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DEPARTMENT OF COMPUTER AND SOFTWARE ENGINEERING

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MODULE TITLE: SOFTWARE DESIGN AND DEVELOPMENT

PROJECT: CLINIC HEALTH SYSTEM

CLINIC HEALTH SYSTEM REPORT

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CHAPTER 1. INTRODUCTION

1.1 INTRODUCTION

The project Clinic Health 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.

The Clinic Health System can be entered using the email and password. It is accessible by an Administrator . 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.

Clinic Health System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to clinics.

Clinic Health System is designed for multispeciality clinics, to cover a wide range of clinics administration and management processes. It is an integrated end-to-end Clinic Health 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.

Clinic Health System is a software product suite designed to improve the quality and management of clinic management in the areas of clinical process analysis and activity-based costing. Clinic Health 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 clinic helps you manage your processes

1.2 PROBLEM STATEMENT

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 in convenienceand 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

Objective:

- 1) Define clinic
- 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 MODULE

The main module in the entire project is Admin module

- manage department of clinics, user, doctor, nurse, pharmacist, laboratorist, accounts.
- watch appointment of doctors



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- 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

CHAPTER 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.

HARDWARE REQUIREMENTS FOR PRESENT PROJECT:



PROCESSOR : Intel dual Core , 2.6 HZ

RAM : 4 GB

HARD DISK : 500 GB

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.

SOFTWARE REQUIREMENTS FOR PRESENT PROJECT:

OPERATING SYSTEM : Windows 10

FRONT END : Html,css,java script,bootstrap.

SERVER SIDE SCRIPT : Php laravel

DATABASE : Mysql

CHAPTER 3

SYSTEM ANALYSIS

3.1 EXISTING SYSTEM:

Clinics currently use a manual system for the management and maintainance of critical information. The current system requires numerous paper forms, with data stores



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spread through out 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 Clinic Health System is designed for any clinic to replace their existing manual paper 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 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.

CHAPTER 4

SYSTEM DESIGN



4.1 SYSTEM DESIGN:

4.1.1 INTRODUCTION TO UML:

UML Design

The Unified Modeling 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...

4.2

UML Approach

UML Diagram

A diagram is the graphical presentation of a set of elements, most often rendered as a connected graph of vertices and arcs. You draw a diagram to visualize a system from different perspectives, so a diagram is a projection into a system. For all but most trivial systems, a diagram represents an elided view of the elements that make up a system. The same element may appear in all diagrams, only a few diagrams, or in no diagrams at all. In theory, a diagram may contain any combination of things and relationships. In practice, however, a small number of common combinations arise, which are consistent with the five most useful views that comprise the architecture of a software-intensive system. For this reason, the UML includes nine such diagrams:

1. Class diagram
2. Object diagram
3. Use case diagram
4. Sequence diagram
5. Collaboration diagram
6. State chart diagram
7. Activity diagram
8. Component diagram
9. Deployment diagram

USE CASE DIAGRAM:

A usecase diagram in the Unified Modeling Language(UML) is a type of behavioral 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 modeling languages defined by the OMG:theunfied modeling language(UML) and the systems modeling language(sysML)

Use case diagram of our project:

