Patient Record Management System

Dharmsinh Desai University, Nadiad

Faculty of Technology, Department of Computer Engineering

B. Tech. CE Semester – VI

Subject: (CE – 620) Object Oriented Software Engineering

Project Title:

Patient Record Management System

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<u>CERTIFICATE</u>

This is to certify that Object Oriented Software Engineering Project entitled "**Patient Record Management System**" is the bonafide report of work carried out by SHAH DARSH (17CEUOS091) & SHAH DIVYA (18CEUOD003) Of Department of Computer Engineering, Semester VI, academic year 2019-2020, under our supervision and guidance.

Guide

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ABSTRACT

In the era of modernization and technological advancement, the need of computer-based product has exponentially increased. Almost in every profession we can see the implementation of computerized work ,to take we have developed an desktop application called "Patient Record Management System(PRMS)".Our Application is for those Doctors who run a small clinic where the number of patients is high and there is lack of support staff. Our Application removes the need of maintaining appointment records and patient records as this all can be maintained by our application. Also the Doctor can see the medical records and prescription of patients within the application. Pharmacist can also use the software to maintain the stock of medicine as well as its financial status.

INTRODUCTION

The Aim of Patient Record Management System is to ease the work of managing a clinic. Our platform provides 3 modules to use each having different functionalities. It contains facilities such as patient management, appointment management, medicine management. It also provides functionalities such as generating fee receipts for appointments as well as for pharmacy's sales.

Technology Used
- C#
- Windows Form
- SQL

Platform Used
- Windows

Tools Used
- Visual Studio 2019
- ERD plus
- UMLET
- SQL SERVER 2017

Software Requirements Specification

R-1) Receptionist:

R-1.1) Login:

Description: If the Credentials are validated successfully then the Receptionist is logged in successful.

Input: Login Credentials.

Output: Redirect to Home Page and Display Notification of Successful Login.

R-1.2) Manage Patients:

R-1.2.1) Add Patient:

Description: Receptionist can add the patient for check up by entering the required details.

Input: Required Form Fields.

Output: Redirects To Patients List Page and Display notification of Patient Added Successfully.

R-1.2.2) Edit Patient:

Description: Receptionist is allowed to change any of the personal information.

Input: Data to be updated.

Output: Display Notification of Successful Patient Profile Update.

R-1.2.3) Delete Patient:

Description: Receptionist can delete any patient as per the requirement.

Input: Click on Delete Button of a Particular Patient.

Output: Delete that Patient from the Database.

R-1.3) Manage Appointments:

R-1.3.1) New Patient:

R-1.3.1.1) Add Appointments:

Description: Receptionist can set the appointment for a new patient.

Input: Required Form Fields For New Patient's Appointment.

Output: Redirect to Appointment List Page and display notification of Appointment   Added Successful.

R-1.3.1.2) Edit Appointments:

Description: Receptionist is allowed to change any appointment as per requirement.

Input: Data to be updated.

Output: Display Notification of Successful Patient Appointment Update.

R-1.3.1.3) Delete Appointments:

Description: Receptionist can delete any appointment as per the requirement.

Input: Click on Delete Button of a Particular Appointment.

Output: Delete that Appointment from the Database.

R-1.3.2) Established Patient:

R-1.3.1.1) Add Appointments:

Description: Receptionist can set the appointment for an established patient.

Input: Required Form Fields For Established Patient's Appointment.

Output: Redirect to Appointment List Page and display notification of Appointment Added Successful.

R-1.3.1.2) Edit Appointments:

Description: Receptionist is allowed to change any appointment as per requirement.

Input: Data to be updated.

Output: Display Notification of Successful Patient Appointment Update.

R-1.3.1.3) Delete Appointments:

Description: Receptionist can delete any appointment as per the requirement.

Input: Click on Delete Button of a Particular Appointment.

Output: Delete that Appointment from the Database.

R-1.4) Generate Payment Receipt:

R-1.4.1) New Patients:

Description: Receptionist Generates the Payment Receipt For New Patients.

Input: Click on Generate Receipt Button for a Particular Appointment.

Output: Print Receipt.

R-1.4.2) Established Patients

Description: Receptionist Generates the Payment Receipt For Established Patients.

Input: Click on Generate Receipt Button for a Particular Appointment.

Output: Print Receipt.

R-2) Doctor:

R-2.1) Login:

Description: If the- Credentials are validated successfully then the Doctor is logged in successful.

Input: Login Credentials.

Output: Redirect to Home Page and Display Notification of Successful Login.

R-2.2) Prescribe Medicine:

R-2.2.1) New Patients:

R-2.2.1.1) Add Medicine:

Description: Doctor can prescribe medicines to new patient.

Input: Select Required Medicines.

Output: Generate Prescription.

R-2.2.1.2) Update Medicine:

Description: Doctor can change prescribed medicines of a patient.

Input: Select Required Medicines.

Output: Generate New Prescription.

R-2.2.2) Established Patients:

R-2.2.2.1) Update Medicine:

Description: Doctor can change prescribed medicines of an established patient.

Input: Select Required Medicines.

Output: Generate New Prescription.

R-2.2.2.2) Delete Medicine:

Description: Doctor can delete medicines that are no longer needed.

Input: Click on Delete Button of a Particular Medicine.

Output: Delete that medicine from the prescription.

R-2.3) Add Remarks:

Description: Doctor can gives remarks to patients.

Input: Required Form Fields.

