

Where hope is cured

Database Project

Step One Report

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Course Code: MIS 6326.001

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1. Company Background

Believe Health Care Center is a General Hospital that was established on January 1990 in Richardson, Texas. The purpose of constructing the Believe Health Care Center was to serve the people of Richardson city who had to go all the way to the city of Dallas to obtain proper medical treatment. The Hospital has been growing ever since in terms of patients and medical facilities provided to its patients.

The medical facilities provided by the hospital are as follows:

Clinics with the following kinds of doctors:

- Pediatrician
- General Physician
- Dermatologist
- Eye Specialist
- Dentist
- Cardiologist
- Neurologist

A General Ward

Emergency Rooms

Private Rooms

An Intensive Care Unit

A Medical Laboratory

A Pharmacy

2. Problems

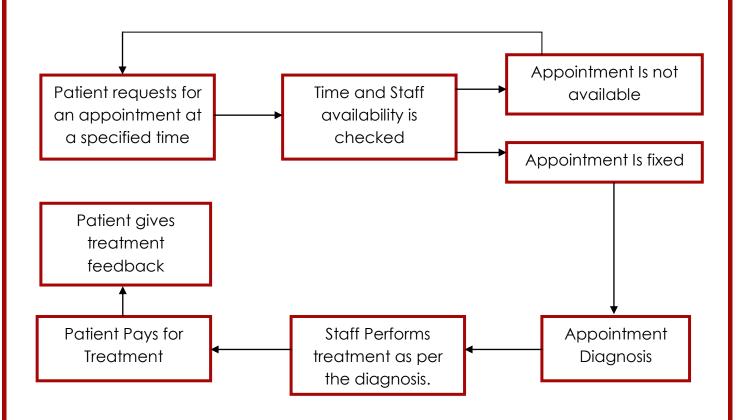
The hospital has been around for a long while. Ever since the hospital doubled its growth after announcing its tie up with the government to provide better schemes to the patients, new patients keep coming in everyday along with those who are loyal customers. With the boost in the incoming public, the hospital has identified that the database system it has in place to keep track of patient records and appointments isn't efficient in the following ways:

- Proper regulations aren't in place with regards to how data of a patient is collected. Some patient details are recorded directly into the databases in the system, while other resort to writing the details down on paperwork which sometimes get lost.
- A patient's record for previous visits is not properly stored and causes problems in tracking patient history.
- A record with up-to date personal information on the patient like address, phone number etc. is not readily available.
- The hospital has so far offered to only keep a year load of data for each patient which is a concern for patients who come back more than a year later.
- Patients arrive at times when a doctor is busy in another appointment.
- Patients who book an appointment do not show up. That is a waste of time for the doctor if there are no walk-in patients and also a missed opportunity for a potential patient who wanted that time slot.

3. Proposed solutions and Process

The solutions that a new database for keeping track of patient records and appointments can offer are as follows:

- A regulation to consistently update a centralized database with the help of an online portal and restrictions on any paperwork.
- Up-to date information on a patient's past visits, current situation and any followups that the patient needs to do in terms of medical help or appointments.
- Information of a doctor's availability to a patient.
- Regular updating of cancellation of appointments so that the time slot can be
 passed on to the next patient who had applied for the same time slot.



4. Proposed Tables for Believe Healthcare Centre Database

Staff Table: This table is used to record details of the staffs employed in the hospital. Each staff has a unique staff ID (PK). Other details stored in the table will be the staff's name, gender, joining date, designation ID (FK), department ID (FK) to identify what department they belong to.

Patient Table: The patient table is used to store information about the patients scheduling an appointment or visiting the hospital. This table includes a unique patient ID (PK), name, gender, address, date of birth, Insurance ID(FK) etc.

Department Table: This table stores information on which department a particular staff belongs to like Dental, Cardiology, Neurology etc. The attributes in the table include a unique department ID (PK), department names and the department description.

Designation Table: This table is used to store the different roles of the staff like nurse, doctor, administrator etc in the hospital. The attributes in this table will include a designation ID (PK) as primary key and a designation description.

