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**PADAMASHRI VIKHE PATIL COLLEGE OF ARTS SCIENCE AND COMMERCE,PRAVARANAGAR**

**DEPARTMENT OF COMPUTER SCIENCE**

**A PROJECT REPORT ON**

***“HOSPITAL MANAGEMENT SYSTEM”***

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***In Annual Fulfilment of B.Sc. (Computer Science) Degree***

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*Certificate*

***This is to certify that***

***of T.Y.BSc. (Comp. Sci)Seat No. has completed***

*“HOSPITAL MANAGEMENT SYSTEM”*

***As Laboratory Project of T.Y.BSc. (Comp. Sci) held by University***

***Of Pune during academic year 2021-2022.***

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Introduction

**List Of Platform :**

1. JAVA
2. BootStrap
3. MySql
4. Javascript

##### Project Introduction

Online hospital management system: A unique cloud based hospital management system for both patients and hospital stuffs (Doctors, Management). The primary target of this design is to make hospital experience better than we currently have. Hospital is a place where no one willingly wants to visit but there are times when we need to. The old system of hospitals are not very user friendly. The first big stem is waiting in the queue for long hours. There are lots of other problems that makes your hospital experience bad. Our main focus is to make peoples life easier in the hour of need. We are working to design such a system that will reduce a lot of paperwork and save peoples time.

Online Hospital Management System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals.

Hospital Management System is designed for multispeciality hospitals, to cover a wide range of hospital administration and management processes. It is an integrated end-to-end Hospital Management System that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow. Hospital Management System is a software product suite designed to improve the quality and management of hospital management in the areas of clinical process analysis and activity- based costing. Hospital Management System enables you to develop your organization and improve its effectiveness and quality of work. Managing the key processes efficiently is critical to the success of the hospital helps you manage your processes.

##### EXISTING SYSTEM AND NEED FOR SYSTEM

Existing System

Existing system is patient do not take the appointments of particular doctor. Facilities in the hospital are not known to the users. Existing provide information about hospital are only available within the hospital. Not solved any problems.

Need of System:

This System can be used by simple users who are take online appointments of particular doctor..Scope of project is that it gives only some specified information about hospital. This website can be installed on windows xp 8,10 based operating system .

The proposed system is having following objectives.

* + - User friendliness is provided in the application with various controls.
    - The system makes the overall project management much easier and flexible.
    - It can be accessed over the internet.
    - Vast amount of data can be stored.
    - There is no risk of data mismanagement at any level while the project development is under process.
    - Relationship between the administrator, owner/developer and subcontractor can be maintained very easily.
    - It provides high level of security using different protocols like https etc.
    - The Online Hospital Management System consists of 3 users or modules, they are:
    - Administrator
    - Doctor
    - User or Patient

##### SCOPE Of WORK

1. Information about Patients is done by just writing the Patients name, age and gender. Whenever the Patient comes up his information is stored freshly.
2. Bills are generated by recording price for each facility provided to Patient on a separate sheet and at last they all are summed up.
3. Diagnosis information to patients is generally recorded on the document, which contains Patient information. It is destroyed after some time period to decrease the paper load in the office.
4. Immunization records of children are maintained in pre-formatted sheets, which are kept in a file.
5. Information about various diseases is not kept as any document. Doctors themselves do this job by remembering various medicines. All this work is done

manually by the receptionist and other operational staff and lot of papers are needed to be handled and taken care of. Doctors have to remember various

medicines available for diagnosis and sometimes miss better alternatives as they can’t remember them at that time

##### Operating Environment - Hardware and Software Software Requirements:

a.User Interface : HTML,CSS

b.Clien Side Scripting : JavaScript c.. programming Languages : java

1. IDE : Eclipse
2. Database : MYSQL 5.1

f.Server : Apache Tomcat 9.0.

##### Hardware Requirements:

a.Processor : AMD A6

b. HDD : Minimum 20 GB

c.. RAM : 2 GB

##### Detail Description of Technology Used:

Why Java?

Java is a widely used programming language expressly designed for use in the [distributed](https://whatis.techtarget.com/definition/distributed) environment of the internet. It is the most popular programming language for Android [smartphone](https://searchmobilecomputing.techtarget.com/definition/smartphone) applications and is also among the most favored for the development of [edge devices](https://searchnetworking.techtarget.com/definition/edge-device) and the [internet of things](https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT).

