

HOSPITAL MANAGEMENT SYSTEM

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

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APPROVAL

The project title “**Hospital Management System**”, submitted by Robiul Auwal, ID No: 143-15-4368, Rakib Hasan Munna, ID No: 151-15-5216 and Kamrul Hasan, ID No: 143-15-4554 to the department of computer science and engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirement for the degree of B.Sc. in computer science and engineering and approved as it style and content. The presentation has been held on 11-12-2018.

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Mr. Naziour Rahaman, Lecturer Department of CSE**, Daffodil International University.

We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, we thanks to our parents who admitted us here.

ABSTRACT

Hospital is part and parcel in our day-to-day life. Therefore, we decided to work with the project to create a management system with it. The manual handling of record is time consuming. We tried our best to make the complicated process as simple as possible using effective technique and menu oriented interface. We have tried to design this application in such a way that the user may not have face any difficulty to use it and further expansion is possible without much effort. The main purpose of my work is that to perform each manual working in a computerized way. It saves a lot of time.

We are confident that this web application benefit a lot to the Hospital and can be used by non-programming personal easily.

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CHAPTER 1

Introduction

1.1 Introduction:

Simply a Hospital Management System (HMS) is a web application easy and flexible to use, which is developed and designed to deliver real imaginable benefits to hospitals. A Hospital Management System (HMS) covers an extensive range of hospital administration and management processes. It provides relevant information across the hospital support, and support for patient care as well as hospital administration. Hospital Management System is a software product designed to uplift the quality and management of hospital management in the areas of clinical process analysis and activity-based costing. It enables to develop an organization and enhance effectiveness of work. Managing the key processes is critical to the success of the system.

1.2 Motivation:

We are living in a world that is full of technology. Everything we can do here in a computerized way. In this project, we tried to maintain day-to-day activities of a hospital system in a computerized way. Here all kinds of facilities and works are included of a hospital management.

1.3 Objectives:

The project is aim to develop to maintain the day-to-day state of discharge/admission of patients, doctor's list, generation of reports etc. It is designed to gain the following objectives:

- To computerize all details regarding details of doctor, patient, pharmacy etc.
- Facilities provided by the system are fully utilized in an effective manner.
- The information of the patients should be kept up to date, and record will stored in the system so that it should be used as historical purposes.
- It should be able to maintain the test reports of patients conducted in the pathology lab.
- To help the whole organization.

1.4 Expected Outcome:

There are several reasons for as to why a hospital require a complete hospital management solution (HMS). From ensuring contract employee movements and activity lists to mandatory statutory requirements and from all important certification lists to their date of renewals, your hospital management system can take care of all.

A good quality management system makes sure that operational and clinical decision-making there process is fast, accurate. With single view, availability of data points, doctors, and medical support staff gets facilitated. To make you a giant & ensure your online presence we integrate a modern website with our system. The website has some specific feature, through the appointment your existing & new patient can appoint his/her doctor from every remote corner of the earth.

By using this system, get a unique ID no for a patient. Patient details admission date, bed information, doctor's name, consultant, surgeon, OT, payment details. Everything automatically being record under that ID no.

Easily get death and birth report, operation report, lab investigation report.

Create medicine category. Add new medicine & total activities management opportunity in this module.

1.5 Report Layout:

This application is designed for multipurpose activities, also to cover a wide range of hospital administration and management process. It provides relevant info's across the hospital to support effective decision making for patient care, the whole management in a seamless flow.

“Hospital” where people come up for better treatment. Hospitals generally provide facilities like:

- Consultation of doctors in a scheduled time
- Providing treatment for diseases
- Facility of admitting patients (Providing beds, nursing, pharmacy information).
- Store the information about admitted patients
- Originating bills
- Store documents related to diagnosis given to patients

- Storing data about various diseases and medicines that are available to cure.

These jobs are need to be done in a hospital by the doctors and staff. The works are as follows:

- Information about patients is done by just writing the patients name, age, gender.
- Each facility served to the Patient on a separate sheet and then they all are summed up.
- Diagnosis reports are stored on the document paper and after sometime, they all are destroyed to decrease the paper load.
- Data for example various diseases are not kept as document paper. Doctors themselves do this job by remembering various medicines.
- The receptionist and other staffs do all this work manually. They handle a lot of documents and diagnosis report.

Limited resources and time have restricted us in this project, only main activities that are performed in a Hospital Management System that are shown. However, one thing we want say is that utmost care has been taken to make the system user friendly and effective.

The Hospital management system is designed to computerize the following actions:

- Admission of new patients
- Consultation process with doctors
- Discharge of patient
- Assigning of doctors related to patients diseases
- Patient Details
- Admission of patients
- Discharging Details
- Associated Doctors & details
- In the hospital Total number of patients admitted
- Available doctors

CHAPTER 2

Background

2.1 Introduction:

It provides the benefits of streamlined operations, extended administration & control, highly patient care, cost control and improved profitability. The whole management system is based on the database. Since there are many locations where we store the records, we are using phpMyadmin as our database. Which is the best software to keep our information. All the required modules and features are especially built to just fit the requirement. The software is highly customizable and can be modified as per the needs and requirements specification. My project Hospital Management System contains patient's registration; collect their details into the system and computerized billing in the dispensary and diagnostic. The application has the advantage to give a unique id for every patient and collects the details of patients and doctors automatically. It also includes the search facility to know the present status of each bed. It contains all the necessary modules, which are Patient registration, details of dispensary; doctor also includes Bed allocation, payment of bill, details of set free etc.