Facility Table: This table contains information on the various facilities offered in the hospital like ICU, private rooms, pharmacy, laboratory services etc. There will be a unique facility ID (PK), facility name, facility availability as attributes in the table.

Visit History Table: This table is used to store a patient's history to keep track of their visits to the hospital and health record. It will have visit history ID (PK) and the Patient ID(PK) as primary keys. The Treatment ID(FK) and Appointment ID(FK) are foreign keys.

Appointment Table: The appointment table contains the details of appointments scheduled for the patients. This table includes attributes like the appointment ID(PK) patient ID(FK), Facility ID(FK), appointment date, time and appointment status attribute that is used to update the status of the scheduled appointments in case they are cancelled or postponed.

Assigned Staff Table: The assigned staff table is to keep track of all the staff members that are associated with a particular appointment and treatment. The attributes in this table include a unique assigned staff ID(PK), appointment ID(PK), Staff ID(FK).

Diagnosis Table: This table is used to record the diagnosis done at every appointment for a patient. It has a diagnosis ID(PK), diagnosis name, treatment ID(FK) and the appointment ID(FK) as attributes.

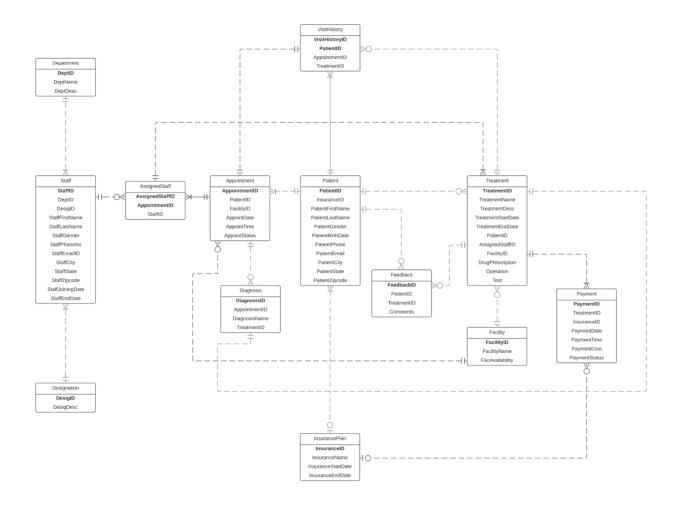
Treatment Table: The treatment table is used to store information like the tests required, medicines prescribed, assigned staff, treatment date, treatment time etc. It has a treatment ID(PK), Patient ID(FK), Assigned Staff ID(FK), Facility ID(FK) etc.

Insurance Plan Table: The insurance plan table is used to store the insurance details of a patient. Insurance ID(PK), Insurance name, Insurance start date, Insurance end date are a few attributes in this table.

Payment Table: This table is used to maintain the appointment/treatment cost details of a patient. It includes a unique payment ID(PK). It also includes treatment ID(FK), Insurance ID(FK) as foreign keys and other attributes like payment date, payment status etc.

Feedback Table: This table is used to record feedback from the patients about their views on the treatment services received that can be used to improve hospital operations. It includes a feedback ID which is the primary key. Patient ID and treatment ID will be the foreign keys.

5. Entity Relationship Diagram



6. Relational Database Schema

CREATE TABLE Patient

(PatientID	CHAR(11)	NOT NULL,
InsuranceID	VARCHAR(30)	NOT NULL,
PatientFirstName	VARCHAR(30)	NOT NULL,
PatientLastName	VARCHAR(30)	NOT NULL,
PatientGender	CHAR(6)	NOT NULL,
PatientBirthDate	CHAR(6)	NOT NULL,
PatientPhone	CHAR(14)	NOT NULL,
PatientEmail	CHAR(20)	NOT NULL,
PatientCity	CHAR(30)	NOT NULL,
PatientState	CHAR(2)	NOT NULL,
PatientZipCode	CHAR(10)	NOT NULL,

CONSTRAINT PatientPK PRIMARY KEY (PatientID),

CONSTRAINT InsuranceFK FOREIGN KEY (InsuranceID) REFERENCES InsurancePlan)

