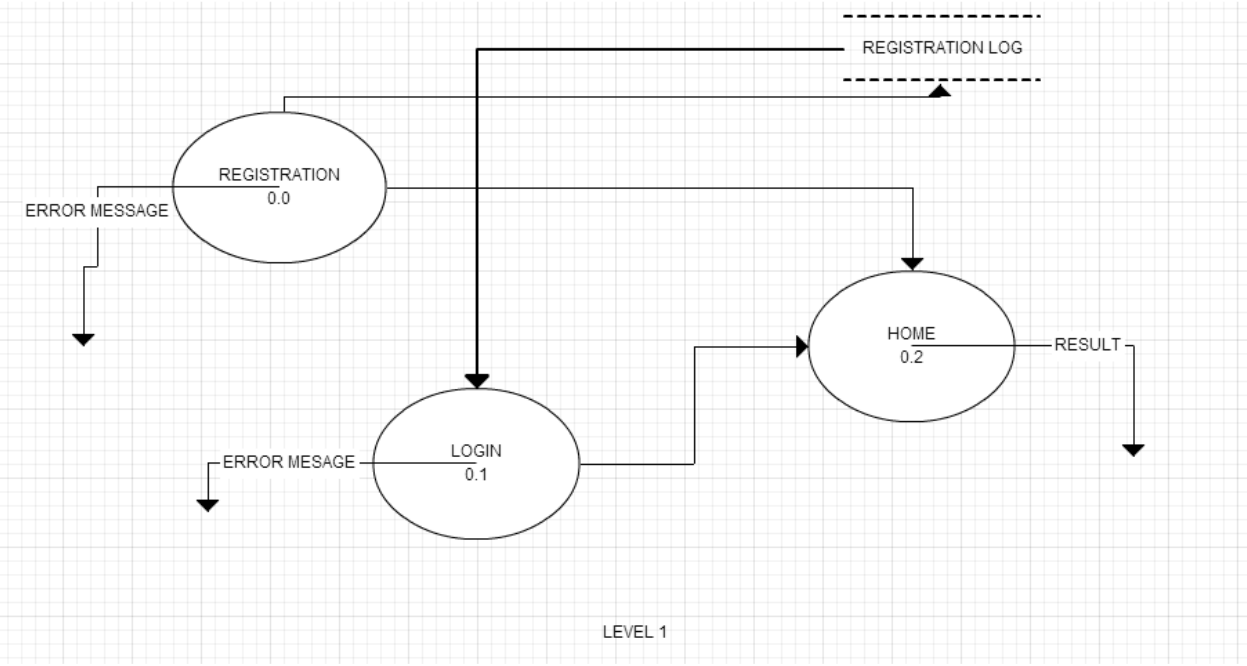


Figure 3 DFD Level 1

3.3.3 DFD Level 2

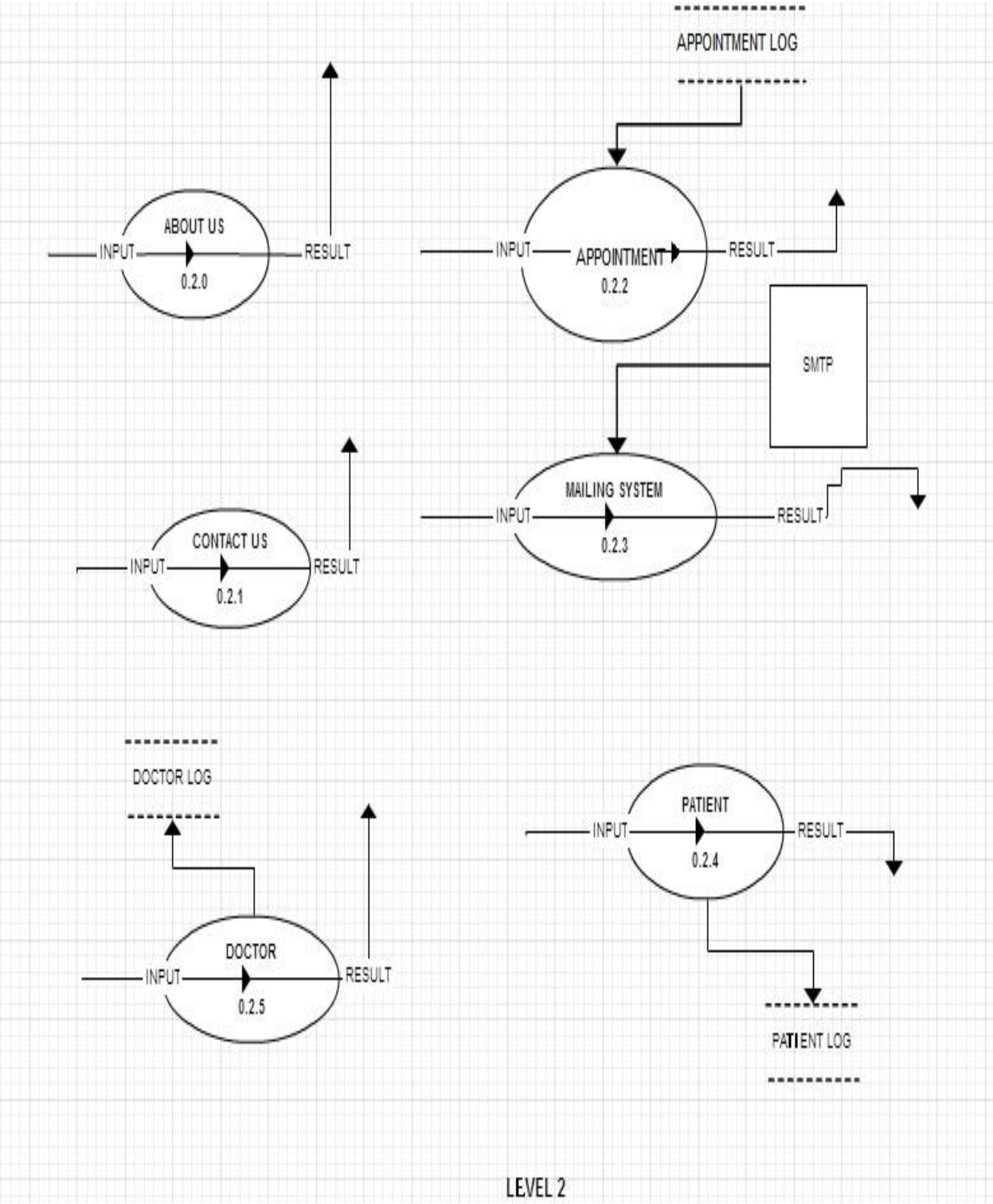


Figure 4 DFD Level 2

3.3.4 DFD Level 3

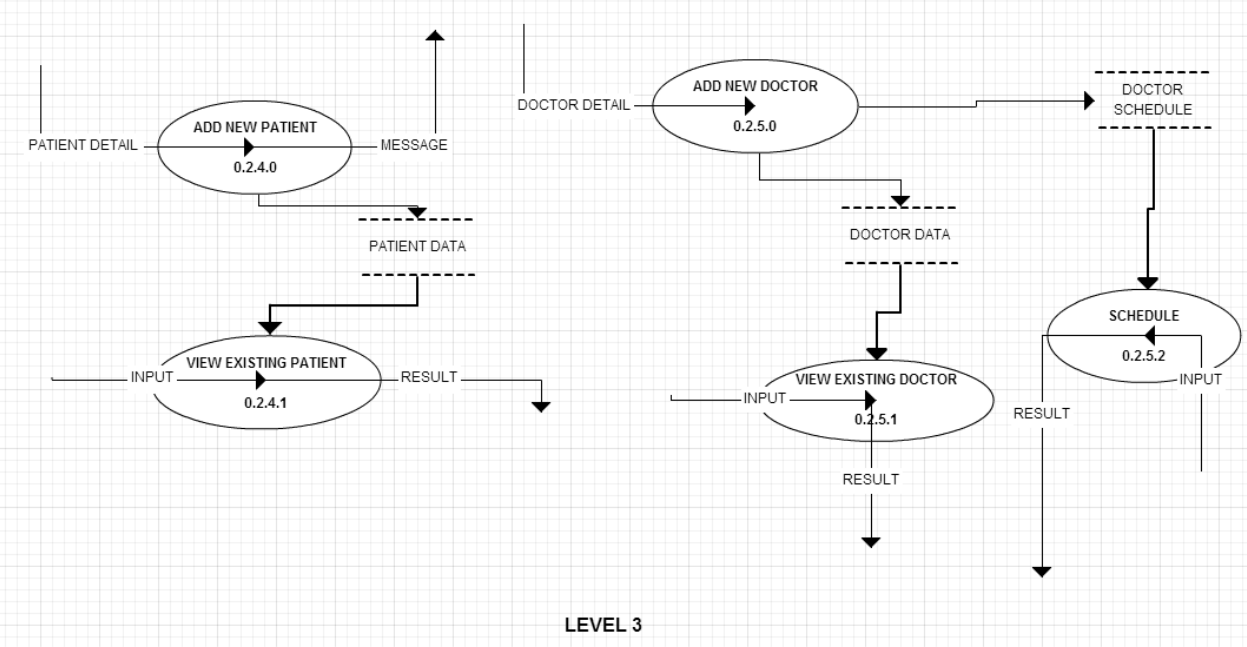


Figure 5 DFD Level 3

3.4 WHAT'S NEW IN THE SYSTEM TO BE DEVELOPED

By using the system the hospital will have the following benefits:

a) Automate the records of all the doctor, patient and staff.
b) Storage of data is easier, and faster.
c) Previous data of the patient can be retrieved easily, which will help for further treatment.

Apart from these the two facilities that makes the project different and necessary for K.K.Memorial Hospital is:

a) Online Appointment system: It is very necessary to book an appointment before a person visits a hospital. Patient need not to come in hospital and wait for his/her turn for meeting the particular doctor. Patient just need to fill up an appointment form on website or android application and the appointment time and date will be confirmed by that particular doctor.
b) Navigation: - Navigation is the process or activity of accurately ascertaining one's position and planning and following a route. So, This Module will help to locate the user to the hospital.

c) Android Application: - Android Application will also help the user to access the services provided by our system like Navigation, appointment, Staff information.

d) Services: - Services provided by the hospital like technologies, no of rooms, laboratories etc. all these services are mentioned in the system so that user can aware himself/herself by these technology used by hospital.

e) Navigation: - Navigation is the process or activity of accurately ascertaining one's position and planning and following a route. So, This Module will help to locate the user to the hospital.

f) Login: Login Portal will provide the security to the information of patients and doctors. User can login via username or email-id and password. Then at the same time doctor can see his dashboard and decide to confirm the appointment or not.

    1. Patient Login: Patient can Login into his/her account via email-id and password. As the patient takes the appointment through appointment portal by selecting particular doctor and date.
    2. Doctor Login as Administrator: Doctor can login through username and password. Doctor can view the appointments and change his/her password.

Chapter 4

PROBLEM ANALYSIS

4.1 PRODUCT DEFINITION

As there is no technology implementation in the organization. The whole hospital is managed manually with the help receptionist and accountants. Records are maintained on ledgers. Communication is done either manually or through phone calls. Also if the doctor is the only source of advice in case of any query, related to health.

This condition leads to the need of a system which satisfies the problem of the organization through modern modes of communication, automatically storing the data, analysis and quick result, and last but not the least, helps in tough time, when the doctor is not available.

Thus this software was designed to solve the troubles faced by the hospital authorities, and to facilitate them quick and automatic system that would provide them a storage capacity and communication means, if needed.

4.2 FEASIBILITY STUDY

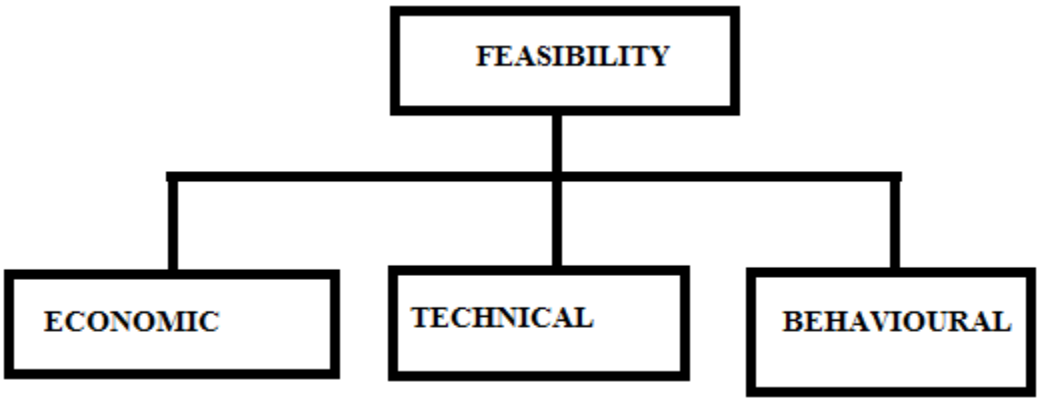


Figure 6 Feasibility study

4.2.1 Economic Feasibility

To effectively analyze the system we require economic feasibility and economic evaluation. The system which we are making needs to be economically evaluated because it results in the benefit of cost. The design we make for the system is dynamically evaluated using economic feasibility and hence provide us with required outcomes on the benefit analysis of the whole system. This study evaluates our whole cost and it forms the main part of the analysis of the system. Here the system also benefits the top managements system as we don't want them to struggle on the technical problems. They also find it easier to work where they do not have to be restricted by the technical errors, hence resulting in increase of time. We simply want a system that is low in cost and provide us with the maximum benefits. So this system actually helps in evaluating the whole procedure or process what will be the desired cost and what will be the desired output expected. It will also tell us about all the additive resources needed and also what kind of new software's need to be installed in the system and the work process.

4.2.2 Technical Feasibility

This phase is very important in the development of the study. Here we directly analyze what kind of software are required in the system and what are the thing or resources needed. It is basically use to analyze what can be the requirements of the technical team members. Here what software's we are going to use. What can be related outcome? This phase also helps in realizing what can be the required cost factor of the system. Technical feasibility plays a major role to determine the economic feasibility of the whole system. This phase plays a major role in reducing the cost of the system by carefully analyzing what is actually needed in the system and what is not needed in the system.

