

## **ABSTRACT**

The purpose of the project entitled as “HOSPITAL MANAGEMENT SYSTEM” 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, etc. Traditionally, it was done manually. The main function of the system is register and store patient and doctor details and retrieve these details as and when required, and also to manipulate these details meaningfully. System input contains patient details, diagnosis details, while system output is to get these details on to the screen. 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.

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# **1. Introduction**

## **1.1 Introduction:**

The project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. It includes a search facility to know the current status of each room. User can search availability of a doctor and the details of a patient using the id. A 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 interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast. A Hospital Management System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. A Hospital Management System is designed for multi-speciality 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. A Hospital Management System is a software product suite designed to improve the quality and management of hospital 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.

## **1.2 Problem Introduction:**

### **Lack of immediate retrievals: -**

The information is very difficult to retrieve and to find particular information like- E.g. - To find

out about the patient's

history, the user has to go through various registers. This results in inconvenience and wastage of time.

### **Lack of immediate information storage: -**

The information generated by various transactions takes time and efforts to be stored at right place.

### Lack of prompt updating: -

Various changes to information like patient details or immunization details of child are difficult to make as paper work is involved.

### Error prone manual calculation: -

Manual calculations are error prone and take a lot of time this may result in incorrect information. For example,

calculation of patient's bill based on various treatments.

### Preparation of accurate and prompt reports: -

This becomes a difficult task as information is difficult to collect from various register.

### **Objectives:-**

- 1) Define hospital
- 2) Recording information about the Patients that come.
- 3) Generating bills.
- 4) Recording information related to diagnosis given to patients.
- 5) Keeping record of the immunization provided to children/patients.
- 6) Keeping information about various diseases and medicines available to cure them. These are the various jobs that need to be done in a Hospital by the operational staff and Doctors. All these works are done on papers.

#### **• Scope of the Project :-**

- 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.

### **1.3 MODULES:**

The entire project mainly consists of 7 modules, which are

- Admin module
- User module (patient)
- Doctor module
- Nurse module
- Pharmacist module
- Laboratorist module
- Accountant module

#### **1.3.1 Admin module:**

- Manage department of hospitals, user, doctor, nurse, pharmacist, laboratorist accounts.
- Watch appointment of doctors
- Watch transaction reports of patient payment
- Bed, ward, cabin status
- Watch blood bank report
- Watch medicine status of hospital stock
- Watch operation report
- Watch birth report
- Watch diagnosis report
- Watch death report

#### **1.3.2 User module(patient):**

- View appointment list and status with doctors
- View prescription details
- View medication from doctor
- View doctor list
- View blood bank status
- View operation history
- View admit history. like bed, ward ICU etc
- Manage own profile

#### **1.3.3 Doctor module:**

- Manage patient. account opening and updating
- Create, manage appointment with patient
- Create prescription for patient
- Provide medication for patients
- Issue for operation of patients and creates operation report
- Manage own profile

#### **1.3.4 Nurse module:**

- Manage patient. account opening and updating
- Allot bed, ward, cabin for patients
- Provide medication according to patient prescription
- Manage blood bank and update status
- Keep record of patient operation, baby born and death of patient
- Manage own profile

#### **1.3.5 Pharmacist module:**

- Maintain medicine
- Keep records of hospitals stock medicines and status
- Manage medicine categories
- Watch prescription of patient
- Provide medication to prescriptions

#### **1.3.6 Laboratorist module:**

- Watch prescription list
- Upload diagnostic report
- Preview of report files. like X-ray images, CT scan, MRI reports
- Manage own profile

#### **1.3.7 Accountant module:**

- Create invoice for payment
- Order invoice to patient
- Take cash payment
- Watch payment history of patients
- Manage own profile

## **2. Requirement Specification**

### **2.1 INTRODUCTION:**

To be used efficiently, all computer software needs certain hardware components or the other software resources to be present on a computer. These pre-requisites are known as (computer) system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements.