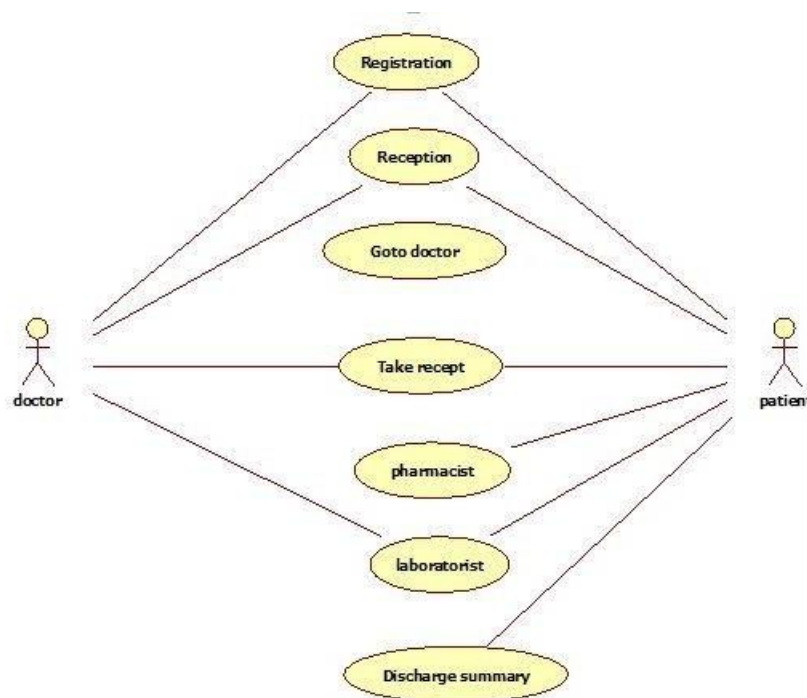


Figure 1 use case diagram

Class Diagram:

A Class is a category or group of things that has similar attributes and common behavior. A Rectangle is the icon that represents the class it is divided into three areas. The upper most area contains the name, the middle; area contains the attributes and the lowest areas show the operations. Class diagrams provides the representation that developers work from. Class diagrams help on the analysis side, too.

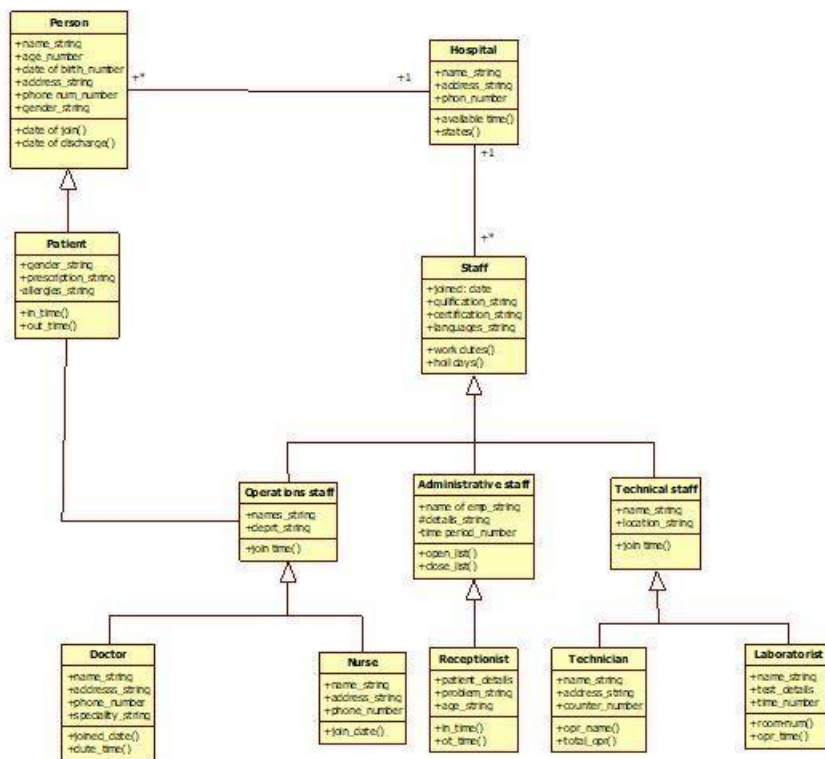


Figure 2 class diagram

Sequence diagram:

A **Sequence Diagram** is an interaction diagram that emphasizes the time ordering of messages; a collaboration diagram is an interaction diagram that emphasizes the structural organization of

the objects that send and receive messages. Sequence diagrams and collaboration diagrams are isomorphic, meaning that you can take one and transform it into the other.

