CSE:302

DATABASE MANAGEMENT SYSTEM SESSIONAL

Project Name : E-Patient

Batch : CSE-18
Group : 04

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Introduction

The Patient management system is an integrated software that handles different directions of medical workflows and manages healthcare performance along with administrative and medical control.

A lot of the features, but not all are automated in the industry. Automation is present to some extent such as bill generation, patient management, etc. In the present, many operations such as taking staff attendance, updating the condition of the patients, current availability of doctors, medicine transactions etc. are done on paper. We try to incorporate these functions digitally as well, to increase the level of automation further. And all these need to be introduced to make communication between the people concerned with patients' health and the patient management better.

Present Scenario of the System

This system relates to the development of an automated healthcare system that addresses the needs and desires of both healthcare providers (e.g., patient service workers and clinicians) and patients. The system encompasses computer communications network-based systems, software and various input and output stations that work together to allow

- providers to direct, track, and optimize the efficiency of patient activity.

- patients to have ready access to their status and, in some cases, control of the healthcare process.

- improving communication to the patient, patient service workers, and hospital management.

Description of any working system

"POPULAR Hospital" is one of the leading hospitals which is attempting to fully digitalize the whole hospital system of theirs. We visited their Dhanmondi branch to gather info about their patient management system. Their system was monitored by a highly skilled software team and two database management teams. Almost all of their patient's data of one year has been stored in their database from the last 6 years and which is being used to improve the experience of their users.

Automated regular-checkup updates, Employee info, Patient's medicine taking data with their lab-report info, Pharmacy data, Blood Bank info and all of their management has been updated regularly and used to increase the management flexibility. Both patients and the hospital management are directly connected to each-other through this system.The system relates to the development of an automated healthcare system that addresses the needs and desires of both healthcare providers (e.g., patient service workers) and patients.

The system improves patient satisfaction by reducing wait times to be seen by a clinician and improving communication to the patient, patient service workers, and hospital management. By employing provider-accessible and patient-accessible information input/output stations such as a touch-screen kiosk, The system provides direct patient access to complete and accurate patient-specific information. The system also effectively establishes a process of managing waiting lines in any given area and then automatically and electronically linking to the next area.

The system provides direct patient access to complete and accurate patient-specific information.

Problems with the present system and why it should be improved

Existing systems for automating healthcare have focused on addressing the needs/desires of providers, not patients. As a result, patients often have to endure long waiting tim.es and poor customer service. • Registering and taking health care is very inefficient. Lots of paperwork which damages the efficiency of the employees.