4.2.3 Behavioral Feasibility

This part of feasibility analyzes the human behavior. How differently it would accept the changes in the system and how will they deal with this changes. Humans feel it difficult to come out of their comfort zone and perform thing that are different from routine. So here we deal how the system needs to be taught to all the people so that they can easily accept the new system and also completely take the benefit of the system.

Feasibility of the system to be developed

i. Economic:

The hospital is a well-known, reputed health institute of the city. It possess a daily visit of more than 500 patients and their close ones. Thus income of the organization is not an issue. But the important fact if their willingness to expense in the technology, that would indulge a lot of expense early, in hardware, software, training, etc. But will lead to a free system after a short period of time and a loyalty forever.

ii. Technical:

As the system has to be used by human (receptionist, doctor, etc.) hence hardware and software needed must be of long durability. The requirements of the organization are finite and can be developed through the implementation of a language. And PHP provided comfort for the developers and look & feel for the customer (hospital authorities). Also SQL at the back end was a healthy approach to adapt, for future enhancement of the organization and its need.

iii. Behavioral:

The proposed system to be built is a user friendly system that can also be used by a user with little knowledge of computers. Also its module is organizational based, it deals with all the basic functionality of the organization itself. Hence easy to understand and learn too.

Various steps to analyze different level of feasibility:

a) We need to make a team and get a teacher to guide us.
b) Design the algorithms for the system.
c) Find the strength of the all team mates.
d) Assign all the people with their respective duties.
e) Analyze the required cost the system needs.
f) Check the best outcome.
g) Choose the most efficient output of the system.
h) Document the report and provide it to higher authorities.

4.3 PROJECT PLAN

The planning phase results in the architecture and design of the solution, the plans to accomplish the development and deployment of the solution, and the schedules associated with tasks and resources. There are three design processes in the planning phase: conceptual, logical, and physical design.

The project plan is like this:

Table 1 Project Plan

	Task Name	**Duration**
1.	**Feasibility Study**	**5 days**
2.	**Requirement Gathering**	**5 days**
3.	**Requirement Analysis**	**5 days**
4.	**Design**	**10 days**
5.	**Coding**	**25 days**
5 a.	Unit Testing	25 days
6.	**Testing**	**16 days**
6 a.	System Testing	8 days
6 b.	Integration Testing	8 days
7.	**Implementation**	**5 days**
8.	**Documentation**	**2 days**

Chapter 5

SOFTWARE REQUIREMENT ANALYSIS

5.1 INTRODUCTION

Purpose

To Automate the Legacy working culture of health care organization, and make it quick and easier to use, to reduce extra man power, enhance technology and reduce cost.

Scope

It cope with the globalization of health care facilities, automate the system of working, and produce immediate result to common occurring health problem. Speeds up the working and searching of patient's record, that make it easy to analyze and a quick process all together.

Overview

The system generated will take input of new customer, remember the data of old customer, and automate the system. It is used by the receptionist or the hospital staff for the management of the organization while the common user can get his solution through the e-healthcare consultancy services provided within it.

5.2 GENERAL DESCRIPTION

This new automatic, computerized system will replace the manual working of the clerk in the legacy system. It will provide a unique id to all the patients, doctors and staff. As a new patient enters or doctor/staff joins, it produce a unique for them respectively. Depending upon the previous data stored, and new complications, the case is handled. While in e-healthcare consultancy, it generates the prescribed medicine for the commonly occurring health problems, given its symptom.

5.3 SPECIFIC REQUIREMENTS

5.3.1 Interface requirements

a) The GUI is user friendly, icons are used and sober colors are used.

b) The GUI should not be complex, to increase searching time.

c) The GUI should be developed in PHP.
d) MySQL should be used as database for the system.
e) Database should use MySQL language, to make it lighter.
f) Messages are sent through Google account to the client/staff.
g) The minimum system requirements are:
    i. Dual core processor.
    ii. System hard disk-60 GB+.
    iii. Ram 512 MB, with 700+ rpm

5.3.2 Performance requirements

a) XML language is used to make it lighter, quicker.
b) Log-in is developed such that, after 5 wrong input, it will tell a leap of 30 seconds.
c) Google messaging is used to communicate, for safety issues.

5.3.3 Non-functional requirements

RELIABILITY- with a failure of low quantity and good server utilization, it is reliable.

MAINTAINABILITY-easily maintained, follows SDLC (Iterative Waterfall) model.

SECURITY- The system is secured due to its dynamic data binding and run time behavior.

PORTABLITY- Because it made in PHP and hosted on server, one can use it anywhere provided the URL, internet services and application software, hence portable.

Chapter 6
DESIGN

6.1 SYSTEM DESIGN

System design is used in structuring the system. It tells us how the system has to be designed and carried out. It tells us about all the required resources needed in the system. It also informs about the need of the software's or the working environment.

System design involving various stages as:

a) Data Entry
b) Data Correction
c) Data Deletion
d) Processing
e) Sorting and Indexing
f) Report Generation

The project undergoes two level of designing:

Logical and physical design, data flow diagram shows the logical flow of the system. It basically describes the input system, the database used and the procedure depicting the flow of data, all in a format that is understandable to the user. The design covers the following:

a) Review the current physical system and its dataflow. File contents volumes, frequencies.
b) Prepare output specification: that is determining the format, contents and frequencies of reports, including terminal specifications and locations.
c) Prepare input specifications: that is format, contents and the most of the input function.
d) Prepare, edit, control and security specification, which includes specifying the back procedure, and controls that ensure file integrity.
e) Specific implementation plan.
f) Review benefits, cost, target dates and system constraints.

After logical design, physical design follows. This produces the working system by defining the design specification that tells the programmer exactly what the candidate system must do.

6.2 Detailed Design

a) Design the physical system:
   1. Specify input and output media.
   2. Design the database.
   3. Design the whole structure for the system.

b) Plan system implementation:
   1. Determine how steps are to be carried out
   2. What kind of training is required?
   3. What kind of application are needed.
   4. Check the system requirement.

c) Input design:

   We need to make sure the entries made in the system are accurate or not. Most common mistake encountered in the input design is the user being unaware of the correct entries of the system. We need to work on the correct data input in the database the user need s to have full information and no other error occur in the system.

d) Input data:

   The main purpose of the input design is to make the system work more and more efficiently and the user can take complete benefit of the system.

   While the input of the data user should look into these things-
   1. The memory used by each variable
   2. All the entries in the system should be in order.
   3. Check the data type of fields.

e) Source Document

   The data is initially collected or gathered in the manual form or stored manually by the system. Source data is originally on paper, which is called source document. The data can be entered in the system from any kind of input device it can either be a keyboard or a mouse or an internal source. The user has to make sure entries are in correct format or not. So we should keep in mind certain thing while making the source document:
   1. We have to completely depend on this.
   2. The documents have to be free of errors.
   3. Certain kind of backup should be present.

The data is collected on simple paper. The data should be very easy for the people to document ad understand. The document should be in detail and full specification so the person faces no problem while conversion of the data into the system.

f) Online Data Entry

This is a modern age of computers we have completely dependent ourselves on the technology. All application present in the world require different inputs in the system and it can be done through the information. As terminal price declined and microcomputer becomes popular, entering data through keyboard makes task easy. In this modern world we have come to meet the different type of input devices to perform user input and the mode of input can be anything. The processor analysis the input received.

g) Output Design

Output is the most important and direct source of information to the user. Efficient and intelligible output design includes system credibility and helps user in decision-making. Efficient and intelligible output design should also improve the system relationship with the user and help in decision-making. A major form of output is a hard copy from the printer. Printouts should be designed around the output requirements of the user.

Modules of the system:

i. Login.
ii. Home.
iii. About Us.
iv. Contact Us.
v. Appointment.
vi. Locate Us
vii. Sign Out.

Login: Receptionist and Doctor login with their uid and password.

Home: Acts as intermediate between login and different modules.

About Us: Provide detail about organization, their mission and vision.

Contact Us: Provide information of address of hospital, its contact numbers and mail address.

Appointment: Allow users to book appointments with doctor.

Locate Us: Here we can locate the position of the hospital.

6.3 FLOWCHART

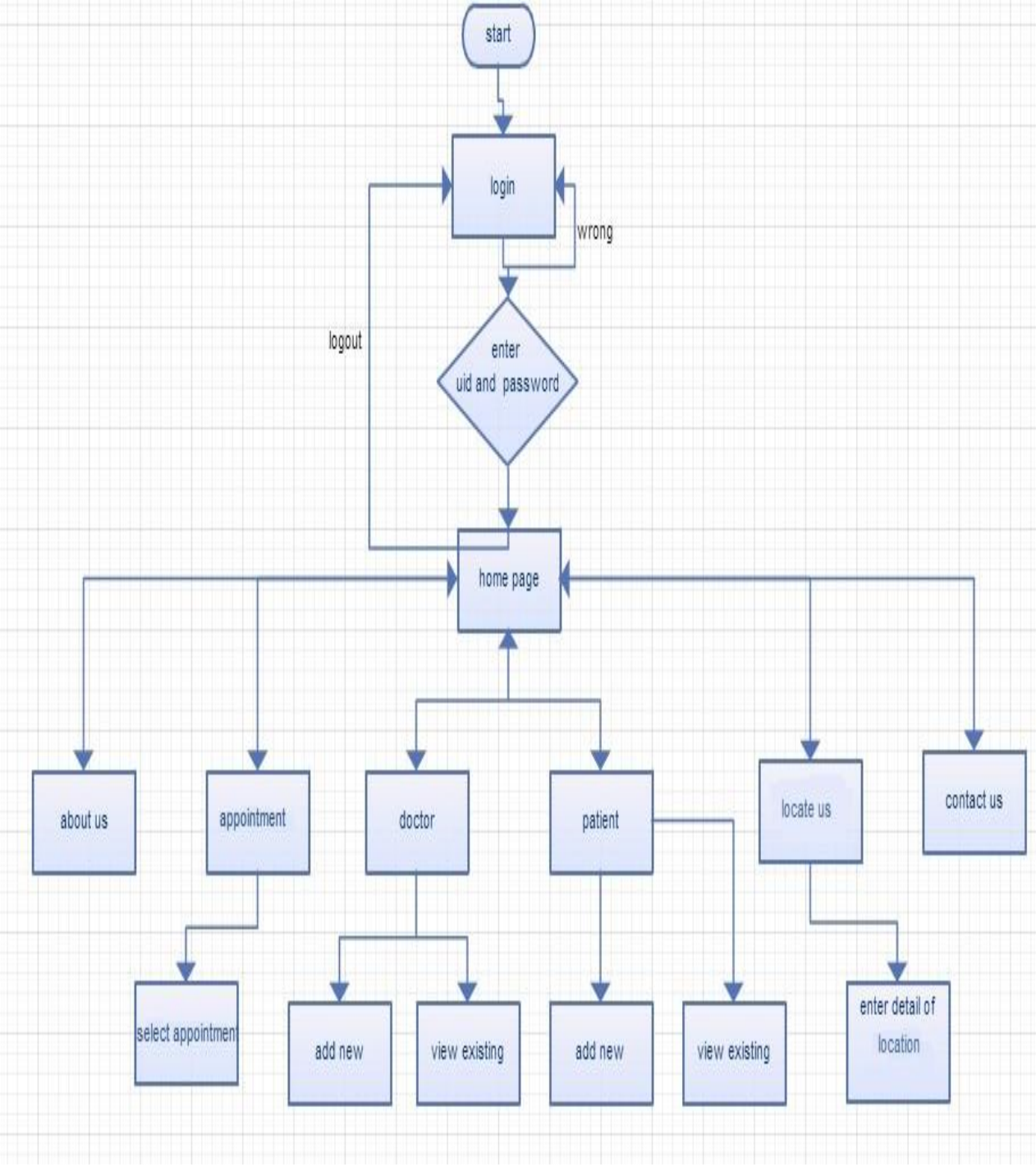


Figure 7 Flowchart

Chapter 7

TESTING

INTRODUCTION

While testing the program, program is tested with some set of test cases which defines the accuracy of the system i.e. our proposed system executed correctly or not. Testing helps to determine the errors in the system. The main purpose of testing the program is that the program gives the output as expected or not. Testing will help to make the program more accurately because before hosting the system in live environment we should know about the faults or errors in system so that it will run correctly in live environment.

Once programs are tested individually then the system as a whole needs to be tested. During testing the system is used experimentally to ensure that the software does not fail i.e. it will run according to its specification. The program executed to check for any syntax and logical errors. The errors are corrected and test is made to determine whether the program is doing what is supposed to do.

This system is tested using unit testing firstly then all modules are integrated and again the system is tested using integrated testing and it was find that system is working according to its expectation.

Developing a Test Plan:

For testing the program, firstly we need to create the test cases as per system requirements. These test cases will be done manually on a document just to identify that it meeting the system requirements or not:

Is thoroughly tested. Untested code adds an unknown element to the product and increases the risk of product failure.

Meets product requirements. To meet customer needs, the product must provide the features and behavior described in the product specification. For this reason, product specifications should be clearly written and well understood.

Does not contain defects. Features must work within established quality standards and those standards should be clearly stated within the test plan.

A good test plan answers the following questions**:**

a) How are tests written? Describe the languages and tools used for testing.
b) Write about team who are writing and performing the testing?

c) When the program is tested? After completing the developing module, then only testing will be performed.
d) What will be the test cases and how we can represent its results? Tests should be organized so that they can be return on regular basis.
e) What is being tested? Goals having targets will help us to know whether we have achieved it successfully or not.

Some of these questions might have more than one answer, depending on the type of test. For instance, individual developers are often responsible for writing the first level of tests for their own code, while a separate testing team might be responsible for ensuring that all code works together. The following sections describe the different type of tests and the techniques used with Dreamweaver to perform these tests.

