First Care Medical Center

Phase 1 + 2

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Executive summary

FirstCare Medical Centers, Inc is a small chain of medical centers located in Alcoa, Florida. The original FirstCare Center was opened five years ago and has since grown into four centers. The centers are meant for people without a primary physician in need of occasional medical care. They are meant to be a middle ground between a traditional primary family care office and a hospital emergency room. Appointments are normally made in advance, with walk-ins being accepted only if there are available appointments slots on a given day. Appointments can be made when the centers are open on weekdays from 9am to 7pm, excluding holidays.

Dr. Robert Slate, the owner and President of FirstCare is seeking help to build a database system that will allow the recording of company records including but not limited to employee, patient, appointment, and prescription information.

Our team's mission is to create this database to help organize all of FirstCare's information to make it accessible and useful. We will strive to have the system function as requested and needed by Dr. Slate. To do this, we want to understand FirstCare's wants and needs to help find out the most beneficial system. The system will be able to show all the related information for the centers, the administrative staff, nurses, pharmacists, contract physicians, patients, appointments, pharmacies and all related information and relevant activities.

The business activities the system will be capable of supporting will be catered to the needs of FirstCare and Dr. Slate. This includes the information of each employee and employee type from each center with all of their assignments. There will also be appointments linked to the centers and the patients of each center. Every Appointment has a reason. Appointments are connected with physicians, which each have specialties. Physicians can write prescriptions for different drugs. The drugs are all inventoried by pharmacists. Prescriptions can be filled by pharmacists at the centers. All of this information will be easily accessible and linked in the system.

There are a few assumptions that we made that were not explicitly stated in order to create our Conceptual Data Model. We believe these assumptions are fair considering the rest of the given information and our previous knowledge. We have assumed that there are only three types of employees at FirstCare, administrative staff, nurses, and pharmacists. Physicians all see at least one patient and all patients see at least one physician, all of whom have at least one specialty, maybe more. A physician does not have to write any prescriptions in a given appointment. Administrative employees can manage any number of medical centers, but every center is only managed by one administrative employee. We have assumed that there can be multiple reasons for any appointment, but there has to be at least one reason. All prescriptions have to have at least one drug. All of the drugs must have one and only one class. Inventory may be zero for any given drug and lastly, more than one pharmacist can take count at each pharmacy.

We first created a Conceptual Model to visualize the proposed system. In our Entity-Relationship Model we included all of the entities and their relationships. We showed the minimum and maximum cardinalities of each relationship. All existing attributes were included. This allowed us to see each relationship in the system. Once the Conceptual Model was completed, we created the Logical Data Model. This model used the information in the ERD to illustrate the relationships in logical schema format. We inspected all entities, relationships, and

attributes to ensure everything was correct and the same. We then created the Data Dictionary to be used to help navigate the database. All the fields in the database are defined. Included are table names, descriptions, primary and foreign keys, the field size and format, any constraints, whether or not a particular field is required and if it is indexed. The Data Dictionary is to help understand the database and help avoid any errors in data in the database. We have also created Sample Report Designs in order to provide mockups of reports that can be generated by the system. The sample reports include license renewal cards for nurses and pharmacists, a patient portal database including vital patient information, appointment and physician schedules, and prescription medication records linked to each patient ID.

With the completion of Phase I, we will continue to Phase II in which we will create a relational database prototype using the front-end software SQL Server and Access. We will demonstrate the capabilities of the software, as well as including five reports that have been requested of us. These reports will have respective queries and will be developed along with the reports and results. These reports will be easily utilized and understood by FirstCare employees. All the necessary documentation will be made available for viewing in a single PDF file. This document will include the user's manual, any Phase I updates, any SQL commands used, detailed descriptions of all application prototype elements, application screenshots, an appendix, and a table of contents.

Entity-Relationship Diagram
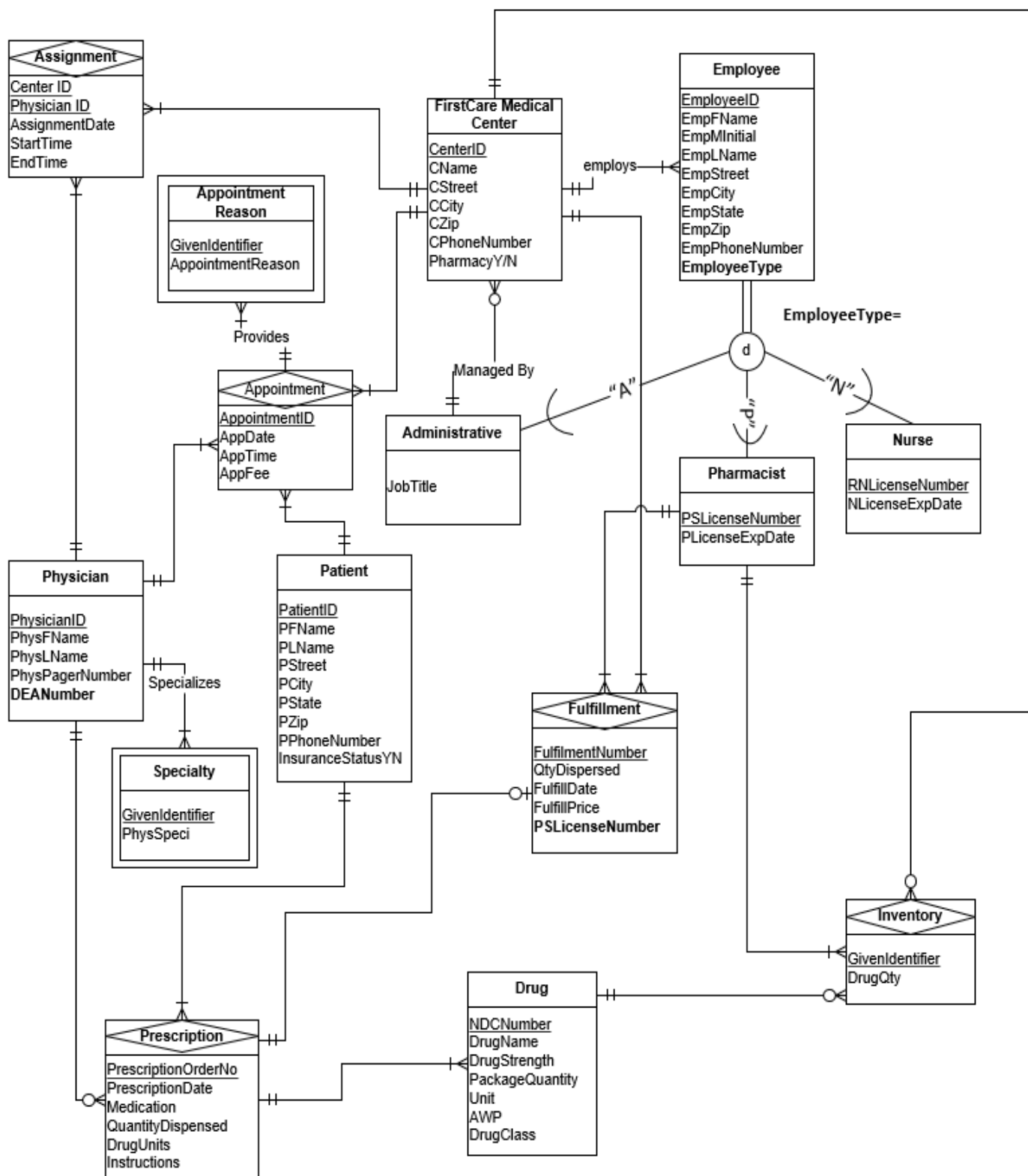
Assumptions

Employee
- Even though all first care facilities are in the city of Alcoa, Florida, we have decided that it would be best to take down Employee State, just in case this could be useful at a future date.
- The only types of employees at FirstCare Medical Center are Administrative, Nurse, and Pharmacist

Physician
- All physicians see at least one patient and all patients see at least one physician.
- A physician does not have to write any prescriptions.
- All physicians must have at least one one specialty
- Any one physician may have more than one specialty

Specialty
- All physicians must have at least one specialty
- Any one physician can have more than one specialty

Administrative Employees
- Administrative employees can manage 0, 1, or many different medical centers
- Each medical center is only managed by 1 administrative employee

Appointment
- There may be multiple reasons for an appointment
- There must be at least one reason for an appointment

Prescriptions
- All prescriptions must have at least one drug

Drugs
- All drugs must have a class
- Each drug can only have one class
- Each prescription must have at least one drug

Inventory
- Inventory can be 0 for any given drug
- There may be more than one pharmacist who takes count of drug inventory per pharmacy

Logical Design

Employee (**EmployeeID,** EmpFName, EmpMInitial, EmpLName, EmpStreet, EmpCity, EmpState, EmpZip, EmpPhoneNumber, **EmployeeType,** *CenterID*)

Administrative (***AEmployeeID,*** Job Title)

Pharmacist (***PEmployeeID, PSLicenseNumber,*** PLicenseExpDate,

Nurse (***NEmployeeID, RNLicenseNumber,*** NLicenseExpDate)

FirstCare Medical Center (**CenterID,** CName, CStreet, CCity, CZip, CPhoneNumber, ***ManagerID,*** PharmacyYN)

Assignment (***CenterID, PhysicianID,*** AssignmentDate, StartTime, EndTime)

Physician (**PhysicianID,** PhysFName, PhysLName, PhysPagerNumber, **DEANumber**)

Specialty (***PhysicianID***, PhysSpeci)

Appointment (**AppointmentID,** AppDate, AppTime, AppFee, *PhysicianID, CenterID, PatientID*)

Appointment Reason (***AppointmentID,*** AppointmentReason)

Patient (**PatientID**, PFName, PLName, PStreet, PCity, PState, PZip, PPhoneNumber, InsuranceYN)

Prescription (**PrescriptionOrderNo**, PrescriptionDate, Medication, QuantityDispensed, DrugUnits, Instructions, *PatientID, PhysicianID*)

Drug (**NDCNumber,** DrugName, DrugStrength, PackageQuantity, Unit, AWP, DrugClass, ***PrescriptionOrderNo***)

Inventory (***NDCNumber, PSLicenseNumber, CenterID*** DrugQty)

Fulfillment (**FulfillmentNo,** *PSLicenseNumber*, *PrescriptionOrderNumber, CenterID,* QuantityDispensed, FulfillDate, FulfillPrice)