CREATE TABLE InsurancePlan

(InsuranceID	VARCHAR(30)	NOT NULL,		
InsuranceName	VARCHAR(30)	NULL,		
InsuranceStartDate	DATETIME	NOT NULL,		
InsuranceEndDate	DATETIME	NOT NULL,		
CONSTRAINT InsurancePK PRIMARY KEY (InsuranceID))				

CREATE TABLE Department

(DeptID VARCHAR(30) NOT NULL,

DeptName VARCHAR(30) NOT NULL,

DeptDesc VARCHAR(30) NOT NULL

CONSTRAINT DepartmentPK PRIMARY KEY (DeptID))

CREATE TABLE Designation

(DesigID VARCHAR(30) NOT NULL,

DesigDesc VARCHAR(30) NOT NULL,

CONSTRAINT DesignationPK PRIMARY KEY (DesignID))

CREATE TABLE Staff

(StaffID VARCHAR(30) NOT NULL,

DeptID VARCHAR(30) NOT NULL,

DesigID VARCHAR(30) NOT NULL,

StaffFirstName VARCHAR(30) NOT NULL,

StaffLastName VARCHAR(30) NOT NULL,

StaffGender CHAR(6) NOT NULL,

StaffPhoneNo CHAR(14) NOT NULL,

StaffEmailID CHAR(20) NOT NULL,

StaffCity CHAR(30) NOT NULL,

StaffState CHAR(2) NOT NULL,

StaffZipCode CHAR(10) NOT NULL,

StaffJoiningDate DATETIME NOT NULL,

StaffEndDate DATETIME NOT NULL,

CONSTRAINT StaffPK PRIMARY KEY (StaffID),

CONSTRAINT DepartmentFK FOREIGN KEY (DeptID) REFERENCES Department,

CONSTRAINT DesignationFK FOREIGN KEY (DesigID) REFERENCES Designation)

CREATE TABLE Facility

(FacilityID VARCHAR(30) NOT NULL,

FacilityName VARCHAR(30) NOT NULL,

FacAvailability VARCHAR(30) NOT NULL,

CONSTRAINT FacilityPK PRIMARY KEY (FacilityID))

CREATE TABLE Treatment

(TreatmentID VARCHAR(30) NOT NULL,

TreatmentName VARCHAR(30) NOT NULL,

TreatmentDesc VARCHAR(30) NOT NULL,

TreatmentStartDate DATETIME NOT NULL,

TreatmentEndDate DATETIME NOT NULL,

PatientID CHAR(11) NOT NULL,

AssignedStaffID VARCHAR(30) NOT NULL,

FacilityID VARCHAR(30) NOT NULL,

DrugPrescription VARCHAR(30) NOT NULL,

Operation VARCHAR(30) NOT NULL,

Test VARCHAR(30) NOT NULL,

CONSTRAINT TreatmentPK PRIMARY KEY (TreatmentID),

CONSTRAINT PatientFK FOREIGN KEY (PatientID) REFERENCES Patient,

CONSTRAINT AssignedStaffFK FOREIGN KEY (AssignedStaffID) REFERENCES

AssignedStaff,

CONSTRAINT FacilityFK FOREIGN KEY (FacilityID) REFERENCES Facility)

CREATE TABLE Payment

(PaymentID VARCHAR(30) NOT NULL,

TreatmentID VARCHAR(30) NOT NULL,

InsuranceID VARCHAR(30) NOT NULL,

PaymentDate DATETIME NOT NULL,

PaymentTime TIME NOT NULL,

PaymentCost VARCHAR(30) NOT NULL,

PaymentStatus VARCHAR(30) NOT NULL,

CONSTRAINT PaymentPK PRIMARY KEY (PaymentID),

CONSTRAINT TreatmentnewFK FOREIGN KEY (TreatmentID) REFERENCES Treatment,

CONSTRAINT InsurancenewFK FOREIGN KEY (InsuranceID) REFERENCES InsurancePlan)