Output: Notification of Remark Added Successfully.

R-2.4) View Patient History:

Description: Doctor can see the details of the Patient's Medical History.

Input: Click on View History Button of a Particular Patient.

Output: Display Medical History Of that Patient.

R-3) Pharmacist:

R-3.1) Login:

Description: If the Credentials are validated successfully then the Pharmacist is logged in successful.

Input: Login Credentials.

Output: Redirect to Home Page and Display Notification of Successful Login.

R-3.2) View Patient Prescription:

Description: Pharmacist can see the Patient's Prescription given by the Doctor.

Input: Click on View Prescription Button of a Particular Patient.

Output: Display Prescription of that Patient.

R-3.3) Generate Payment Receipt:

Description: Pharmacist Generates the Payment Receipt For Medicines.

Input: Click on Generate Receipt Button for a Particular Prescription.

Output: Print Receipt

Design

1. Use Case Diagram

Fig.4.1 Use case Diagram of Patient Record Management System

2. Class Diagram
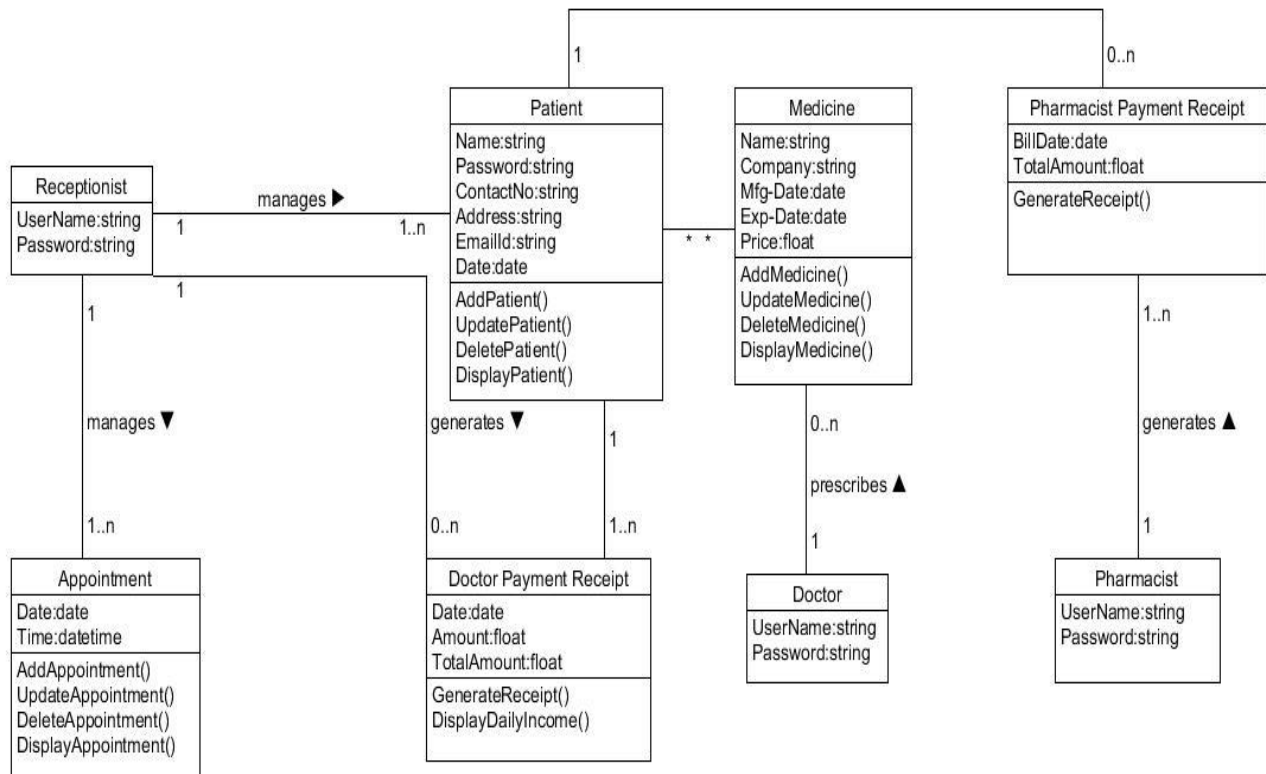
Fig 4.2 Class Diagram of Patient Record Management System

3. Sequence Diagram
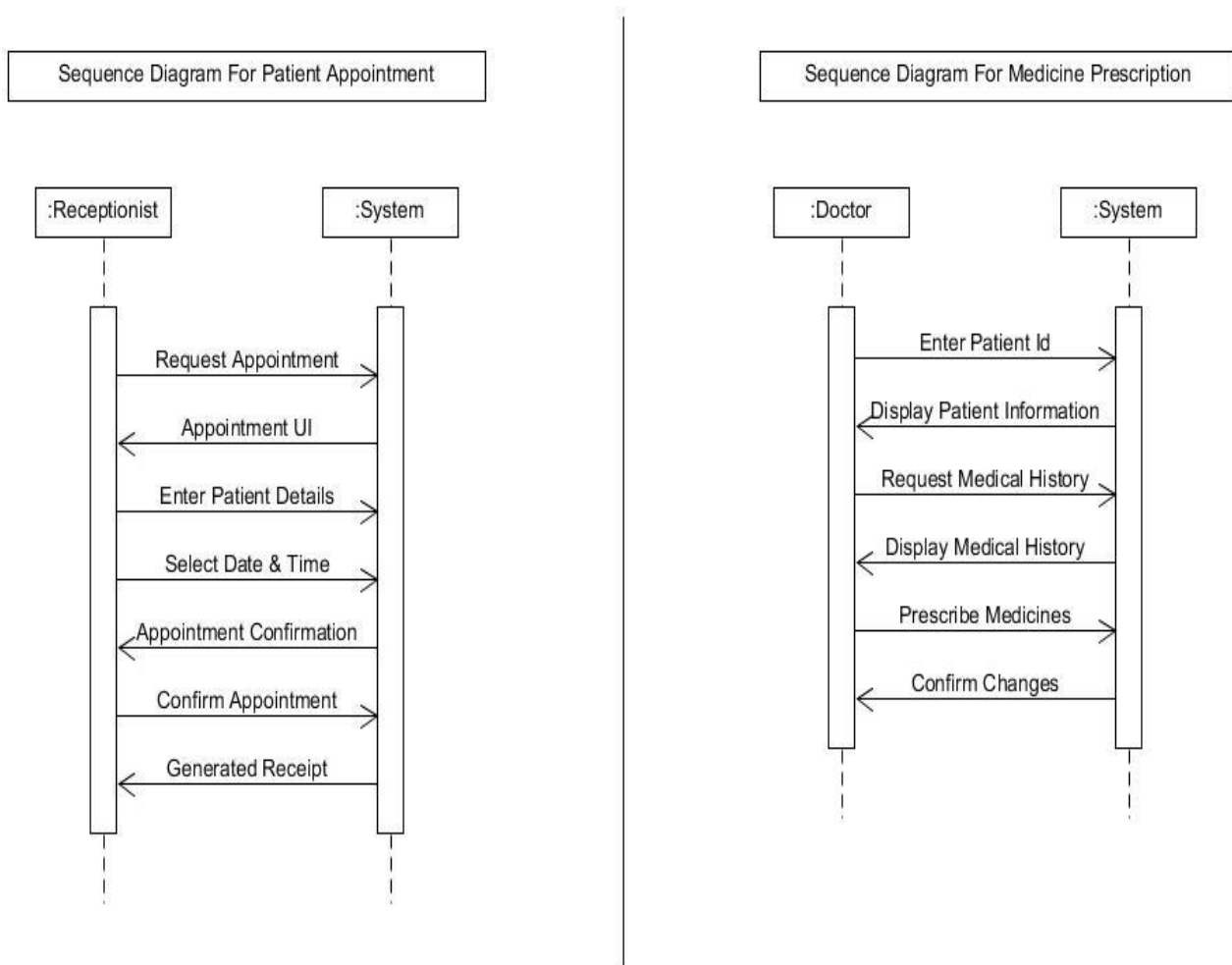
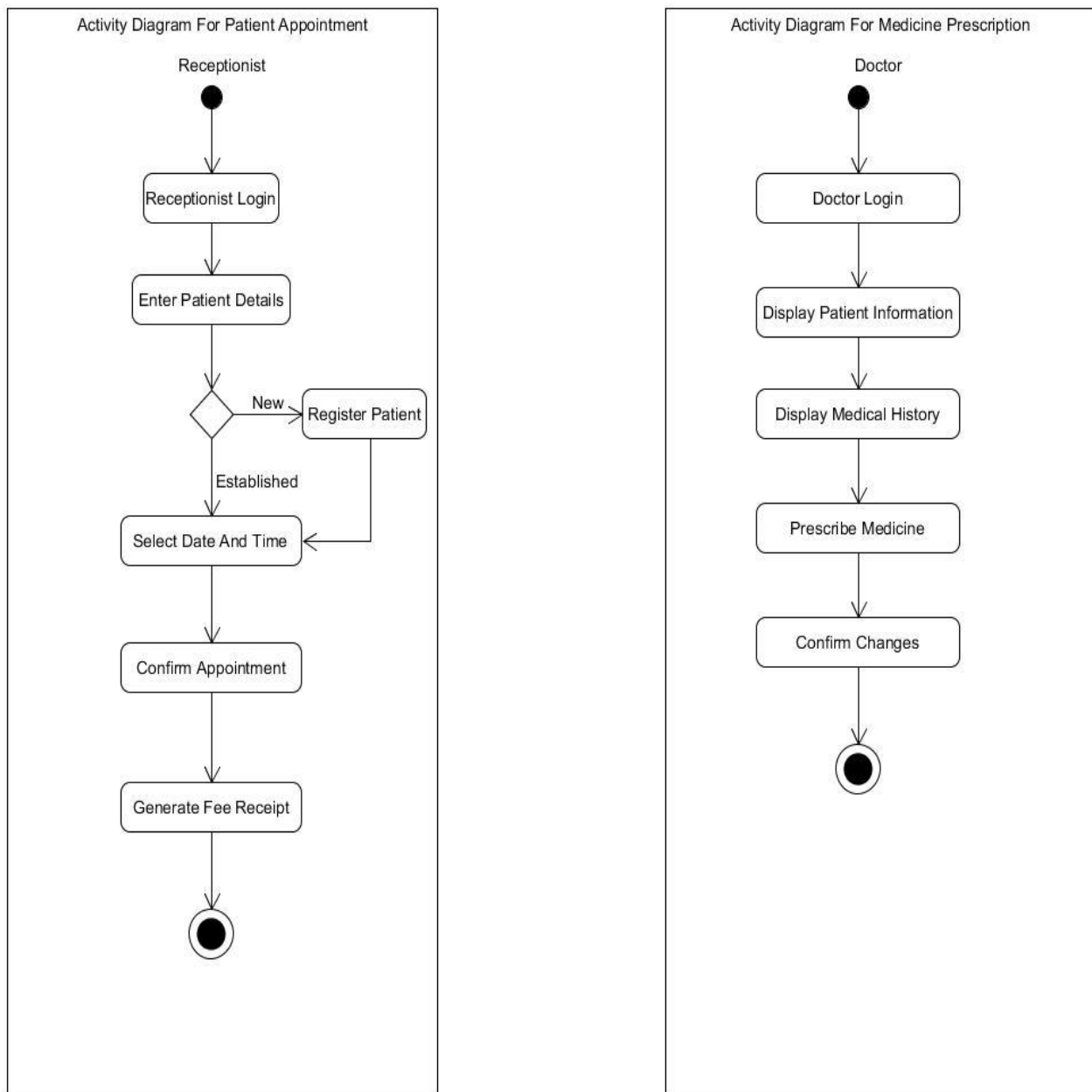Fig 4.3 Sequence Diagram of Patient Appointment & Medicine Prescription