### **2.2 HARDWARE REQUIREMENTS:**

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatibility and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

### **2.3 SOFTWARE REQUIREMENTS:**

Software Requirements deal with defining software resource requirements and pre-requisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or pre-requisites are generally not included in the software installation package and need to be installed separately before the software is installed.

OPERATING SYSTEM: Windows 7/ XP/8/10 and above

LANGUAGE USED: Django, Html, CSS, Javascript

DATABASE: Mysql

### **3. ANALYSIS**

#### **3.1 EXISTING SYSTEM:**

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores.

#### **3.2 PROPOSED SYSTEM:**

The Hospital Management System is designed for any hospital to replace their existing manual papers based system. The new system is to control the information of patients. Room availability, staff and operating room schedules and patient invoices. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks.

#### **3.3 FEASIBILITY STUDY**

The feasibility of the project is analysed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

##### **3.3.1 Economic Feasibility**

This study is carried out to check the economic impact will have on the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus, the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customised products have to be purchased.

##### **3.3.2 Technical Feasibility**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on



the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes for the implementing this system.

### 3.3.3 Operational Feasibility

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## **3.4 SOFTWARE SPECIFICATION:**

## **4. SYSTEM DESIGN:**

### **4.1.1 INTRODUCTION TO UML:**

The Unified Modelling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the software system and its components. It is a graphical language, which provides a vocabulary and set of semantics and rules. The UML focuses on the conceptual and physical representation of the system. It captures the decisions and understandings about systems that must be constructed. It is used to understand, design, configure, maintain, and control information about the systems.

The UML is a language for: Visualizing, Specifying, Constructing, Documenting

- **Visualizing**

Through UML we see or visualize an existing system and ultimately, we visualize how the system is going to be after implementation. Unless we think, we cannot implement. UML helps to visualize, how the components of the system communicate and interact with each other.

- **Specifying**

Specifying means building, models that are precise, unambiguous and complete UML addresses the specification of all the important analysis design, implementation decisions that must be made in developing and deploying a software system.

- **Constructing**

UML models can be directly connected to a variety of programming language through mapping a model from UML to a programming language like JAVA or C++ or VB. Forward Engineering and Reverse Engineering is possible through UML.

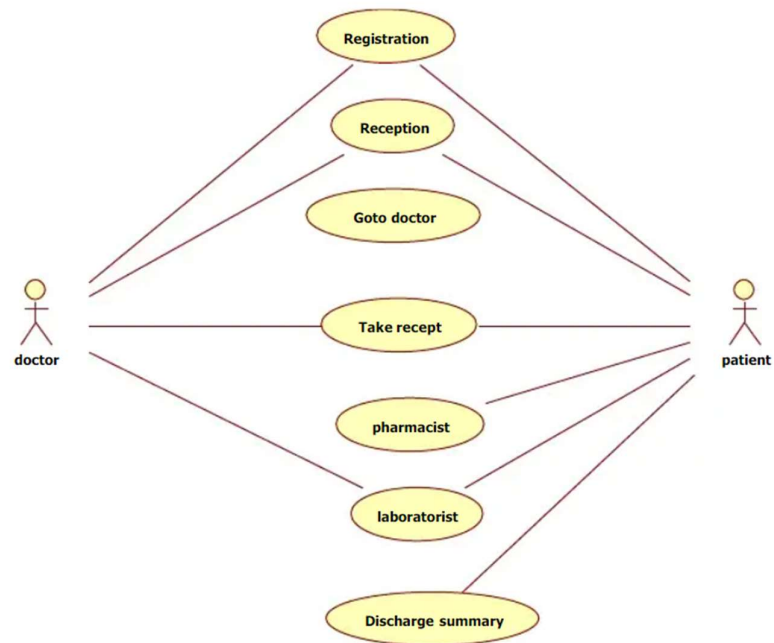
- **Documenting**

The Deliverables of a project apart from coding are some Artifacts, which are critical in controlling, measuring and communicating about a system during its developing requirements, architecture, design, source code, project plans, tests, prototypes, releases, etc.

