

# **SWE1012 E-Governance**

## **Project Based Component**

### **E – HOSPITAL MANAGEMENT SYSTEM**



### **GUIDED BY**

**PROF. KUMARESAN .P**

### **TEAM MEMBERS**

V. SAI NIKHIL	16MIS0257
NARENDULA AJITH	16MIS0311
R. SAI KIRAN REDDY	16MIS0114
RAHUL	16MIS0127

### **SITE**



## **Objectives:-**

- The main aim of our project is to make **E-HOSPITAL MANAGEMENT SYSTEM.**
- This is helpful for the patient to interact with the doctor through online and doctor can easily advertise through this.
- This will reduce the paper work.

## **Abstract:-**

This is helpful for both patient and doctor in their domains. As we know HEALTH IS WEALTH', we have to be healthy for achieving our goals and dreams in future. In past few years to visit any doctor, we need to go to the hospital, stand in queue, fill the form, wait for our turn to get any treatment or check-up. But, still we don't know whether the doctor is specialized in that field or there may be any fake doctors.

In present generation no one has patience in doing such things. They want the work to be done very quickly and don't want to waste their precious time. We may not know when we fall ill. In such case we may not have the time to wait for our turn and get the service from the doctor.

To solve the problem, we introduce the online system for registration and managing the hospital management system for the patient as well as doctor for making the work efficient. This system reduces the time for getting the treatment and helps for the doctor who is expert in their field to get the patient. This system helps the patient for getting the booking for the treatment, so that they no need for waiting like usually. Doctors can get benefit by applying their field of expert and their consultant fee and get the patient. This helps the doctor who is new can also get benefitted as their publicity is done. With addition to these we added a new feature as the chat application for the patient to chat with the doctor and vice versa to get a better communication and understanding between them. The chat application helps in clearing the doubt in the address or other medical details by the patient and if there is any change in the appointment, the doctor can intimate the patient and other details. Both has the option to cancel the appointment.

The admin will be the government, who can control the patient as well as the doctor. If they find any fake id of doctor as well as patient, the admin can remove the so that they can no longer get the service of E-Hospital management system. If all the features of this system are fully fledged, we can decrease the queue in the hospital for getting the treatment and the government can intimate the new policies or scheme, notify them in this system. Any type of information of the disease and the first aid for that can be got easily by the chatting with the doctor and get a fast and first treatment with the knowledge of the doctor. So, all the citizen is deserved to get services of the hospital easily and efficiently. With all these new features, we can able to make it better and make the people get benefitted out of it.

## **Literature Review – (Research Papers):**

### **RESEARCH PAPER – I**

## **Design and Implementation of Hospital Management System Using Java**

**Olusanya Olamide. O, Elegbede Adedayo. W, and Ogunseye Abiodun. A.**

**Department of Electrical / Electronic and Computer Engineering, College of Engineering, Bells University of Technology**

This research work is on design and construction of Hospital Management System (HMS). The system provides the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. Before computerized Hospital Management System came into practice, it was difficult to keep proper records of the daily activities of hospitals, patient information, maintenance schedule. This resulted in waste of money, time and manpower. Hospital Management System is an information management system designed to help manage the various aspects of a hospital.

### **Hospital Management System:-**

- ☐ Patient management
- ☐ Services management
- ☐ Appointment scheduling
- ☐ Store management

### **Literature Review:-**

Healthcare management is a growing profession with increasing opportunities in both direct and non-direct care settings.

Hospital Management System (computerized) is increasingly becoming an emerging tool in health care arena to efficiently enable delivery of high quality health services. These systems have large computerized data bases intended primarily for communication and storing health and administrative information.

It is believed that HMS implementation is an organizational process conducted toward information technology within user community.

## **RESEARCH PAPER – II**

### **HOSPITAL MANAGEMENT SYSTEM**

**1. Digvijay H. Gadhari, 2. Yadnyesh P. Kadam, 3.Prof. Parineeta Suman**

**Department of Computer Engineering, Saraswati College of Engineering, Kharghar, Mumbai, Maharashtra, India.**

#### **ABSTRACT:-**

This paper is to computerize the Front Office Management of Hospital to develop software which is user friendly simple, fast, and cost effective. It deals with the collection of patient's information, diagnosis details, doctor details, patient details etc. Traditionally, it was done manually. The main function of the system is register and store patient details and doctor details and retrieves these details as and when required, and also to manipulate these details meaningfully.

The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The data are well protected for personal use and makes the data processing very fast.