To alleviate this problem, a system is needed that both maximizes the efficiency of the healthcare process and provides patients easy access to their status and/or control of the process which features a computer communications network-based system, software, various information input and output stations or devices (e.g., network access devices), and a patient identification device (e.g., identification card, RFID, smart card). Software useful in the invention is configurable to allow customization to meet the needs of each healthcare facility, provides management of queues, sub-queues, and modalities with and without application of user-defined business rules to facilitate patient recognition, check-in and provide feedback, queue information, weather, news, and marketing information to the patient as well as customer service-like features to the patient to enhance the quality of their visit to the healthcare facility.
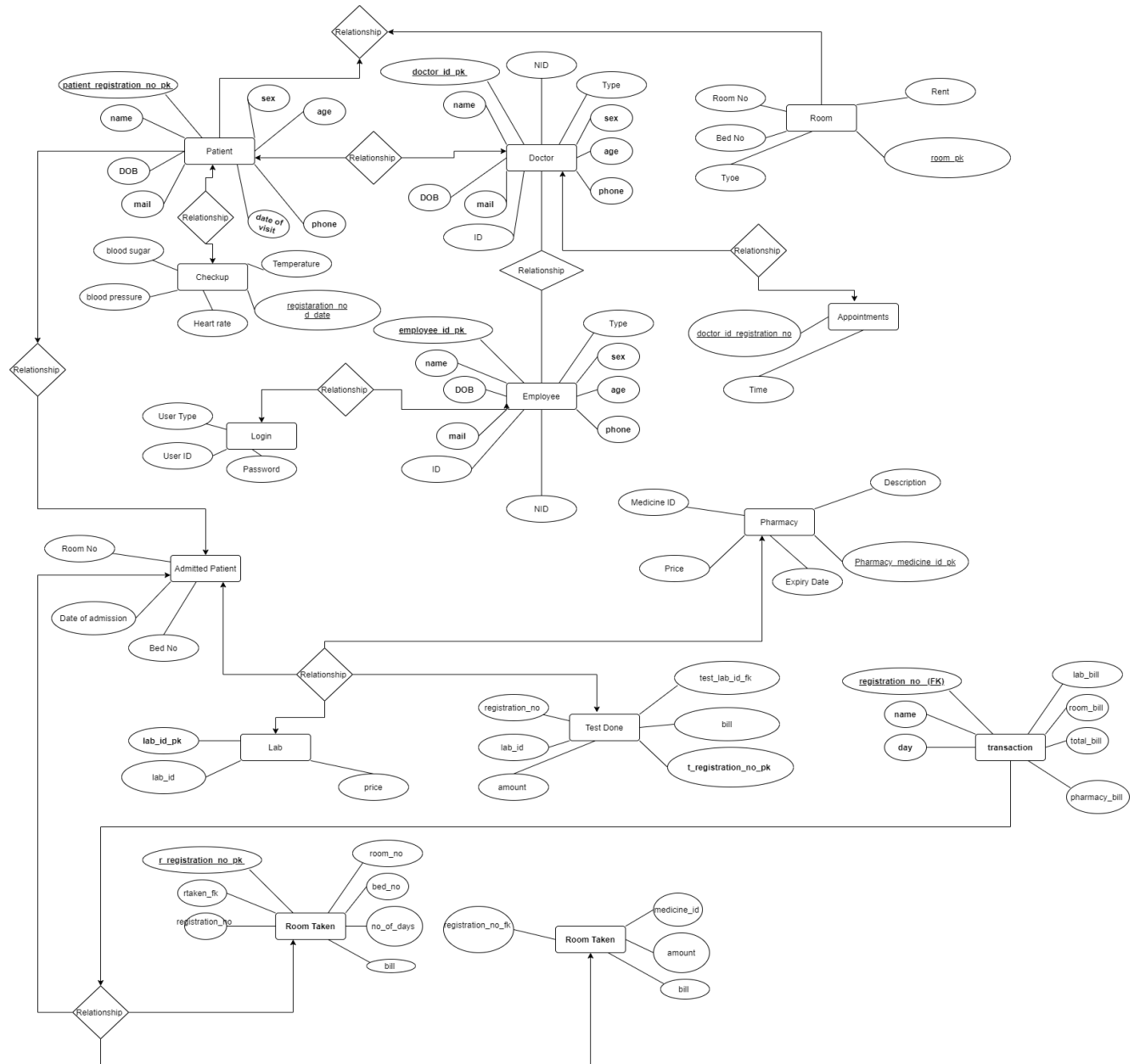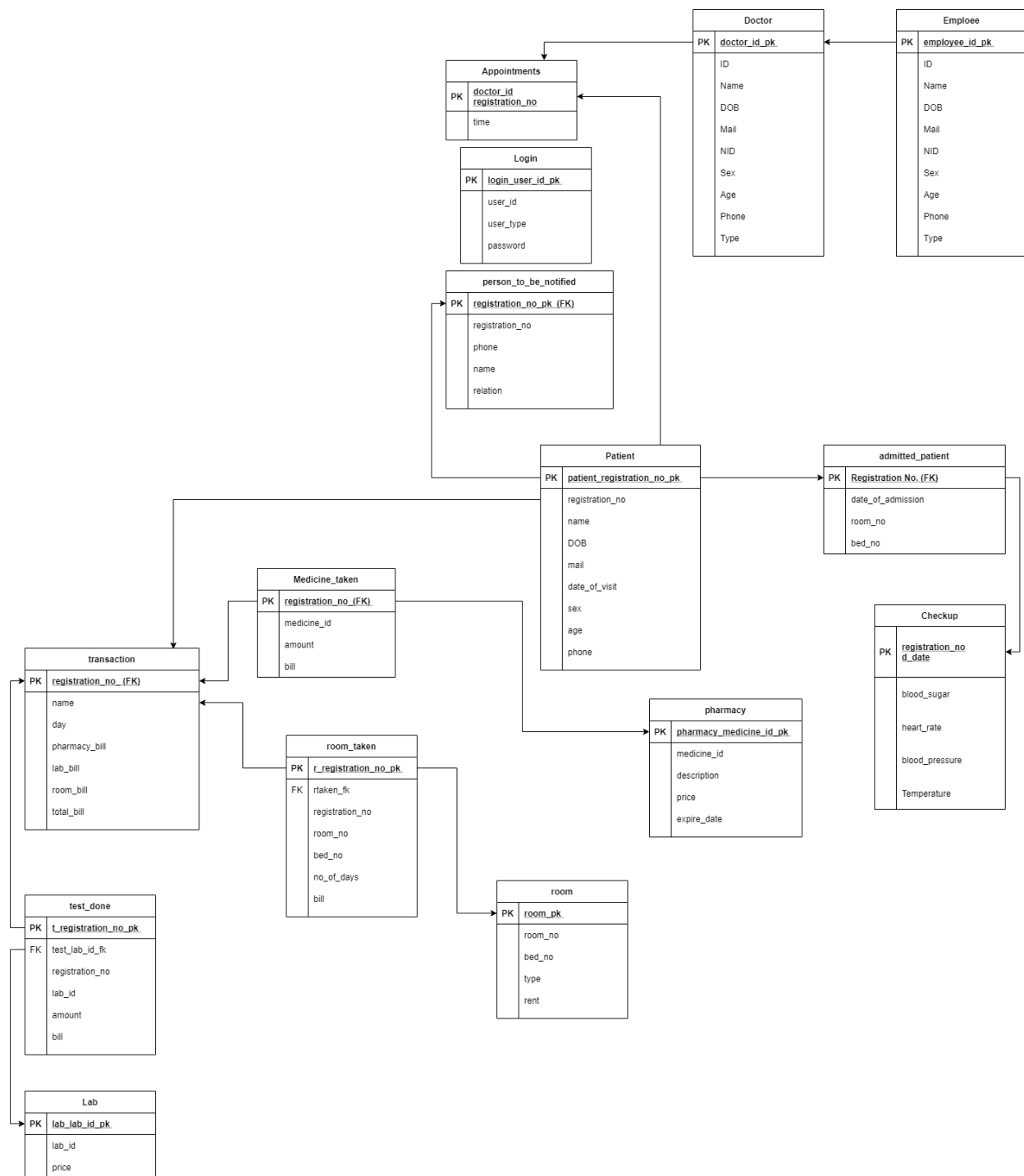
Proposed System
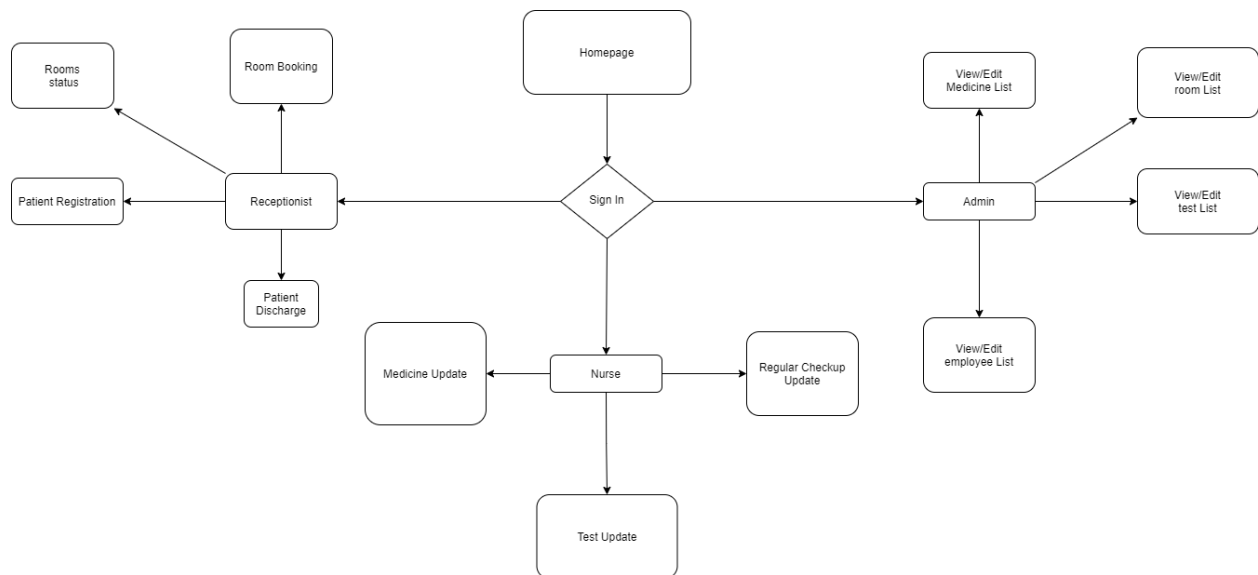