Data Dictionary

First Care Medical Center

First Care Medical Center								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
CenterID	Unique Identifier for each medical center	PK	Numeric	1	#	Can only be a 1, 2, 3, or 4	Y	Y
CName	Name of Center		Text	40			N	Y
Cstreet	Center street address		Text	25			N	N
CCity	Center city		Text	15			N	N
CZip	Center zip code		Text	10	#####-####		N	N
CPhoneNumber	Center phone number		Text	12	###-###-####		N	N
PharmacyYN	Does the pharmacy have a center or not		Text	1		Either Y or N	N	Y
ManagerID	EmployeeID of each center's manager	FK	Text	7			Y	Y

Employee

Employee								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
EmployeeID	Unique Identifier for Employee	PK	Text	7			Y	Y
EmpFName	Employee first name		Text	10			N	Y
EmpMInitial	Employee Middle Initial		Text	1			N	N
EmpLName	Employee last name		Text	15			N	Y
EmpStreet	Employee street address		Text	25			N	N
EmpCity	Employee city		Text	15			N	N
EmpState	Employee State		Text	2			N	N
EmpZip	Employee zip code		Text	10	#####-####		N	N
EmpPhoneNumber	Employee phone number		Text	12	###-###-####		N	N
EmployeeType	Describes the type of employee		Text	14		Can only be classified as administrative, nurse, or pharmacist	Y	Y
CenterID	Unique Identifier for each medical center	FK	Numeric	1	#	Can only be a 1, 2, 3, or 4	N	Y

AdminEmployee

Administrative Employees								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
AEmployeeID	Unique Identifier for Administrative employees	PFK	Text	7			Y	Y
JobTitle	Job title of the Administrator		Text	15			N	Y

NurseEmployee

NurseEmployee								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
NEmployeeID	Unique Identifier for Nurse	FK	Text	7			Y	Y
RNLicenseNumber	Nurse License Number	PK	Text	9	RN######	"RN" for nurses followed by seven digits	Y	Y
NLicenseExpDate	Date pharmacist license expires		Date/Time	8	MM/DD/YY		N	Y

PharmacistEmployee

PharmacistEmployee								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
PEmployeeID	Unique Identifier for Pharmacists	FK	Text	7			Y	Y
PSLicenseNumber	Pharmacist License Number	PK	Text	9	PS######	"PS" for pharmacists followed by seven digits	Y	Y
PLicenseExpDate	Date pharmacist license expires		Date/Time	8	MM/DD/YY		N	Y

Patient

Patient								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
PatientID	Unique Patient identifier	PK	Text	6	######	First digit must be a 1, 2, 3, or 4	Y	Y
PFName	Patient first name		Text	10			N	Y
PLName	Patient last name		Text	15			N	Y
PStreet	Patient street address		Text	25			N	N
PCity	Patient city		Text	15			N	N
PState	Abreviated version of state Patient lives in		Text	2			N	N
PZip	Patient zip code		Text	10	#####-####		N	N
PPhoneNumber	Patient phone number		Text	12	###-###-####		N	N
InsuranceY/N	Patient insurance status		Yes/No	1		Will either be a "Y" or a "N"	N	Y

Physician

Physician								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
PhysicianID	Unique Identifier for each contracted physician	PK	Text	7			Y	Y
PhysFName	First name of Physician		Text	10			N	Y
PhysLName	Last name of Physician		Text	15			N	Y
PagerNumber	Pager number of Physician		Text	12	###-###-####		N	N
DEANumber	Number assigned by the DEA for each physician		Text	9	xx########	The first letter is always "A" or "B", the second letter is always the firs	N	Y

PhysicianSpecialty

Physician Specialty								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
PhysicianID	Unique Identifier for each contracted Physician	PFK	Text	7			Y	Y
PhysSpeci	Specialties for each Physician		Text	100			N	Y

Assignment

Assignment								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
CenterID	Unique Identifier for each medical center	PFK	Numeric	1	#	Can only be a 1, 2, 3, or 4	Y	Y
PhysicianID	Unique Identifier for each contracted physician	PFK	Text	7			Y	Y
AssignmentDate	Date of assignment		Date/Time	8	MM/DD/YY		N	Y
StartTime	Start time of the assignment		Date/Time	5	HH:MM		N	Y
EndTime	End time of the assignment		Date/Time	5	HH:MM		N	Y

Appointment

Appointment								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
AppointmentID	Unique Identifier for each appointment	PK	Text	7	#######	First number must be a 1, 2, 3, or 4	Y	Y
AppDate	Date of Appointment		Date/Time	8	MM/DD/YY		N	Y
AppTime	Time of Appointment		Date/Time	5	HH:MM		N	N
AppFee	Fee of the Appointment		Currency	7	$###.##		N	N
PhysicianID	Unique Identifier for each contracted Physician	FK	Text	7			N	Y
CenterID	Unique Identifier for each contracted Physician	FK	Numeric	1	#	Can only be a 1, 2, 3, or 4	N	Y
PatientID	Unique Patient identifier	FK	Text	6	######	First number must be a 1, 2, 3, or 4	N	Y

Appointment Reason

AppointmentReason								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
AppointmentID	Unique Appointment identifier	PFK	Text	7	#######	First number must be a 1, 2, 3, or 4	Y	Y
AppointmentReason	Reason for the Appointment		Memo	250			N	Y

Prescription

Prescription								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
PrescriptionOrderNo	Unique order number for each prescription	PK	Text	10			Y	Y
PrescriptionDate	Date the prescription was written		Date	8	MM/DD/YY		N	Y
Medication	The medication being prescribed		Text	50			N	Y
QuantityDispensed	How much medication dispensed		Numeric	3	###		N	Y
DrugUnits	The form of the drug which is dispensed		Text	4		Can be "Tab" for tablets, "mg" for miligrams, or "ml" for mililiters, etc		
Instructions	instructions for taking medication		Text	250			N	Y
PatientID	Patients identifier	FK	Text	6	######	First digit must be a 1, 2, 3, or 4	N	Y
PhysicianID	physician identifier	FK	Text	7			N	Y

Drug

Drug								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
NDCNumber	Unique identifier number for each drug	PK	Numeric	11	###########		Y	Y
DrugName	Name of Drug		Text	15			N	Y
DrugStrength	Dosage of the drug		Text	6	###xxx	xxx can be "Tab" for tablets, "mg" for miligrams, or "ml" for mililiters	N	Y
QuantityPerPackage	Amount of drug which comes in each package		Numeric	4	####		N	N
Unit	The form in which the drug comes		Text	4		Can be "Tab" for tablets, "mg" for miligrams, or "ml" for mililiters, etc	N	N
AWP	The adjusted wholesale price of the drug		Currency	10	$ ######.##		N	N
Drug Class	The classification of the drug		Text	4		non-prescription (OTC), prescription only (Rx), and controlled substance	N	Y
PrescriptionOrderNo	Unique order number for each prescription	FK	Text	10			N	Y

Inventory

Inventory								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
NDCNumber	Unique identifier number for each drug	PFK	Text	11	###########		N	Y
PSLicenseNumber	Pharmacist License Number	PK	Text	9	PS#######	"PS" for pharmacists followed by seven digits	Y	Y
CenterID	Unique Identifier for each medical center	FK	Numeric	1	#	Can only be a 1, 2, 3, or 4	N	Y
PackageQty	Quantity of drugs on hand		Numeric	4			N	Y

Fulfillment

Fulfillment								
Field Name	Description	Key	Data Type	Field Size	Format	Constraints	Required	Index
FulfillmentNo	Unique Identifier for Prescription Fulfillment	PK	Text	6	A#####	Starts with A, B, C, or D followed by 5-digit sequential number	Y	Y
PSLicenseNumber	Number to identify pharmacist's license	FK	Text	9	PS#######	Starts with PS, followed by 7-digit sequential number	Y	Y
PrescriptionOrderNumber	Number to identify Prescription Order	FK	Text	10			N	Y
QuantityDispensed	How much of the medication is being dispensed		Numeric	2			N	Y
FulfillDate	Date of fulfillment		Date	8	MM/DD/YY		N	Y
FulfillPrice	Price of fulfillment		Currency	3			N	N

Sample Reports

License Renewal Cards

Nursing License Reminder Card

Name: *John Doe*

License #: *RN3124280*

Expiration Date: *6/24/2021*

Reminder for Renewal: *6/10/2021*

Pharmacist License Reminder Card

Name: *Caroline Smith*

License #: *PS6306328*

Expiration Date: *8/26/2022*

Reminder for Renewal: *8/12/2022*

The license renewal cards above have the purpose to remind nurses and pharmacists to renew their respective licenses. The nurses and pharmacists must renew their licenses once they expire after two years. Two weeks prior to the expiration date of the license, the nurse or pharmacist will receive a reminder from their managers on when they need to renew their licenses. Once the license is renewed, a new expiration date and reminder for renewal is filed.

Patient Database

Patient Database						
PatientID	**Last Name**	**First Name**	**Address**	**City/State/Zip**	**Telephone**	**Insurance**
100231	Jones	Bill	887 Brickell Lane	Juniper, FL 33458	(832) 358-3370	Yes
409232	Daniels	Mark	174 Morris Street	Tampa, FL 33624	(386) 603-5081	Yes
198034	Curtis	Martha	134 Blazing Ridge Way	Acworth, GA 30101	(832) 695-5051	Yes
265451	James	Karen	81 East Henry Smith Rd	Pompano Beach, FL 33064	(434) 849-0819	No

The Patient Portal database will contain all of the vital information about each patient. Each patient will receive a Patient Portal form upon arrival to any of the four FirstCare locations. In order to be seen by a medical professional, the patient will need to fill out the form, giving the center their name, address, phone number, and insurance information. If the patient is new, they will be assigned a PatientID that

cannot change. When the administrator receives the form, a new record will be created in the Patient Database. Patients will only be listed once in the database.