CREATE TABLE Feedback

(FeedbackID VARCHAR(30) NOT NULL,

PatientID CHAR(11) NOT NULL,

TreatmentID VARCHAR(30) NOT NULL,

Comments VARCHAR(30) NULL,

CONSTRAINT FeedbackPK PRIMARY KEY (FeedbackID),

CONSTRAINT Patientnew1FK FOREIGN KEY (PatientID) REFERENCES Patient,

CONSTRAINT Treatmentnew1FK FOREIGN KEY (TreatmentID) REFERENCES Treatment)

CREATE TABLE VisitHistory

(VisitHistoryID VARCHAR(30) NOT NULL,

PatientID CHAR(11) NOT NULL,

TreatmentID VARCHAR(30) NOT NULL,

AppointmentID VARCHAR(30) NOT NULL,

CONSTRAINT VisitHistoryIDPK PRIMARY KEY (VisitHistoryID),

CONSTRAINT Patientnew2FK FOREIGN KEY (PatientID) REFERENCES Patient,

CONSTRAINT Treatmentnew2FK FOREIGN KEY (TreatmentID) REFERENCES Treatment

CONSTRAINT Appointmentnew2FK FOREIGN KEY (AppointmentID) REFERENCES

Appointment

CONSTRAINT PatientID2PK PRIMARY KEY (PatientID))

CREATE TABLE Appointment

(AppointmentID VARCHAR(30) NOT NULL,

PatientID CHAR(11) NOT NULL,

FacilityID VARCHAR(30) NOT NULL,

AppointDate DATETIME NOT NULL,

AppointTime TIME NOT NULL,

AppointStatus VARCHAR(30) NOT NULL,

CONSTRAINT AppointmentPK PRIMARY KEY (AppointmentID),

CONSTRAINT FacilityFK FOREIGN KEY (FacilityID) REFERENCES Facility,

CONSTRAINT Patientnew3FK FOREIGN KEY (PatientID) REFERENCES Patient)

CREATE TABLE AssignedStaff

(AssignedStaffID VARCHAR(30) NOT NULL

AppointmentID VARCHAR(30) NOT NULL,

StaffID VARCHAR(30) NOT NULL,

DesigID VARCHAR(30) NOT NULL

CONSTRAINT AssignStaffPK PRIMARY KEY (AssignedStaffID),

CONSTRAINT AppointmentPK PRIMARY KEY (AppointmentID),

CONSTRAINT AppointmentFK FOREIGN KEY (AppointmentID) REFERENCES

Appointment

CONSTRAINT Staffnew2FK FOREIGN KEY (StaffID) REFERENCES Staff);

CREATE TABLE Diagnosis

(DiagnosisID VARCHAR (15) NOT NULL,

AppointmentID VARCHAR(30) NOT NULL,

DiagnosisName VARCHAR(30) NOT NULL,

TreatmentID VARCHAR(30) NOT NULL,

CONSTRAINT DiagnosisPK PRIMARY KEY (DiagnosisID),

CONSTRAINT Appointmentnew3FK FOREIGN KEY (AppointmentID) REFERENCES

Appointment,

CONSTRAINT TreatmentIDnew34FK FOREIGN KEY (TreatmentID) REFERENCES

Treatment)

7. Believe Health Care Center Main Menu

The Hospital Administrators will navigate through the Hospital database with the help of the Main Menu where they will be directed to all the different aspects of the database.

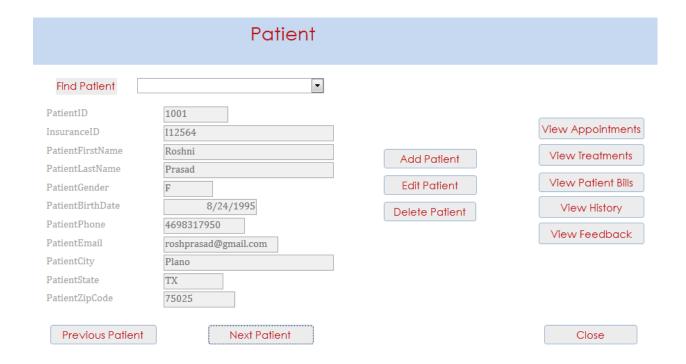


8. Data Input and Manipulation Screen Forms

Patient Form:

The Patient form helps you to navigate through the patient details. For each patient, the administrator can view the patient's appointments, treatments, patient bills, visit history and any feedback he gave for a particular treatment.