4. Activity Diagram

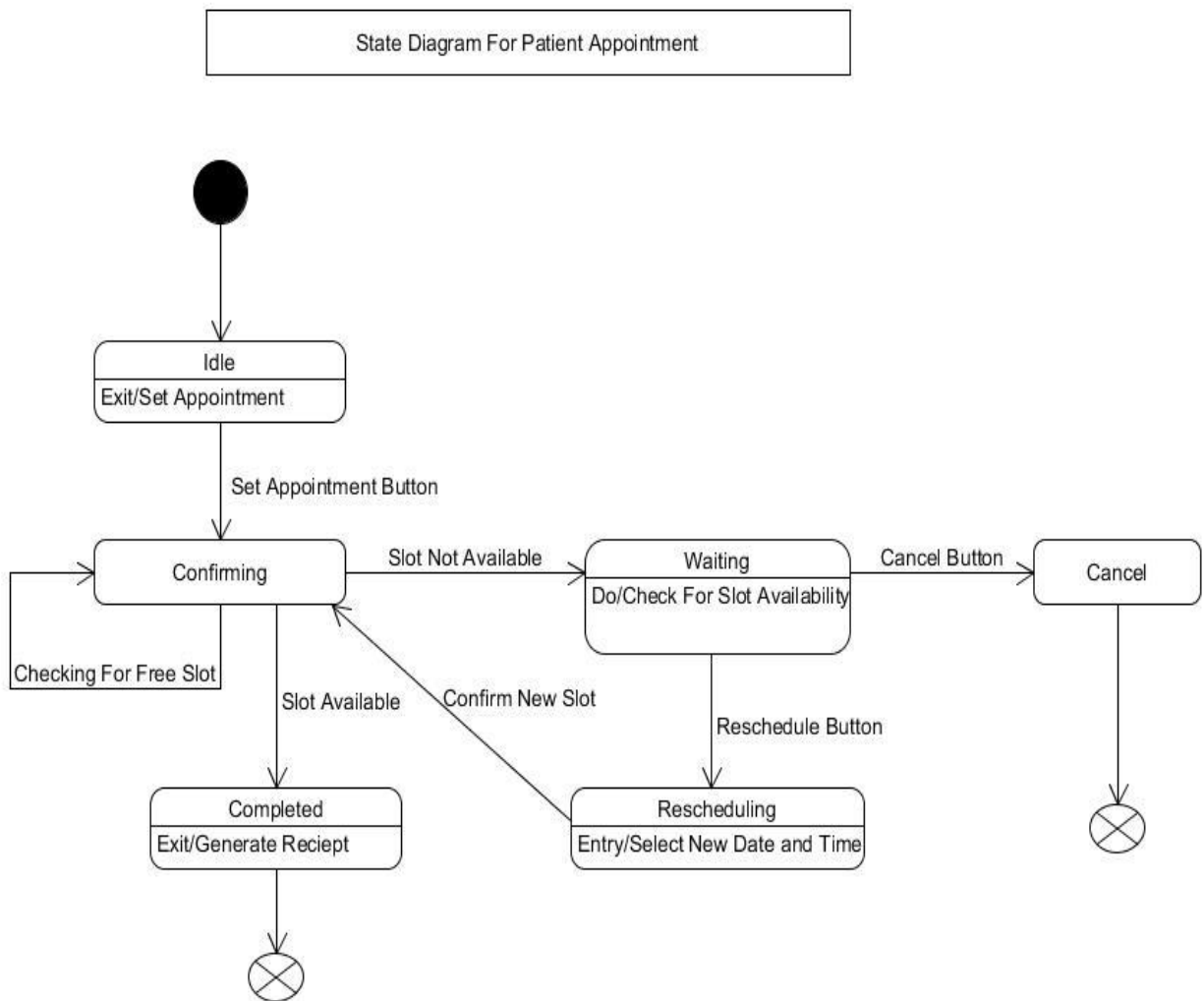Fig 4.4 Activity Diagram of Patient Appointment & Medicine Prescription