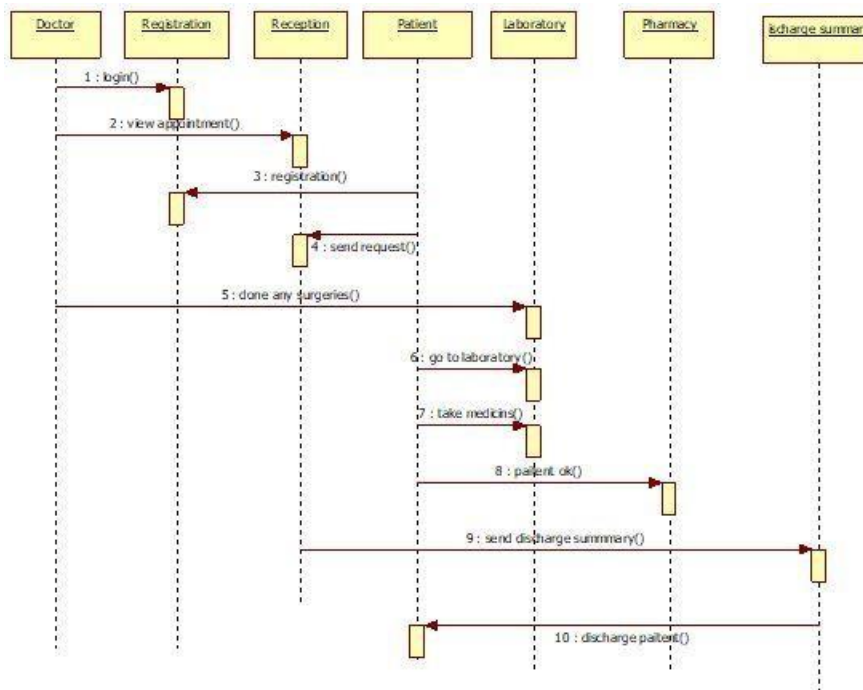


Figure 3 sequence diagram

Collaboration diagram:

A **Collaboration Diagram** also called a communication diagram or interaction diagram, is an illustration of the relationships and interactions among software objects. The concept is more than a decade old although it has been refined as modeling paradigms have evolved.

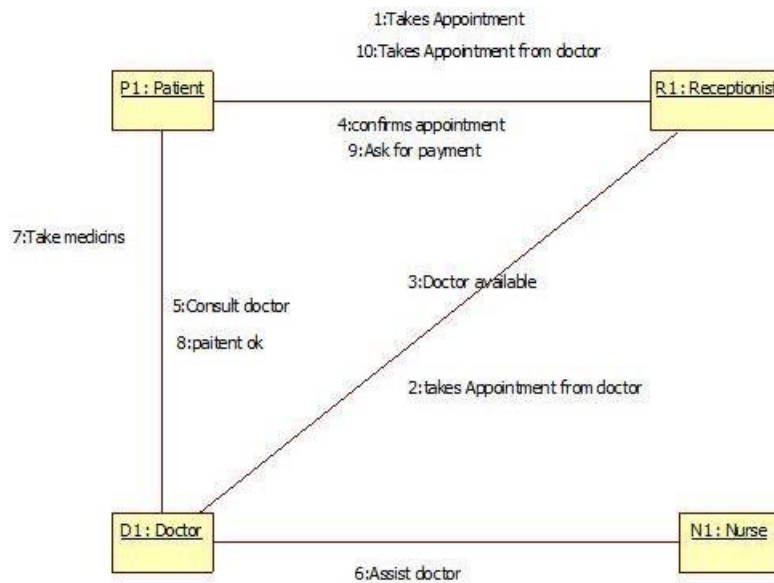


Figure 4 collaboration diagram

Statechart Diagrams:

The state diagram shows the states of an object and represents activities as arrows connecting the states. The Activity Diagram highlights the activities. Each activity is represented by a rounded rectangle-narrower and more oval-shaped than the state icon. An arrow represents the transition from the one activity to the next. The activity diagram has a starting point represented by filled-in circle, and an end point represented by bulls eye.