One can enter using username and password. It is accessible by Administrator, Doctor, Accountant, Nurse, Pharmacist, Receptionist, Representative, Patient and Laboratories.

Only Admin, Doctor and Pharmacist can add, update and delete data into the database. The data can be fetched easily from the database. Interface is user friendly. The data are secured and data processing is very fast.

2.2 Related works:

- Identify the problems
- Use the work system framework to shorten the work system
- Collect related data
- Pick out design behavior, measure of performance and work system principle
- Decide what to consult
- Make clear use of work system principle
- Embolden the user to decide how deep to go

2.3 Comparative Studies:

Almost all the major concerns were covered in this project and the results showed that computerized way is better than manual working. Here all related subjects are included that can be done in hospital management. By using the application, a user can see the difference. There are many other fields that can be covered in such kind of management. There may be many other concerns in the project. Moreover, there is no planned system in which one-step leads to the next and enables a hospital to develop a strong base for the field of management.

2.4 Scope of the Problem:

This application will help user to access and view all his reports from anywhere online. An element of bias might have crept in from the side of the official interviewed. This could also have resulted in some kind of modification of the information divulged. Through an attempt was to collect information from the best possible source in the company, it was difficult to meet the top officials due to their busy schedules. Most of the analysis and interpretations, made for this report, are based on secondary data obtained. This data could have some inherent mistakes and errors. Finally, although due care has been taken those can be typing and compilation errors in the report itself. The tasks specified were not well defined because nothing was mentioned regarding validations in the project. Though we gave maximum effort to check the software with different validation tests, a few of them might be present in this version.

- Due to limited time, available survey could not be under taken for intended 20 consumers and thus had to be limited to 10.
- Communication gaps exist between employees and management, as seniors do not share problem with subordinates resulting in violation of psychological contract.
- Poor rewarding system (slow)
- Poor working conditions

The limitations may be many and the magnitude of the influence of these limiting factors may have a bearing on the report, but it in no way alters the ultimate aim of the

project and because it is highly USER FRIENDLY, it would be the choice of all kinds of personnel.

2.5 Challenges:

The application is very simple in design. Implementation of the application requires very low system resources and it will work in almost all configurations. They are:

- Data security
- Data accuracy
- Administrator controls the entire system
- Damages of the machine reduces.
- Manual data entry minimized
- Efficiency
- Time required is minimum
- User friendly & effective.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling:

Business process modeling in business is the process management and system engineering is the activity of representing processes of an enterprise, so that the current process may be analyzed, improved, and automated. BPM is typically performed by business analysts, who provide expertise in the modeling discipline; by subject matter experts, who have specialized knowledge of the processes being modeled; or more commonly by a team comprising both. Alternatively, the process model can be derived directly from event's logs using process-mining tools.