**USES OF JAVA**

It is easy for developers to write programs which employ popular software design patterns and best practices using the various components found in Java EE. For example, frameworks such as Struts and JavaServer Faces all use a Java [servlet](https://searchmicroservices.techtarget.com/definition/servlet) to implement the front controller design pattern for centralizing requests.

##### History of Java

The internet and th[e World Wide Web](https://whatis.techtarget.com/definition/World-Wide-Web) were starting to emerge in 1996 and Java was not originally designed with the internet in mind. Instead, [Sun](https://www.theserverside.com/definition/Sun-Microsystems) [Microsystems](https://www.theserverside.com/definition/Sun-Microsystems) engineers envisioned small, appliance-sized, interconnected devices that could communicate with each other.

As a result, the Java programming language paid more attention to the task of network programming than other competing languages. Through the java.net APIs, the Java programming language took large strides in simplifying the traditionally difficult task of programming across a network.

J2EE

Java 2 Enterprise Edition is a programming platform part of the Java Platform for developing and running multitier architecture Java applications, based largely on modular software components running on an application server.

TOMCAT-

It’s an application server which is mostly used in the web-applications. It implements the Servlet 2.5 &JSP 2.1 specifications. It’s a cross-platform application Server.

JSP

Java Server Pages(JSP) is a server side Java technology that allows software developers to create dynamically generated web pages, with HTML, XML or other document types. JSPs are compiled into Servlets by a JSP compiler

SERVLET

Servlets are Java programming language objects that dynamically process requests & construct responses. The Servlet APIs are contained in the javax.servlet & javax.servlet.http packages. Servlets can be generated automatically by Java server (JSP Pages) compiler. NetBeans IDE NetBeans is the most comprehensive J2EE IDE() for the open Source netbeans platform.It incorporates most innovative open standard technologies to provide a development environment for J2EE WEB,XML,UML & database & a wide array of application server connectors to streamline development ,deployment, testing , portability.It’s a cross-platform.

##### Introduction to JSP

* + - It stands for Java Server Pages.
    - It is a server side technology.
    - It is used for creating web application.
    - It is used to create dynamic web content.
    - In this JSP tags are used to insert JAVA code into HTML pages.
    - It is an advanced version of Servlet Technology.
    - It is a Web based technology helps us to create dynamic and platform independent web pages.
    - In this, Java code can be inserted in HTML/ XML pages or both.
    - JSP is first converted into servlet by JSP container before processing the client’s request.

##### SP pages are more advantages than Servlet:

* + - They are easy to maintain.
    - No recompilation or redeployment is required.
    - JSP has access to entire API of JAVA .
    - JSP are extended version of Servlet.

##### Features of JSP

* + - **Coding in JSP is easy** :- As it is just adding JAVA code to HTML/XML.
    - **Reduction in the length of Code** :- In JSP we use action tags, custom tags etc.
    - **Connection to Database is easier** :-It is easier to connect website to database and allows to read or write data easily to the database.
    - **Make Interactive websites** :- In this we can create dynamic web pages which helps user to interact in real time environment.
    - **Portable, Powerful, flexible and easy to maintain** :- as these are browser and server independent.
    - **No Redeployment and No Re-Compilation** :- It is dynamic, secure and platform independent so no need to re-compilation.
    - **Extension to Servlet** :- as it has all features of servlets, implicit objects and custom tags

Steps for Execution of JSP are following:-

* + - Create html page from where request will be sent to server eg try.html.
    - To handle to request of user next is to create .jsp file Eg. new.jsp
    - Create project folder structure.
    - Create XML file eg my.xml.
    - Create WAR file.
    - Start Tomcat
    - Run Application



**PROPOSED SYSTEM**

##### Proposed System

Online hospital Management System is a digital application which easily visit online. This website is simple to handle as well as use to noncomputer user also. We can also easily find the required information about Ghati Hospital. We can easily find specialty doctors and take appointment of that doctor.