Appointment Schedule

Appointment Schedule

Appointment Date:	2/15/2021	Center number:	1
Physicians on duty:	6840486	Open:	09:00
	7920598	Close:	19:00
Total Appointments:	20		

Appointment Schedule				Date: 2/15/2021			
AppointmentID	AppointmentDate	AppointmentTime	AppointmentReason	Fee	PatientID	PhysicianID	Center
1013437	2/15/2021	9:00	Toe hurts	$ 35.00	106341	6840486	1
1013438	2/15/2021	9:30	Heart pains	$ 35.00	302512	7920598	1
1013439	2/15/2021	10:00	Feels sick, high fever	$ 42.00	407233	6840486	1
1013440	2/15/2021	10:30	Eye hurts	$ 35.00	107455	7920598	1
1013441	2/15/2021	11:00	Ear infection	$ 35.00	209832	6840486	1
1013442	2/15/2021	11:30	Stomach cramps	$ 35.00	2011588	7920598	1
1013443	2/15/2021	12:00	Feels sickly	$ 35.00	100580	6840486	1
1013444	2/15/2021	12:30	Knee hurts	$ 50.00	101237	7920598	1
1013445	2/15/2021	13:00	Lower back issues	$ 35.00	203563	6840486	1
1013446	2/15/2021	13:30	Pulled muscle	$ 35.00	401292	7920598	1
1013447	2/15/2021	14:00	Migraine	$ 35.00	101074	6840486	1
1013448	2/15/2021	14:30	Flu	$ 35.00	309834	7920598	1
1013449	2/15/2021	15:00	Stomach bug	$ 45.00	202363	6840486	1
1013450	2/15/2021	15:30	Sinus Infection	$ 35.00	401924	7920598	1
1013451	2/15/2021	16:00	Athlete's foot	$ 35.00	110982	6840486	1
1013452	2/15/2021	16:30	Fever	$ 35.00	109264	7920598	1
1013453	2/15/2021	17:00	Pneumonia	$ 35.00	307892	6840486	1
1013454	2/15/2021	17:30	Bronchitis	$ 35.00	212092	7920598	1
1013455	2/15/2021	18:00	Tonsilitis	$ 45.00	201920	6840486	1
1013456	2/15/2021	18:30	Fever	$ 35.00	108273	7920598	1

1

Above is an example of an appointment schedule for Center 1 on the date 2/15/2021. Each center would be able to print one of these off at the beginning of every shift in order to more accurately see what gaps they might have for walk-ins, as well as to see the total amount of scheduled appointments they have in the morning. They would also be able to print this off at the end of the day in order to see how many appointments they had at the end of each day. When printed at the end of each day, these could also pretty easily judge the total amount of fees taken in by each center each day. These schedules would need to be re-created every day, and are specific for each center in order to get a more accurate judgement of each centers' performance. In the table, we would have the AppointmentID, the date and time of the appointment, the reason stated by the patient for why they need medical assistance, the amount we charged them, as well as the patient, physician, and center IDs.

Prescription Medication Record

<u>PRESCRIPTION MEDICATION RECORD</u>

Patient ID: 100231

Name: Bill Jones

RX NUMBER	MEDICATION NAME/STRENGTH	QTY	DOCTOR	DATE	PRICE
6051668	Aldomet 500mg	10	S. Strange	12/3/19	$ 6.74

Each patient will also have their own Prescription Medication Record linked to their PatientID in the Patient database. This will list the history and information about any prescription drug a patient may have received. This will allow doctors to know if any patient has come to get a new prescription for the same drug. If this happens the medical professional is trained to not deprescribe the same medication and to inform the patient to establish a traditional relationship with a regular physician.

Physician Schedule

Physician Schedule					
CenterID	PhysicianID	Assignment Date	StartTime	EndTime	Scheduled Hours
1	6106940	3/8/21	8:00 AM	2:00 PM	6.0
1	8769584	3/8/21	1:00 PM	8:00 PM	7.0
4	1972342	3/8/21	8:00 AM	8:00 PM	12.0
2	3746532	3/8/21	8:00 AM	8:00 PM	12.0
3	2984212	3/8/21	8:00 AM	8:00 PM	12.0
1	6106940	3/9/21	8:00 AM	8:00 PM	12.0
2	8769584	3/9/21	8:00 AM	8:00 PM	12.0
2	2019827	3/9/21	3:00 PM	8:00 PM	5.0
3	6106940	3/9/21	8:00 AM	8:00 PM	12.0
3	8769584	3/9/21	12:30 PM	8:00 PM	7.5
4	1972342	3/9/21	8:00 AM	8:00 PM	12.0
1	6106940	3/10/21	8:00 AM	8:00 PM	12.0
2	3746532	3/10/21	8:00 AM	8:00 PM	12.0
2	1972342	3/10/21	12:00 PM	8:00 PM	8.0
3	4126013	3/10/21	8:00 AM	8:00 PM	12.0
4	8769584	3/10/21	8:00 AM	8:00 PM	12.0
4	2019827	3/10/21	8:00 AM	8:00 PM	12.0

Above is an example of a physician schedule between the days 3/8/2021 and 3/10/2021, which our system would be able to generate. The field "CenterID" is pulled directly from the attribute of the same name. The same is true for PhysicianID. Assignment date is pulled from the AssignmentDate attribute in the Assignment Entity, as is StartTime and EndTime from the attributes of the same names. This form would be very helpful for neatly organizing which physicians would be assigned to work at which facilities on each individual day. This form might also be useful if published, allowing all employees to know which physicians would be working at which centers when.

SQL Commands

Create Statements

```
Create Table FirstCareMedicalCenter (
CenterID        INT              Check(CenterID in ('1', '2', '3', '4')) PRIMARY KEY,
        CName           VarChar(40),
        Cstreet         VarChar(25),
        CCity           VarChar(15),
        CZip            VarChar(10),
        CPhoneNumber VarChar(12),
        PharmacyYN    Char(1)          Check(PharmacyYN in ('Y', 'N')),
        ManagerID     Char(7),
);

Create Table Employee (
   EmployeeID            Char(7)          NOT NULL,
   EmpFName              VarChar(10),
   EmpMInitial           Char(1),
   EmpLName              VarChar(15),
   EmpStreet             VarChar(25),
   EmpCity               VarChar(15),
   EmpState              Char(2),
   EmpZip                VarChar(10),
   EmpPhoneNumber     Char(12),
   EmployeeType          VarChar(14)    NOT NULL,
   CenterID              INT              Check   (CenterID in('1' , '2', '3', '4')),
CONSTRAINT EmployeePK PRIMARY KEY (EmployeeID),
CONSTRAINT Employee_Center_FK    FOREIGN KEY (CenterID) REFERENCES FirstCareMedicalCenter(CenterID)
ON UPDATE CASCADE ON DELETE NO ACTION
);

Create Table AdminEmployee (
AEmployeeID            Char(7)          PRIMARY KEY,
JobTitle               VarChar(15),
CONSTRAINT  Administrative_Emp_FK FOREIGN KEY (AEmployeeID)
        References Employee(EmployeeID)
        ON UPDATE CASCADE ON DELETE NO ACTION
);

CREATE Table Nurse (
        RNLicenseNumber Char(9)        Check(RNLicenseNumber LIKE 'RN%') not null,
        NEmployeeID     Char(7)        NOT NULL,
        NlicenseexpDate    Date,
```

```
CONSTRAINT NursePK PRIMARY KEY  (RNLicenseNumber),
Constraint NurseEmployeeFK foreign key (NEmployeeID) references Employee(EmployeeID)
        on update cascade on delete no action
);


Create Table Pharmacist (
        PEmployeeID             Char(7),
        PSLicenseNumber         Char(9)         CHECK (PSLicenseNumber LIKE 'PS%')        NOT NULL,
        PLisenceExpDate         Date,
        CONSTRAINT Pharmacist_PK PRIMARY KEY (PSLicenseNumber) ,
CONSTRAINT Pharmacist_Emp_FK FOREIGN KEY (PEmployeeID) References  Employee(EmployeeID)
        ON UPDATE CASCADE ON DELETE NO ACTION
);


Create Table Patient (
        PatientID       Char(6)         PRIMARY KEY,
        PFName          VarChar(15),
        PLName          VarCHar(20),
        PStreet         Varchar(25),
        PCity           Varchar(15),
        PState          Char(2),
        PZip            Varchar(10),
        PPhoneNumber Char(12),
        InsuranceYN     Char(1)         CHECK(InsuranceYN in ('Y', 'N'))
);


CREATE TABLE Physician      (
        PhysicianID     Char(7)         PRIMARY KEY,
        PhysFName       Varchar(15),
        PhysLName       VarChar(15),
        PagerNumber     Char(12),
        DEANumber       Char(9)         NOT NULL,
);


Create Table Specialty (
        PhysicianID             Char(7) ,
        PhysSpeci               Varchar(100),
Constraint SpecialtyPK  Primary Key(PhysicianID),
Constraint SpecialtyPhysicianFK         Foreign Key(PhysicianID) REFERENCES Physician(PhysicianID)
        ON UPDATE CASCADE ON DELETE NO ACTION
);


Create Table Assignment(
        CenterID                INT     Check(CenterID in ('1', '2', '3', '4')),
        PhysicianID             Char(7),
        AssignmentDate          Date,
```

```
        StartTime              Time,
        EndTime                Time,
Constraint AssignmentPK        PRIMARY KEY (CenterID , PhysicianID),
Constraint AssignmentCenterFK FOREIGN KEY (CenterID)
        REFERENCES FirstCareMedicalCenter (CenterID)
        ON UPDATE CASCADE ON DELETE NO ACTION,
CONSTRAINT AssignmentPhysicianFK FOREIGN KEY (PhysicianID)
        REFERENCES Physician(PhysicianID)
        ON UPDATE CASCADE ON DELETE NO ACTION
);


Create Table Appointment (
        AppointmentID Char(7)          Primary Key     Not NUll,
        AppDate        Date,
        AppTime        Time,
        AppFee         Decimal(5,2),
        PhysicianID    Char(7)         Not Null,
        CenterID       Int             Not Null        Check(CenterID in ('1', '2', '3', '4')),
        PatientID      Char(6)         Not Null,
Constraint AppointmentPhysicianFK     Foreign Key(PhysicianID)       REFERENCES Physician(PhysicianID)
        On Update CASCADE on Delete No Action,
Constraint AppointmentFirstCareMedicalCenterFK      Foreign Key(CenterID)  REFERENCES
FirstCareMedicalCenter(CenterID)
        On Update CASCADE on Delete No Action,
Constraint AppointmentPatientFK       Foreign Key(PatientID) REFERENCES Patient(PatientID)
        On Update CASCADE on Delete No Action
);


CREATE TABLE AppointmentReason  (
        AppointmentID        Char(7)          PRIMARY KEY,
        AppointmentReason    Varchar(250),
CONSTRAINT AppointmentReasoin_App_FK FOREIGN Key (AppointmentID) REFERENCES
Appointment(AppointmentID)
        ON UPDATE CASCADE ON DELETE NO ACTION
);


Create Table Prescription (
        PrescriptionOrderNo    VARChar(10) Primary Key        Not Null,
        PrescriptionDate       Date,
        Medication             VarChar(50),
        QuantityDispensed      Int,
        DrugUnits              VarChar (4),
        Instructions           VarChar(250),
        PatientID              Char(6)          Not Null,
        PhysicianID            Char(7) Not Null,
Constraint PrescriptionPatientFK        Foreign Key(PatientID) REFERENCES Patient(PatientID)
```

```
        On Update CASCADE on Delete No Action,
Constraint PrescriptionPhysicianFK      Foreign Key(PhysicianID)        REFERENCES Physician(PhysicianID)
        On Update CASCADE on Delete No Action
);


CREATE TABLE Drug(
        NDCNumber               VARCHAR (11)            NOT NULL,
        DrugName                VARCHAR (15),
        DrugStrength            VARCHAR (6),
        QuantityPerPackage      INT,
        Unit                    VARCHAR (4),
        AWP                     DECIMAL (8,2),
        DrugClass               VARCHAR (4),
        PrescriptionOrderNo     VARCHAR(10),
CONSTRAINT DrugPK PRIMARY KEY (NDCNumber),
CONSTRAINT DrugPrescriptionFK FOREIGN KEY (PrescriptionOrderNo)
        REFERENCES Prescription(PrescriptionOrderNo)
        ON UPDATE Cascade ON DELETE NO ACTION
);


CREATE TABLE Inventory (
        NDCNumber               VARCHAR (11),
        PSLicenseNumber         CHAR(9)                 NOT NULL,
        CenterID                INT,
        PackageQty              Int,
CONSTRAINT InventoryPk PRIMARY KEY (PSLicenseNumber, NDCNumber),
CONSTRAINT InventoryDrugFK FOREIGN KEY (NDCNumber)
        REFERENCES Drug(NDCNumber)
        ON UPDATE Cascade ON DELETE NO ACTION,
CONSTRAINT InventoryCenterFK FOREIGN KEY (CenterID)
        REFERENCES FirstCareMedicalCenter(CenterID)
ON UPDATE Cascade ON DELETE NO ACTION
);


CREATE TABLE Fulfillment(
        FulfillmentNo           VARCHAR(6)              NOT NULL,
        PSLicenseNumber         CHAR(9)                 CHECK (PSLicenseNumber LIKE 'PS%') NOT NULL,
        PrescriptionOrderNo     VarChar(10),
        QuantityDispersed       Int,
        FulfillDate             Date,
        FulfillPrice            Decimal(6,2),
CONSTRAINT FulfillmentPK PRIMARY KEY (FulfillmentNo),
CONSTRAINT FulfillmentPharmacistFK FOREIGN KEY (PSLicenseNumber)
        REFERENCEs Pharmacist(PSLicenseNumber)
        ON UPDATE Cascade ON DELETE NO ACTION,
CONSTRAINT FulfillmentPrescriptionFK FOREIGN KEY (PrescriptionOrderNo)
```