Types of Tests

various test cases will define the different types of tests by using them we can identify that our system will work correctly without any errors and also check that it meets the requirements of the user. The most common test types are given below:-

Test Type Ensures that

a) Unit test each independent piece of code works correctly
b) Integration test all units work together without errors
c) Regression test newly added features do not introduce errors to other
d) Features that are already working.
e) Load test the product continues to work under extreme usage
f) Platform test the product works on all target hardware and software

7.1 FUNCTIONAL TESTING

Functional testing can be defined as the black box testing. In black box testing we just need to give the input to the system and we will just consider the output. In this we need not to go through the whole process that how the output is generated by feeding the input to the system. Functional testing is different from system testing, in functional testing, it verifies the system by testing it against specifications, but in system testing, it validates the system requirements.

Functional testing involves five steps:

a) List all the functions which will be performed by system as expected.

b) Identifying the various inputs which will be given to the system. Inputs will be dependent on specification of function.
c) Identification of output which depends on module's specifications.
d) Executing the test cases
e) At the end, we will check the actual and expected output.

7.2 STRUCTURAL TESTING

Testing the interior part of the system or how the system is working, is known as structural testing. It is White box testing, in which user will give the input to the system and check how the system is computed the output.

We can test the system unit wise, or by combining the units i.e. integrated testing a system testing. Mostly unit testing is performed on the system, in this each and every module in the system will be checked individually and detect the errors or defects.

It is White box testing, in which user will give the input to the system and check how the system is computed the output.

Structural test design techniques include:

a) Control flow testing
b) Data flow testing
c) Branch testing
d) Path testing

7.3 LEVELS OF TESTING

A test plan has the following steps:

a) Create a schematic approach.
b) Tell the condition needed for the acceptance of the model
c) Gather further data for testing
d) Conduct all possible test cases on the project
e) Plan the system
f) Code the project
g) Gather all the resources needed
h) Maintain a report.

7.4 TESTING THE PROJECT

Unit testing

Each time the page is developed or some module is added to one another, the developer compiles it by viewing it into the browser, so that if some problem occurs, it can be resolved immediately. The Dream Weaver provides an interface to easily debug the project also. Also it supports most of the browser available in the market, if some fault is there, the browser, will not provide the appropriate feature, or will give the appropriate error.

System testing

Table 2 System Testing

Test 1	On login page enter valid uid and password, then click "login" button.	It will match the data provided, with that in database, and if found correct redirect to home page else give error message.	After matching the id and password, the system is redirecting to respective home pages.	Pass
Test 2	On home page select any module, by pressing the respective buttons.	It will redirect you to the prescribed page/module.	As we pressed the button for selection to visit different modules, we were redirected to those pages respectively.	Pass
Test 3	On individual pages, click home/back button.	This will redirect the view from current module/page to the home page.	When we pressed the back/home button we were successfully redirected to the home page.	Pass

Table 3 System Testing continued

Test 4	Click the "logout" button on the home page.	This should terminate the session and redirect to login page.	When we pressed the logout button on the home page it successfully cleared the previous user session and send me to the login page.	Pass
Test 5	Enter the detail of doctor/patient in to their respective "add new" pages, and click the submit button.	It should punch the details entered by you to the respective tables in database.	Whenever we entered the record of some new patient/doctor the data listed on the page get saved on the database, and is verified manually through query into DB.	Pass
Test 6	Click on "view existing" button in doctor/patient module	It should show the details of existing patient/doctors.	The system fetch the details from DB and present in grid view.	Pass

Chapter 8
IMPLEMENTATION

8.1 IMPLEMENTATION OF THE PROJECT

Implementation is the realization of an application, or execution of a plan, idea, model, design, specification, standard, and algorithm. It includes careful planning, enquiry of the current system and its constraints on execution, design of method to achieve the change, an estimation of change is required for the methods. A part from arrangement, major task of preparing the execution is education of users. The more complex system is executed, the more required is the system analysis and designing required for execution. An execution coordinating committee based on policies of individual organization has been appointed. The execution process begins with designing a plan for the execution of the system. We need to carry out the plan according to the mentioned steps, discussions may regarding the equipment have to be acquired to execute the new system.

At the starting of the development phase a preparatory execution plan is made to schedule and manage the many different plans that must be desegregated into plan. The execution plan is updated throughout the development phase, climax in a change plan for the working phase. The major elements of execution plan are test plan, training plan, equipment installation plan and a conversion plan.

We can implement it using these three ways:

a) Execution of a system to replace an existing manual system.
b) We implement a new working of the system to replace the old one.
c) Execution of an application that is modified to replace the current working of the system, while using the same resources.

Implementation Tools

a) Person providing us with the guidance.
b) Conversion Ideas
c) After the execution, the review of the project.

The project we developed is utilizing these technique in following manner:-

As the system is implemented first time in the organization, replacing the legacy of pen and paper, needs a lot of care. Huge investment is involved and huge risk too. Hence proper implementation can overcome all the pros and cons, and benefit the organization.

It is very important to have a good mentor guiding us for the work done by us in the system as the system is new for us to implement and to have an industrial level knowledge is very necessary in the system.

A good mentor is very necessary for a project development. To take us in the right direction his contribution is very necessary as it can help us to develop a more organized and equipped system.

System Operators Training

Knowledge of the system is very necessary for development and our understanding. Student should have complete knowledge of the system they are working on so as to minimize the manual work. Sometimes we need to work on new devices and install new configurations, so if the creator does not have knowledge about the system they are likely to fail its implementation. While working we need to install new software's and make it compatible for all devices so good knowledge of system or operator is needed to perform the task within time and space complexity. To make the system more reliable we install the new version of every software in the system so the system can perform quickly and generate required results.

User Training

When we are working on the system it is very necessary for the user to perform the work efficiently. So training the user is very necessary condition for the work to be performed in the order. We simply provide mechanism to train all the user by either providing them with the user manual or simply by providing them sessions that actually tell them how to completely and effectively utilize the system. User training plays a major part in the development of the project as if user is not aware of how to deal with the system than how can he take benefit out of the system and reach the required state.

The training is most important part of implementation, as the product has to be used by end users. Thus we planned the training session in different phases:-

a. First step included the analysis of the computer knowledge of the staffs.
b. Second, we planned different training sessions to different staff, according to their knowledge, responsibility and authorization.
c. At last, we conducted a test (practical) to check their understanding of the system.

d. A final demonstration was given to all the members of the organization, group wise, depending on their functionality.

8.2 CONVERSION PLAN

In conversion we are basically working on modifying the whole working of the system. We simply need to automate the work. We need to formulate a complete plan on how the system from being manual will go on becoming an automated system. We need to work on how the steps of execution will work.

We first need to make a full plan on how the project is going to be implemented as the system is completely manual so people need to learn the working of new system and the working should be very user friendly so all can learn and easily accept the changes in the system. As the system will completely change the work culture from being manual to automated system, we need to work on how easily it would be for user of people to resist any form of change. Changes of such a large scale are difficult to be adjusted in, so the interface should be as easy as possible to accept the change. The system should also fit the required budget of the provider. New software's need to be installed for fast and best implementation of the work and letting the user completely comfortable in the formulated system.

8.3 SOFTWARE MAINTAINENCE

Maintenance is the enigma of system development. It holds the software industry captive, tying up programming resources. Analysts and programmers spend more time maintaining programs than they writing them. Maintenance form a very major part of the software development as this phase only deals with the need of user.

Types of maintenance

a) Corrective Maintenance:

   This type of maintenance is needed when error occur in the system. We simply need to work on the development of the system. This type of maintenance require the change of whole software or whole design if any kind of error occur in the system. Here the whole system changes its working if any error is encountered.

b) Perfective Maintenance:

Sometimes changes have to be done according to the user requirements. This type of changes to the software is called perfective maintenance.

c) Adaptive Maintenance:

For adaptive maintenance we need new software's or the software that can support the new functionality added to the system.

The maintenance of the system is free for 6 month from the date of implementation and the user manual attached with this report will help in small troubles. If a problem occurs after 6 month, will lead to additional charges, depending on the problem.

Chapter 9
PROJECT LEGACY

9.1 CURRENT STATUS OF THE PROJECT

This long project forms an essential part of demonstration curriculum. After the project our belief in the utility of the project assigned in an organization of reasonable standing for a computer application student has been reinforced. This project has benefited us in many ways .The first benefit is that we have got exposure and it has provided us with an opportunity to know the environment, the practices and the system. It has helped us to sharpen our knowledge and skills, develop better appreciation of practical problem of software development and to apply the concepts and technique to developmental problems. This experience is going to help us immensely in further learning of advanced concepts in software development and to plan our career in the light of practical experience now. We have examples to relate and it will facilitate better and easier learning.

The project is ready to be used, and fulfills all the requirements of the organization that were the cause of the formation of such a system.

9.2 REMAINING AREAS OF CONCERN

The major area of concern is the adaptability of the system in its full form and produce the required results accordingly. We need to work on further development of the project how it can result in more benefits in the system and how can they make full use of it. We will add further details in the system of how the work is to be performed and how it can help patients. We aim on providing online payment module where the people can book the online appointment and even pay the amount required appointment in completely secure way.

This system is designed in view of latest technology so the user has to be aware of the latest working of the system and also if any sort of technical errors are encountered during the working of the system it has to be resolved.

A major concern is also the working of all the software’s in the system if the system does not respond than it can lead to wastage of time.

Apart from these, one serious area of concern is, it a stand-alone, not a distributed system, through a network, also some functionality requires internet facility.

9.3 TECHNICAL AND MANAGERIAL LESSION LEARNT

Technical lessons

a) Installation of software like Dream Weaver, Wamp Server, etc.
b) How to create database.
c) How to create tables in DB, and manage them (alter, delete, insert, delete).
d) Database connectivity to web page, in PHP.
e) Different concepts of PHP**.**
f) Creating diagrams like, Use Case, Flowcharts, DFD's, ER, etc.
g) Online mailing and messaging service, connection with webpage, etc.

Managerial lessons

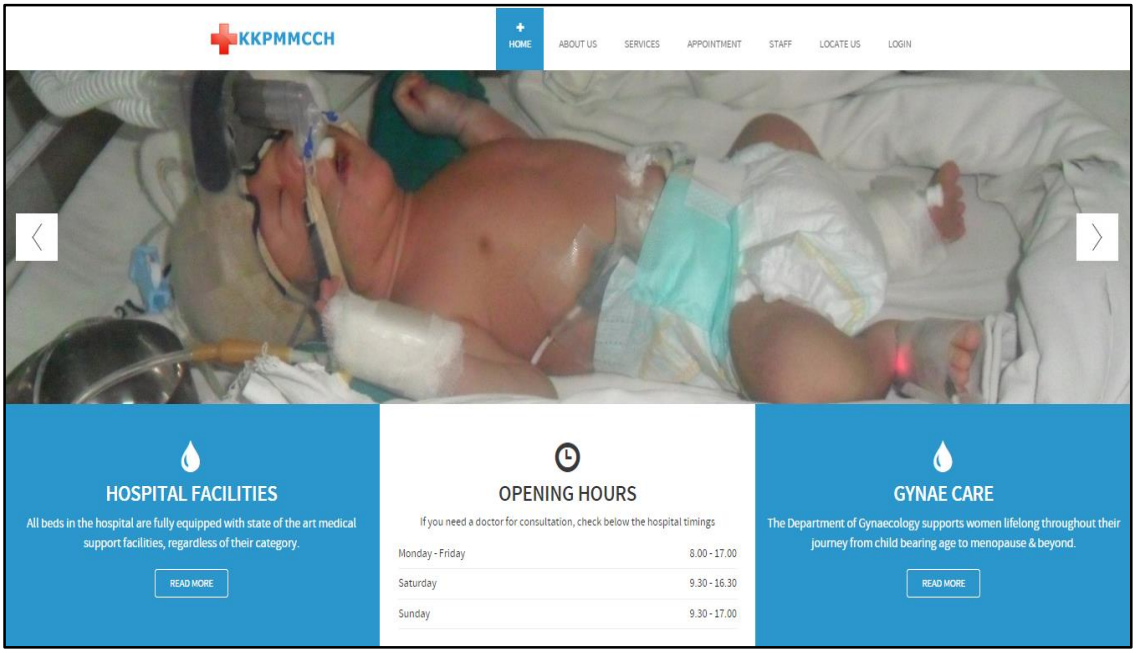
a) Ensuring quality and integrity of data.
b) Planning a project and estimation of its possible duration.
c) Different effects to be added in project.
d) Resource allocation, depending on task.
e) Defining goals and formulating strategic plan.
f) Group behavior, and team work.