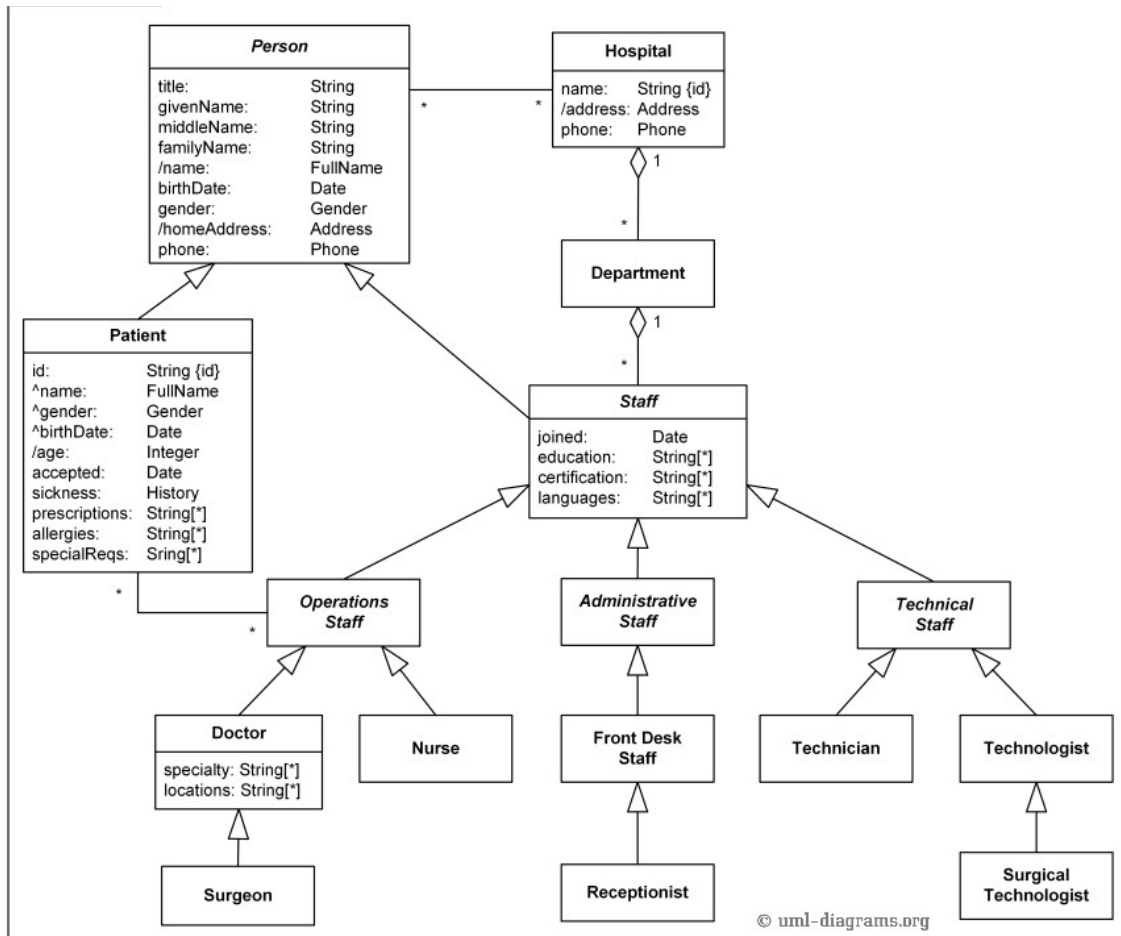
### **USE CASE DIAGRAM:**

A use case diagram in the Unified Modelling Language (UML) is a type of behavioural diagram defined by and created from a use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. Use