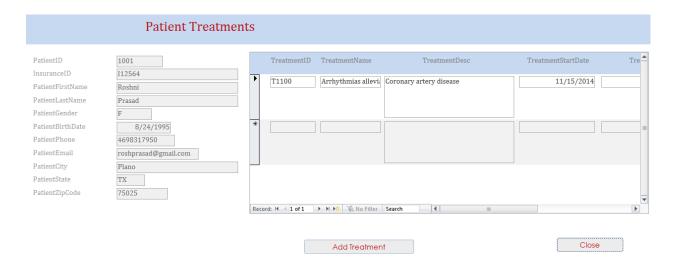
It also allows you to add, edit and delete a patient record.



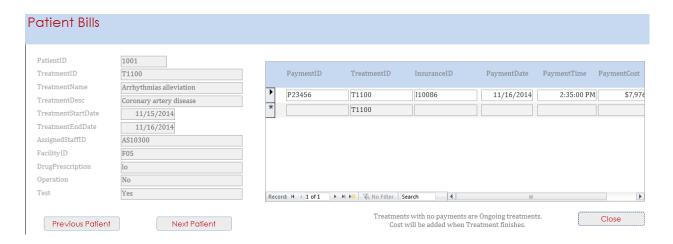
Clicking 'View appointments' will show the appointments that a patient has and the diagnosis that resulted from that appointment.



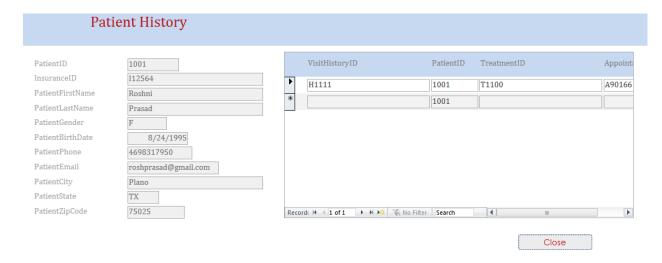
Clicking 'View Treatments' will show the treatment details for a patient.



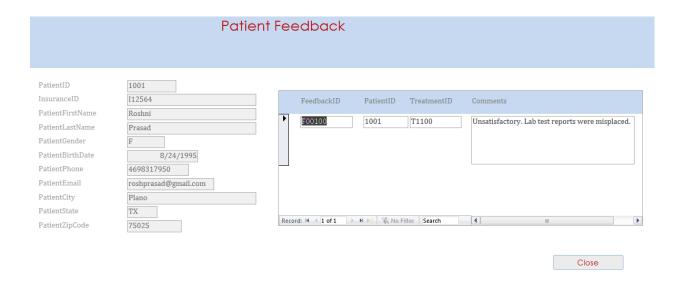
Clicking 'View Patient Bills' will show the billing details for a patient.



Clicking 'View History' will show the visit details for a patient to the hospital for appointments and treatments.

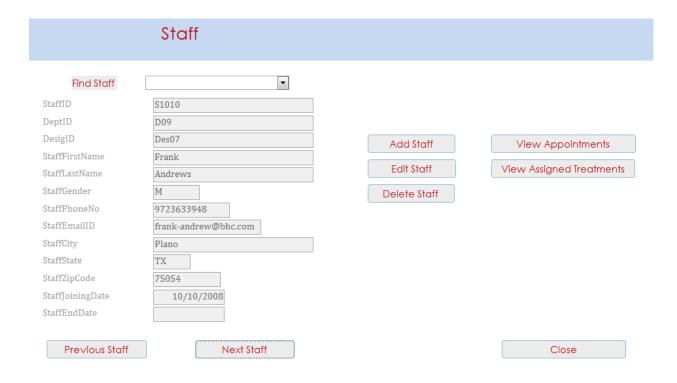


Clicking 'View Feedback' will show all the feedback ever given by the patient for treatments.