Chapter 10

USER MANUAL

10.1 Home

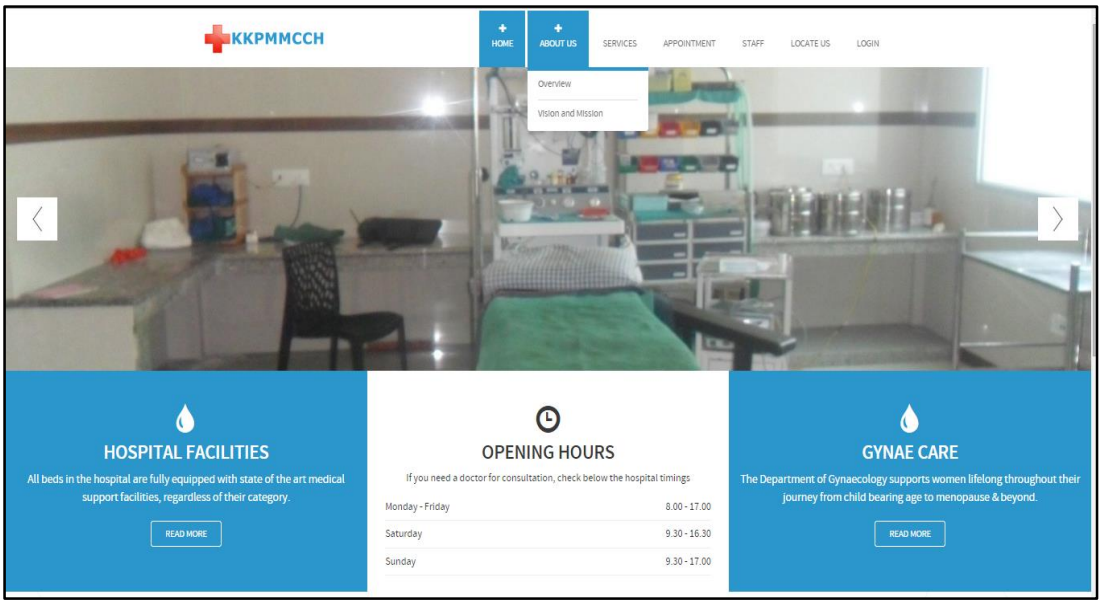
Table 4 Home

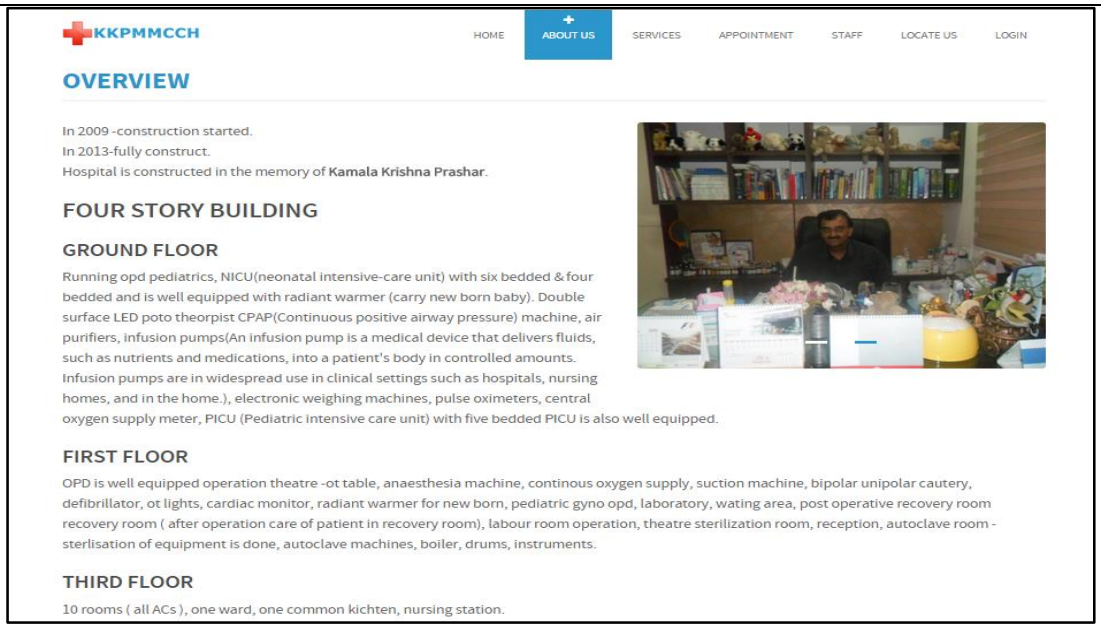
STEPS	ACTIONS
1	Open the project in browser, like Mozilla Firefox, Google chrome, etc.
2	User can See all the Modules and Check the opening hours of hospital
3	User can Go to any other module as Requirments. 

10.2 ABOUT US

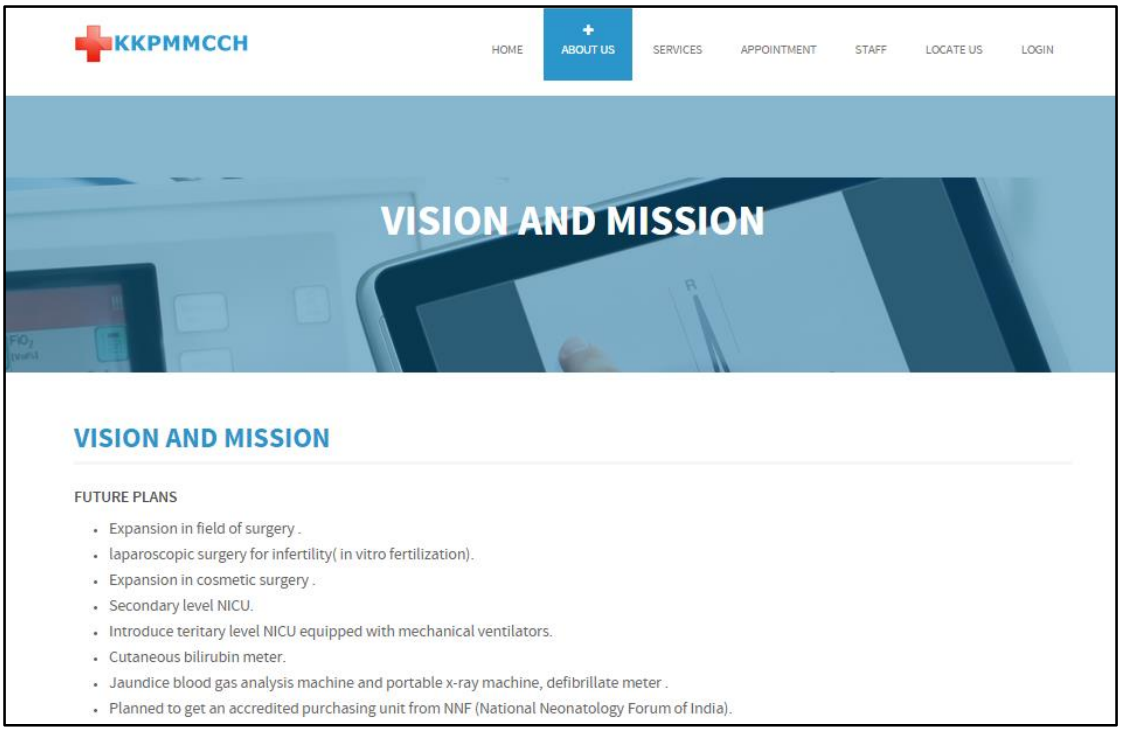
If we want to know about the organization, its mission and vision, do follow following steps:-

Table 5 About us

STEPS	ACTIONS
1	Place the cursor over ABOUT US, It will show a dropdown list which include overview, vision and mission Option. 
2	Click any one of the option.
3	Overview

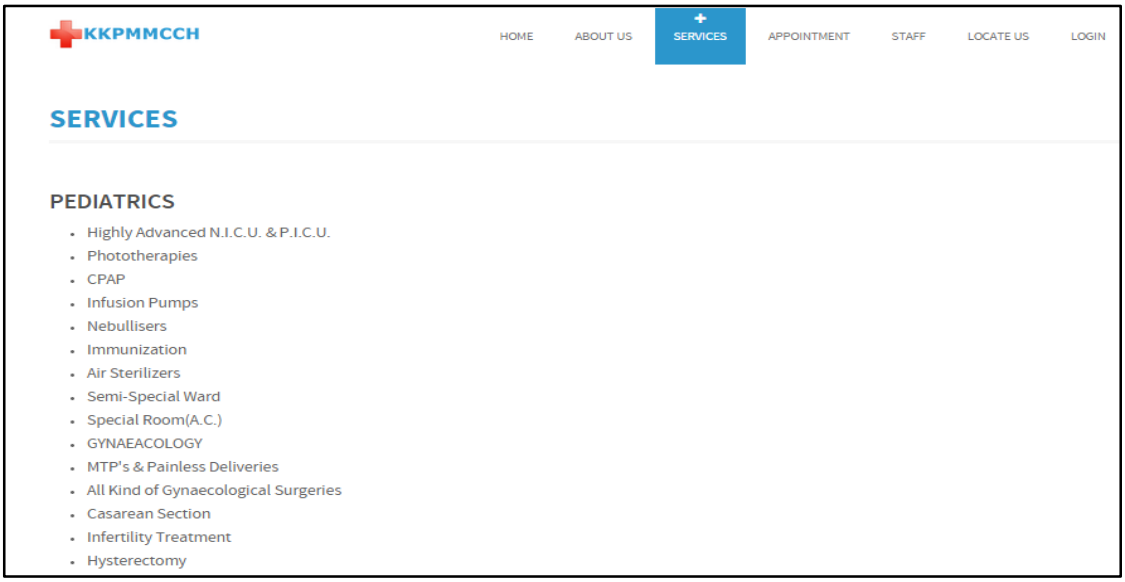


4 Vision and Mission



10.3 SERVICES

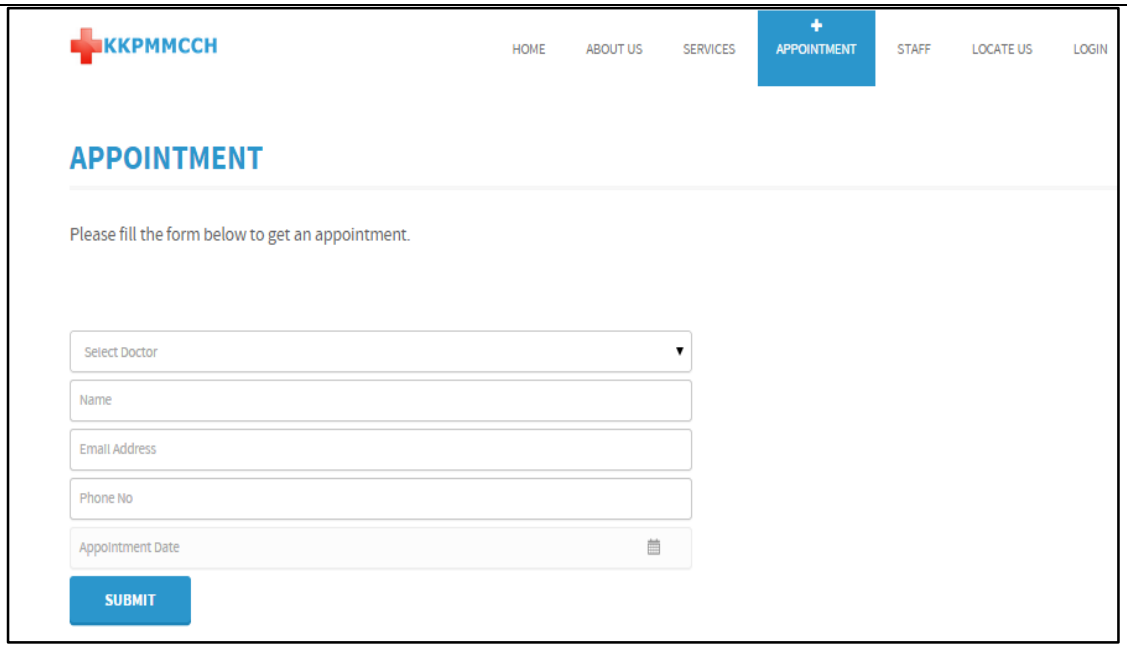
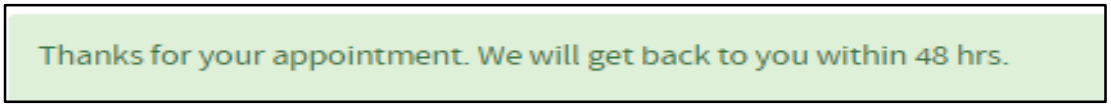
Table 6 Services

STEPS	ACTIONS
1	**Click on the Services**
2	It will show the Services Provided by Hospital 

10.4 APPOINTMENT

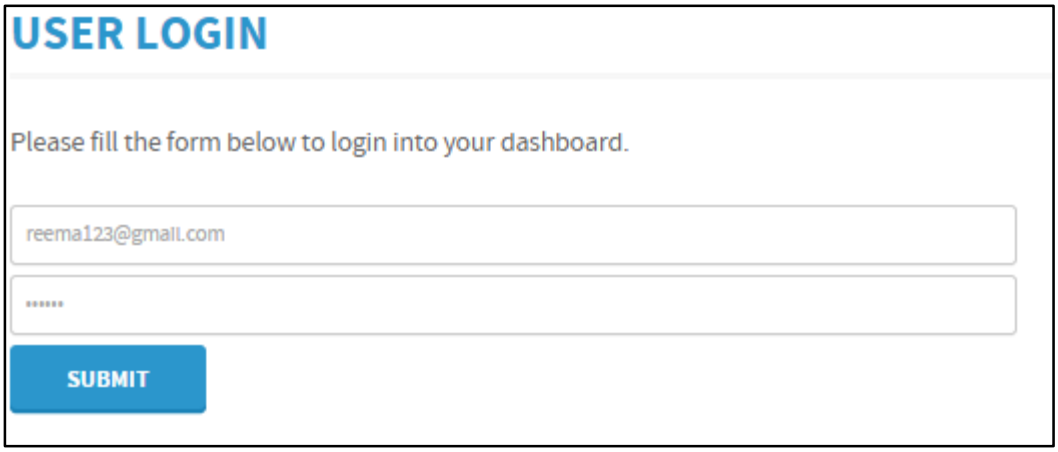
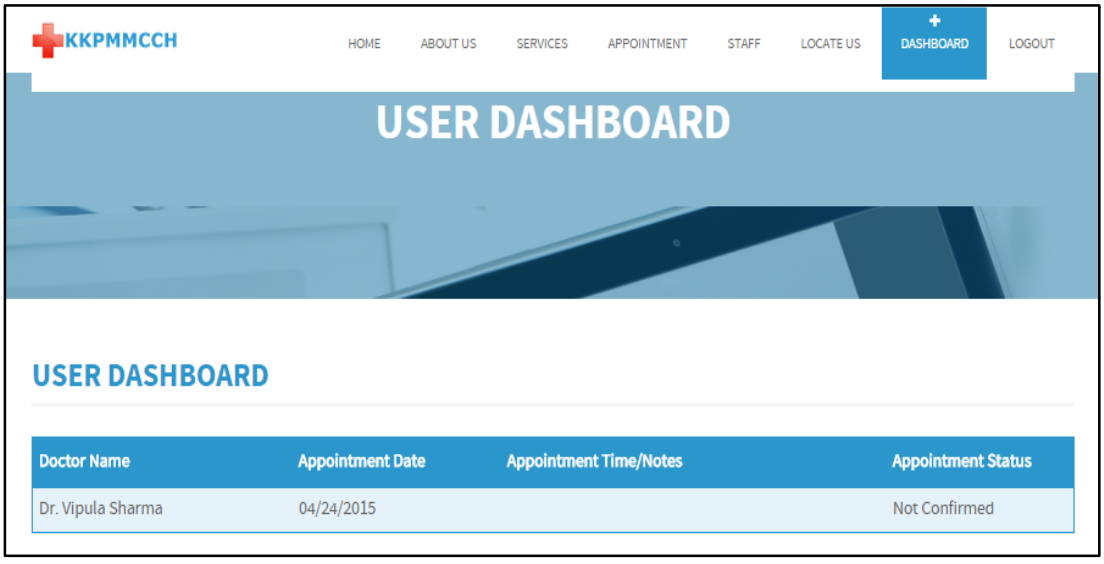
Table 7 Appointment