Fig 01 : ER- Diagram

Fig 02 : Schema Diagram

Fig 03 : Workflow Diagram

Features of Developed System:

- E-Patient will keep the record of all patients visiting a hospital.
- It will generate an unique registration number for individual patients and show it immediately when a patient is registered.
- It will keep records for all the patients who are admitted into the hospital.
- It will keep a record of all the medicines available in the pharmacy.
- It will keep a list of all the lab tests and their prices.
- All types of rooms and their rents are included in the database.
- When a patient is admitted, all the medicine, tests, and room records will be updated.
- An automated transaction will be generated and shown.
- A daily checkup update will be kept and stored in the database.
- E-patiet management has a precise admin workspace.
- He can check employee lists, and also can insert new employee information.
- He can check all the necessary things like Pharmacy, Lab and room information using E-Patient.
- Visiting doctors are also separated from all employees (using triggers) into another table and admin can check them.
- It has separate Admin, Nurse and receptionist login systems.
- Doctor appointments are also included in the database.

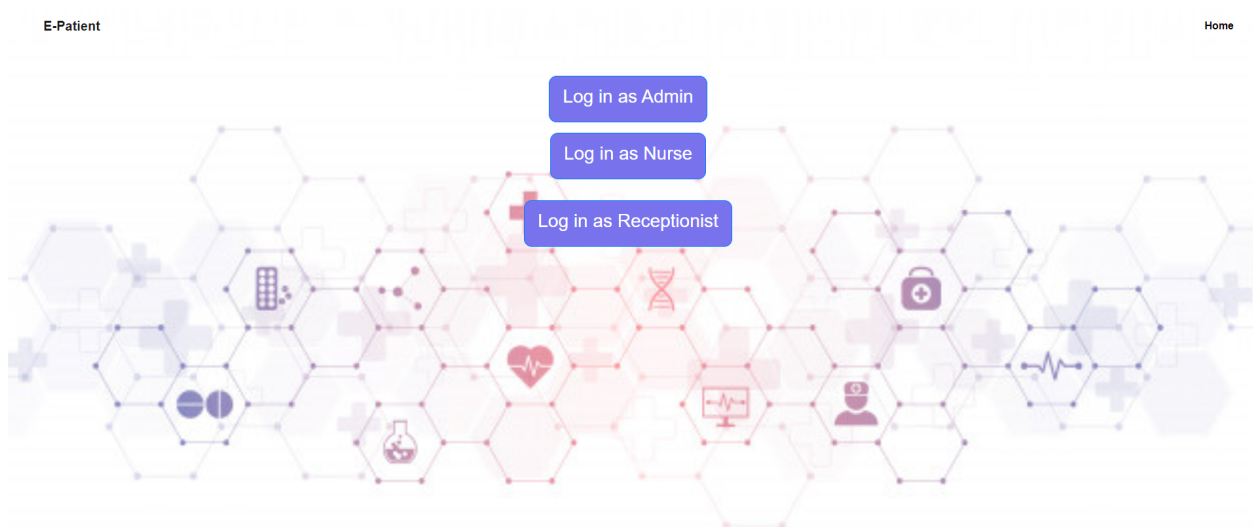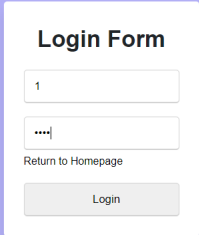## Screenshots
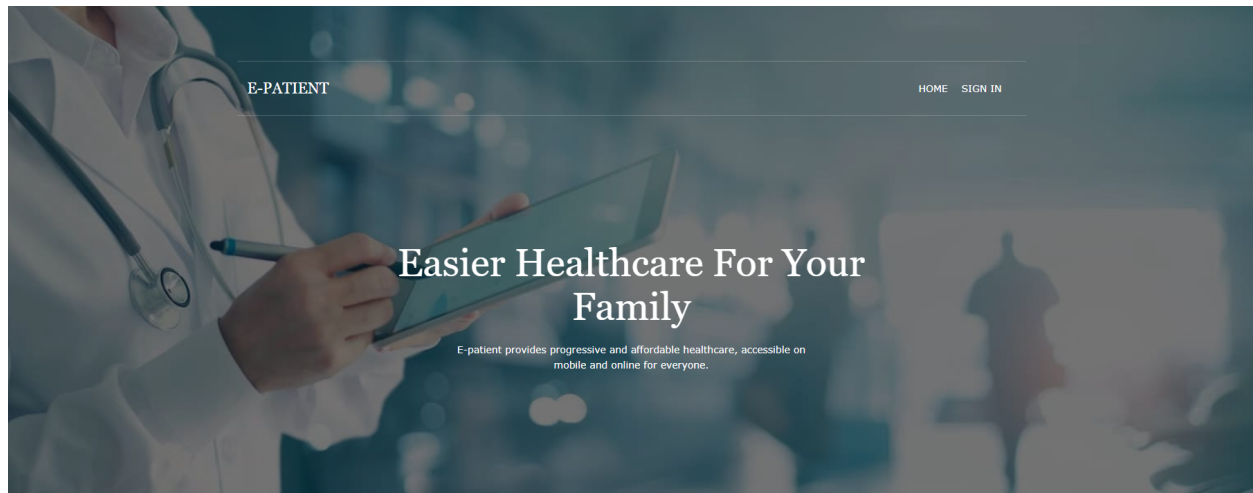
Fig 04 : Home Page