#### **LITERATURE REVIEW:-**

The complete set of rules and procedures related to Hospital's day to day activities and generating report is called "**HOSPITALMANAGEMENT SYSTEM**". This project gives a brief idea regarding automated Hospital activities.

The current manual system has a lot of paper work. To maintain the records of sale and service manually, is a Time-consuming task. With the increase in database, it will become a massive task to maintain the database. Requires large quantities of file cabinets, which are huge and require quite a bit of space in the office, which can be used for storing records of previous details.

One of the major challenges existing hospital management systems face is around operational efficiency and wait times between different processes, departments and persons.

Some of the challenges that this ecosystem needs to work on are high demand pressure, greater customer satisfaction level and low profit margins.

#### **CONCLUSION:-**

This application will help user to access and view all his reports from anywhere online.

So this paper proposes Hospital Services Management System which aims at improving quality of services, identifying cost reduction areas, analyses and rate health care services.

# **RESEARCH PAPER – III**

## **E –Hospital Management & Hospital Information Systems**

### **– Changing Trends**

**1. Premkumar Balaraman**

**2) Kalpana Kosalram**

**School of Management, SRM University, Vadapalani, Chennai 600026, INDIA**

#### **ABSTRACT:-**

The rapid growth in information and communication technology has strongly impacted the business and service delivery models of today's global environment. E-hospital management system provide the benefits of streamlined operations, enhanced administration and control, superior patient care, strict cost control and improved profitability. Healthcare Insurance Portability and Accountability Act become the norm of the Healthcare industry when it comes to medical records management and patient information privacy. The study is focused on understanding the performance indicators of hospital information system. Most of the data is based on secondary sources of survey data. For the specific successful case studies analyzed in the study, the success factors and challenges faced in successful E-hospital management system implementations are highlighted. Some of the mandatory standards like HIPAA are discussed in detail for clarity on healthcare system implementation requirements.

#### **LITERATURE REVIEW:-**

Hospital Information systems are in high demand to handle increasing population needs and aids the practicing doctors and hospital service and support staff with timely service and precision. usage of Hospital information system forms a crucial role. In case of the offline maintained of the records related to the patients and doctors and operations done and medicines available and operations can be done are nearly a big process to have in a har copy. It is not much easy to access that hard copy if you are in an urgent position. So, E-hospital management and hospital information system is developed so that I will be so easy and fast to access to the database of the hospital. The user can access from anywhere to the hospital website and can book and appointment or know the details of the hospital. They will be also known to the updates of the operations that are advanced available in the hospital.