REFERENCEs Prescription(PrescriptionOrderNo)
ON UPDATE Cascade ON DELETE NO ACTION
);

ALTER TABLE FirstCareMedicalCenter ADD CONSTRAINT FirstCareMedicalCenter_AdminEmployee_FK
FOREIGN key (ManagerID)
REFERENCES AdminEmployee(AEmployeeID)
ON UPDATE NO ACTION ON DELETE NO ACTION
;

Insert Statements

--Center
INSERT INTO FirstCareMedicalCenter VALUES (1, 'Queen First Care Medical Center', 'North Street', 'Alcoa', '34470-3393', '865-555-4367', 'Y', '8800001');
INSERT INTO FirstCareMedicalCenter VALUES (2, 'Guns N Roses First Care Medical Center', '21st Street', 'Alcoa', '34471-3343', '865-555-4369', 'Y', '8800002');
INSERT INTO FirstCareMedicalCenter VALUES (3, 'The Beatles First Care Medical Center', 'Let It Be Street', 'Alcoa', '34474-3493', '865-555-4368', 'Y', '8800003');
INSERT INTO FirstCareMedicalCenter VALUES (4, 'Green Day First Care Medical Center', 'Lonely Road', 'Alcoa', '34470-3223', '865-555-4370', 'Y', '8800004');

--Employee
INSERT INTO Employee VALUES ('8800001', 'Freddie', 'A', 'Mercury', 'Bohemian Street', 'Alcoa', 'FL', '34470-3393', '865-555-1345', 'Administrative', '1');
INSERT INTO Employee VALUES ('8800002', 'Axl', 'B', 'Rose', 'Paradise Street', 'Alcoa', 'FL', '34471-2393', '865-555-1765', 'Administrative', '2');
INSERT INTO Employee VALUES ('8800003', 'John', 'C', 'Lennon', 'Hey Jude Street', 'Alcoa', 'FL', '34474-4423', '865-555-9836', 'Administrative', '3');
INSERT INTO Employee VALUES ('8800004', 'Billie', 'J', 'Armstrong', 'American Street', 'Alcoa', 'FL', '34470-3443', '865-555-4371', 'Administrative', '4');
INSERT INTO Employee VALUES ('8800005', 'Paul', 'A', 'McCartney', 'Russell Street', 'Alcoa', 'FL', '34471-2637', '865-555-5730', 'Administrative', '3');
INSERT INTO Employee VALUES ('8800006', 'Alex', 'G', 'Johnson', 'Highland Street', 'Alcoa', 'FL', '34474-3326', '865-555-8875', 'Administrative', '1');
INSERT INTO Employee VALUES ('8800007', 'Daniel', 'R', 'Reynolds', 'James Street', 'Alcoa', 'FL', '34470-6544', '865-555-7724', 'Administrative', '2');
INSERT INTO Employee VALUES ('8800008', 'Jennifer', 'R', 'Thompson', 'Kennedy Street', 'Alcoa', 'FL', '34471-5423', '865-555-8473', 'Administrative', '3');
INSERT INTO Employee VALUES ('8800009', 'Craig', 'B', 'Jeffers', 'Andrews Street', 'Alcoa', 'FL', '34470-2351', '865-555-9823', 'Administrative', '4');
INSERT INTO Employee VALUES ('8800010', 'Samantha', 'A', 'Rucker', 'Volunteer Street', 'Alcoa', 'FL', '34474-3415', '865-555-0927', 'Administrative', '2');
INSERT INTO Employee VALUES ('9900001', 'Tom', 'D', 'Joseph', '16th Street', 'Orlando', 'FL', '32789-4832', '865-555-7345', 'Nurse', '1');
INSERT INTO Employee VALUES ('9900002', 'Lisa', 'R', 'Smith', 'Logan Avenue', 'Alcoa', 'FL', '34474-3921', '865-555-1466', 'Nurse', '4');
INSERT INTO Employee VALUES ('9900003', 'Cari', 'A', 'Howard', 'Johnson Street', 'Orlando', 'FL', '32789-4442', '865-555-7254', 'Nurse', '3');
INSERT INTO Employee VALUES ('9900004', 'Sam', 'J', 'Broda', 'Washington Street', 'Orlando', 'FL', '32789-4532', '865-555-9870', 'Nurse', '2');
INSERT INTO Employee VALUES ('9900005', 'Regina', 'R', 'Cantrell', 'Alexander Street', 'Alcoa', 'FL', '34474-3921', '865-555-1123', 'Nurse', '4');
INSERT INTO Employee VALUES ('9900006', 'Will', 'D', 'Gross', 'White Street', 'Orlando', 'FL', '32789-4312', '865-555-1019', 'Nurse', '3');

INSERT INTO Employee VALUES ('9900007', 'Claire', 'E', 'Donelan', 'Allen Street', 'Orlando', 'FL', '32789-5456', '865-555-5757', 'Nurse', '2');
INSERT INTO Employee VALUES ('9900008', 'Reid', 'R', 'Grafton', 'Cumberland Street', 'Alcoa', 'FL', '33474-5414', '865-555-8687', 'Nurse', '1');
INSERT INTO Employee VALUES ('9900009', 'Drew', 'L', 'Miller', 'Clinch Street', 'Orlando', 'FL', '32789-4525', '865-555-0765', 'Nurse', '3');
INSERT INTO Employee VALUES ('9900010', 'Macy', 'M', 'McCullough', 'Blue Street', 'Alcoa', 'FL', '34470-5624', '875-555-4532', 'Nurse', '4');
INSERT INTO Employee VALUES ('7700001', 'Alyssa', 'L', 'Grissom', 'Orange Street', 'Alcoa', 'FL', '34470-4132', '875-555-1111', 'Pharmacist', '1');
INSERT INTO Employee VALUES ('7700002', 'Mikahla', 'C', 'Clemens', 'Highland Street', 'Alcoa', 'FL', '34470-1234', '875-555-4313', 'Pharmacist', '2');
INSERT INTO Employee VALUES ('7700003', 'Jeff', 'B', 'Rizzo', 'Alcoa Street', 'Alcoa', 'FL', '34470-3412', '875-555-5565', 'Pharmacist', '3');
INSERT INTO Employee VALUES ('7700004', 'Anthony', 'T', 'Bryant', 'Leaf Street', 'Alcoa', 'FL', '34470-4132', '875-555-3412', 'Pharmacist', '4');
INSERT INTO Employee VALUES ('7700005', 'Jay', 'L', 'Cutler', '11th Street', 'Alcoa', 'FL', '34470-7453', '875-555-5998', 'Pharmacist', '1');
INSERT INTO Employee VALUES ('7700006', 'Ben', 'R', 'Simmons', '76er Street', 'Alcoa', 'FL', '34470-5323', '875-555-8475', 'Pharmacist', '2');
INSERT INTO Employee VALUES ('7700007', 'Derrick', 'R', 'Rose', 'Bulls Street', 'Alcoa', 'FL', '34470-5122', '875-555-7765', 'Pharmacist', '3');
INSERT INTO Employee VALUES ('7700008', 'Andrea', 'L', 'Edwards', 'Logan Street', 'Alcoa', 'FL', '34470-4132', '875-555-4312', 'Pharmacist', '1');
INSERT INTO Employee VALUES ('7700009', 'Frank', 'G', 'Dog', 'Fred Street', 'Alcoa', 'FL', '34470-4132', '875-555-6363', 'Pharmacist', '4');
INSERT INTO Employee VALUES ('7700010', 'Jenna', 'L', 'Fisher', 'Computer Street', 'Alcoa', 'FL', '34470-8657', '875-555-2234', 'Pharmacist', '1');