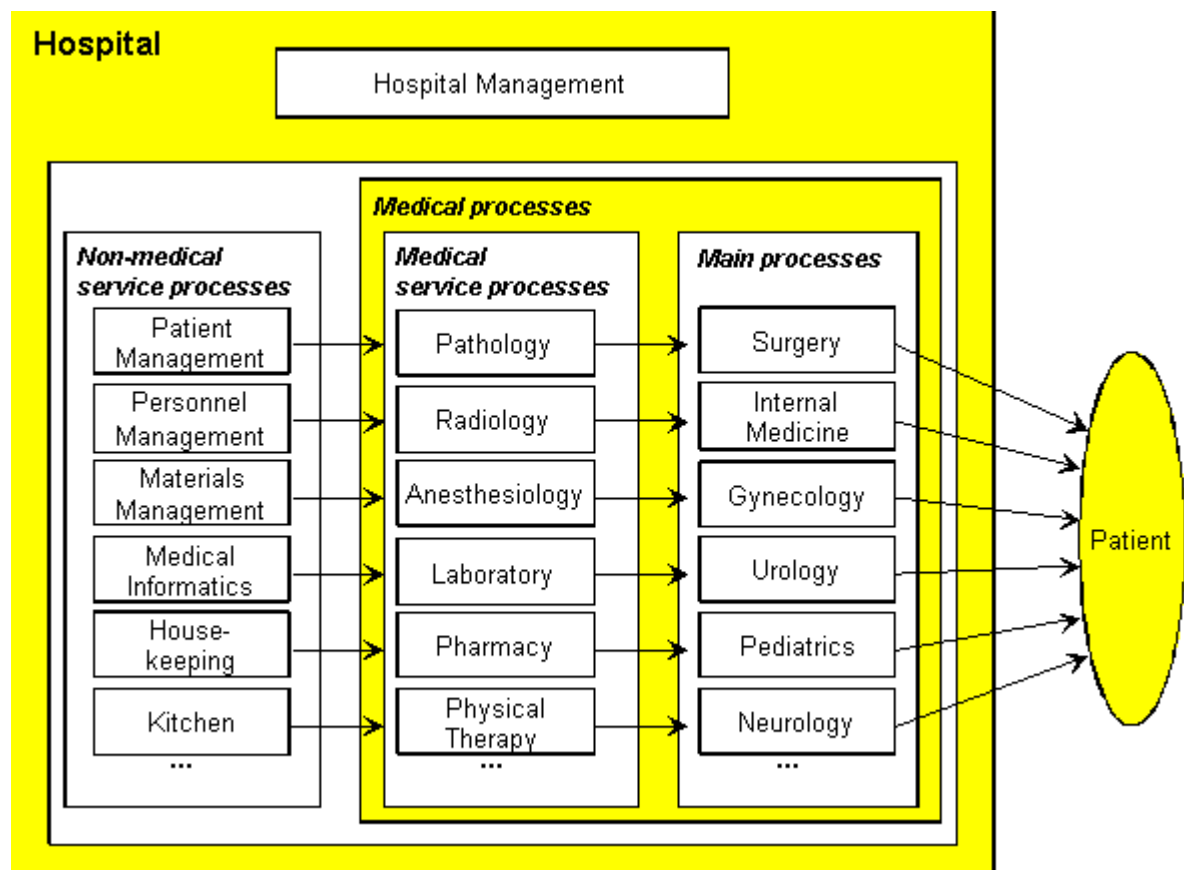


Fig 3.1.1: Business Process Modeling

3.2 Requirement Collection and Analysis:

This is a application which can be implemented easily. It requires very low system resources and it will work in almost all configurations.

Hardware configuration required:

- Processor: Dual core or above.
- Memory: 250 GB or above.
- HDD: 100 GB or above.
- I/O: Keyboard, Mouse, Monitor.
- Printer: Laser printer.

Software configuration required:

- OS: Windows 7 or above.
- Tool: Sublime text.
- DB: PhpMyadmin.
- Framework: Code igniter.
- Server: Localhost.

It also ensures following requirements that is required:

- Data accuracy
- Admin panel control
- Efficiency of working
- Manual data entry minimized
- Time required have to be minimum
- User friendly
- Effective

3.3 Use Case Modeling and Description:

The Use Case Model explains the accepted functionality of the new application. A Use Case represents a detached unit of connection between a user (human or machine) and the system. A Use Case is a single unit of meaningful work; for example login to system, register with system and create order are all Use Cases. Each Use Case has a explanation which explain the functionality that will be built in the accepted system. A Use Case may 'include' another Use Case's functionality or 'extend' another Use Case with its own behavior. Use Cases are related to 'actors'. An actor is a human or machine entity that connects with the system to perform meaningful work.

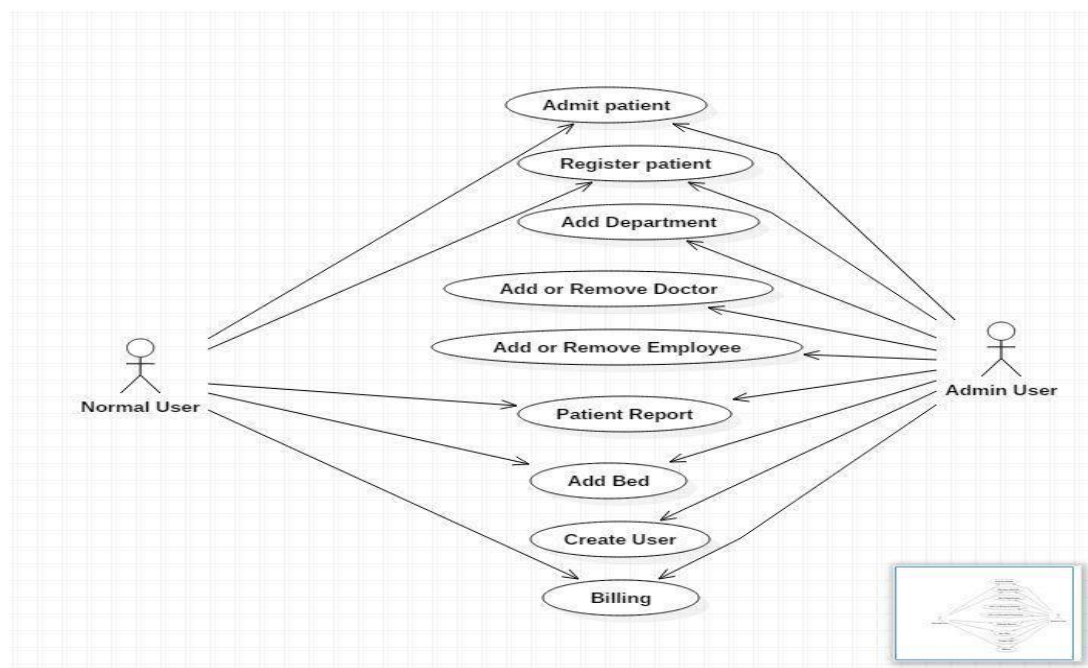


Fig 3.3.1: Use Case Model.