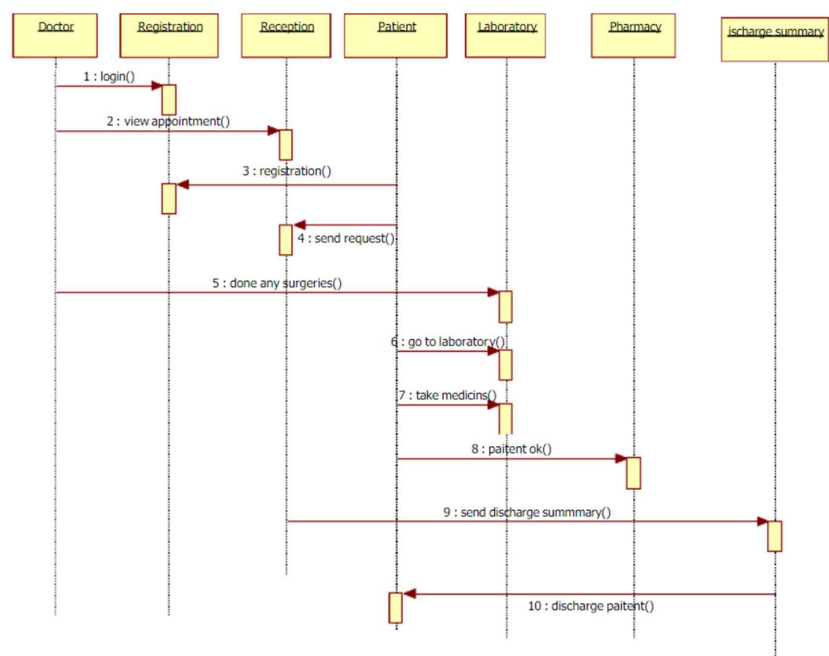
case diagrams are formally included in two modelling languages defined by the OMG:  
the unified modelling language(UML) and the systems modelling language(sysML)



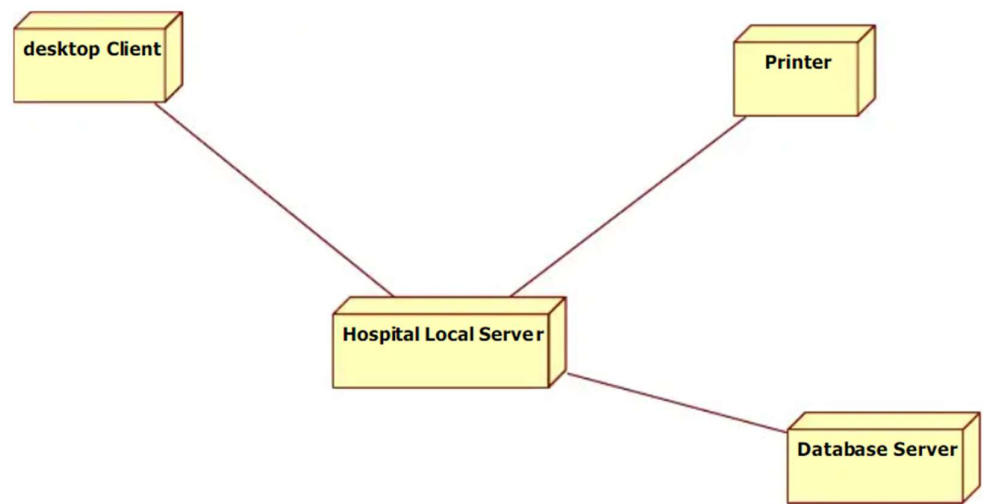
## Class Diagram:



Sequence Diagram:



Deployment Diagram:



## **5. SYSTEM IMPLEMENTATION**

### **5.1 Introduction:**

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus, it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective. An implementation stage involves careful planning, investigation of the existing system and its constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

## 6. CONCLUSION

### 6.1 Conclusion:

Since we are entering details of the patients electronically in the " Hospital Management System", data will be secured. Using this application, we can retrieve patient's history with a

single click. Thus, processing information will be faster. It guarantees accurate maintenance of patient details. It easily reduces the book keeping task and thus reduces the human effort and increases accuracy speed.