--Nurse
INSERT INTO Nurse VALUES ('RN1100001','9900001', '20-Jul-2021');
INSERT INTO Nurse VALUES ('RN1100002','9900002', '19-FEB-2021');
INSERT INTO Nurse VALUES ('RN1100003','9900003', '22-May-2021');
INSERT INTO Nurse VALUES ('RN1100004','9900004', '26-AUG-2021');
INSERT INTO Nurse VALUES ('RN1100005','9900005', '10-May-2021');
INSERT INTO Nurse VALUES ('RN1100006','9900006', '25-Jan-2022');
INSERT INTO Nurse VALUES ('RN1100007','9900007', '12-Dec-2021');
INSERT INTO Nurse VALUES ('RN1100008','9900008', '10-Apr-2021');
INSERT INTO Nurse VALUES ('RN1100009','9900009', '20-May-2021');
INSERT INTO Nurse VALUES ('RN1100010','9900010', '12-Feb-2021');

--Admin
INSERT INTO AdminEmployee VALUES ('8800001', 'Manager');
INSERT INTO AdminEmployee VALUES ('8800002', 'Manager');
INSERT INTO AdminEmployee VALUES ('8800003', 'Manager');
INSERT INTO AdminEmployee VALUES ('8800004', 'Manager');

INSERT INTO AdminEmployee VALUES ('8800005', 'Clerk');
INSERT INTO AdminEmployee VALUES ('8800006', 'Clerk');
INSERT INTO AdminEmployee VALUES ('8800007', 'Receptionist');
INSERT INTO AdminEmployee VALUES ('8800008', 'Clerk');
INSERT INTO AdminEmployee VALUES ('8800009', 'Receptionist');
INSERT INTO AdminEmployee VALUES ('8800010', 'Receptionist');

--Pharmacist
Insert into Pharmacist Values ('7700001', 'PS0000001', '11-11-2023');
Insert into Pharmacist Values ('7700002', 'PS0000002', '02-03-2021');
Insert into Pharmacist Values ('7700003', 'PS0000003', '03-12-2022');
Insert into Pharmacist Values ('7700004', 'PS0000004', '04-05-2021');
Insert into Pharmacist Values ('7700005', 'PS0000005', '05-29-2021');
Insert into Pharmacist Values ('7700006', 'PS0000006', '04-14-2022');
Insert into Pharmacist Values ('7700007', 'PS0000007', '03-13-2023');
Insert into Pharmacist Values ('7700008', 'PS0000008', '05-09-2021');
Insert into Pharmacist Values ('7700009', 'PS0000009', '09-10-2023');
Insert into Pharmacist Values ('7700010', 'PS0000010', '07-16-2024');

--Patient
Insert into Patient Values ('100001', 'Brad', 'Peterson', '123 Main St.', 'Clearwater', 'FL', '84758-8383', '543-243-3424', 'Y');
Insert into Patient Values ('200001', 'Trenil', 'Shah', '583 West Ave.', 'Jacksonville', 'FL', '63833-8442', '245-859-8375', 'N');
Insert into Patient Values ('300001', 'Levy', 'Johnson', 'Beale Crt.', 'Gainesville', 'FL', '64832-3358', '958-837-9484', 'N');
Insert into Patient Values ('300002', 'Micheal', 'Smith', '1 Spruce Dr.', 'Atlanta', 'GA', '94029-2934', '748-837-3837', 'Y');
Insert into Patient Values ('400001', 'Steve', 'Jenkins', '134 Blazing Ridge Way', 'Alcoa', 'FL', '58938-3038', '845-449-2847', 'Y');
Insert into Patient Values ('400002', 'Clair', 'Ross', '622 Oak Cove Ln.', 'Knoxville', 'TN', '34895-3955', '235-958-3938', 'N');
Insert into Patient Values ('400003', 'Caroline', 'Black', '238 Blue Ave.', 'Seaside', 'FL', '23489-2484', '283-338-2947', 'Y');
Insert into Patient Values ('200002', 'Bill', 'Williams', '89 West Way', 'Tampa', 'CA', '92837-2374', '957-234-0003', 'Y');
Insert into Patient Values ('100002', 'Kait', 'Green', '3 Church St.', 'Albany', 'NY', '23844-3390', '808-394-2344', 'Y');
Insert into Patient Values ('200003', 'Maddison', 'Curt', '909 Cut Path', 'Alcoa', 'FL', '34233-2834', '350-090-0099', 'N');

--Physicians
Insert into Physician Values ('6000001', 'Josh', 'Kent', '404-283-3212', 'AJ0000001');
Insert into Physician Values ('6000002', 'Ashley', 'King', '445-903-0284', 'AA0000002');
Insert into Physician Values ('6000003', 'Brian', 'Stevens', '865-288-4228', 'AB0000003');
Insert into Physician Values ('6000004', 'Mark', 'Moon', '234-432-0030', 'BM0000004');
Insert into Physician Values ('6000005', 'Ted', 'Stank', '693-038-7844', 'BM0000005');
Insert into Physician Values ('6000006', 'Kelly', 'Meyer', '678-491-6569', 'AK0000006');
Insert into Physician Values ('6000007', 'Jacob', 'Watkins', '770-917-1922', 'BJ0000007');
Insert into Physician Values ('6000008', 'Tammy', 'Joran', '234-837-3854', 'AT0000008');
Insert into Physician Values ('6000009', 'Kim', 'Sims', '245-896-5532', 'AK0000009');
Insert into Physician Values ('6000010', 'Anna', 'Lentz', '459-393-3984', 'BA0000010');

--Specialties

Insert into Specialty Values ('6000001', 'Family Medicine, Internal Medicine');
Insert into Specialty Values ('6000002', 'Pediatrics');
Insert into Specialty Values ('6000003', 'Family Medicine');
Insert into Specialty Values ('6000004', 'Emergency Medicine, Internal Medicine, Anesthesiology');
Insert into Specialty Values ('6000005', 'Dermatology');
Insert into Specialty Values ('6000006', 'Family Medicine, Pathology');
Insert into Specialty Values ('6000007', 'Family Medicine');
Insert into Specialty Values ('6000008', 'Dermatology');
Insert into Specialty Values ('6000009', 'Anesthesiology');
Insert into Specialty Values ('6000010', 'Anesthesiology, Family Medicine');

--Assignment
Insert into Assignment Values (1,'6000001','09/24/20','09:30','10:00');
Insert into Assignment Values (2,'6000002','01/04/20','12:30','01:00');
Insert into Assignment Values (3,'6000003','07/05/20','08:00','08:30');
Insert into Assignment Values (3,'6000004','08/15/20','10:30','11:00');
Insert into Assignment Values (4,'6000005','02/01/20','11:00','11:30');
Insert into Assignment Values (4,'6000006','04/09/20','03:30','04:00');
Insert into Assignment Values (4,'6000007','09/02/20','04:30','05:00');
Insert into Assignment Values (2,'6000008','08/06/20','08:30','09:00');
Insert into Assignment Values (1,'6000009','11/18/20','07:30','08:00');
Insert into Assignment Values (2,'6000010','12/31/20','11:30','12:00');

--Appointment
Insert into Appointment Values ('1000234','09/24/20','09:30',35.00,'6000001',1,'100001');
Insert into Appointment Values ('2000356','01/04/20','12:30',41.50,'6000002',2,'200001');
Insert into Appointment Values ('3000342','07/05/20','08:00',35.00,'6000003',3,'300001');
Insert into Appointment Values ('3000343','08/15/20','10:30',47.00,'6000004',3,'300002');
Insert into Appointment Values ('4000578','02/01/20','11:00',35.00,'6000005',4,'400001');
Insert into Appointment Values ('4000579','04/09/20','03:30',35.00,'6000006',4,'400002');
Insert into Appointment Values ('4000580','09/02/20','04:30',35.00,'6000007',4,'400003');
Insert into Appointment Values ('2000357','08/06/20','08:30',48.00,'6000008',2,'200002');
Insert into Appointment Values ('1000235','11/18/20','07:30',35.00,'6000009',1,'100002');
Insert into Appointment Values ('2000358','12/31/20','11:30',71.00,'6000010',2,'200003');

--AppointmentReason
Insert into AppointmentReason Values ('1000234', 'Complaints of Fever and Chills');
Insert into AppointmentReason Values ('2000356', 'Shortness of Breath');
Insert into AppointmentReason Values ('3000342', 'Unable to see at Night');
Insert into AppointmentReason Values ('3000343', 'Loses ability to breath While Swimming') ;
Insert into AppointmentReason Values ('4000578', 'Heavy feeling in limbs after exercising');
Insert into AppointmentReason Values ('4000579', 'Skin turned red after a day at the beach');
Insert into AppointmentReason Values ('4000580', 'Feelings of numbness in left side');
Insert into AppointmentReason Values ('2000357', 'Face swells when ingesting peanuts');
Insert into AppointmentReason Values ('1000235', 'No longer able to read');
Insert into AppointmentReason Values ('2000358', 'Chronic Headaches');