A Use Case description will generally include:

- General remarks and the explaining the use case
- Requirements - Things that the use case must allow the user to do, such as, etc.
- Constraints - Rules about what can and cannot be done. Includes i) pre-conditions that must be true before the use case is run-e.g. must precede; ii) post-conditions that must be true once the use case is run e.g.; iii) invariants: these are always true - e.g. an order must always have a customer number.

- Scenarios - Sequential descriptions of the steps taken to carry out the use case. May include multiple scenarios, to cater for exceptional circumstances and alternate processing path.

3.4 Logical Data Model:

A logical data model or logical schema is a data model of a clearly defined problem domain expressed independently of a particular database management product or storage technology (physical data model). However, in terms of data structures such as relational tables and columns, object-oriented classes, or XML tags, this is as opposed to a theoretical data model, which describes the semantics of an organization without reference to technology.

3.5 Design Requirements:

- Hospital Main Features :
- Online Appointment System
- User Level-wise Report
- Easy to customize
- Doctors Time Off Management
- Doctors Scheduling Management
- Patients Management
- Bootstrap Based Design
- Fresh and Clean Code
- Modern Website integration
- All Browser Support
- Fully Responsive
- Billing System is integrated
- Insurance system is integrated

3.5.1 Features:

In the Hospital management System, we prepare several features here:

- Admin
- Patient
- Doctor
- Login
- Billing system
- Human resource
- Appointment
- Prescription
- Nurse
- Pharmacist
- Laboratories
- Representative
- Receptionist

Managing students and other resources are crucial for any school. This web-based application will help you to manage everything in a proper way.

Admin:

This feature handle all the master entry that is entered in the system.

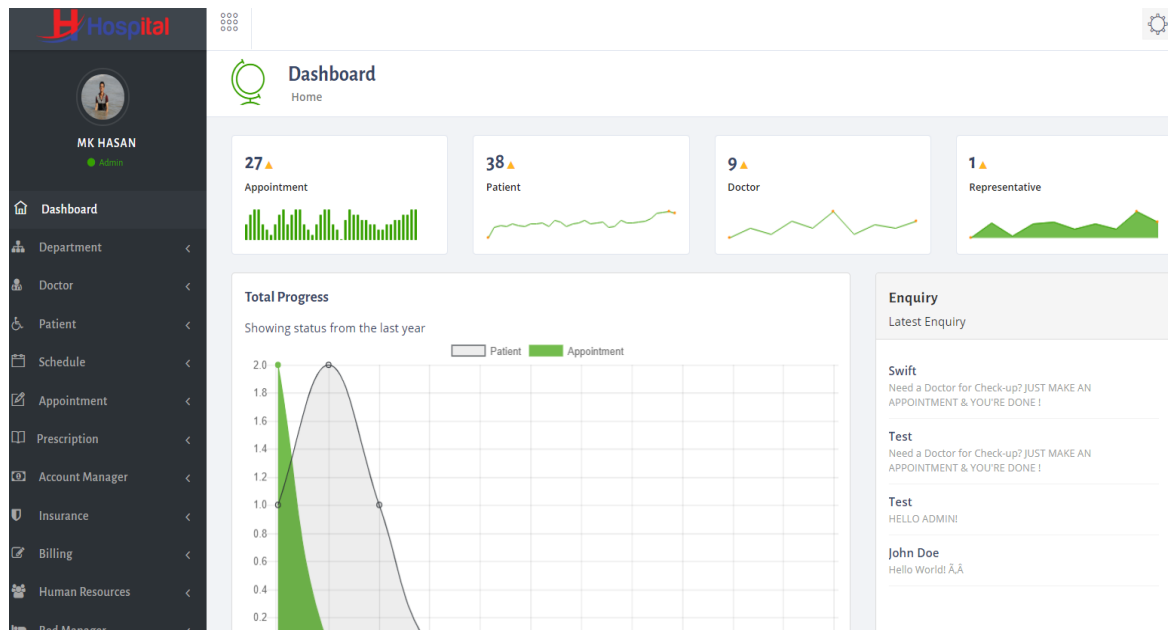


Figure 3.5.1.1: Admin Dashboard

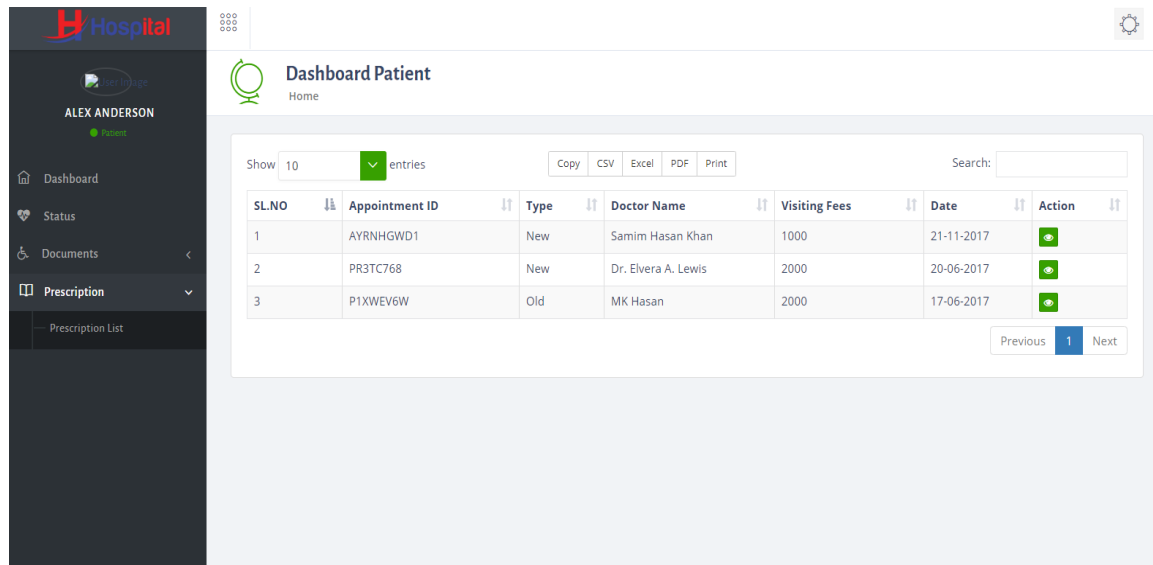
It provides the advantage of appointment, consultation, charges, billing facilities etc.