Fig 05 : User Type selection page

Fig 06 : Login Form
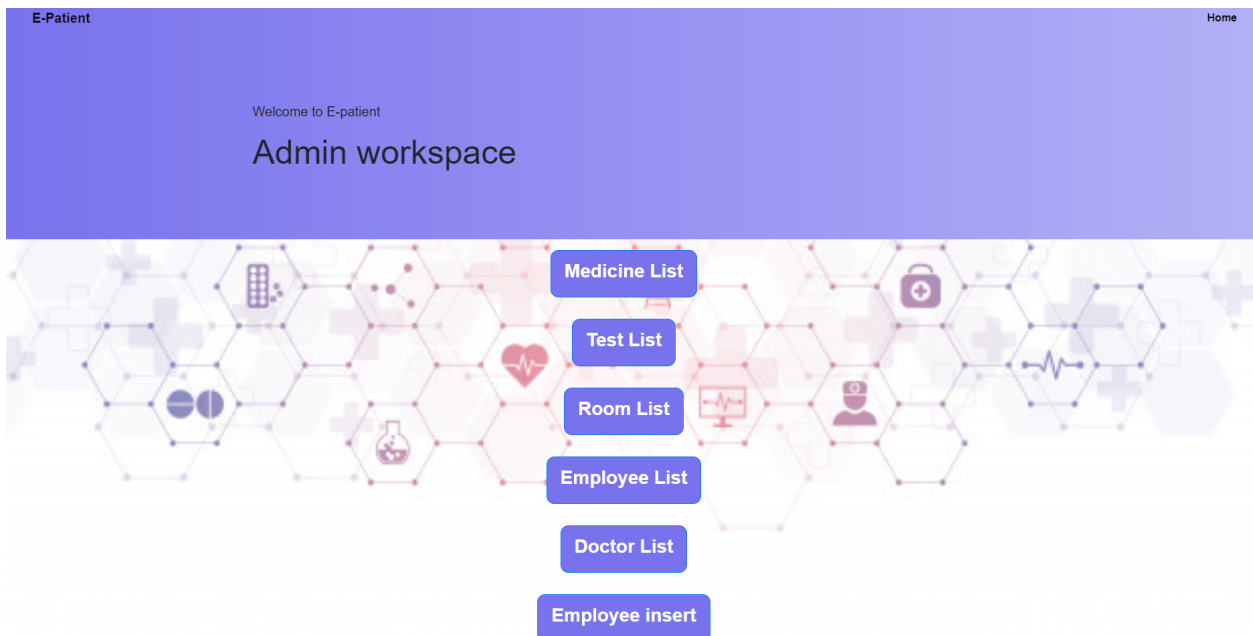
Fig 07 : Admin Workspace Page