STEPS	ACTIONS
1	Click on the appointment option
2	It will show the appointment Form which will be fill by Patient

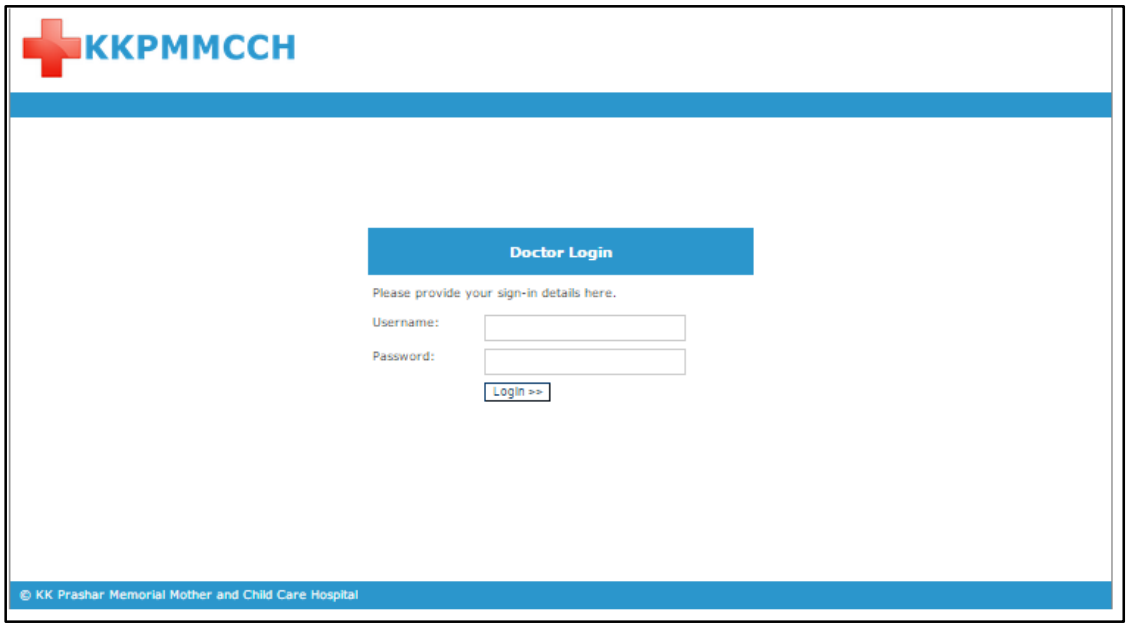
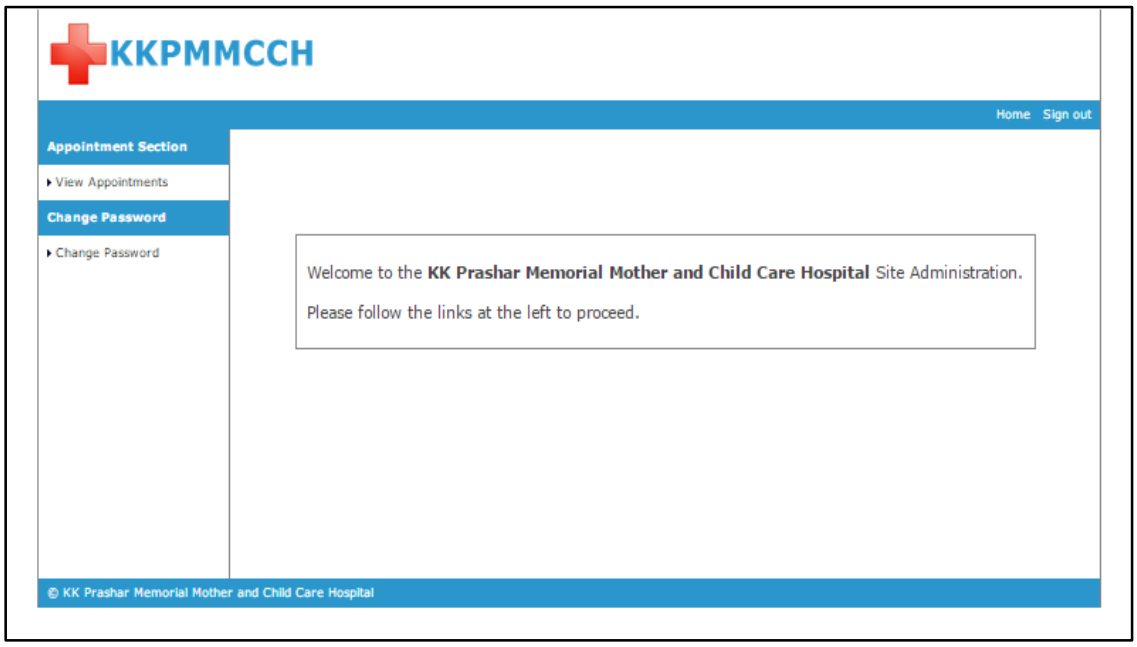
	
3	After Selecting Particular doctor, and filling name, email-id, phone number and appointment date, Click on SUBMIT button. 
4	After Clicking on SUBMIT button, a message will be shown to the user 

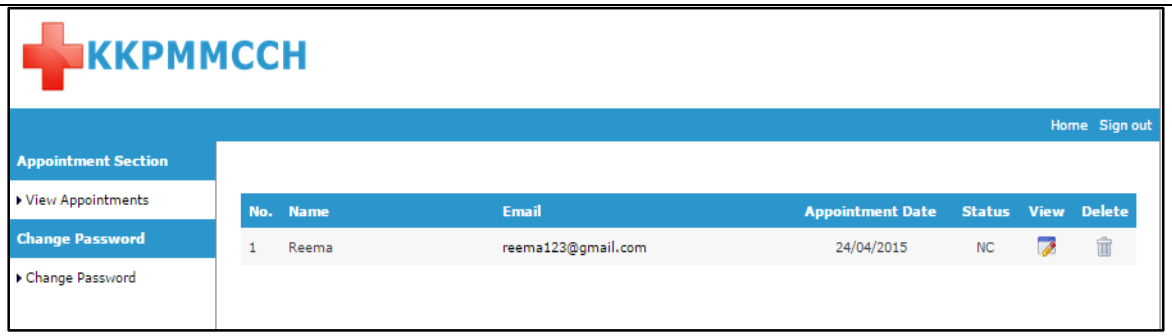
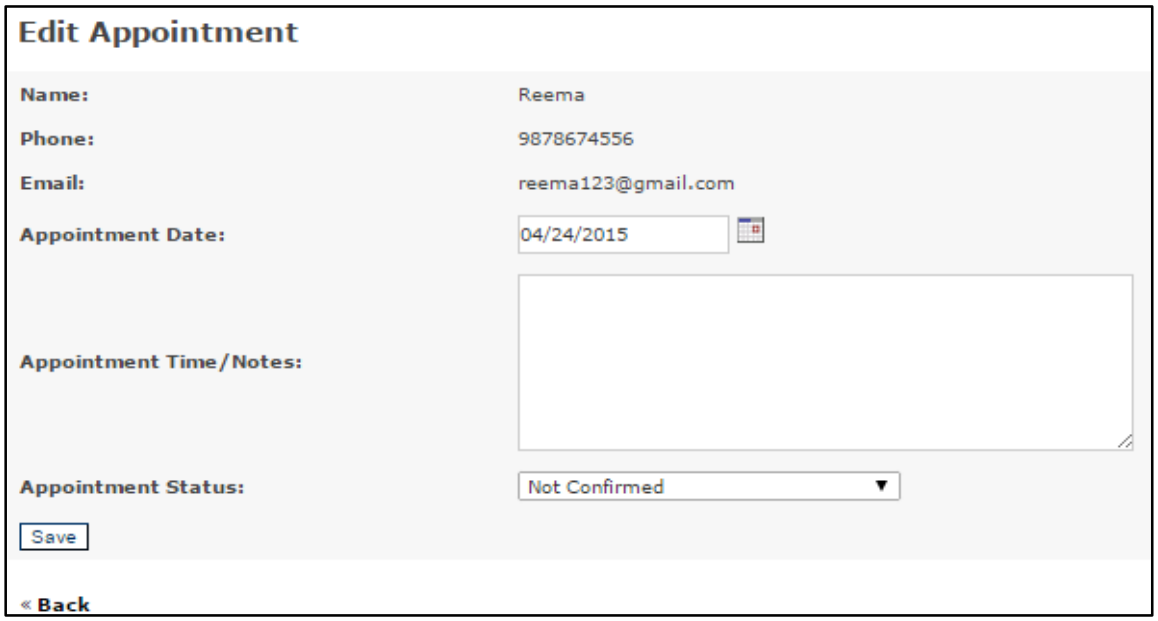
10.5.1 User Login (Patient)

Table 8 Login

STEPS	ACTIONS
1	Click on the Login
2	When Patient took the Appointment, an email will be sent to the Patient's email-id having password which is generated automatically. Now Patient can login through his/her email-id and Password. 
3	After clicking on SUBMIT button, a New Module will be added to the Patient Account i.e. Dashboard, which shows the all information about appointment taken by him/her.  Now Patient will wait until appointment status will change to Confirmed or Cancelled or Closed.

10.5.2 Doctor Login

STEPS	ACTIONS
1	Doctor will Login though following window 
2	After Log in, Doctor will direct to his account. He can check appointments and change his/her password. 
3	For Checking the appointments, click on View Appointments.

	 Now doctor can View the appointment by Clicking on View Option or can delete that appointment. 
4	After Checking the appointment doctor can sign out of his/her account. 

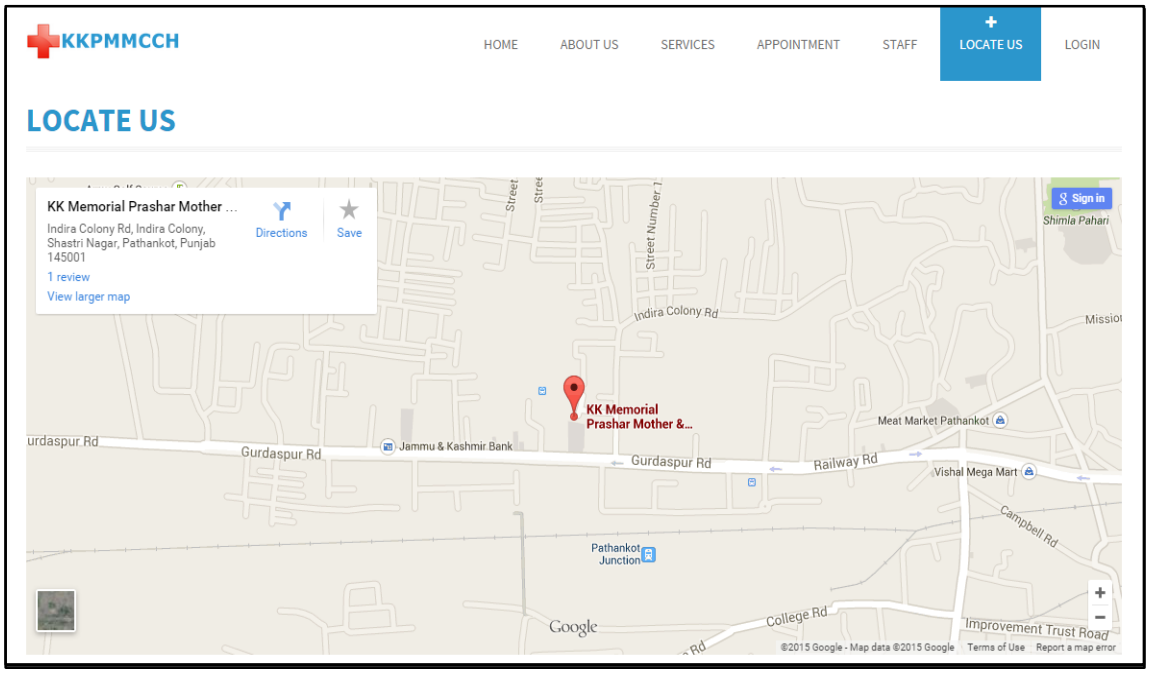
10.6 STAFF

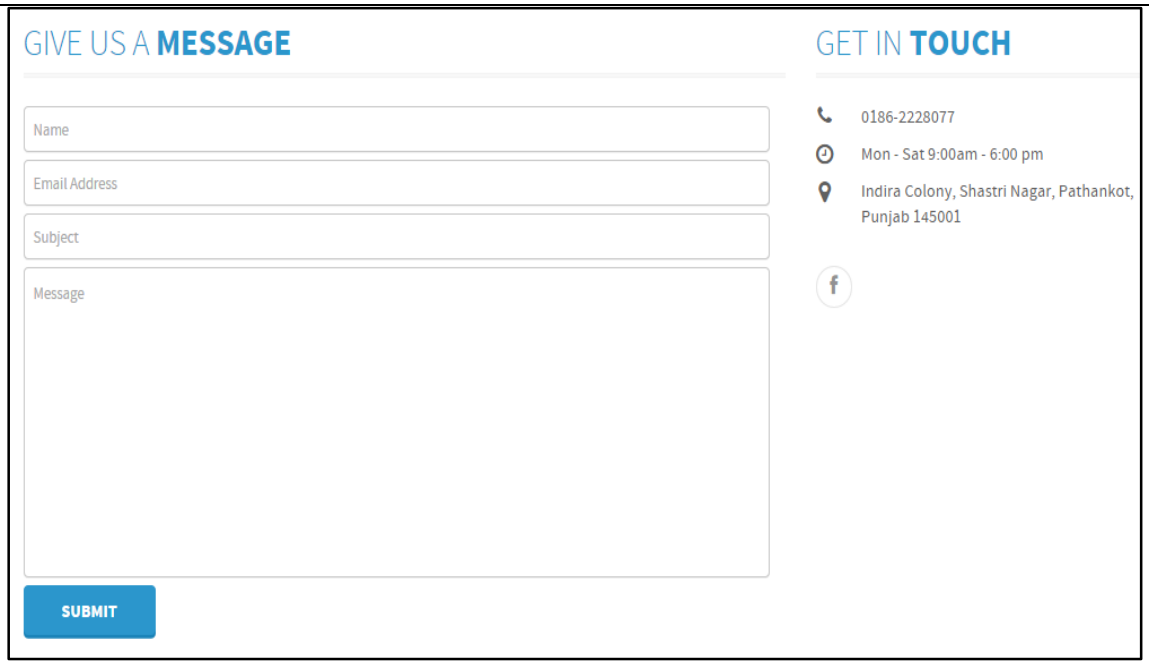
Table 9 Staff

STEPS	ACTIONS
1	Click on the Staff Option
2	User can see the information of doctors, Nurses, Receptionist, Laboratory employees.