Administration process:

- Add employees
- Update and edit information
- Investigation and notify
- Add doctor
- Staff management
- Scheduling

Patient:

A patient can show the current status in it. It enables to view the prescription and documents list to the patient.



The screenshot shows the 'Dashboard Patient' interface. The sidebar on the left lists navigation options: Dashboard, Status, Documents, and Prescription. The main content area displays a table of appointment records. The table has columns for SLNO, Appointment ID, Type, Doctor Name, Visiting Fees, Date, and Action. The data is as follows:

SLNO	Appointment ID	Type	Doctor Name	Visiting Fees	Date	Action
1	AYRNHGWD1	New	Samim Hasan Khan	1000	21-11-2017	
2	PR3TC768	New	Dr. Elvera A. Lewis	2000	20-06-2017	
3	P1XWEV6W	Old	MK Hasan	2000	17-06-2017	

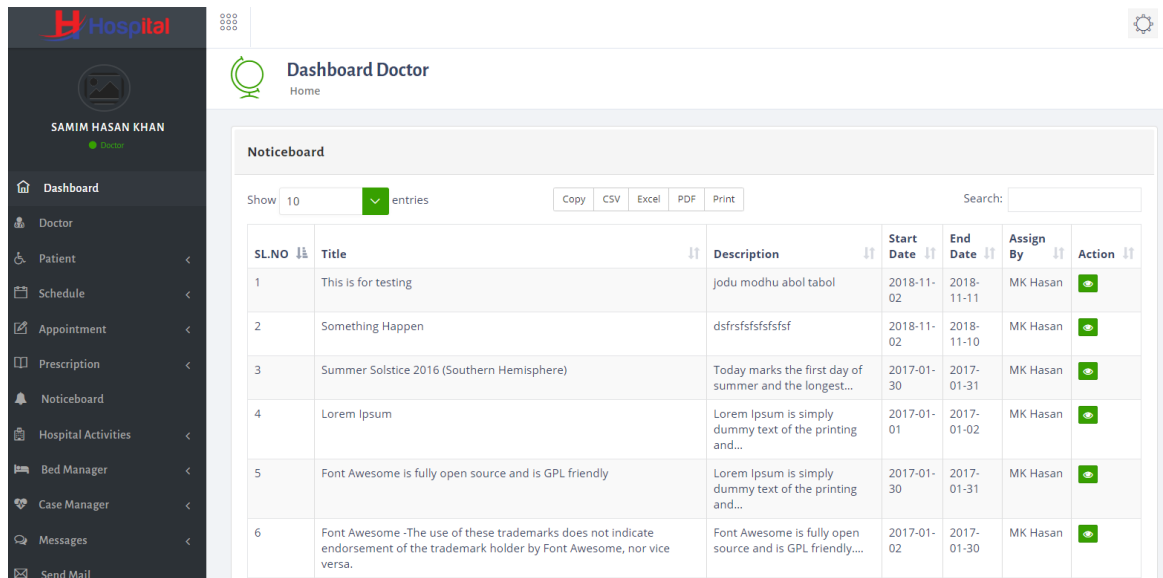
Figure 3.5.1.2: Patient Dashboard

Patient Option:

- Status
- Documents
- Prescription

Doctor:

Doctors have the facility to add patient, schedule, prescription etc. it also provides up to date notice board about daily activities.