--Prescription
Insert into Prescription Values ('1002003004', '11-May-2020', 'Ayahuasca', 32, 'Tab', 'Take two per day, one in the morning and one before bed', '100001', '6000001');
Insert into Prescription Values ('2003004005', '09-Jun-2020', 'Ketamine', 500, 'mg', 'Take 10mg of powder before every meal', '100002', '6000002');
Insert into Prescription Values ('3004005006', '22-Jul-2020', 'Nyquil', 75, 'mg', 'Take 5mg per night if you are having trouble sleeping', '200002', '6000003');
Insert into prescription Values ('4005006007', '31-Aug-2020', 'Advil', 24, 'Tab', 'Take 3-5 whenever your head hurts.', '200001', '6000004');
Insert into Prescription Values ('5006007008', '08-Sep-2020', 'Codeine', 200, 'ml', 'Therpeutic, take 100ml whenever you have a headache or runny nose','300001', '6000001');
Insert into Prescription Values ('6007008009', '20-Oct-2020', 'Ridolin', 200, 'ml', 'Take 200mL whenever you are experiencing a sinus infection', '300002', '6000006');
Insert into Prescription Values ('7008009001', '05-Nov-2020', 'Ambien', 45, 'Tab', 'Take 3 ambien whenever you are having trouble sleeping and then be sure to not get on twitter', '400001', '6000007');
Insert into Prescription Values ('8009001002', '21-Dec-2020', 'Dayquil', 32, 'Tab', 'Take 2 tablets in the morning to wake yourself up for a pleasant day.', '400002', '6000008');
Insert into Prescription Values ('9001002003', '02-Jan-2021', 'Promethazine', 75, 'mg', 'Take 5mg with every meal to ensure proper bowel movements', '400003' ,'6000009');
Insert into Prescription Values ('1003004005', '15-Feb-2021', 'Amphetamine', 100, 'ml', 'Take 10 ml before bed every other morning. DO NOT MISS A DAY', '100002', '6000010');
Insert into Prescription Values ('1004005006', '19-Feb-2021', 'Amphetamine', 100, 'ml', 'Take 10 ml before bed every other morning. DO NOT MISS A DAY', '200002', '6000001');
Insert into Prescription Values ('5007009001', '20-Apr-2021', 'Codeine', 150, 'ml', 'Therpeutic, take 100ml whenever you have a headache or runny nose','400001', '6000006');

--Drug
Insert into Drug Values ('9103516181', 'Ayahuasca', '1Tab', 32, 'Tab', 150.00, 'Rx', '1002003004');
Insert into Drug Values ('8135104912', 'Ketamine', '10mg', 48, 'mg', 82.00, 'Rx', '2003004005');
Insert Into Drug Values ('1829046543', 'Nyquil', '5mg', 15, 'mg', 5.99, 'Rx', '3004005006');
Insert into Drug Values ('3109285392', 'Advil', '1Tab', 24, 'Tab', 32.50, 'Rx', '4005006007');
Insert into Drug Values ('2948101847', 'Codeine', '10ml', 36,'ml' , 15.00, 'Rx' , '5006007008');
Insert into Drug Values ('2983104812', 'Ridolin', '20ml', 55, 'ml' , 97.00, 'CIII', '6007008009');
Insert into Drug Values ('1728930478', 'Ambien', '3Tab', 45, 'Tab' , 250.00, 'CII', '7008009001');
Insert Into Drug Values ('8594039283', 'Dayquil', '1Tab', 32,'Tab', 10.75, 'OTC', '8009001002');
Insert Into Drug Values ('8102983712', 'Promethazine', '5mg', 15, 'mg', 5.99, 'Rx', '9001002003');
Insert Into Drug Values ('7482094821', 'Amphetamine', '10ml',10, 'ml', 25.99, 'CIV', '1003004005');

--Inventory
Insert into Inventory Values ('2983104812', 'PS0000003', 3, 72);
Insert into Inventory Values ('3109285392', 'PS0000004', 1, 342);
Insert into Inventory Values ('2948101847', 'PS0000001', 2, 25);
Insert into Inventory Values ('7482094821', 'PS0000010', 3, 409);
Insert into Inventory Values ('8102983712', 'PS0000007', 3, 229);
Insert into Inventory Values ('8135104912', 'PS0000009', 4, 68);

Insert into Inventory Values ('1829046543', 'PS0000002', 2, 51);
Insert into Inventory Values ('8594039283', 'PS0000006', 3, 63);
Insert into Inventory Values ('1728930478', 'PS0000005', 1, 367);
Insert into Inventory Values ('9103516181', 'PS0000008', 3, 143);

--Fulfillment
Insert into Fulfillment Values ('A73761', 'PS0000009', '4005006007', 21, '03/01/20', 40.00);
Insert into Fulfillment Values ('A27210', 'PS0000005', '7008009001', 17, '05/14/20', 36.00);
Insert into Fulfillment Values ('D74732', 'PS0000007', '5006007008', 29, '04/11/20', 52.90);
Insert into Fulfillment Values ('C18657', 'PS0000002', '1002003004', 31, '11/21/20', 23.45);
Insert into Fulfillment Values ('A24109', 'PS0000001', '6007008009', 46, '03/10/20', 31.62);
Insert into Fulfillment Values ('B14181', 'PS0000003', '9001002003', 23, '09/29/20', 30.00);
Insert into Fulfillment Values ('A07579', 'PS0000004', '8009001002', 6, '01/22/20', 26.50);
Insert into Fulfillment Values ('A61067', 'PS0000010', '2003004005', 10, '04/18/20', 97.00);
Insert into Fulfillment Values ('D10914', 'PS0000006', '3004005006', 90, '09/07/20', 92.00);
Insert into Fulfillment Values ('A55829', 'PS0000008', '1003004005', 30, '05/04/20', 42.00);

SQL Queries

-- Drug Product Data Report

```
Create View DrugProductDataReport AS
SELECT Drug.DrugName, Drug.NdcNumber, Drug.DrugClass, Prescription.Instructions, Inventory.CenterID,
sum(Drug.QuantityPerPackage * Inventory.PackageQty) as TotalDrugAmmount
FROM Prescription INNER JOIN Drug
ON Prescription.Medication = Drug.DrugName
INNER JOIN Inventory
ON Drug.NDCNumber = Inventory.NDCNumber
Group By Drug.DrugName, Drug.NDCNumber, Drug.DrugClass, Prescription.Instructions, Inventory.CenterID
```

-- License Expiration date

```
Create View LicExpDate
SELECT *
FROM (SELECT Employee.EmployeeID, EmpFName, EmpLName, CenterID, QuantityDispersed, PLisenceExpDate,
DateDiff(Day, GetDate(), PLisenceExpDate) as 'Days Until Expired'
        FROM Employee inner join Pharmacist
                On Employee.EmployeeID = Pharmacist.PEmployeeID
                Inner Join Fulfillment
                On Pharmacist.PSLicenseNumber = Fulfillment.PSLicenseNumber
                Where PLisenceExpDate between GETDATE() and cast(dateadd(m, 6, getdate()) as date)) as PharmTable
        Full outer join (SELECT Employee.EmployeeID, EmpFName, EmpLName, CenterID, NlicenseexpDate,
        DateDiff(Day, GetDate(), NlicenseexpDate) as 'Days Until Expired'
                        FROM Employee Inner Join Nurse
                                On Employee.EmployeeID = Nurse.NEmployeeID
                                Where Nlicenseexpdate between GETDATE() and cast(dateadd(m, 6, getdate()) as date))
                                as NurseTable
        On PharmTable.EmployeeID = NurseTable.EmployeeID;
```

-- Drug Label

```
Create View DrugLabel AS
SELECT DrugName, DrugStrength, Unit, DrugClass, PFName, PLName, PhysFName, PhysLName, QuantityDispensed,
FulfillDate, FulfillDate, Cstreet, EmpFName, EmpLName
FROM Drug inner join Prescription
ON Drug.PrescriptionOrderNo = Prescription.PrescriptionOrderNo
        inner join Patient
        ON Prescription.PatientID = Patient.PatientID
        inner join Appointment
        ON Patient.PatientID = Appointment.PatientID
        inner join Physician
        ON Appointment.PhysicianID = Physician.PhysicianID
```

```
inner join Assignment
ON Physician.PhysicianID = Assignment.PhysicianID
inner join FirstCareMedicalCenter
ON Assignment.CenterID = FirstCareMedicalCenter.CenterID
inner join Employee
ON FirstCareMedicalCenter.CenterID = Employee.CenterID
Inner Join Pharmacist
ON Employee.EmployeeID = Pharmacist.PEmployeeID
Inner Join Fulfillment
ON Pharmacist.PSLicenseNumber = Fulfillment.PSLicenseNumber
```

--Daily Dispense Drug Log

```
Create View Daily_Dispense_DrugLog_Report as
SELECT NDCNumber, Drug.DrugName, DrugClass, QuantityPerPackage*QuantityDispensed as TotalDispensed,
FirstCareMedicalCenter.CenterID, CName, CPhoneNumber, PharmacyYN
FROM Drug inner join Prescription
        On Drug.PrescriptionOrderNo = Prescription.PrescriptionOrderNo
        inner join Physician
        On Prescription.PhysicianID = Physician.PhysicianID
        inner join Assignment
        On Physician.PhysicianID = Assignment.PhysicianID
        inner join FirstCareMedicalCenter
        On FirstCareMedicalCenter.CenterID = Assignment.CenterID
        Group By NDCNumber, Drug.Drugname,DrugClass, QuantityPerPackage, QuantityDispensed,
        FirstCareMedicalCenter.CenterID, CName, CPhoneNumber, PharmacyYN;
```