Staff Form:

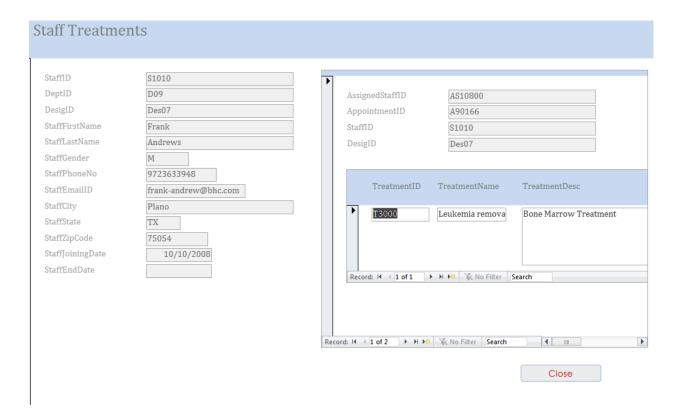
The Staff form helps you to navigate through the staff details. For each staff member, the administrator can view the staff's appointments and assigned treatments. It also allows you to add, edit and delete a staff member record.



Clicking 'View Appointments' will show all the details of the appointments a staff member may have and the diagnosis that he made at that appointment for a particular patient.



Clicking 'View Assigned Treatments' will show all the details of the treatments the staff member has performed.

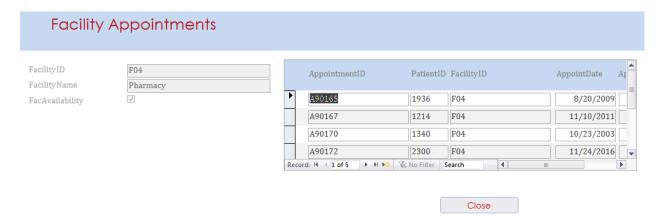


Facilities Form

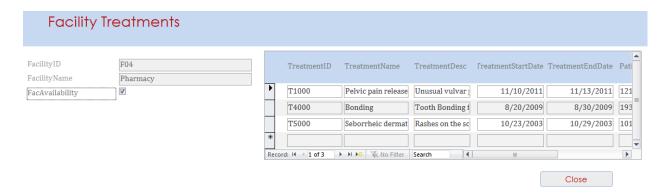
The facilities form will help you navigate through the different facilities at the hospital and will show the details for all the appointments and treatments that may take place at a particular facility.



Clicking 'View Appointments at Facility' will show the details of appointments at that facility.

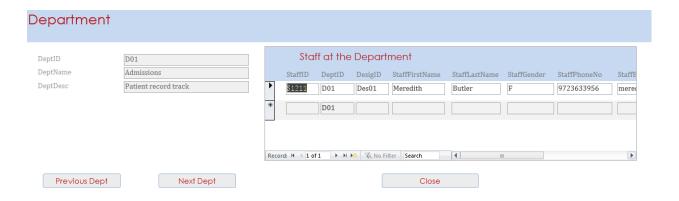


Clicking 'View Treatments at Facility' will show the details of treatments at that facility.



Departments Form

The department form helps you to navigate through the details of all the departments at the hospital.



About us form

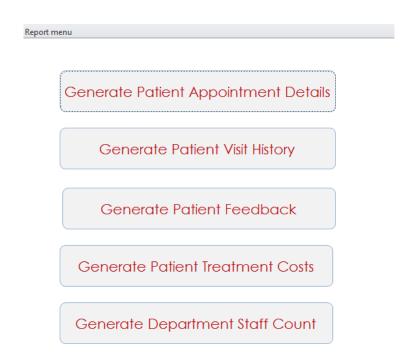
This form gives a brief introduction of the hospital to give a warm welcome to someone who is new to working as a database administrator.

Believe Health Care Center is a General Hospital that was established on January 1990 in Richardson, Texas. The purpose of constructing the Believe Health Care Center was to serve the people of Richardson city who had to go all the way to the city of Dallas to obtain proper medical treatment. The Hospital has been growing ever since in terms of patients and medical facilities provided to its patients.