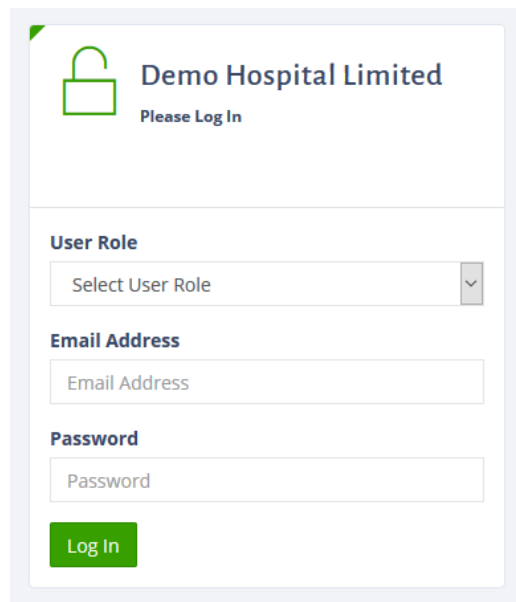
The screenshot shows the 'Dashboard Doctor' interface. On the left is a dark sidebar with the user's name 'SAMIM HASAN KHAN' and a list of menu items: Dashboard, Doctor, Patient, Schedule, Appointment, Prescription, Noticeboard, Hospital Activities, Bed Manager, Case Manager, Messages, and Send Mail. The main content area is titled 'Dashboard Doctor Home' and features a 'Noticeboard' section. This section includes a 'Show 10 entries' dropdown, export options (Copy, CSV, Excel, PDF, Print), and a search bar. Below is a table with 6 rows of activity data.

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	
4	Lorem Ipsum	Lorem Ipsum is simply dummy text of the printing and...	2017-01-01	2017-01-02	MK Hasan	
5	Font Awesome is fully open source and is GPL friendly	Lorem ipsum is simply dummy text of the printing and...	2017-01-30	2017-01-31	MK Hasan	
6	Font Awesome -The use of these trademarks does not indicate endorsement of the trademark holder by Font Awesome, nor vice versa.	Font Awesome is fully open source and is GPL friendly....	2017-01-02	2017-01-30	MK Hasan	

Figure 3.5.1.3: Doctor Dashboard

Login:

This is log in form from for several users.



The login form is titled 'Demo Hospital Limited Please Log In'. It features a green padlock icon. The form contains three input fields: 'User Role' (a dropdown menu with 'Select User Role' selected), 'Email Address', and 'Password'. A green 'Log In' button is positioned at the bottom left of the form area.

Figure 3.5.1.4: Login Form

Billing:

The application also provides billing facilities for user, admin, doctors all of them. The list shows the facilities.

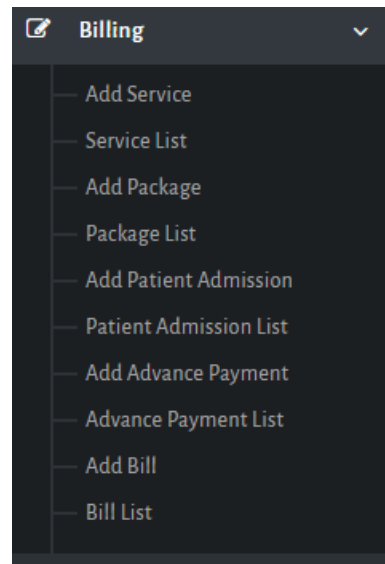


Figure 3.5.1.5: Billing Option

Prescription:

It is easy for admins to return prescription to the patient in time.

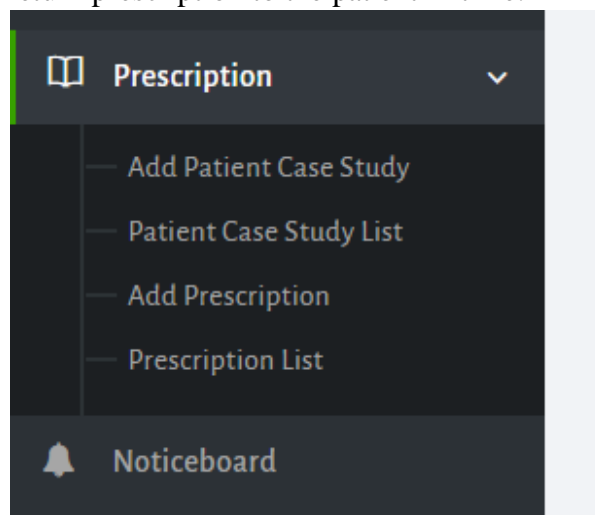


Figure 3.1.5.6: Prescription Option

Prescription has the following options:

- Add prescription
- Prescription List

Nurse:

It also provides facilities for nurse.

The screenshot shows the 'Dashboard Nurse' interface. The user is BAY SMITH, a Nurse. The main content area is a 'Noticeboard' with 10 entries displayed. The table below represents the data shown in the noticeboard:

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	
4	Lorem Ipsum	Lorem Ipsum is simply dummy text of the printing and...	2017-01-01	2017-01-02	MK Hasan	
5	Font Awesome is fully open source and is GPL friendly	Lorem Ipsum is simply dummy text of the printing and...	2017-01-30	2017-01-31	MK Hasan	
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Figure 3.5.1.7: Nurse Dashboard

Pharmacist:

Pharmacist get a great advantage from it.

The screenshot shows the 'Dashboard Pharmacist' interface. The user is MESHU MUNAWAR, a Pharmacist. The main content area is a 'Noticeboard' with 10 entries displayed. The table below represents the data shown in the noticeboard:

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	
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Figure 3.5.1.8: Pharmacist Dashboard

Laboratories:

It can also helpful to Laboratories.