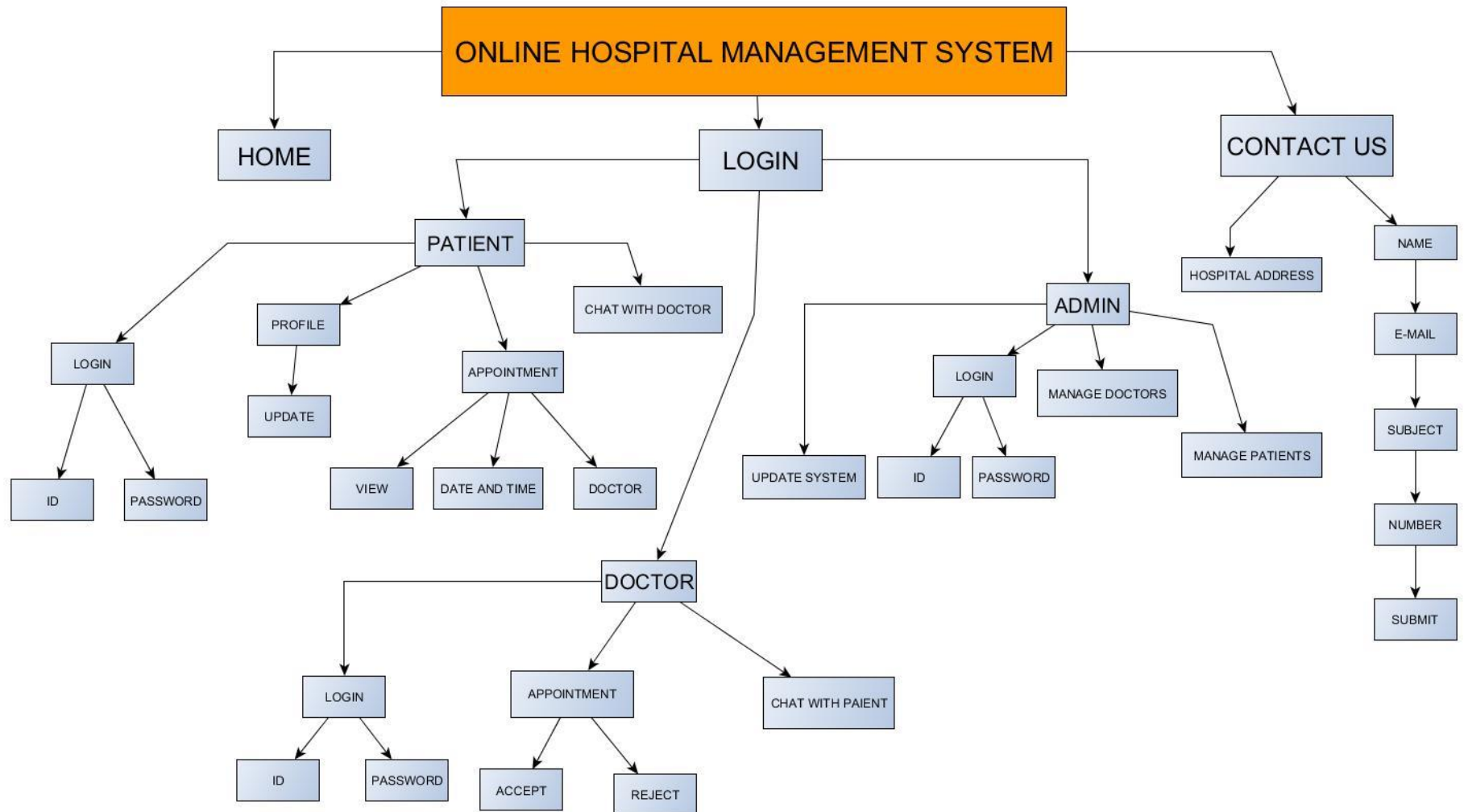
#### **CONCLUSION:-**

Success factors of E – HMS / HIS tend to vary depending upon leadership support, training, technology adoption, user friendliness, etc....HIPAA privacy guidelines and HL7 / RIM framework are identified as the primary determinants and metrics of Global compliance in developing and implementing successful E - hospital management solutions. Also, the various case study insights on Enhancements in E - Hospital Management domain.