This software automates and manages the working of hospitals. The database system keeps track of data required for various departments in a hospital. The whole project is divided into following modules:

* + - **Patient Details (IPD/OPD)** :This module keeps record of the indoor patients admitted, new outdoor patients,old outdoor patients revisiting the hospital for check- up, patients discharged, employees working in the hospital, details of the rooms issued to the patients, charges of various rooms, room transfers of the patients within the hospital, receipts for advance and bill payments, etc

**.Billing** :This module is used for managing the billing of patients including all kinds of charges such as room charges, doctor charges and other miscellaneous charges deducting the net advance paid, if any and discount provided,if any.

* + - **Login** :This module deals with the security matters, user logons and authentications. It is used to create new users, who can login to the software of hospital and change password, if a user finds some security problems. Proper authorization will be done to take care of who is accessing the database – Administrator, CMO, doctor, operator or patient.
* **Reduction of Paper Work**: No need of voluminous files

.**Speed**: The machine can retrieve and modify data far faster than a human can.

* **Redundancy**: Redundancy of data entry can be eradicated.
* **Cost Saving**: Money spent on papers and files can be saved.
* Easy and Durable Storage
* Ease in the process of handling accounts like bill payments and receipts
* Proper Authorization and Security
* Online Access

##### Objective Of The System

Online Hospital Management System automates and manages the working of hospitals. This is faster and more impressive than the traditional hospital system. The whole project is divided into different modules. The proposed system not only overcomes the loopholes in the existing system but also provides additional features, which will help in better management and also make the work of users easier. The specific objectives of the research are:

* To maintain the record of indoor and outdoor patients

.To computerize the records of employees working in the hospital, including their financial aspects

.Automation of billing of patients.

* Management of Hospital Stock Inventory.

The patient record touches, in some way, virtually everyone associated with providing, receiving or reimbursing health care services. This wide range of applications and use has led to efforts to automate the collection, storage and management of the data that constitute these records. But in spite of more than 30 years of exploratory work and millions of dollars in research and implementation of computer systems in health care provider institutions, patient records today are still predominantly paper records. This evident lack of diffusion of information management technologies in the health care sector has limited the tools available for effective decision-making. Given the importance of patient data to the activities of all portions of the health care spectrum,an effort was made to improve patient records, acting in response to expanding demands for information and for increased functional capacity of patient record systems, as well as the considerable recent technological advances that bring the benefits of computer-based patient records within reach.A patient's medical record has always been a dispersed entity. It can be defined as the accumulation of medical information concerning the patient. Ideally, this information is bundled in a single folder with the patient's identification data on the cover. Much of the information in the records is obsolete, redundant, duplicated or indecipherable

to the extent that it does not benefit the patient at the point of care. Ownership of the data is also a limiting issue.Many hospitals consider the records in their systems to be their property, whereas many patients argue that their medical information is their own. Consequently, a distinction is made between ownership of the physical record and the right to access (or duplicate) data that are stored in it. It is typically agreed that patients have the right to be informed of the general content of their medical record and that patients' care providers must be allowed access to any information that is relevant to a patient's treatment. They said that using the Internet to transmit medical information could allow providers, access to medical information at the point of care, but it might violate patient confidentiality. Obstacles that have prevented such implementation include patient and provider identification, security requirements, content issues, format and language. A patient controlled, “granularly secured” and cross sectional medical record that is accessible via the World Wide Web may be simple enough to implement and practical enough to show benefit.Electronic medical record systems improve the quality of patient care and decrease medical errors, but their financial effects have not been as well documented. If we estimate the net financial benefit and cost of implementing electronic medical record systems in primary care and perform a cost-benefit study to analyze the financial effects of electronic medical record systems in ambulatory primary care settings from the perspective of the health care organization, benefits accrue primarily from savings in drug expenditures, improved utilization of radiology tests, better capture of Design and Development of Online Hospital Management Information System81charges and decreased billing errors. Implementation of an electronic medical record system in primary care can result in a positive financialreturn on investment to the health care organization and the magnitude of the return is sensitive to several key factors.

Automation results in an improvement in response time and greater efficiency in diagnostic procedures. Electronic health records (EHRs) have a great impact on documentation time of physicians and nurses. The use of bedside terminals and central station desktops caused reduction in documentation time

###### General objective

General objective of our project is make Online hospital management for patients who take online appointment of particular doctors at home..