10.7 LOCATE US

Table 10 Locate us

STEPS	ACTIONS
1	Click on the LOCAT US.
2	This option will navigate the user to the hospital. 
3	User can also give the feedback to the hospital , check the updates of hospital on Facebook and Contact .


GIVE US A MESSAGE
Name
Email Address
Subject
Message
SUBMIT
GET IN TOUCH
0186-2228077
Mon - Sat 9:00am - 6:00 pm
Indira Colony, Shastri Nagar, Pathankot, Punjab 145001

Chapter 11

SNAPSHOTS

11.1 HOME

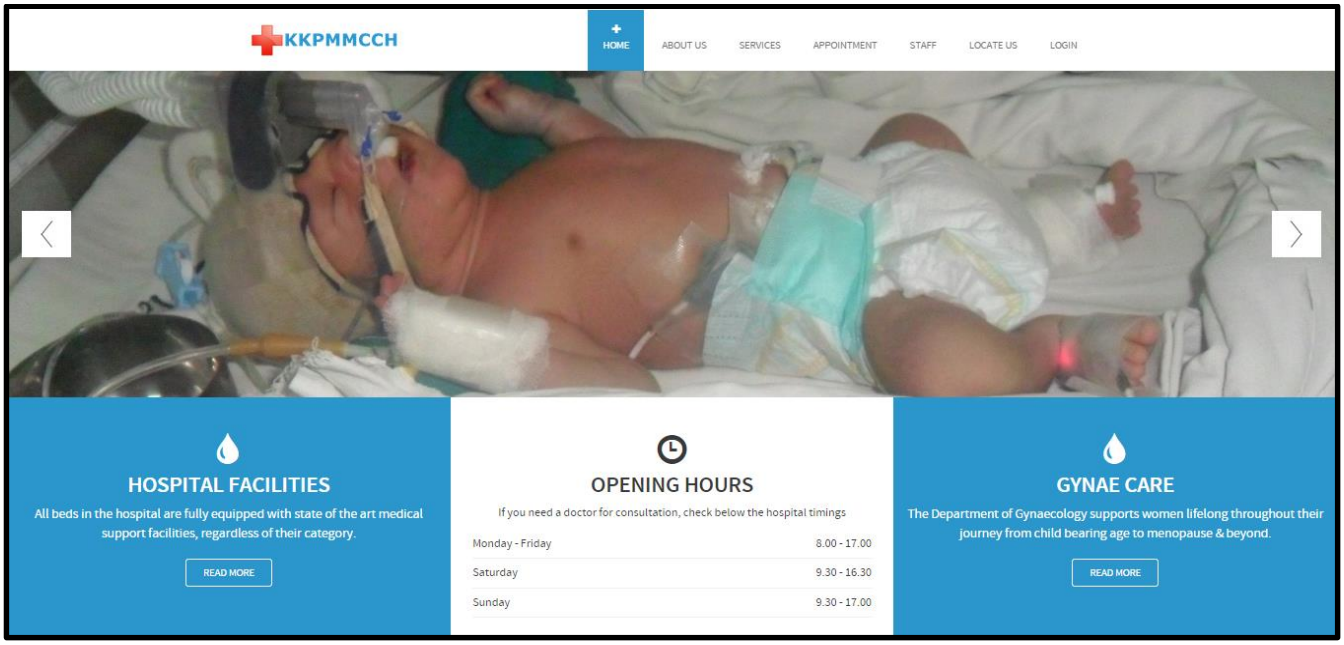


Figure 8 Home

11.2 ABOUT US

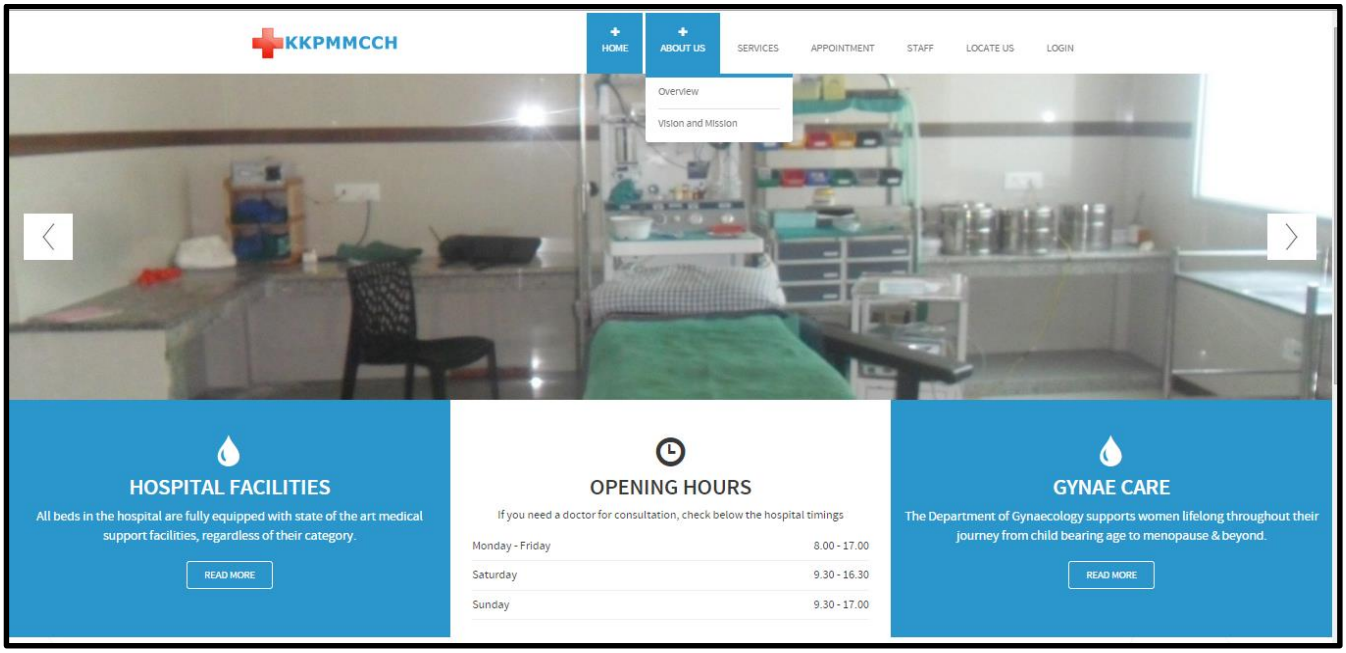


Figure 9 About us

11.2.1 Overview

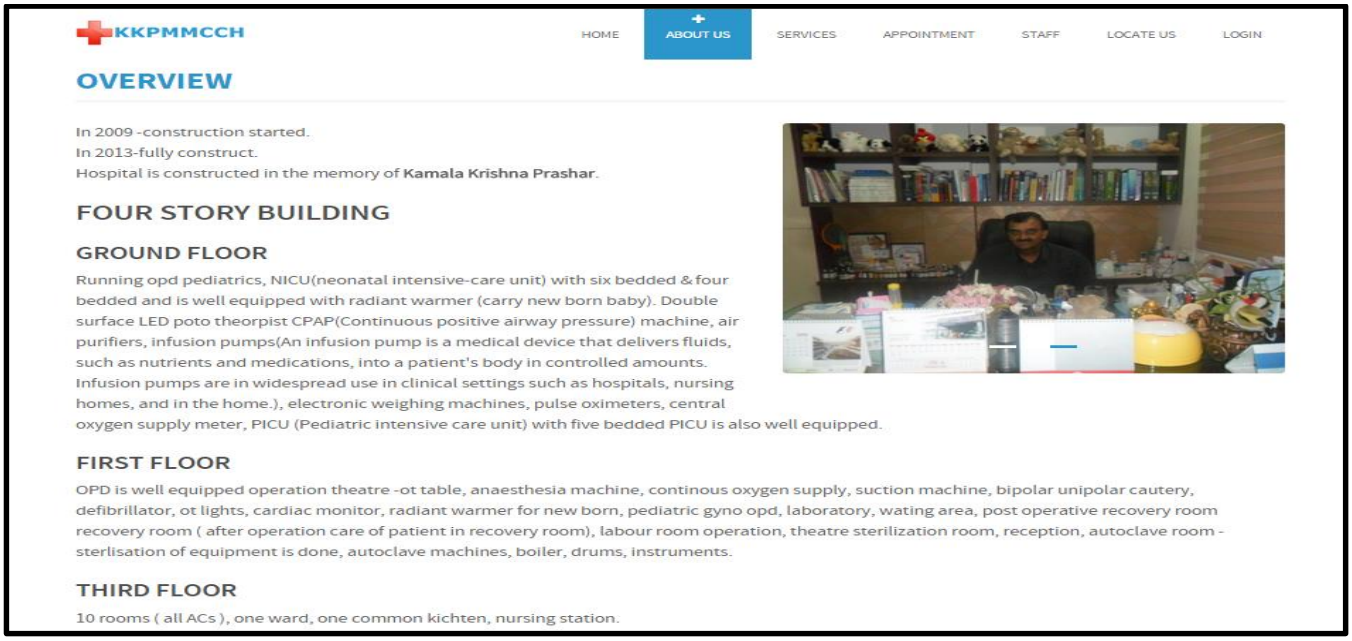


Figure 10 Overview

11.2.2 Vision and Mission