Employee List

ID	Name	DOB	E-mail	NID	Sex	Age	Phone	Types
E00000000001	eric	11-JAN-82	a@gmail.com	NID0000001	male	30	1199010010	VDoctor
E00000000002	ross	11-JAN-82	b@gmail.com	NID0000002	male	30	1199010020	OE
E00000000003	joyee	11-JAN-82	c@gmail.com	NID0000003	male	30	1199010030	DOC
E00000000004	grace	11-JAN-82	d@gmail.com	NID0000004	female	24	1199010040	Nurse
E00000000005	chandler	11-JAN-82	e@gmail.com	NID0000005	female	30	1199010050	TDOC
E00000000006	rachel	11-JAN-82	f@gmail.com	NID0000006	female	30	1199010060	OE
E00000000007	pheobe	11-JAN-82	g@gmail.com	NID0000007	female	30	1199010070	DOC
E00000000008	donna	11-JAN-82	h@gmail.com	NID0000008	female	25	1199010080	IDOC
E00000000009	jackie	11-JAN-82	i@gmail.com	NID0000009	female	25	1199010090	Nurse
E00000000010	kelso	11-JAN-82	j@gmail.com	NID0000010	male	30	1199010000	DOC

Fig 08 : Employee List can be seen by Admin

Doctor List

ID	Name	DOB	E-mail	NID	Sex	Age	Phone	Types
E00000000001	eric	11-JAN-82	a@gmail.com	NID0000001	male	30	1199010010	VDoctor

Return to admin workspace

Fig 09 : Doctor List can be seen by Admin

Employee Registration Form

Name

Your name..

Type

Your type..

Age

Your Age..

Sex

Your sex..

E-mail

Your mail..

Phone

Your Phone..

NID

Your nid..

Date of Birth

Your Date_of_Birth..

Submit

Fig 10 : Employee Registration Form. New employees can be added by the admin

E-Patient   Home

Nurse Workspace

Regular Checkup Update

Medicine Update

Test Update
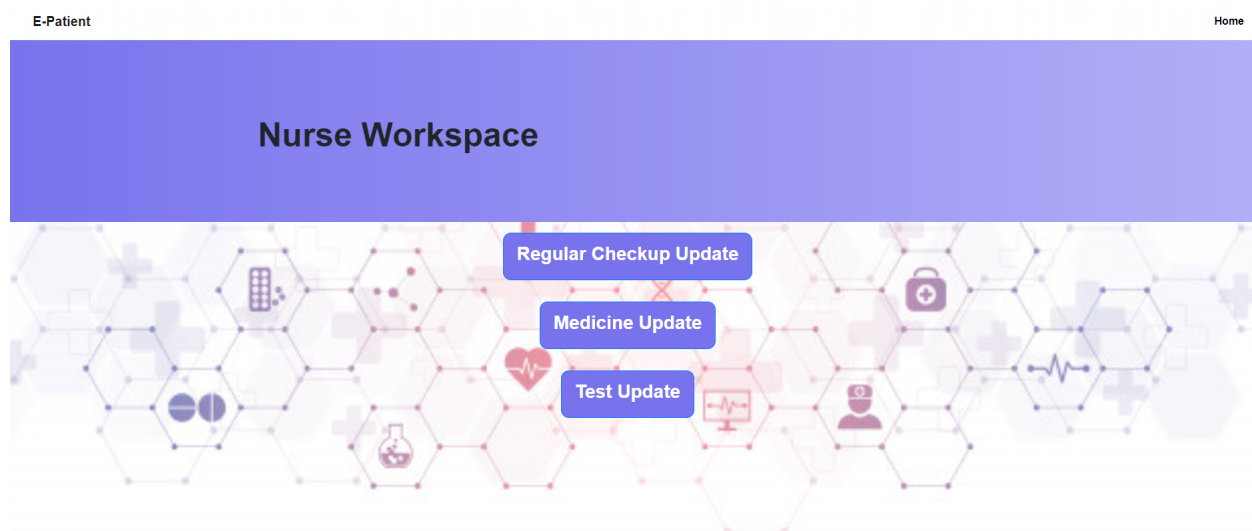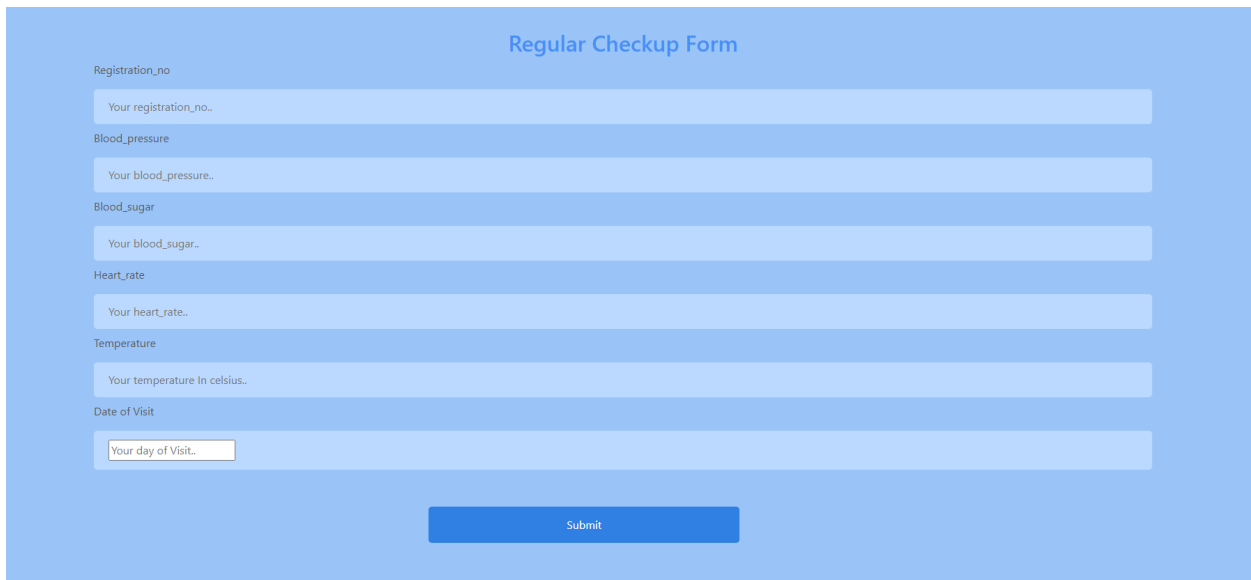
Fig 11 : Nurse Workspace Page