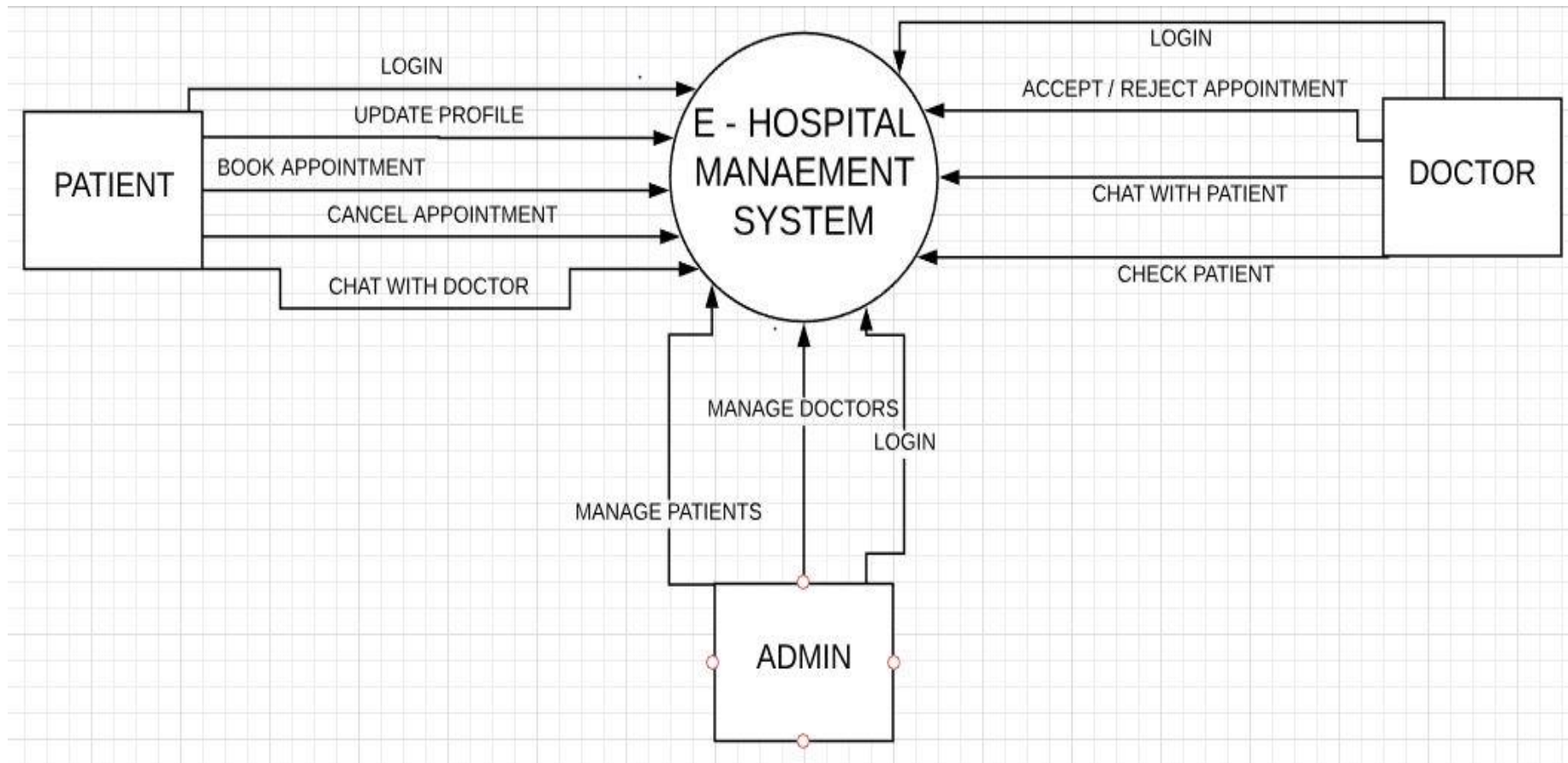
## **SOFTWARE RESOURCES: -**

- HTML – Hyper Text Markup Language
  - CSS - Cascading Style Sheet
  - Java Script
  - Angular JS
  - PHP – Hypertext Preprocessor
  - XAMPP – MySQL
  - Sublime Text
  - WAPT testing tool,
  - Web Loader testing tool.
- 
- We have used HTML, CSS and ANGULAR – jess for the front – end design of the web page. And JAVA SCRIPT, PHP for the back-end design. Then for information storage we have used XAMPP server (MySQL).
  - SUBLIME TEXT is used to write the front-end and back-end code (ice HTML, CSS, JAVA SCRIPT, PHP). WAPT testing tool is used for testing our website to improve the performance of the website. WAPT automates the testing and used for testing the LOAD at critical situations (Ice LOAD TESTING).
  - Web Loader is used for generating the script which is later used for re-testing.