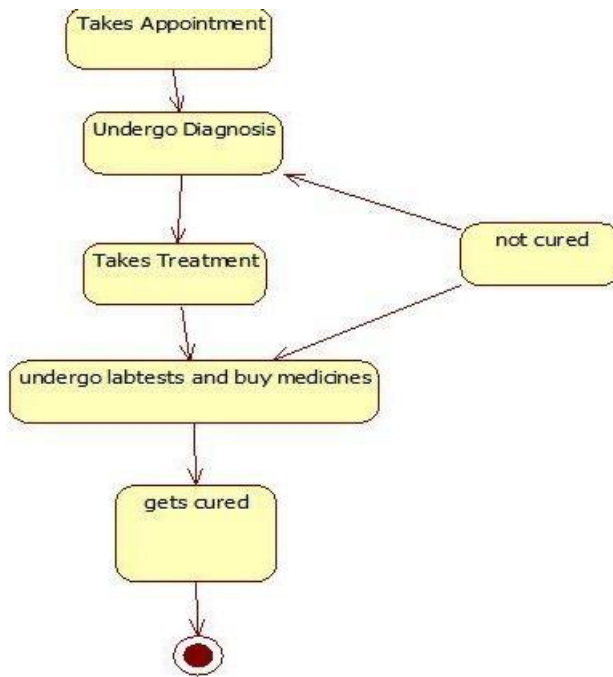


Figure 5 statechart diagram

CHAPTER 5

SYSTEM IMPLEMENTATION

5.1 Inroduction:

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.

The implementation stage involves careful planning, investigation of the existing system and it's constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

5.2 SAMPLE SCREENSHOTS

JD CLINIC HEALTH SYSTEM Login Register

Login

E-Mail Address

Password

☐ Remember Me

[Forgot Your Password?](#)

Figure 6 login page into system

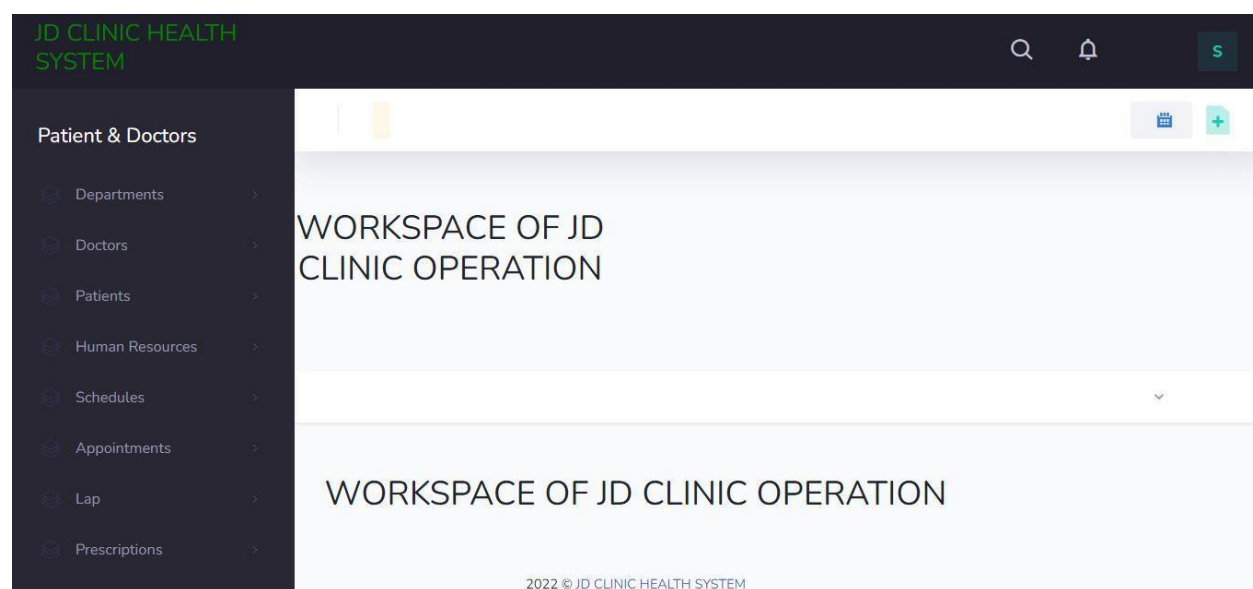


Figure 7 Admin panel



JD CLINIC HEALTH
SYSTEM

Departments List

#Page-ID

Departments

Doctors

Patients

Human Resources

Schedules

Appointments

Lap

Prescriptions

New Department Added Successfully.