Dashboard Laboratorist
Home

Noticeboard

Show 10 entries

Copy CSV Excel PDF Print Search:

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	
4	Lorem Ipsum	Lorem Ipsum is simply dummy text of the printing and...	2017-01-01	2017-01-02	MK Hasan	
5	Font Awesome is fully open source and is GPL friendly	Lorem Ipsum is simply dummy text of the printing and...	2017-01-30	2017-01-31	MK Hasan	
6	Font Awesome -The use of these trademarks does not indicate endorsement of the trademark holder by Font Awesome, nor vice versa.	Font Awesome is fully open source and is GPL friendly....	2017-01-02	2017-01-30	MK Hasan	

Figure 3.5.1.9: Laboratories Dashboard

Receptionist:

For the Receptionist.

Dashboard Receptionist
Home

Noticeboard

Show 10 entries

Copy CSV Excel PDF Print Search:

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	
4	Lorem Ipsum	Lorem Ipsum is simply dummy text of the printing and...	2017-01-01	2017-01-02	MK Hasan	
5	Font Awesome is fully open source and is GPL friendly	Lorem Ipsum is simply dummy text of the printing and...	2017-01-30	2017-01-31	MK Hasan	
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Figure 3.5.1.10: Receptionist Dashboard

Representative:

For the Representative.

The screenshot shows the 'Hospital Representative' dashboard. On the left is a dark sidebar with the user's name 'ASHIK ISLAM' and role 'Representative'. The main content area is titled 'Dashboard Representative' and features a 'Noticeboard' section. The noticeboard has a search bar and a table with 6 entries. Each entry includes a serial number (SL.NO), title, description, start and end dates, the assignee (MK Hasan), and an action icon (a green square with a white right-pointing arrow).

SL.NO	Title	Description	Start Date	End Date	Assign By	Action
1	This is for testing	jodu modhu abol tabol	2018-11-02	2018-11-11	MK Hasan	➔
2	Something Happen	dsfrsfsfsfsfsf	2018-11-02	2018-11-10	MK Hasan	➔
3	Summer Solstice 2016 (Southern Hemisphere)	Today marks the first day of summer and the longest...	2017-01-30	2017-01-31	MK Hasan	➔
4	Lorem Ipsum	Lorem Ipsum is simply dummy text of the printing and...	2017-01-01	2017-01-02	MK Hasan	➔
5	Font Awesome is fully open source and is GPL friendly	Lorem Ipsum is simply dummy text of the printing and...	2017-01-30	2017-01-31	MK Hasan	➔
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Figure 3.5.1.11: Representative Dashboard

CHAPTER 4

Design Specification

4.1 Front-end Design:

For the management of web application it is an important issue to select suitable front-end. When I decided to develop the project, I have to go through a extensive study and it takes a lot of time to select the suitable platform.

The aspects of study included the following factors: Implemented a form. It is designed to work with framework properly. We use Codeigniter here. User validation and form validation is important here .The form is not submitted until the user fills with the correct data. It is very much useful to restrict mistakes by users. It provides:

- Following the organization requirements
- Provide printing support
- Effectiveness
- Time consuming
- Platform independent.
- Debugging.
- Easy maintaining process.
- Event driven programming facility.

4.2 Back-end Design:

For the management of web application it is an important issue to select suitable front-end. When I decided to develop the project, I have to go through an extensive study and it takes a lot of time to select the suitable platform. I have used MySQL for storing the data. It provides efficient solution for major database technology. With the stated features, we use Php as the front-end and back-end to develop the web application. It also includes Space management, Large Database, Security, High availability, Easy maintaining etc.

4.3 Interaction Design and UX:

It is well recognized that component of interaction design is an essential part of user experience (UX) design, centering on the interaction between users and products. The goal of interaction design is to create a product that produces an efficient and delightful end-user experience by enabling users to achieve their objectives in the best way possible. User experience design (UX, UXD, UED or XD) is the system of increasing user satisfaction with a product by enhancing the usability, accessibility, and pleasure provided in the interaction with the product. User experience design encompasses traditional human–computer interaction (HCI) design, and increases it by addressing all aspects of a product or service as perceived by users.

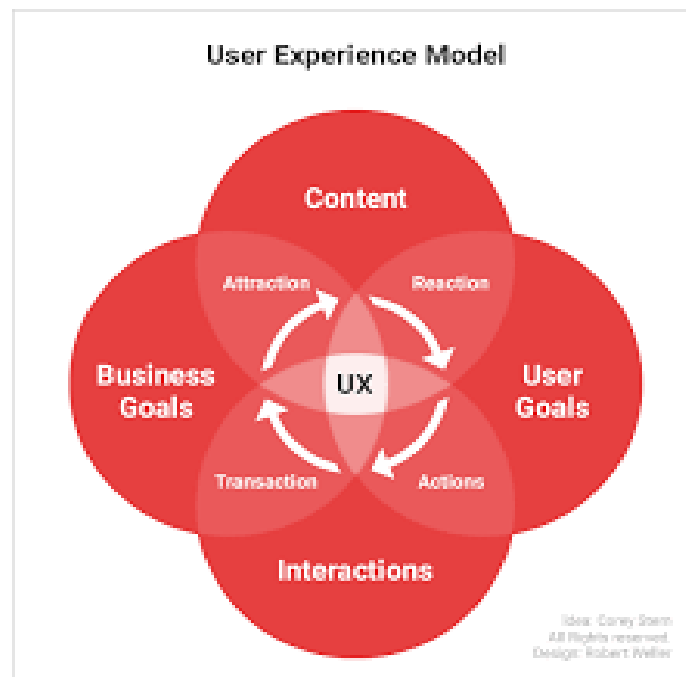


Fig 4.3.1: UX design

4.4 Implementation Requirements:

In the process of program instructions, the lines of a program keep multiplying, thus, size of the application increases. Gradually, it becomes difficult and almost improbable to find out the flow of program. If one forgets how application and its underlying codes, files, processes are formed it then becomes very hard to share, debug and change the code. Implementation requires Analysis, Programming etc.