Fig 12 : Results of regular checkup can be updated by the nurse

Fig 13 : Lab test request can be done by the nurse
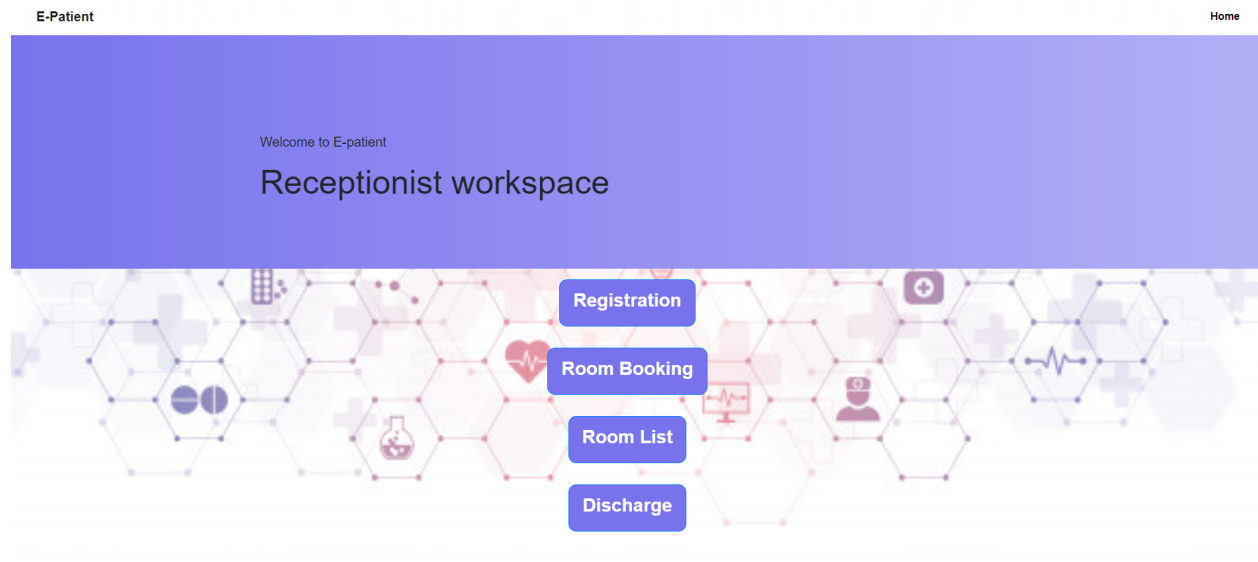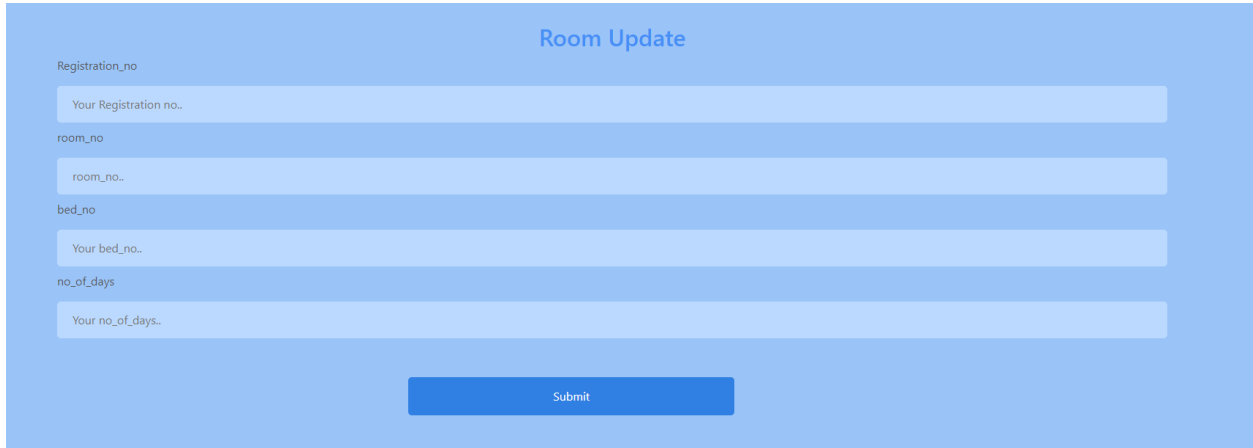
Fig 14 :Receptionist Workspace page