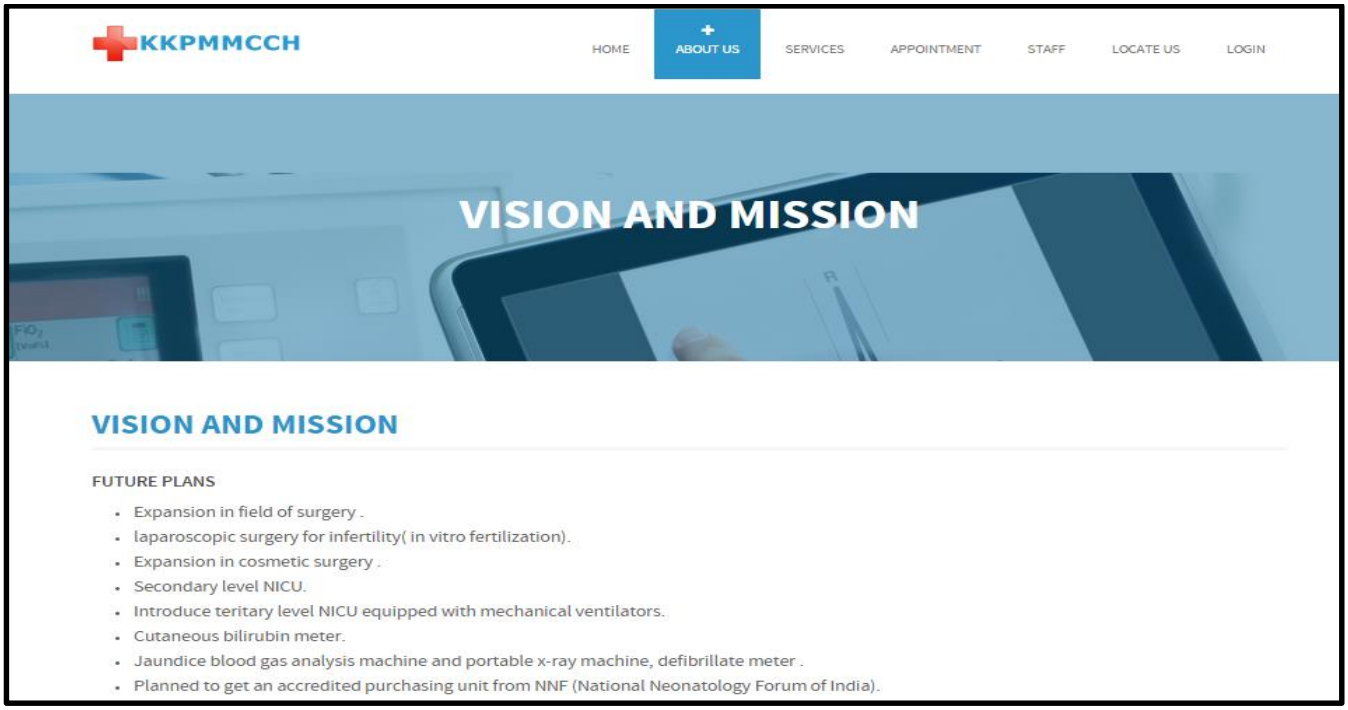


Figure 11 Vision

11.3 SERVICES

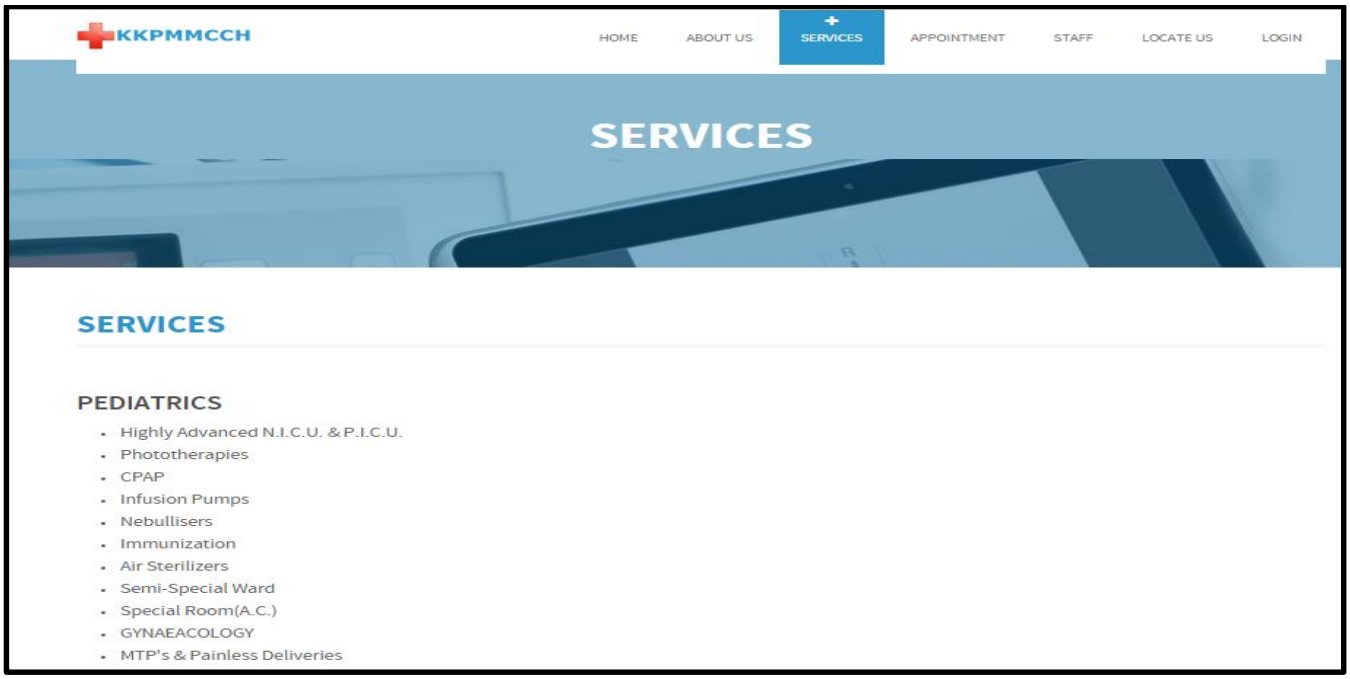


Figure 12 Services

11.4 APPOINTMENT

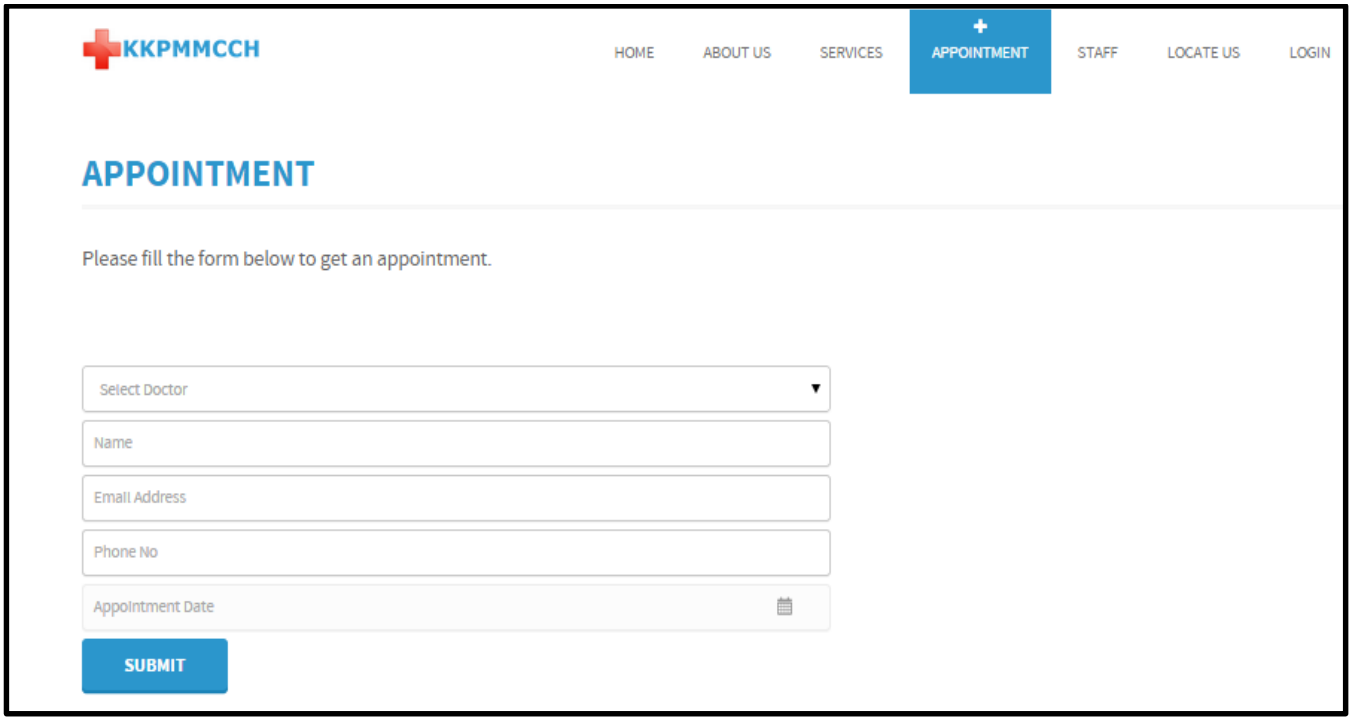


Figure 13 Appointment

11.5 STAFF

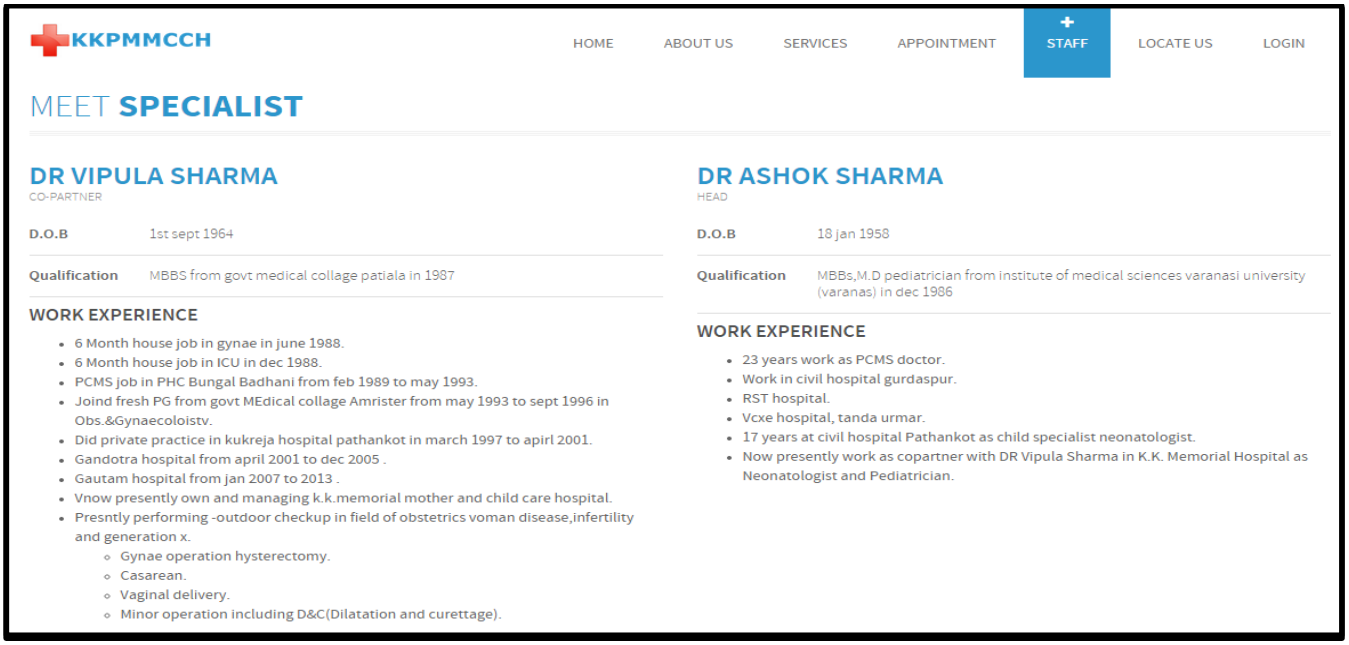


Figure 14 Staff

11.6 LOCATE US

11.6.1 Navigation

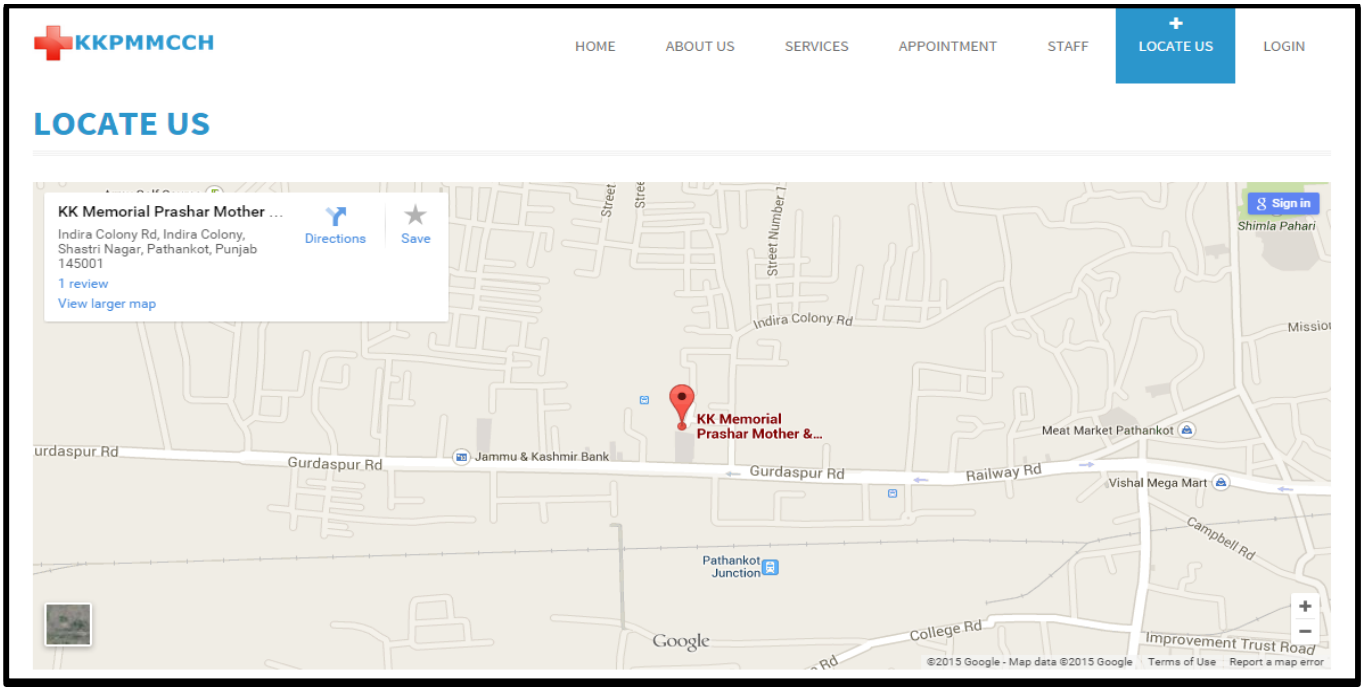


Figure 15 Navigation

11.6.2 Give Us a Message

Figure 16 Give us a message

11.7 LOGIN

11.7.1 Patient Login

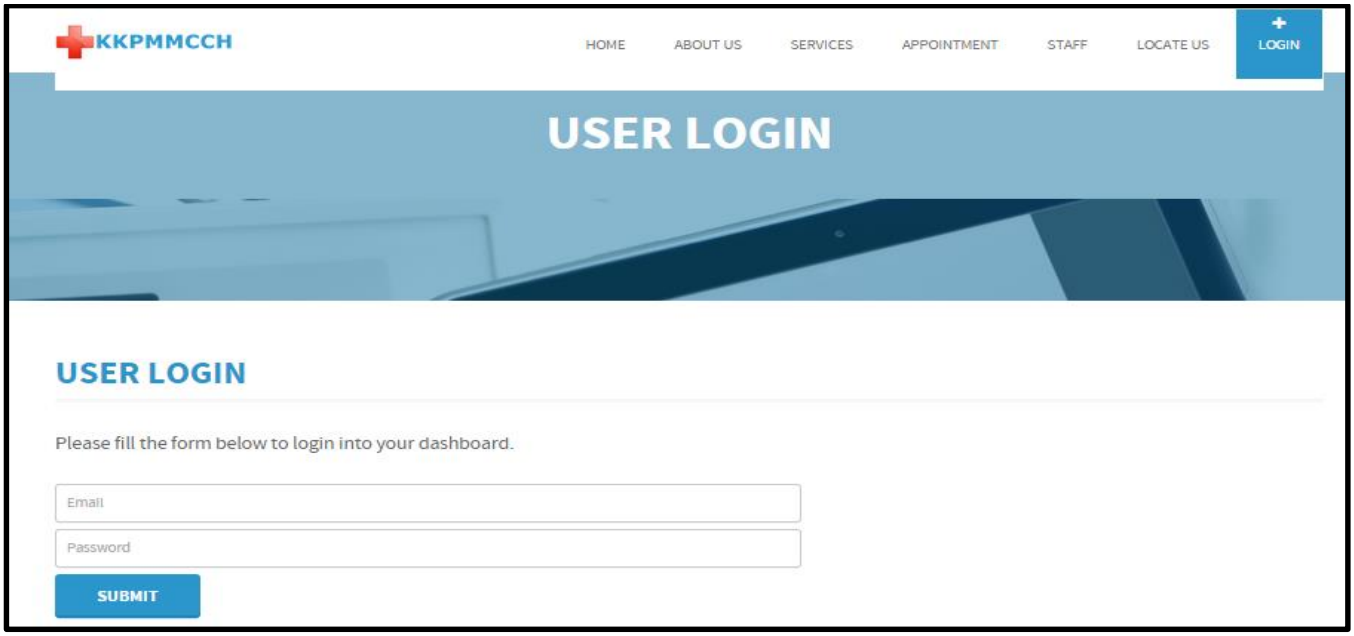


Figure 17 Patient login

11.7.2 Dashboard

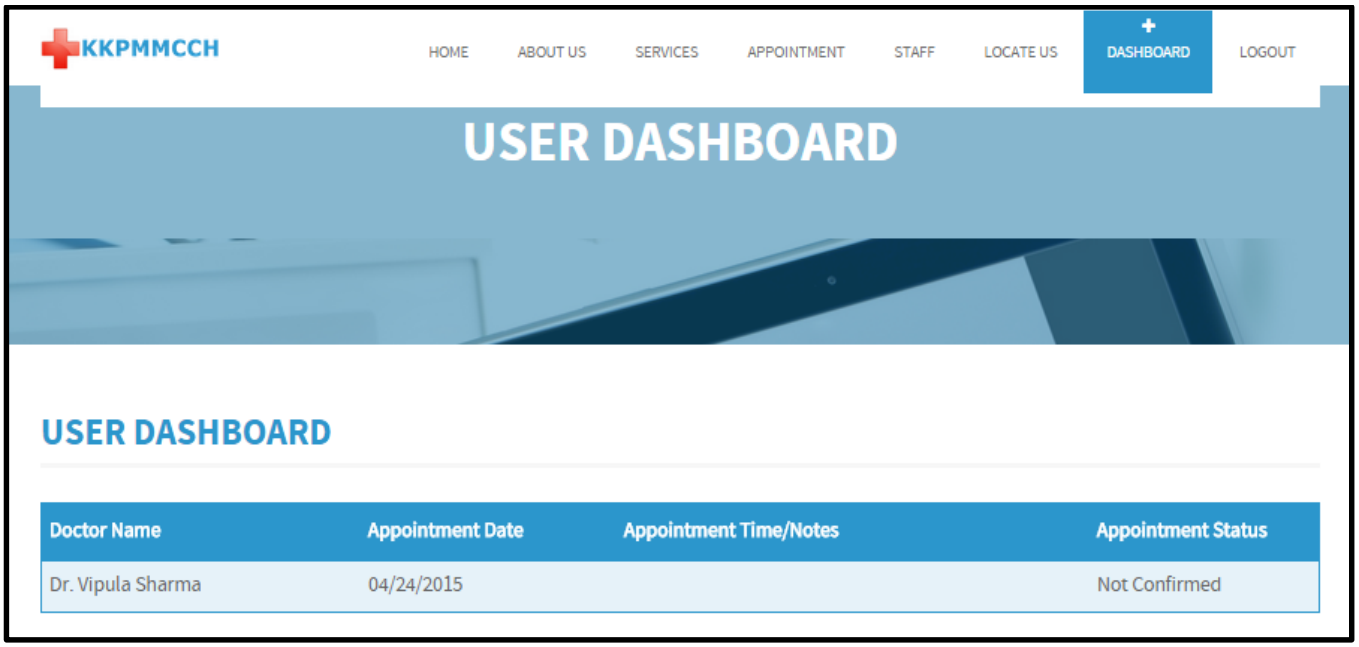


Figure 18 Dashboard

11.7.3 Doctor Login

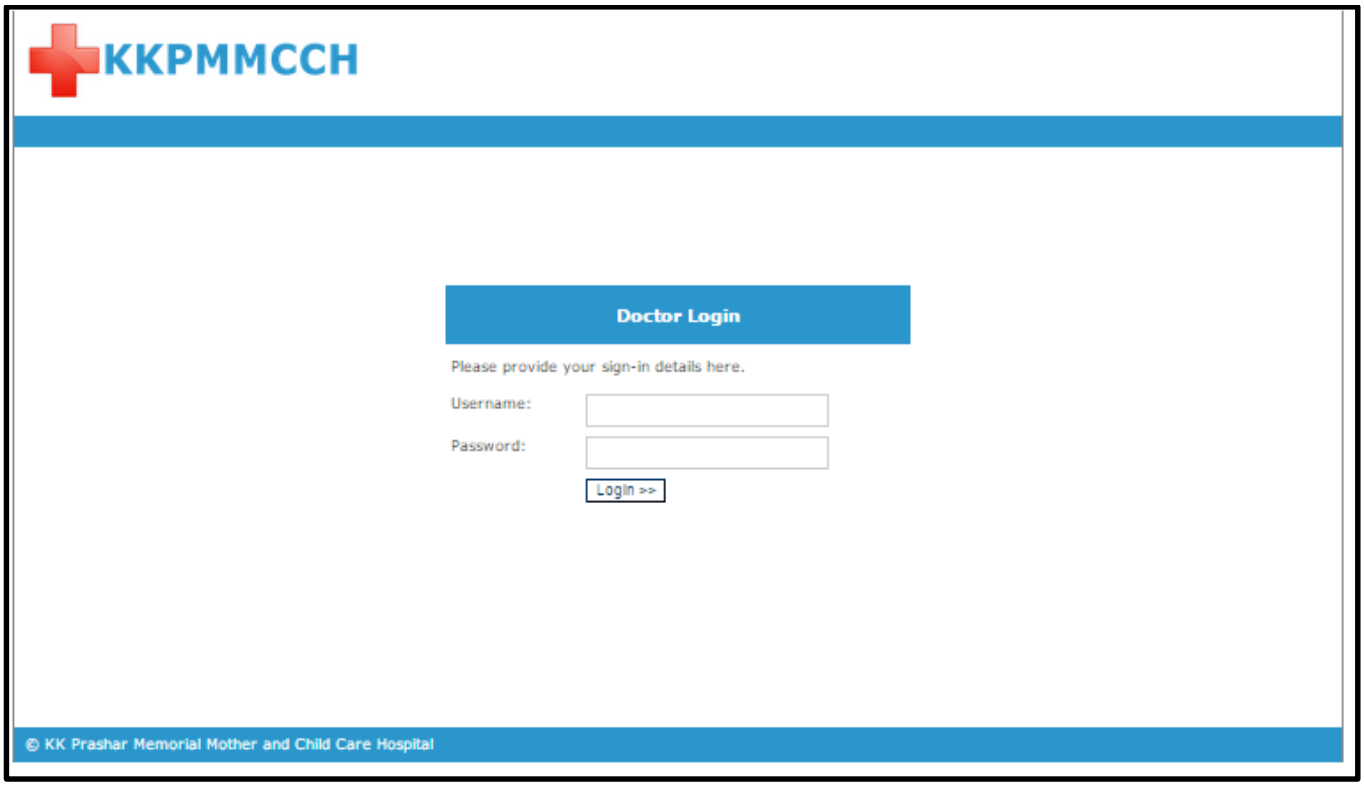


Figure 19 Doctor Login