-- Patient Profile
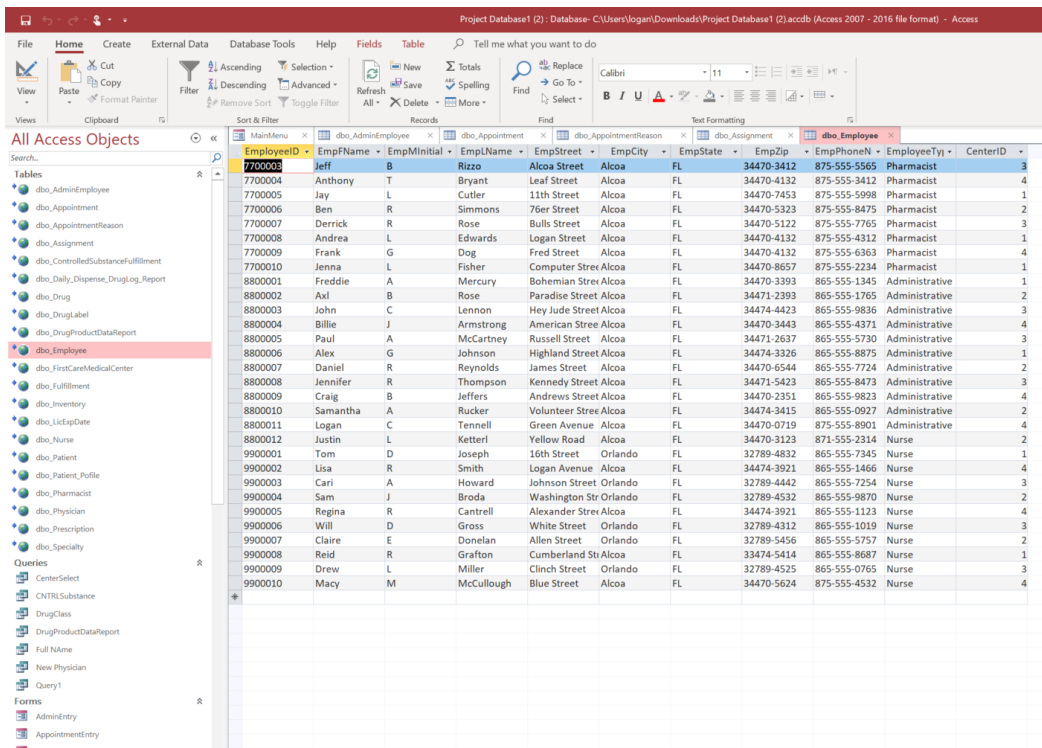
```
CREATE View Patient_Pofile AS
SELECT PFName as 'First Name', PLName as 'Last Name', PPhoneNumber as Phone, Prescription.PrescriptionOrderNo,
Drug.DrugName, NDCNumber as 'Rx Number', DrugStrength, CONCAT(QuantityDispensed,' ', DrugUnits) as 'Quantity
Prescribed', AWP as Price, PhysFName+ ' ' + PhysLName as Physician, PrescriptionDate as Date
FROM Drug inner join Prescription
        on Drug.PrescriptionOrderNo = Prescription.PrescriptionOrderNo
        inner join Physician
        on Prescription.PhysicianID = Physician.PhysicianID
        inner join Assignment
        On Physician.PhysicianID = Assignment.PhysicianID
        inner join Patient
        On Patient.PatientID = Prescription.PatientID;
```

Prototype Components

Database:

Above is the front end of our database, each table is seen to the left in access, in which was coded in SQL to complete an effective relational database for First Care Medical Center.

Queries:

These queries are used to gather the information about the selected Center Name and Drug Class for the Daily Drug Log Reports. The Queries show all the desired info, and filters from all the data entries based on the Center Name or Drug Class criteria.

These queries are used to gather the information about the selected Patient for the Patient Profile Report. The Queries show all the desired info, and filters from all the data entries based on the Patient or Physician criteria.

Forms:

Upon first opening the database, users will be greeted with the main menu. From this main menu, users will be able to decide if they want to input data into the database, or generate the outputs which were specified by FirstCare. Furthermore, if they would like to exit the database, they are able to by clicking the button on the bottom of this menu.

Upon selecting that the users want to input data, they will be taken to this screen. From this screen they will be able to decide which table into which they would like to input data. The user will also have the option to return to the main menu, if they choose that they would like to. Some examples of these input forms are listed below.
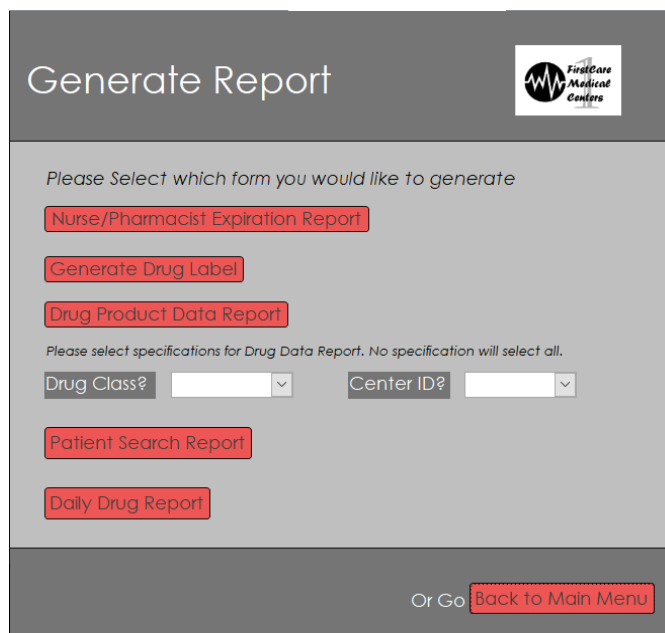
The two forms above are examples of Data Entry forms. These are used to input new data into the database. Once all the data has been entered, the Save and Close button will be used. The two examples are the Employee Table and the

Fulfillment Table. The employee table allows the user to input all employee information. The fulfillment table allows the user to input the fulfillment information.

Next up is the generate output route. If the end user decides they would rather generate output from the main menu of the database, then they are greeted with the following screen

From this menu, the end user can select any of 5 reports which they would like to generate. They will also have the option to go back to the main menu. From this, the first 3 forms can be generated from this menu here, but upon selecting the 4th or 5th option, users will be taken to another form to specify what they specifically want to search by. These are the patient search engine and the daily drug log search engine, and are pictured below.

The Patient Search Menu allows users to search for data about each Patient. The form allows users to search by both Patient Full Name and Physician Name. The form also has a button at the bottom to navigate back to the Generate Report home page.

The Daily Drug Log Report Search allows users to search for data about Drugs and the FirstCare Medical Center they were dispensed from. The form allows users to search by both Drug Class and Center Name. The form also has a button at the bottom to navigate back to the Generate Report home page.

Reports:

Employee ID	First Name	Last Name	CenterID	QuantityDispersed	Expire Date	Days Until Expired
7700005	Jay	Cutler	1	17	2021-05-29	36
7700008	Andrea	Edwards	1	30	2021-05-09	16
9900005	Regina	Cantrell	4		2021-05-10	17
9900009	Drew	Miller	3		2021-05-20	27
9900004	Sam	Broda	2		2021-08-26	125
9900001	Tom	Joseph	1		2021-07-20	88
9900003	Cari	Howard	3		2021-05-22	29

The report above is used to warn First Care Medical Centers of Nurses and Pharmacists who are within 6 months of their licenses expiring. It identifies their employee ID, first and last name, center where they work, their license expiration date, and how many days until it expires.

First Care Drug Label

Drug Name	Nyquil
Drug Strength	5mg
Unit	mg
Drug Class	Rx
Patient First	Bill
Patient Last	Williams
Physician First	Tammy
Physician Last	Joran
Quantity Dispensed	75
Fulfill Date	2020-03-10
Center Street	21st Street
Pharmacist First	Justin
Pharmacist Last	Ketterl

The above report is an example of a Drug Label that can be produced by the database. This is what would be printed and placed on the pill bottles. It includes the drug name, strength, unit, class, as well as the patient information, physician information, quantity, fulfillment date, the center and the pharmacist.

Center ID: 2
Drug Class: Rx
Drug Name: Codeine   NDC Number: 2948101847
Instruction Therpeutic, take 100ml whenever you have a headache or runny nose

Total On Hand: 900   Units: ml

The above report is used to show the descriptions of different drugs and their instructions. It identifies the drug class, name, NDC number, instructions, quantity on hand, and the unit type.

The Patient Profile shows the First Name, Last Name, Phone Number, Prescription order No, Drug Name, Rx Number, Drug Strength, Quantity Prescribed, Price, Physician, and Date of the Prescription based on a search by Patient Name and Physician Name.

The Dispensed Drug Log shows the NDCNumber, Drug Name, Drug Class, Total Dispensed, CenterID, Center Name, Center Phone, and Pharmacy info based on either the Drug Class or Center Name selected in the Daily Drug Log Report Search.

Prototype Instructions

Hello and welcome to the use of the First Care Medical Center database. Upon opening the database, you will be greeted by the main menu screen. If you would like to input data and add records to the database, select Input Data. If you would like to review a report from the database, select Generate Report.
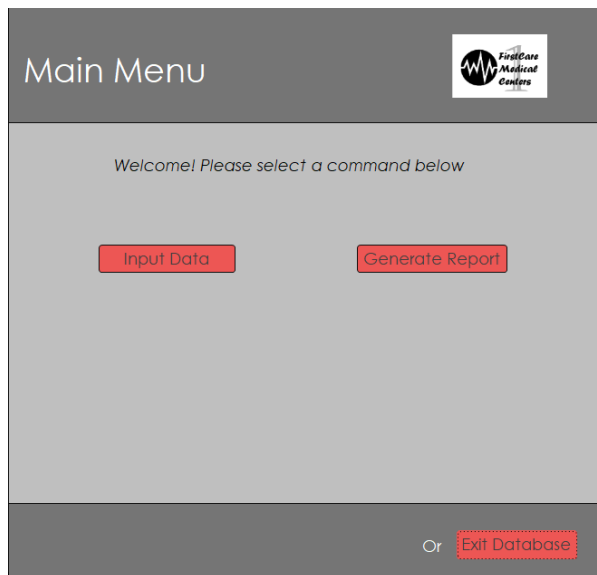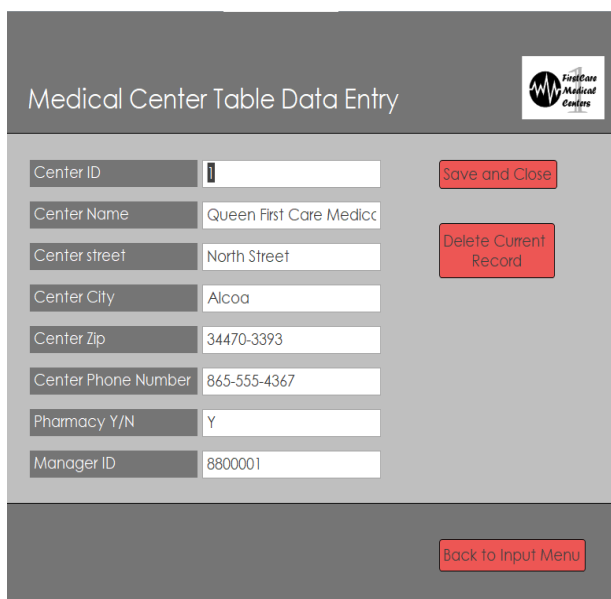
If Input Data is selected, the database will prompt the following screen. The Generate Report screen will be described later in the instructions.
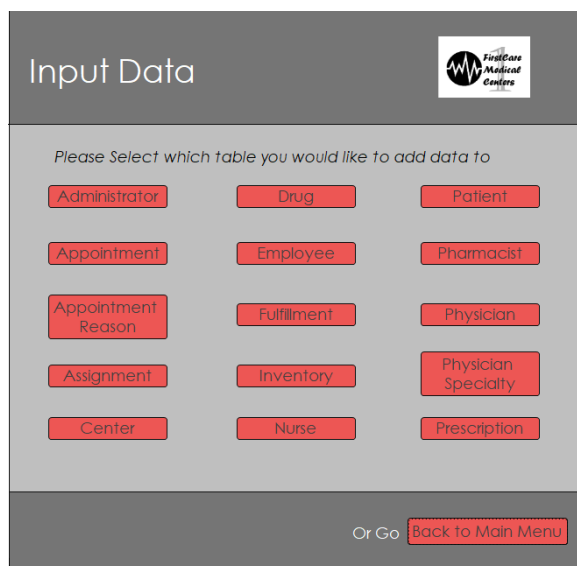
On the Input Data screen, you will have the option to click which table you would like to add to or go back to the Main Menu. The tables that can be selected are Administrator, Appointment, Appointment Reason, Assignment, Center, Drug,