Fig 15 : Employee Registration Form

Room Update

Registration_no

Your Registration no..

room_no

room_no..

bed_no

Your bed_no..

no_of_days

Your no_of_days..

Submit

Fig 16 : Room allocation Form

Transaction Form

Registration_no

registration_no..

Name

Your name..

Date of Discharge

day..

Submit

Fig 17 : Discharge Form. Patients can be allocated by the receptionist

Total Transaction

Registration No	Name	Discharge Date	Pharmacy Bill	Lab Bill	Room Bill	Total Bill
R00000000002	Arr Rafi Islam	15-JAN-21	100	1000	2000	3100

Return to receptionist workspace

Fig 18 :Patient transaction Page. All the bills will be generated

System Requirement

Operating System	Windows 10 (version 20H2)
Source Code Editor	Microsoft Visual Studio Code (version 1.52)
Front End Technologies	- HTML5 - CSS3 - Bootstrap 4 - JavaScript 1.8.5
Back End Technologies	- Oracle 19c - Oracle SQL Developer 19.2.1 - Oracle Instant Client - XAMPP 8.0.0 - PHP 8.0.1 - JavaScript 1.8.5

Discussion

We have visited several hospitals in Dhaka to gather info and get insight on their systems.   We had full access to see around the popular hospital's management system which helped us in many ways.

We had already completed our ER-diagram before the corona pandemic and got the approval. This ER diagram guided us through the whole project. We also faced some difficulties when completing the project as we were working from distance through video calls. For the solution of this difficulty we assigned the group members to a particular side. And after finishing all of our four member's assigned work. We tested the system for bugs, detected them and removed them. Finally we had integrated all those parts and completed our project.

Future Expansion

The proposed system is the Patient Management System. We can enhance this system by including more facilities like an appointment system for both patients and doctors. It will be helpful for the users to include more comments into the system.

Limitations

- The size of the database increases day-by-day, increasing the load on the database backup and data maintenance activity.
- Training for simple computer operations is necessary for the users working on the system.

Conclusion

We can make the conclusion that the E-Patient management system is the inevitable part of the lifecycle of the modern medical institution. It automates numerous daily operations and enables smooth interactions of the users. Developing the patient management system software is a great opportunity to create a distinct, efficient and fast delivering healthcare model. Implementation of patient management system projects helps to store all kinds of records, provide coordination and user communication, implement policies, improve day-to-day operations, arrange the supply chain, manage financial and human resources, and market hospital services. This beneficial decision covers the needs of the patients, staff and hospital authorities and simplifies their interactions. It has become the usual approach to manage the hospital. Many clinics have already experienced its advantages and continue developing new patient management system project modules.