Signed By: Preeti Natarajan Jibran Asif Shareef Kumar Nischal Syed Imran Naqvi

Report form

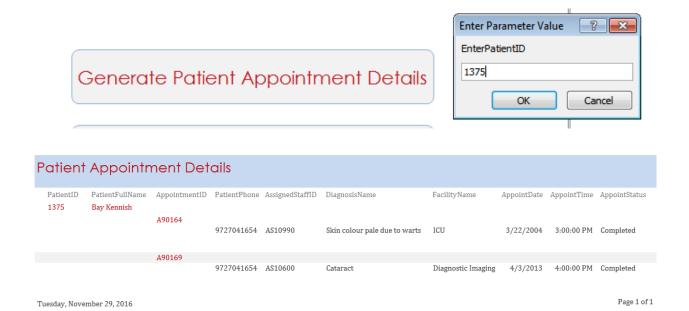
Helps you to generate specific hospital reports.



9. Sample Reports

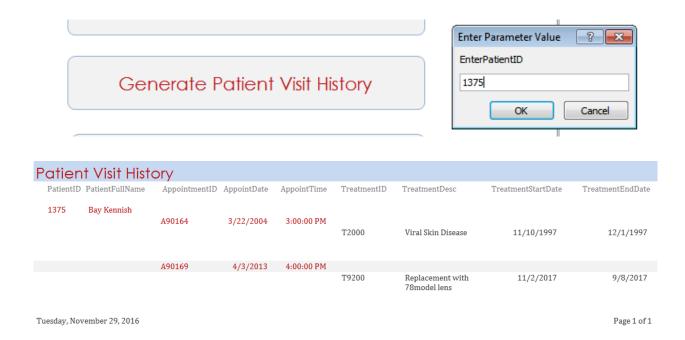
Patient Appointment details

This report helps you look at all the appointments that a particular patient has had and the diagnosis he has received in each.



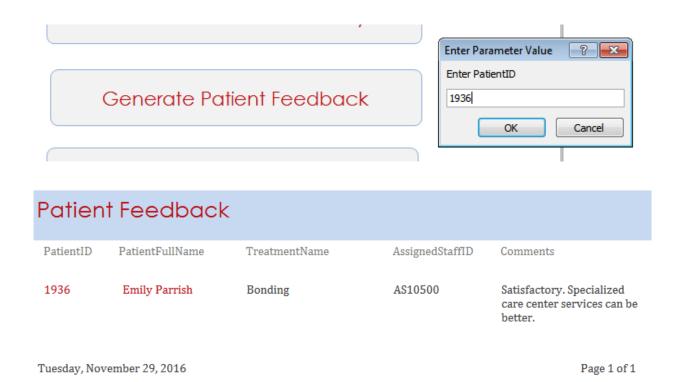
Patient visit history

This report helps you look at all the times the patient has visited the hospital for an appointment or a treatment.



Patient Feedback

This report helps you look at all the feedback that a patient has given for all his treatments.



Patient Treatment Costs

This report helps you look at the total costs for a patient for all his treatments.





Patient Treatment Costs						
PatientID	PatientFullName	InsuranceID	TreatmentID	TreatmentName	PaymentCost	PaymentStatus
1936	Emily Parrish	I16432	T4000	Bonding	\$871.00	Due
			T9100	Chemotherapy	\$1,800.00	Due
				Total	\$2,671.00	

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Department Staff Count

This report generates the total number of staff members present in each department.

Generate Department Staff Count

Department Staff Count			
DeptName	NumberOfMembers		
Admissions	1		
Cardiology	2		
Dental	1		
Dermatology	1		
ENT	1		
Gynecology	2		
Neurology	1		
Oncology	1		
Pediatrics	1		
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10. Contributions

Kumar Nischal:

Proposed the idea of the project

Created the initial ERD and helped in finalising it

Worked on inputting data into the database

Helped creating the project report

Jibran Asif Shareef:

Created the initial ERD and helped in finalising it
Designed and Created Forms
Helped creating queries for the business reports
Formatted and aligned forms and reports
Built the menu driven environment
Helped creating the project report

Preeti Natarajan:

Created the initial ERD and helped in finalising it
Worked on inputting data into the database
Developed queries and business reports
Formatted and aligned reports in Access
Helped creating the project report

Syed Naqvi:

Created tables in the database
Created Relational database schema
Developed queries and business reports
Helped in creating the project report