5. State Diagram

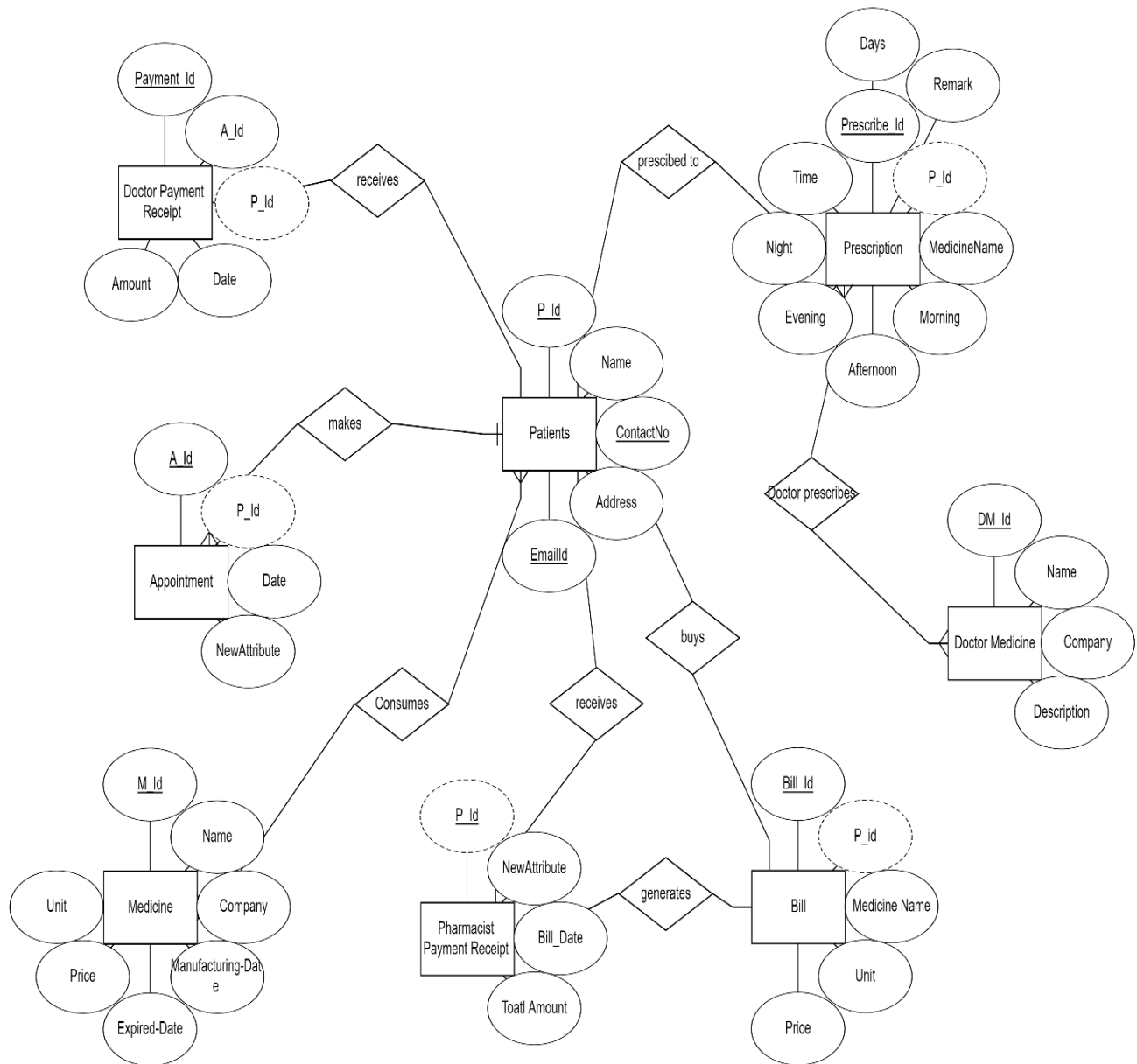State Diagram For Patient Appointment

Fig 4.5 State Diagram of Patient Appointment

6. E-R Diagram

Fig 4.6 E-R Diagram of Patient Record Management System

7. Data Dictionary

Patients								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	P_Id	Int		Yes	Yes	PK		auto increment
2.	Name	nChar	30	Yes	No			
3.	ContactNo	Varchar	10	Yes	Yes			
4.	Address	nChar	30	Yes	No			
5.	EmailId	nChar	20	Yes	Yes			

Prescription								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	Prescribe_Id	Int		Yes	Yes	PK		auto increment
2.	P_Id	Int		Yes	Yes	FK	Patients	
3.	MedicineName	Varchar	30	Yes	No			
4.	Morning	nChar	3	Yes	No			
5.	Afternoon	nChar	3	Yes	No			
6.	Evening	nChar	3	Yes	No			
7.	Night	nChar	3	Yes	No			
8.	Time	nChar	15	Yes	No			
9.	Days	nChar	10	Yes	No			
10.	Remark	nChar	30	Yes	No			

Doctor Payment Receipt								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	Payment_Id	Int		Yes	Yes	PK		auto increment
2.	A_Id	Int		Yes	No			
3.	P_Id	Int		Yes	Yes	FK	Patients	
4.	Date	Date		Yes	No			
5.	Amount	Int		Yes	No			

				Medicine				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	M_Id	Int		Yes	Yes	PK		auto increment
2.	Name	nChar	30	Yes	Yes			
3.	Company	nChar	30	Yes	No			
4.	Manufacturing-Date	Date		Yes	No			
5.	Expired-Date	Date		Yes	No			
6.	Price	Int		Yes	No			
7.	Unit	Int		Yes	No			