## FLOW CHART:-

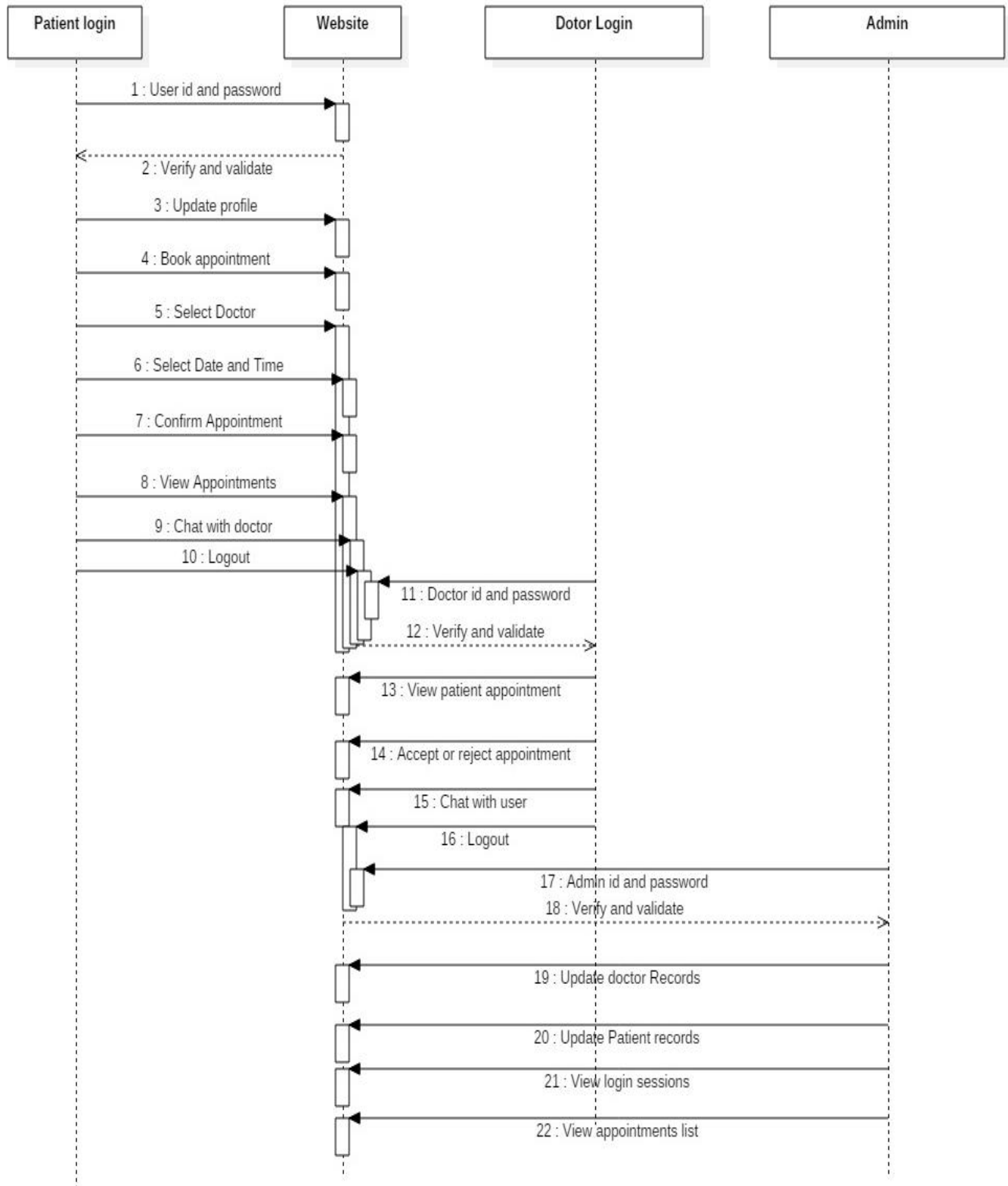


## DATA FLOW DIAGRAM:-





## SEQUENCE DIAGRAM:-



## **PROJECT DESCRIPTION:-**

Goals of proposed system

**1. Planned approach towards working:-** The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.

**2. Accuracy:-** The level of accuracy in the proposed system will be higher. All operation would be done correctly and it ensures that whatever information is coming from the center is accurate.

**3. Reliability:-** The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.

**4. No Redundancy:-** In the proposed system utmost care would be that no information is repeated anywhere, in storage or otherwise. This would assure economic use of storage space and consistency in the data stored.

**5. Immediate retrieval of information:-** The main objective of proposed system is to provide for a quick and efficient retrieval of information. Any type of information would be available whenever the user requires.

**6. Immediate storage of information:-** In manual system there are many problems to store the largest amount of information.

**7. Easy to Operate:-** The system should be easy to operate and should be such that it can be developed within a short period of time and fit in the limited budget of the user.

## **MODULES:-**

- 1. HOME**
- 2. PATIENT**
- 3. DOCTOR**
- 4. ADMIN**
- 5. CHAT APPLICATION**
- 6. CONTACT US**

## **Modules Description:-**

### **1. HOME**

We can select the options like patient, doctor, chat application and contact us for any help.

### **2. PATIENT**

It includes

#### **A. Login:-**

This helps the patient to register into the application through verification by aadhar number. Verification is done by government through admin module.

#### **B. My profile:-**

In this the patient can edit his/her details like name, address, city, gender, mail, etc.

#### **C. My appointments:-**

In this we can book appointment by selecting doctor specialization, doctors and consultancy fees. We can also select date and time.

#### **D. Appointment history:-**

We can also view our previous appointments. We can view the details of the previous doctors that we consulted.

### **3. DOCTOR**

#### **A. Login:-**

This module is used by doctors to login into the website. Verification of doctors is done by the government through admin module.

#### **B. My profile:-**

In this the doctor can view his/her details like name, specialization, visit time, etc

#### **C. My appointments:-**

In this doctors can view their appointments and cancel or approve the appointment based upon their free time.

### **4. ADMIN**

#### **A. Login:-**

This helps the government official to sign in to the website for verification of doctors and patients through their aadhar number and for doctors their certificates.

#### **B. Manage patients:-**

The admin can verify the details of the patient by using their specific aadhar number. If the patient enters wrong details then the admin has the rights to remove the account of particular patient.

### **C. Manage doctors:-**

Similarly with doctors, the admin can verify the doctor certificates and their Phd's using their verification methods. Since the admin is government official they have rights to verify certificates.

### **D. See appointments:-**

Admin can also view appointments of patients but cannot cancel or approve them.