###### Specific objective

* + - * System admin verify Peoples in database .
      * It reduces time consuming.
      * Being an integrated reduce paper work.

##### USER REQUIREMENTS

The system is developed taking into the various requirements of the Customer. They can be listed as below:-

1. peoples known the information about hospital
2. peoples have some problems related to hospital facilities.
3. These all solved by Ghati Hospital System
4. Patients are take appointment of specialist doctor.

##### Functional requirements

A user interacts with the system. It involves registration for Admin,Patient and Doctor as well as sending them questions. It also includes functions for the Online Hospital System to register and approve registered appointment.

##### Non-functional requirement

**Usability :** Our system is reusability system since a segment of source code that can be used again to add new functionalities with slight modification.

**Portability** : The Online result analysis shall run in any platform environments because it is platform independent and the MYSQL

**Availability** : However can open site anytime to access other information for Customer. Customer can register anytime.This system must run on multiple operating systems and also support windows operating system

**Robustness :** Product is robust. Because, security has become more robust in java. In addition to the role based security in java comes with a new security model, codes access security. This security controls on what the code can access.

##### Feasibility Study

The above specified software is feasible in all manners i.e. Technically operationally and economically.

1. No training is required
2. No extra investment
3. No extra hardware and hardware installation
4. No running expenses
5. (O.S. is already available)
6. The user of this system is system administrator so very less training is required (Few minutes)

As per my convenience, we decide to develop the computerized system,& start work on it, then our first work is to checked whether the propose system is feasible in the point of view of operational, technical and economical or not ? Depending on the results of the initial investigation the survey is now expanded to a more detailed feasibility study. “FEASIBILITY STUDY” is a test of system proposal according to its workability, impact of the organization, ability to meet needs and effective use of the resources. It focuses on these major questions:

* + What are the user’s demonstrable needs and how does a candidate system meet them?
  + What resources are available for given candidate system?
  + What are the likely impacts of the candidate system on the organization?
  + Whether it is worth to solve the problem?
  + During feasibility analysis for this project, following primary areas of interest are to be considered.
  + Investigation and generating ideas about a new system does this.

Steps in feasibility analysis : Eight steps involved in the feasibility analysis are: 1)Form a project team and appoint a project leader.

2)Prepare system flowcharts. 3)Enumerate potential proposed system.

1. Define and identify characteristics of proposed system.
2. Determine and evaluate performance and cost effective of each proposed system. 6)Weight system performance and cost data.
3. Select the best-proposed system.
4. Prepare and report final project directive to management.
5. Technical Feasibility Study

The First point in feasibility study is Technical Feasibility A study of resource availability that may affect the ability to achieve an acceptable system. This evaluation determines whether the technology needed for the proposed system is available or not.

1. Can the work for the project be done with current equipment existing software technology & available personal?
2. Can the system be upgraded if developed?
3. If new technology is needed then what can be developed?
4. This is concerned with specifying equipment and software that will successfully satisfy the user requirement.

The technical needs of the system may include: Front-end and back-end selection An important issue for the development of a project is the selection of suitable frontend and back-end. When we decided to develop the project we went through an extensive study to determine the most suitable platform that suits the needs of the organization as well as helps in development of the project. The aspects of our study included the following factors.

##### Economical Feasibility Study

The second point in feasibility study is Economical Feasibility, which deals with the economical aspects. In this section, we can check that how much cost will expend for implementing the proposed system ? We found that no need of arranging any external training programs system, no need of purchasing or upgrading high budget hardware, MS-ACCESS, visual studio 2008 are already available in the organization. To develop the proposed computerized system, very small amount of cost is expended.

##### Operational Feasibility Study

The first point in feasibility study is Operational Feasibility, which deals with the operational efficiency of the system and result generated from the system. The second point in feasibility study is Technical Feasibility, which deals with the various technical aspects of the system and which highlights the technological advantages of the system. In the technical feasibility study we check that whether the existing setup of computers, printers, scanners, stabilizers is sufficient for the propose system or not

? Is there any need of upgrading the computers or their hardware configuration or need of purchasing some new hardware & related peripherals ?