				Pharmacist Payment Receipt				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	Transaction _Id	Int		Yes	Yes	PK		auto increment
2.	P_Id	Int	10	Yes	Yes	FK	Patients	
3.	Bill_Date	Date		Yes	No			
4.	Total Amount	Int		Yes	No			

				Doctor Medicine				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	DM_Id	Int		Yes	Yes	PK		auto increment
2.	Name	Varchar	30	Yes	No			
3.	Company	nChar	30	Yes	No			
4.	Description	nChar	50	Yes	No			

				Appointment				
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	A_Id	Int		Yes	Yes	PK		auto increment
2.	P_Id	Int		Yes	Yes	FK	Patients	
3.	Date	Date		Yes	No			
4.	Time	Varchar	10	Yes	Yes			

Bill								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	Bill_Id	Int		Yes	Yes	PK		auto increment
2.	P_Id	Int		Yes	No			
3.	Medicine_Name	nChar	30	Yes	Yes			
4.	Unit	Int		Yes	No			
5.	Price	Int		Yes	No			

Implementation Details

Modules

1) Receptionist Module

Receptionist can register new patient, update and delete patient records. Receptionist sets new appointment and manages them as well. Receptionist generates the payment receipt for appointment as well as it keeps the track of today's income.

2) Doctor Module

Doctor can check today's appointment , see patient records, give prescription to patients, see their current prescription as well as Doctor can add new medicines for prescription. Also, it shows Daily income as well.

3) Pharmacist Module

Pharmacist can add new medicine, update as well as delete medicine. It also manages the availability and stock of medicines. Pharmacist can see the given prescription of a patient and then generate the bill accordingly. Pharmacist can also the daily income generated.

TESTING
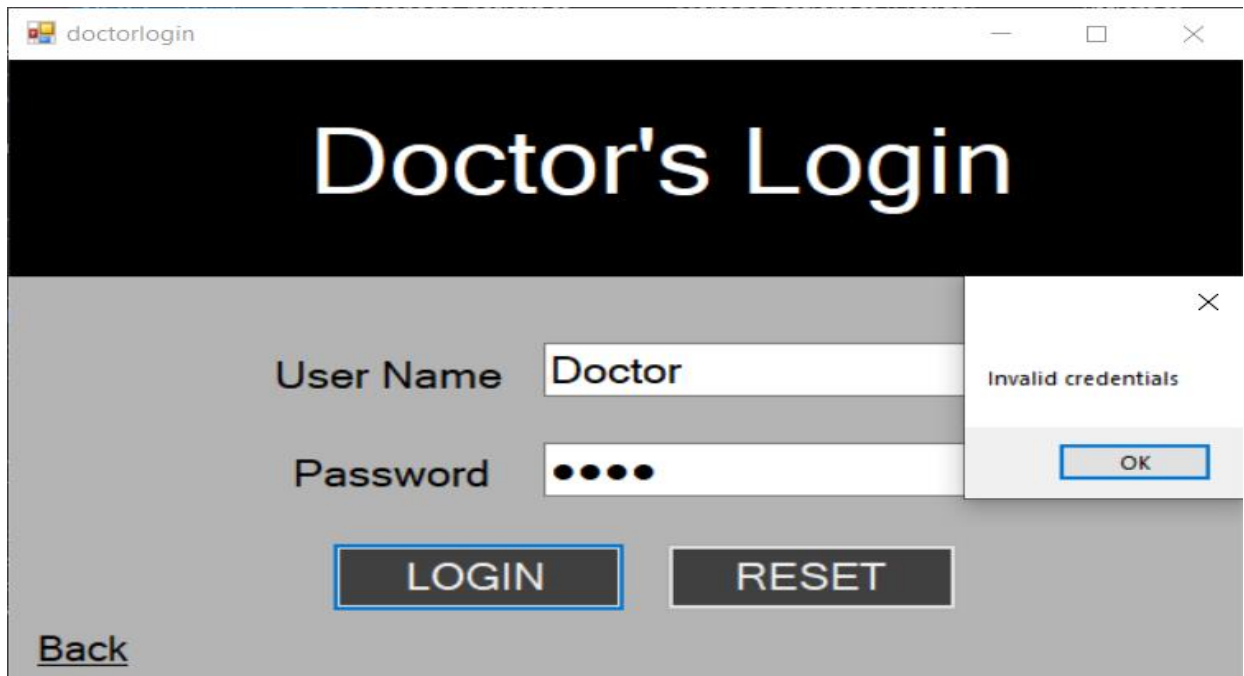
Fig 6.1 If Enter Wrong Credentials then Show the Message Box
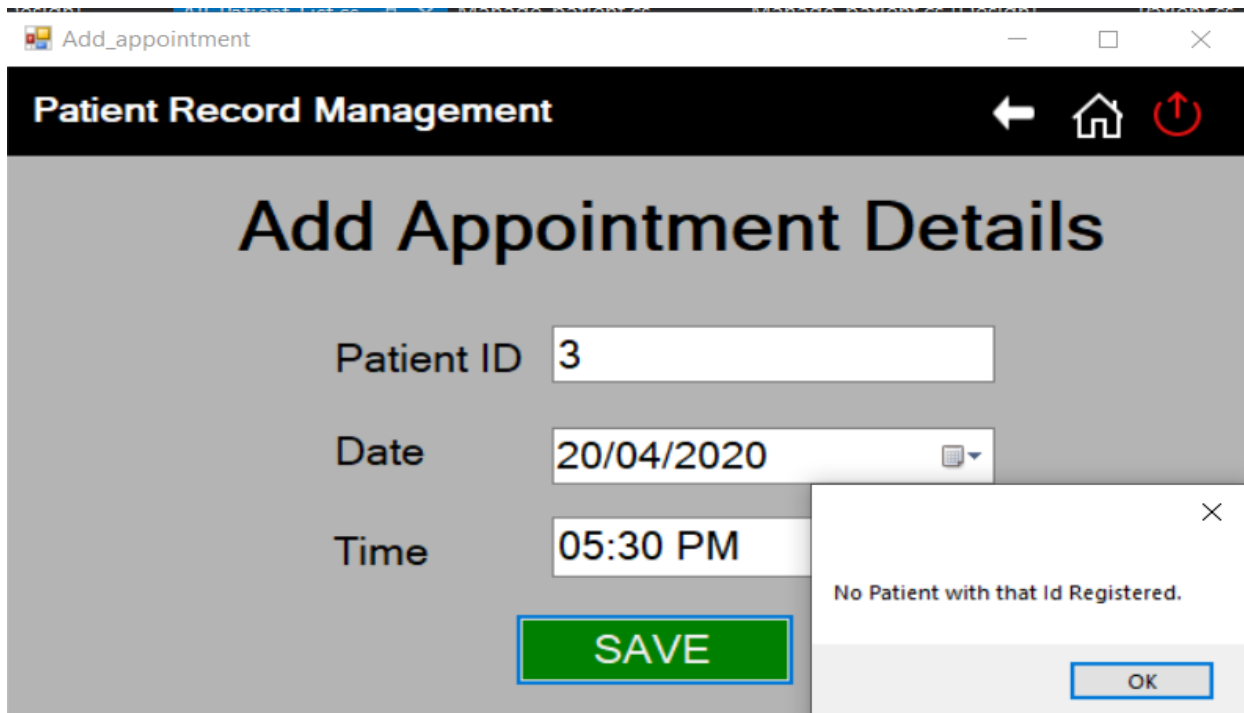
Fig 6.2 If in Database Patient Id not Available then Show the Msg.