## **5. CHAT**

We also included chat application which can be used as communication between doctor and patient.

In this we have two types of chats like Private chat and Public chat.

### **A. Private chat:-**

As the name itself says private, here only the doctor and patient can chat privately

### **B. Public chat:-**

Here all the patients and doctors are included in same chat. For example it can be used as emergency case like if we need blood of a rare group then we can post it public chat which can be seen by all the user included in the application.

## **6. CONTACT US**

In this module the users included in this web application like admin, doctor and patient can visit this page for reports or complaints.

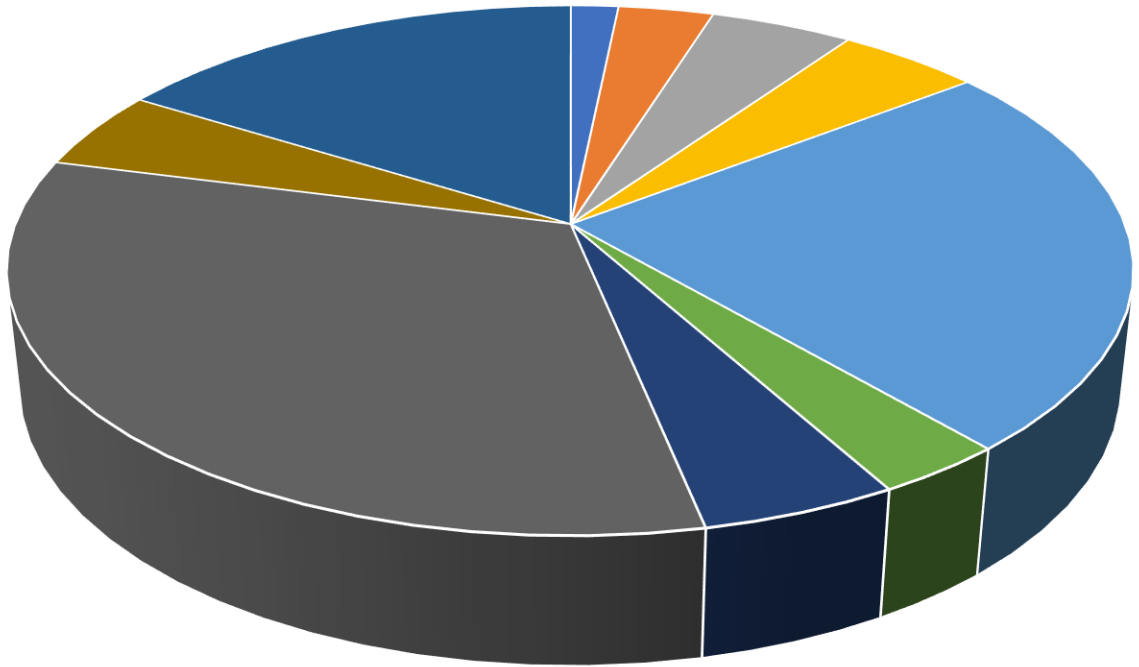
## **STAKEHOLDERS:-**

<b>Example Groups and Responsibilities</b>	<b>Example Roles</b>
<b>Board and Executive Leadership: Set Strategy and Priorities, Clinical Standards, Allocate Resources</b> <ul style="list-style-type: none"> <li>• Overall board and members with quality/safety interests: help set overall organizational agenda (including quality/safety focus), improvement priorities, resource allocation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Board Members,</b></li> <li>• <b>Chief Executive Officer,</b></li> <li>• <b>Chief Medical Information Officer.</b></li> </ul>
<b>Management/Oversight: Manage Processes Related to CDS Program</b> <ul style="list-style-type: none"> <li>• Healthcare organization departments/functions: responsible for processes/outcomes that will be affected by CDS program</li> <li>• Clinical departments (for example, laboratory, pharmacy, nursing, medicine, surgery, infection control) and service lines.</li> <li>• Organized medical staff .</li> <li>• Clinical director of information</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Quality Officer,</b></li> <li>• <b>Pharmacy Director,</b></li> <li>• <b>IT/Informatics Leadership,</b></li> <li>• <b>VP/Director of Nursing.</b></li> </ul>
<b>Implementation/Project Management: Develops, Deploys, Monitors CDS Interventions</b> <ul style="list-style-type: none"> <li>• CDS-specific: overall responsibility to deploy/maintain CDS knowledge assets, collect and analyze evaluation data</li> <li>• General IT: overall responsibility to support and maintain clinical information systems</li> </ul>	<b>Implementation Manager:</b> <p>The implementation manager is responsible for assigning ownership and tracking completion of all implementation tasks.</p>
<b>End Users and Related Positions: Perform Patient Care Activities Affected by CDS</b> <ul style="list-style-type: none"> <li>• End users: recipients of CDS interventions (for example, patients, nurses, pharmacists, physicians, others on the care team, case managers)</li> <li>• Related staff: generate data for, or are affected by, interventions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Super-User(s),</b></li> <li>• <b>Patient/Patient Representative,</b></li> <li>• <b>Clinical Curmudgeon.</b></li> </ul>