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database:

The database implementation or deployment is the process of installation of database software, configuration and customization, running, testing, integrating with applications, and training the users. Its different stages and processes are:

- Defining the database project scope.
- Identifying the subdivision of organization.
- Defining about the functions, which is utilized by the database.
- Organizing Database project.
- Design team development.
- Formation of database administrators.

5.2 Implementation of Front-end Design:

For the management of web application it is an important issue to select suitable front-end. When we decided to develop the project, we have to go through a extensive study and it takes a lot of time to select the suitable platform.

The aspects of study included the following factors: Implemented a form. It is designed to work with framework properly. We use Codeigniter here. User validation and form validation is important here .The form is not submitted until the user fills with the correct data. It is very much useful to restrict mistakes by users.

Must have graphical user interface that helps to understand the employees that are not from IT background.

- Scalability
- Extensibility
- Flexibility
- Robustness
- Following the organization requirements

- Provide printing support
- Effectiveness
- Time consuming
- Platform independent.
- Debugging.
- Easy maintaining process.
- Event driven programming facility.

5.3 Implementation of interactions:

It is well recognized that component of interaction design is an essential part of user experience (UX) design, centering on the interaction between users and products. The goal of interaction design is to create a product that produces an efficient and delightful end-user experience by enabling users to achieve their objectives in the best way possible.

5.4 Testing Implementation:

Application Testing is rating of the software against requirements collected from users and system specifications. Testing is conducted at the phase level in Application development life cycle or at module level in program code. Application testing comprises of Validation and Verification.

Software validation:

Validation is a procedure of examining whether or not the application satisfies the user requirements. It is carried out at the end of the SDLC. If the application matches requirements for which it was made, it is validated. Validation confirms the product under development is as per the user requirements. Validation answers the question – "Are we creating the product which attempts that entire user needs from this application?". Validation strengthen on user necessity.

Software Verification:

Verification is the procedure of confirming if the software is meeting the business specifications, and is created adhering to the proper requirements and methodologies.

Verification results the product being created is according to design requirements. Verification answers the question– "Are we creating this product by firmly following all design requirements?" Verifications fixates on the design and system requirements.

5.4.1 Testing Levels:

Testing itself may be described at different levels of SDLC. The testing procedures runs parallel to application development. Before going to the upper stage, a stage is tested, validated and verified. Testing separately is done just to make sure that there are no hidden bugs or topics left in the application. Application is tested on various levels.

Unit Testing:

While coding, the coder performs some tests on that unit of code to know if it is bug free. Testing is performed under white-box testing procedure. Unit testing helps programmers fix that separate units of the code are working as per specifications and are bug free.

Integration Testing:

Even if the units of application are working fine individually, there is a need to find out if the units if mobilized together would also work without bugs. i.e, argument passing and data updating etc.

System Testing:

The application is executed as product and then it is tested as a whole. This can be completed using one or more of the following tests:

- **Functionality testing** - Tests all functionalities of the application against the specifications.
- **Performance testing** - This test proves how effective the application is. It tests the efficiency and average time taken by the application to do required task. Performance testing is done by means of load testing and stress testing where the application is put under high user and data load under different environment conditions.
- **Security & Portability** - These tests are done when the software is meant to work on various platforms and accessed by number of persons.

Acceptance Testing:

When the software is ready to hand over to the buyer, it has to go through last phase of testing where it is tested for user-interaction and response. This is very much important issue as even if the application matches all user specifications and if user does not like the way it appears or works, it may be rejected.

- **Alpha testing** - The team of programmer themselves perform alpha testing by using the system as if it is being used in work environment. They try to find out how user would react to some action in application and how the system should respond to inputs.
- **Beta testing** - After the application is tested internally, it is handed over to the users to use it under their organization only for testing purpose. This is not as yet the delivered product. Programmers expect that users at this stage will bring minute problems, which were skipped to attend.

CHAPTER 6

Conclusion and Future Scope

6.1 Conclusions:

This application is meant to computerize the day-to-day hospital activities. It is also capable of providing easy and effective storage information that includes patient registration, hospital records, doctor info's, test papers, prescription details etc.

6.2 Limitations:

- Some of the respondents were reluctant to combine with certain data's on the pretext of the sensitivity of information.
- Most of the analysis and implementations, made for the project depends on secondary data obtained.
- Though there are errors, care has been taken to make it accurate.

6.3 Future work:

We have a plan to enhance the proposed system by adding more facilities in it. For example: Blood Bank management, Pharmacy management, Ambulance management etc.

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