Departments List

+ Add Department

| Name | Description | Actions | Delete |
|-----------------|---------------------------------------|---------|--------|
| wound dressing | action of wound dressing | ... | |
| plastic surgery | this is the action of plastic surgery | ... | |

Figure 8 add department

JD CLINIC HEALTH SYSTEM

Doctors List #Page-ID

✓ New Doctor Added Successfully.

Doctors List + Add Doctor



| Picture | Name | National ID | Email | Mobile Num | Departments | Ac |
|---|--------------------------------|--------------------|--------------------------|-------------|-------------------|----|
|  | nibishaka jean damascene | 11999880014152000 | nibishakadamas@gmail.com | 786868761 | wound dressing | |
|  | Mugisha Israel | 119932536485464474 | mgshisrael@gmail.com | 76543456789 | | |

Figure 9 Add doctor

JD CLINIC HEALTH SYSTEM

Add Patient

Blood Group
B+

Departments
wound dressing
plastic surgery
cardiology
psychiatry
orthopedics

Submit Cancel

↑

Figure 10 process of adding patient

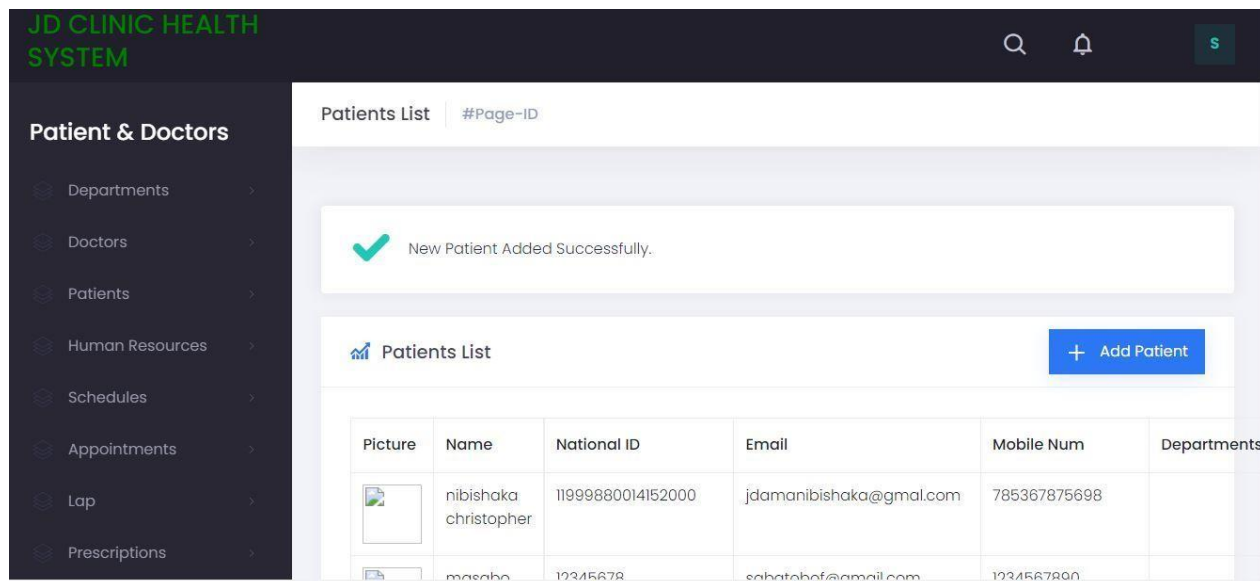


Figure 11 Add patient

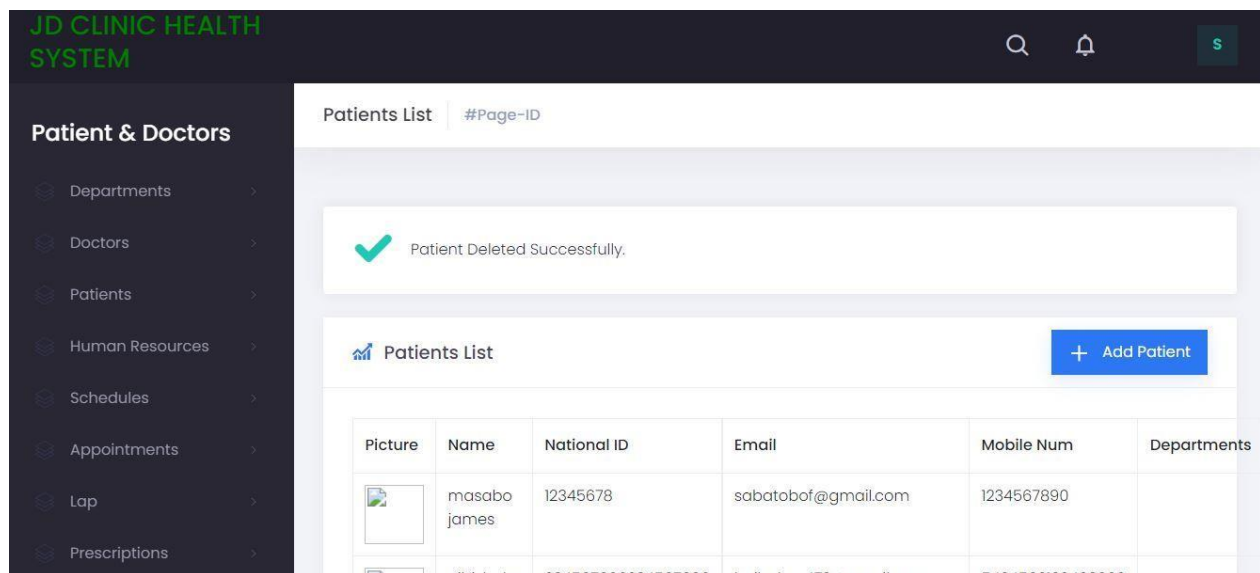


Figure 12 delete patient

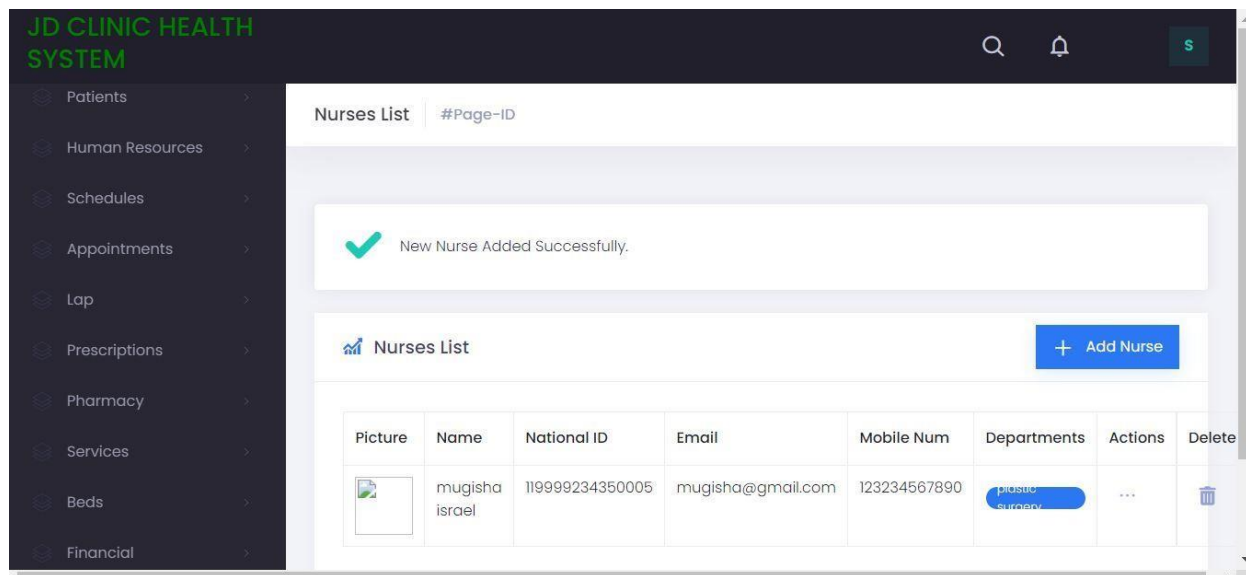


Figure 13 Add nurse

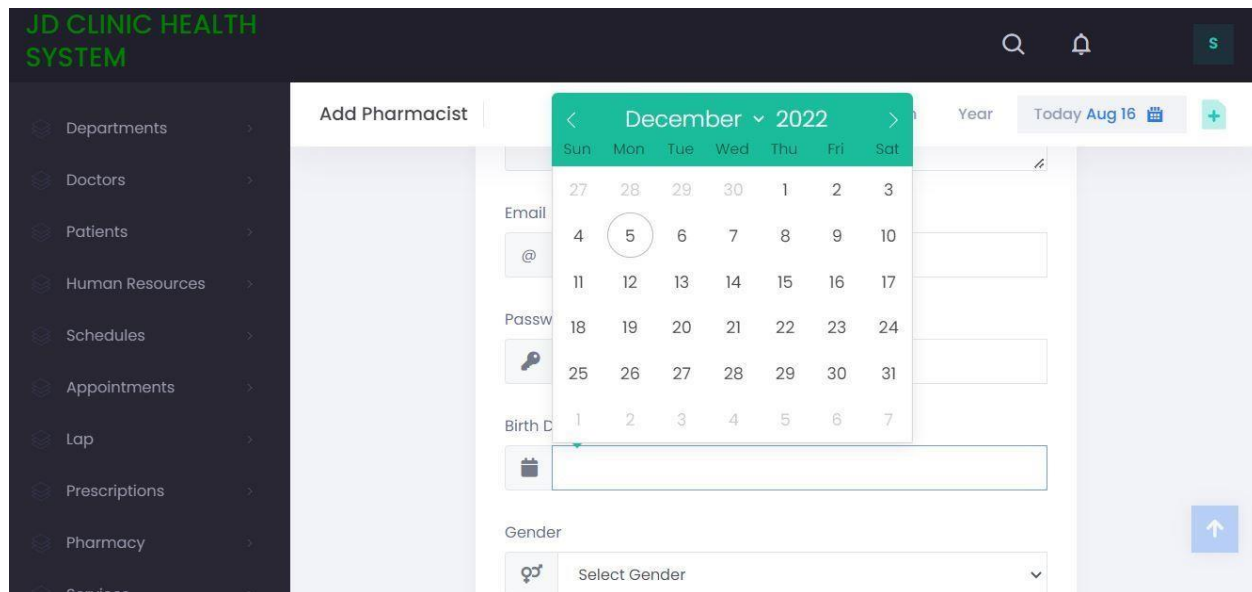


Figure 14 select date



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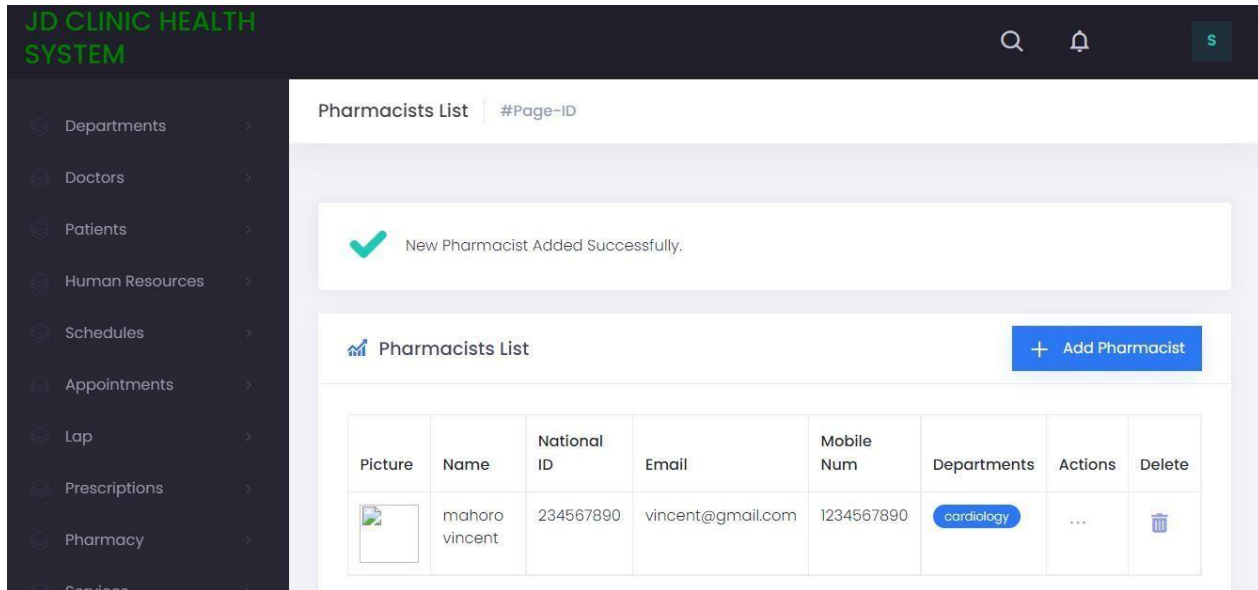