**Budget Plan:-**

<b>Description</b>	<b>Login and register module</b>	<b>Appointment</b>	<b>Chat application</b>	<b>Admin module</b>	<b>Total cost</b>
Planning and gathering requirement	1000	1000	2000	1000	5000
Designing front end	2000	3000	6000	1000	12000
Software cost	3000	5000	20000	2000	30000
Portal cost	3000	5000	10000	2000	20000
Database maintenance	15000	30000	50000	5000	100000
Doctor maintenance and approval	2000	5000	1000	2000	10000
Patient payment and maintenance	3000	7000	7000	3000	20000
Salary for doctors		100000			100000
Overall maintenance	20000	30000	60000	20000	130000
Human resource used and cost	3000	10000	20000	2000	35000
Testing system	10000	30000	50000	5000	95000
Repair cost		5000	6000	1000	12000
					5,69,000

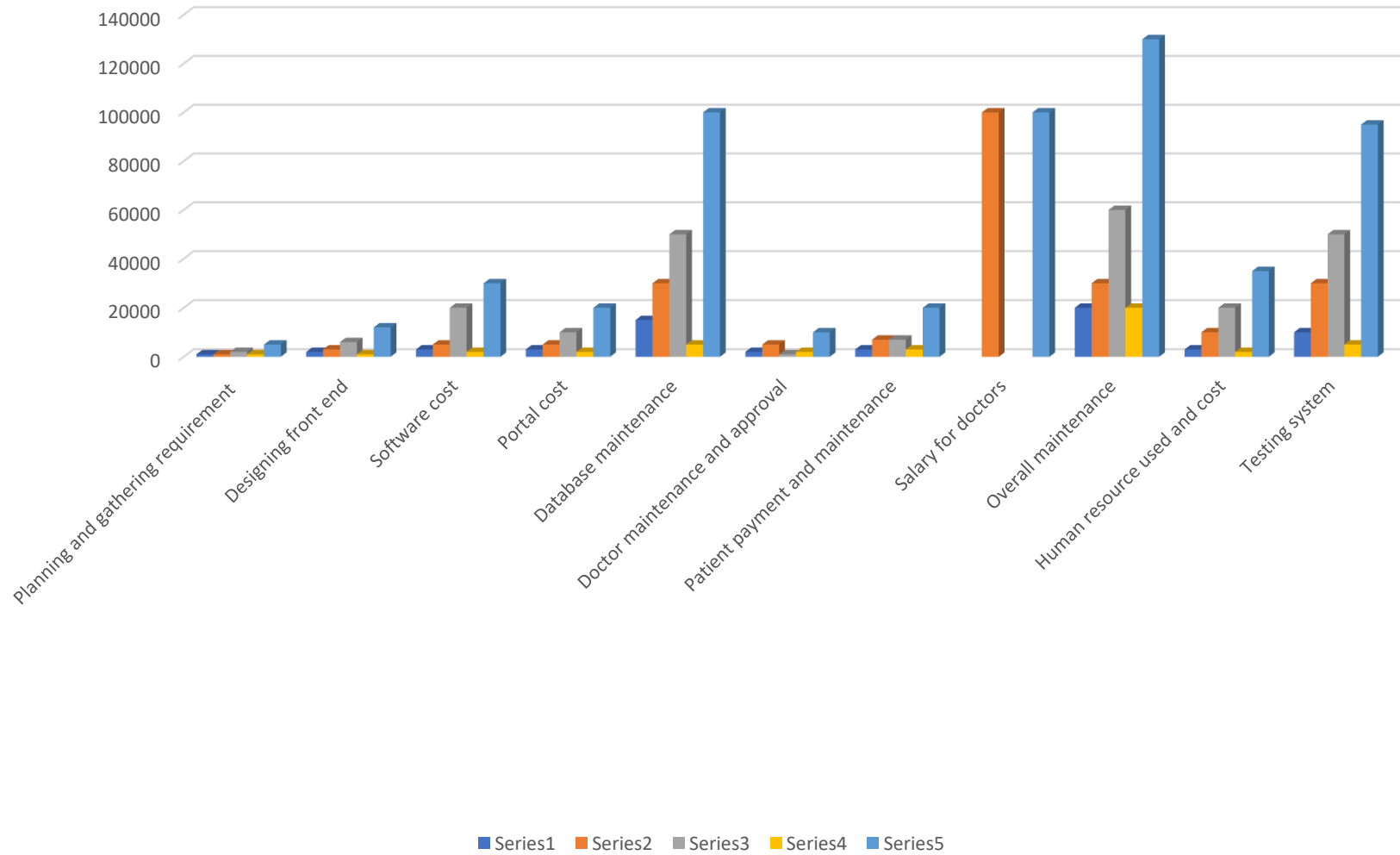
# Chart Title



- Planning and gathering requirement
- Designing front end
- Software cost
- Portal cost
- Database maintenance
- Doctor maintenance and approval
- Patient payment and maintenance
- Salary for doctors
- Overall maintenance
- Human resource used and cost
- Testing system



# Chart



## **SOCIAL MEDIA ENGAGEMENT:-**

- **E – NEWS PAPERS**
- **GOOGLE Adds**
- **Advertisements through blogs**
- **Trending's through FACEBOOK**
- **By keeping large HORDINGS**
- **Publishing through PAMPHLETS.**

## **GOVERNANCE AND SERVICES ON DEMAND:-**

### **EXAMPLE:**

The health sector in Nigeria is in a very poor state due to the fact that it is under funded by the government, therefore is extremely shortage of qualified health personnel at the primary health care level. Due to shortage, maintenance and under develop of health care infrastructures, many qualified nurses, doctors and physicians are lured away to developed countries in search of lucrative jobs while a few of these went into private practice.

In Nigeria, ninety percent of government and privately owned hospital still use file systems to store their day to day activities and information; thereby putting at risk the loss of information should any of the files get missing. With this problem in mind, the Nigeria government passed a law in 2011 requiring all government and privately owned hospitals must go digital by the end of 2014 at the latest so as to avoid any information loss and to centralize the health information of all Nigerians. To this end, Rainbow Specialist Medical Center, which is situated in Lagos Nigeria, decided to build software that will store the information of their daily activities including but not limited to registration of patients in

accordance to the law that was passed. (Helen Chapin Metz, ed. Nigeria: A Country Study. Washington: GPO for the Library of Congress, 1991.).