Fig 6.3 If Medicine not available in store the show Out of Stock.

SCREENSHOT
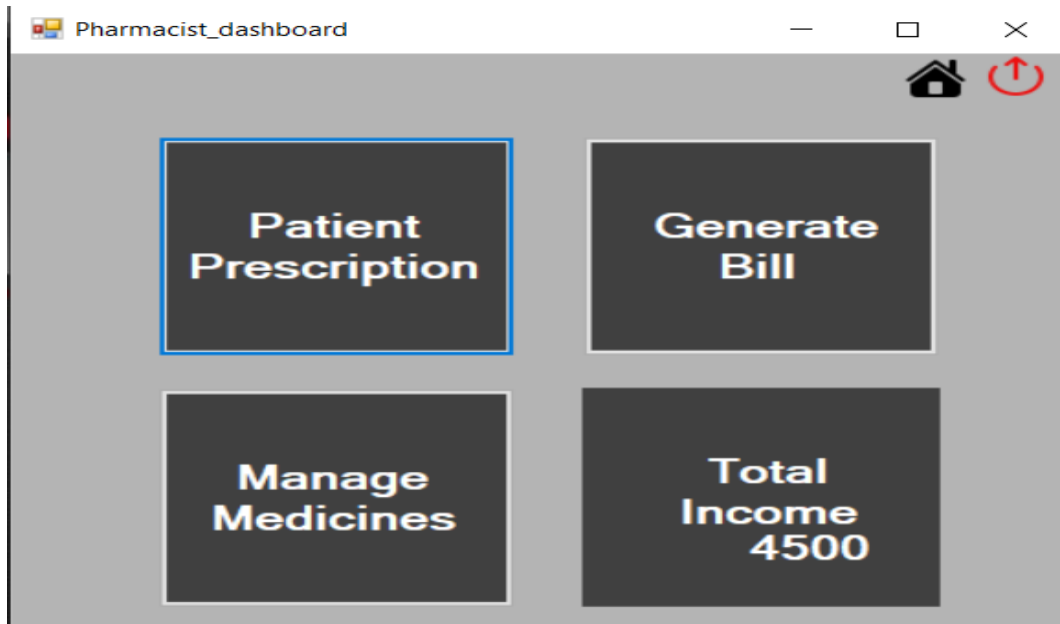
Fig. 7.1 Pharmacist Dashboard