Figure 15 Add pharmacist

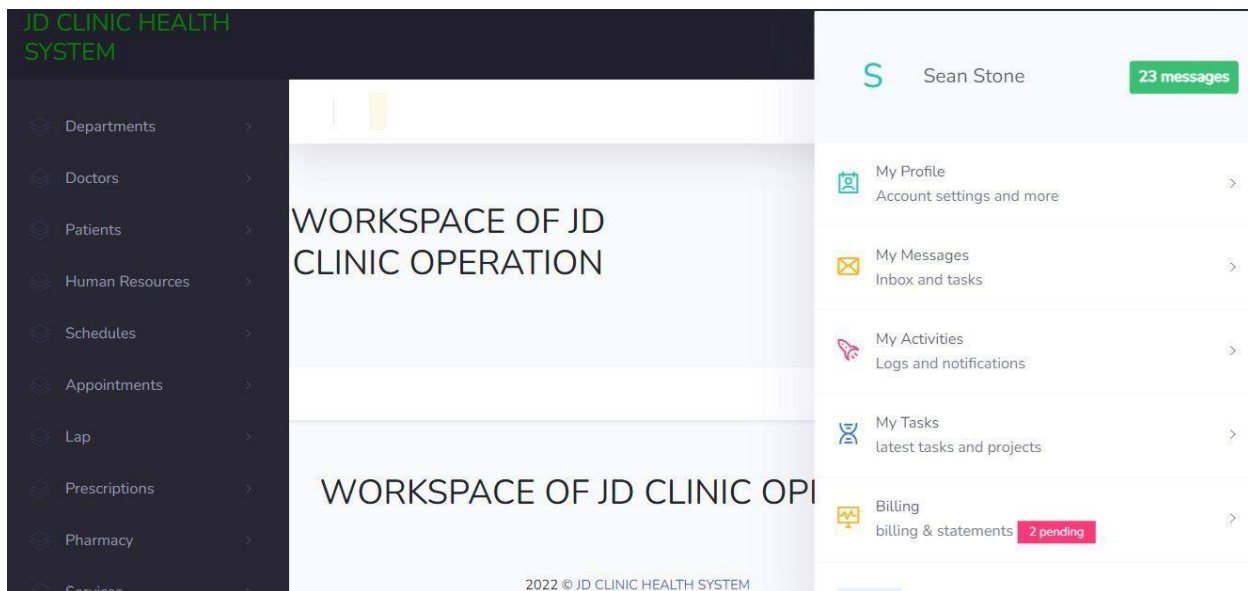


Figure 16 change profile of Admin



AS CONCLUSION

Clinic Health System is a software product suite designed to improve the quality and management of clinic management in the areas of clinical process analysis and activity-based costing. Clinic Health 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 clinic helps you manage your processes.

Appendix.

User name: Omel12

Password: Omel07812

Email: nibishakadamas@gmail.com

Link: <https://github.com/Omel12/clinic-health-system>

Use this credential to get into the system:

Email: jdamanibishaka@gmail.com

Password: Omel@123