11.7.3.1 After Login

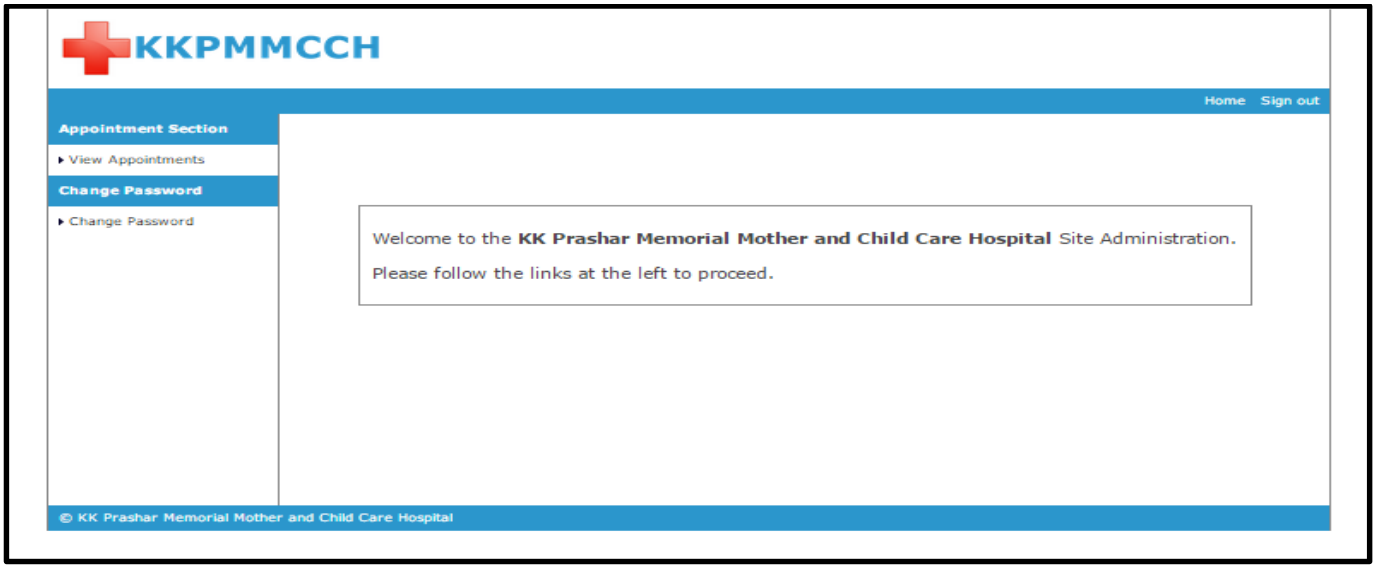


Figure 20 After Login

11.7.3.2 Get Appointment

Figure 21 Get Appointment

11.7.3.3 Edit Appointment

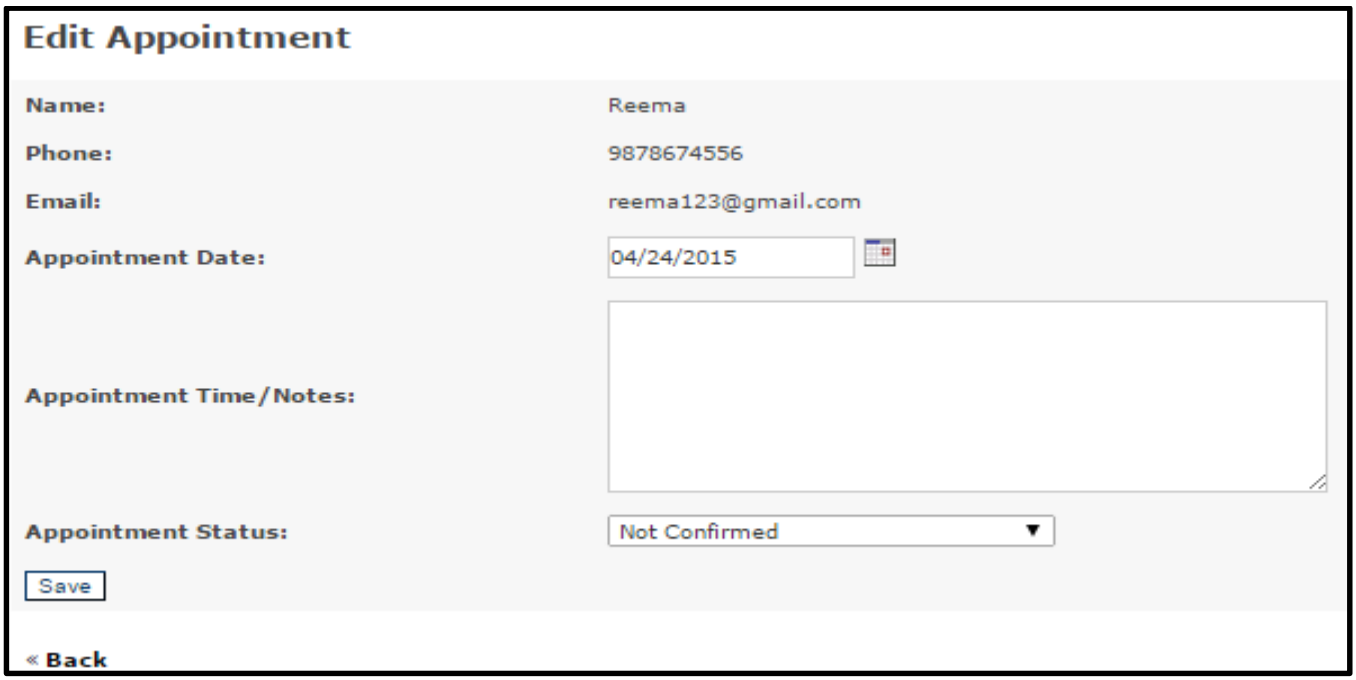


Figure 22 Edit Appointment

Chapter 12

REFERENCES

WEBSITES

a) http://www.w3schools.com/php/default.asp

b) http://www.w3schools.com/html/default.asp

c) http://www.w3schools.com/css/default.asp

d) http://www.homeandlearn.co.uk/php/php.html

e) http://www.tutorialspoint.com/php/

BOOKS

a) PHP Cookbook - (3rd Edition) - O'Reilly (2014)

b) Head First PHP and MySQL.

c) Head First HTML and CSS 2nd 2012

d) HTML5 and CSS3 Transition, Transformation and Animation

e) HTML A Beginner's Guide