Fig. 7.2 Receptionist Add Patient Appointment

Fig. 7.3 Doctor Prescribed Medicine to Patient
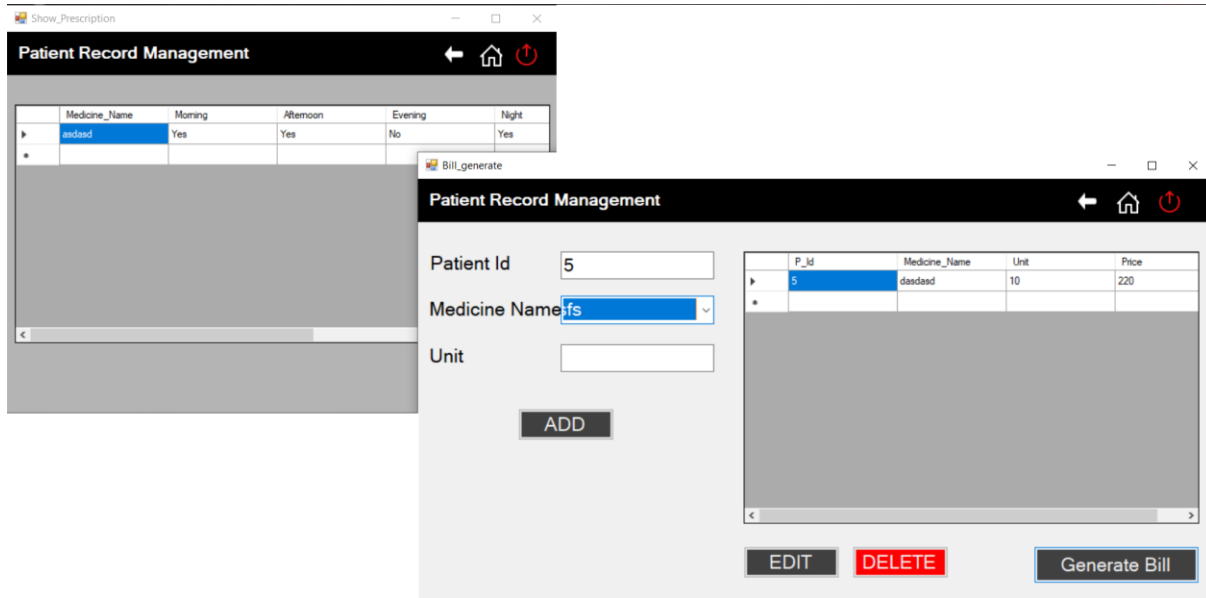

Fig 7.4 Receptionist Can Manage Patient Record

Fig 7.5 Pharmacist Can Show the Patient Prescription and Generate the Bill
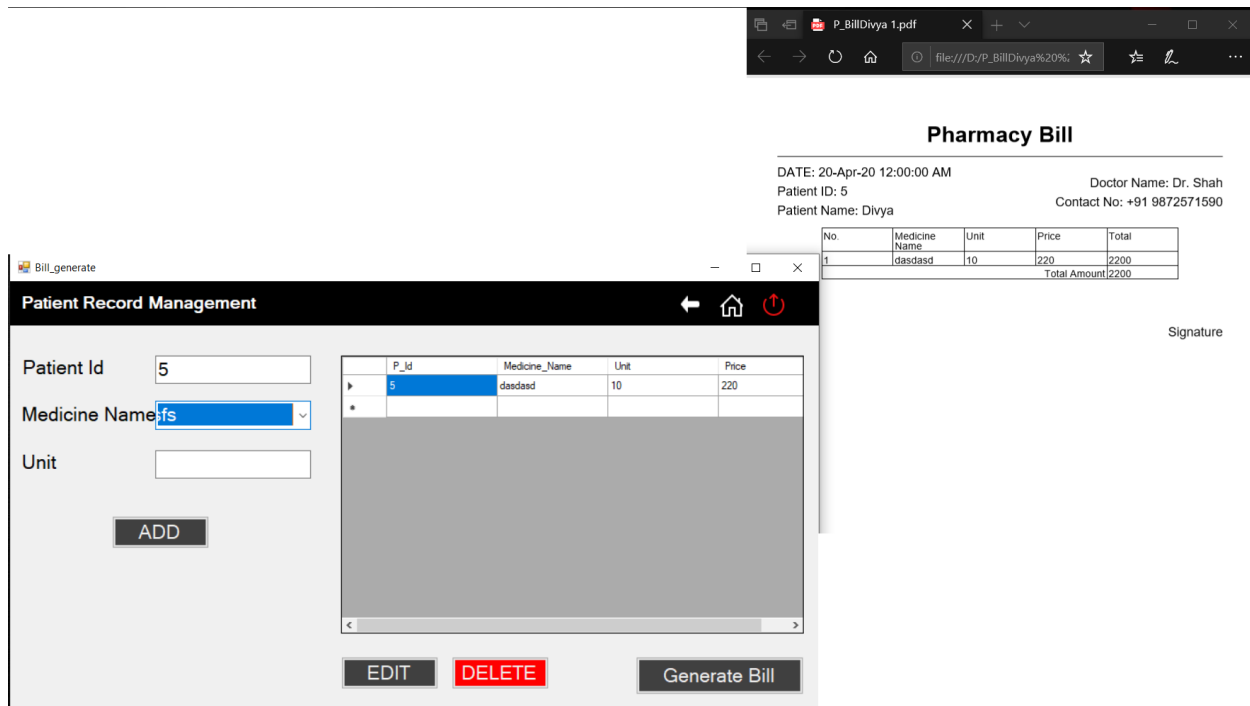

Fig 7.6 Pharmacist click Generate Bill and Show the PDF of Bill & Medicine Stock Manage

Conclusion

Development of project was after gathering all requirements. After gathering requirements overall flow control was defined, all modules were developed separately and then they were integrated. All modules are tested separately as well as after integration. All Functionalities mentioned above are implemented successfully in our project

Limitation and Future Extension

Limitation

- Application lacks some security aspects.
- Cannot maximize the application window.
- Only one user per Module.
- Not for a large hospital.

Future Enhancement

- Increasing the security of application.
- Increasing Database for Hospital Use.
- Improving UI for better user experience.
- Make application responsive.

Bibliography

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