The company therefore required me to design software that is able to record all daily activities of their medical center. The medical center therefore suggest the name, hospital management software as the name of their software, therefore the implementation of Hospital Management Software will be called HMS from this point onward throughout this project. This project is a mini contract signed between myself and Rainbow Specialist Medical Center, as part of their effort to move from a file base system to computer based system.

Hospital management software is software meant to computerize the day to day average small hospital management activities and capable of providing easy and very effective storage information including patient registration, patient medical records, doctors and nurses information. Test reports, medication prescription details which include diet advice can also be performed by the system. The billing facility of either inpatient or outpatient is also an attribute of this software and most importantly, a backup facility is included in the software in case of unexpected crash.

## **UTILITY TO CITIZEN:-**

In present generation no one has patience in doing such things. They want the work to be done very quickly and don't want to waste their precious time. We may not know when we fall ill. In such case we may not have the time to wait for our turn and get the service from the doctor.

The admin will be the government, who can control the patient as well as the doctor. If they find any fake id of doctor as well as patient, the admin can remove the so that they can no longer get the service of E-Hospital management system. If all the features of this system are fully fledged, we can decrease the queue in the hospital for getting the treatment and the government can intimate the new policies or scheme, notify them in this system. Any type of information of the disease and the first aid for that can be got easily by the chatting with the doctor and get a fast and first treatment with the knowledge of the doctor. So, all the citizen is deserved to get services of the hospital easily and efficiently. With all these new features, we can able to make it better and make the people get benefited out of it.

## **ADVANTAGES:-**

- **Easy Use and Better Control**
- **Obsolescence of Technology**
- **Data Security and Backup**
- **Scalability**
- **Data Management becomes Easy**
- **Increased Patient Satisfaction**
- **Increased Patient Participation**
- **Better Control Over Hospital Administration**
- **Secured Data Backup**
- **Better Revenue Management**
- **Improved Hospital Reputation**
- **Achieve good quality ratings**
- **Avoid errors and track every single detail**

## **REFERENCES:-**

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