Employee, Fulfillment, Inventory, Nurse, Patient, Pharmacist, Physician, Physician Specialty, and Prescription. Each selection will prompt a different data entry table.
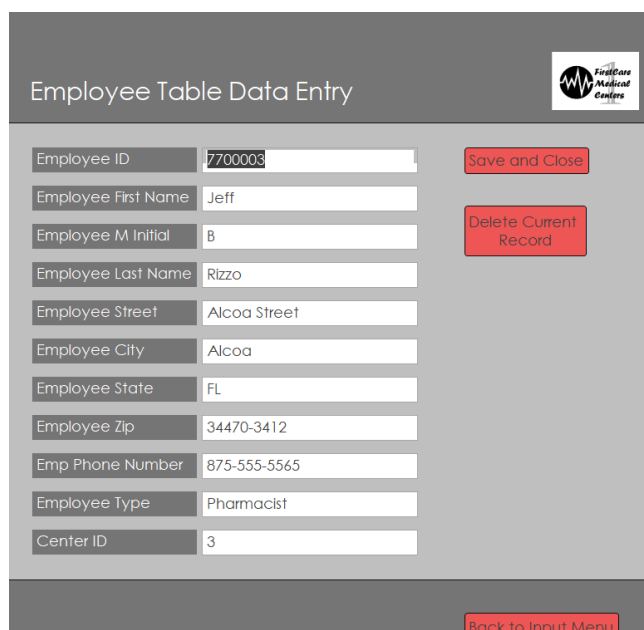
If the Center button is selected, the above screen will appear. This can be used to input data about the centers. The user will be able to input the center ID, center name, center address (street, city, and zip code), center phone number, if the center has a pharmacy, and manager ID. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
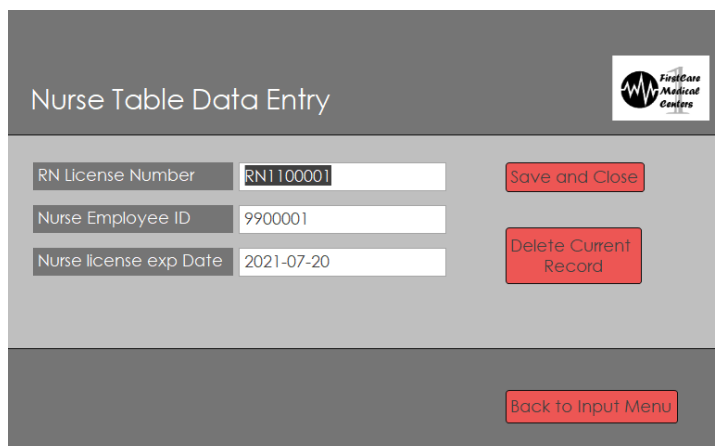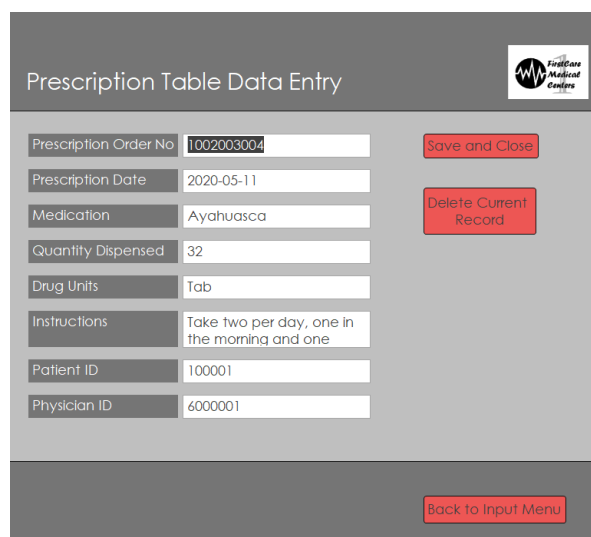

If the Employee button is selected, the above screen will appear. This can be used to input data about employees. The user will be able to input the employee ID, employee name (first, middle initial, and last), employee address (street, city, state, zip code), phone number, employee type, and the center where they work. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

If the Administrator button is selected, the above screen will appear. This can be used to input data about administrators. The user will be able to input the Employee ID and the Job Title. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
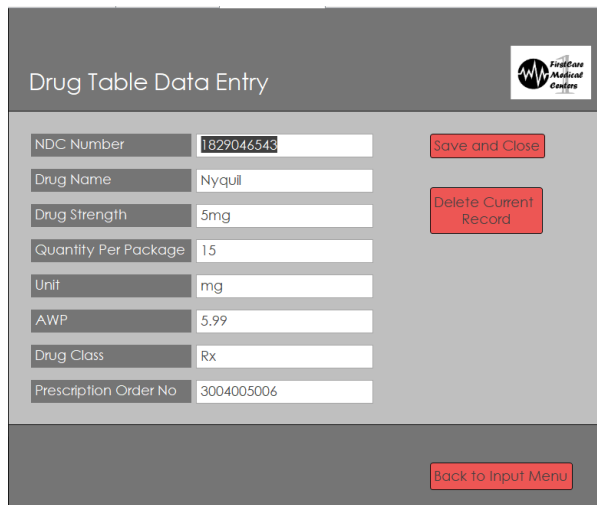

If the Nurse button is selected, the above screen will appear. This can be used to input data about nurses. The user will be able to input the RN license number, nurse employee ID, and the expiration date of the nurses license. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Pharmacist Table Data Entry
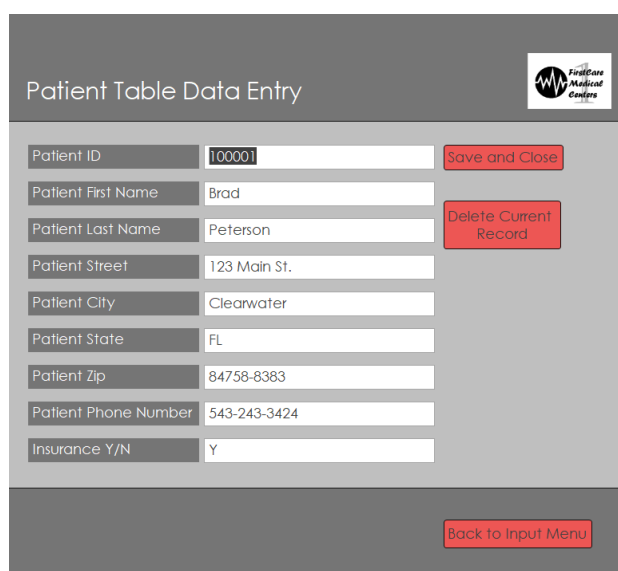
PEmployee ID	8800012
PS License Numbe	PS0000001
PLisence Exp Date	2023-11-11

Save and Close

Delete Current Record

Back to Input Menu

If the Pharmacist button is selected, the above screen will appear. This can be used to input data about pharmacists. The user will be able to input the pharmacist employee ID, PS licence number, and the expiration date of the pharmacists license. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
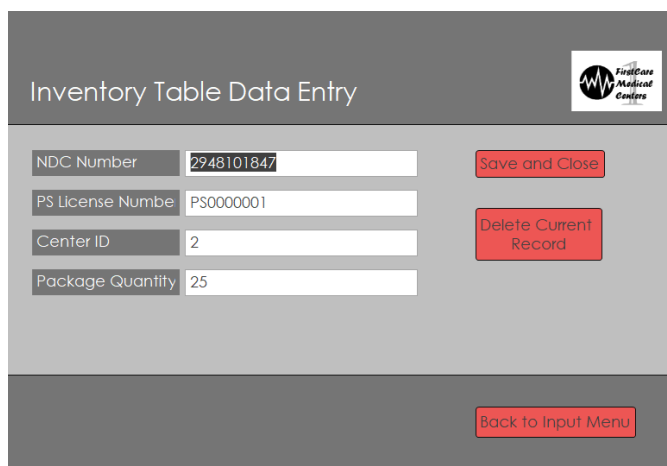

Patient Table Data Entry

Patient ID	100001
Patient First Name	Brad
Patient Last Name	Peterson
Patient Street	123 Main St.
Patient City	Clearwater
Patient State	FL
Patient Zip	84758-8383
Patient Phone Number	543-243-3424
Insurance Y/N	Y
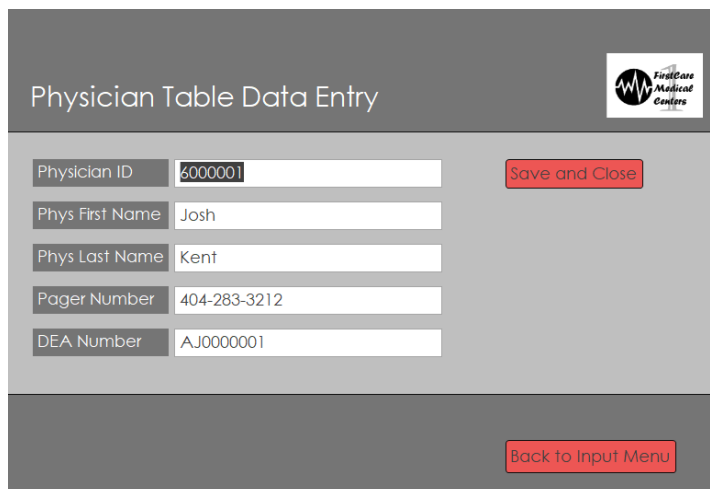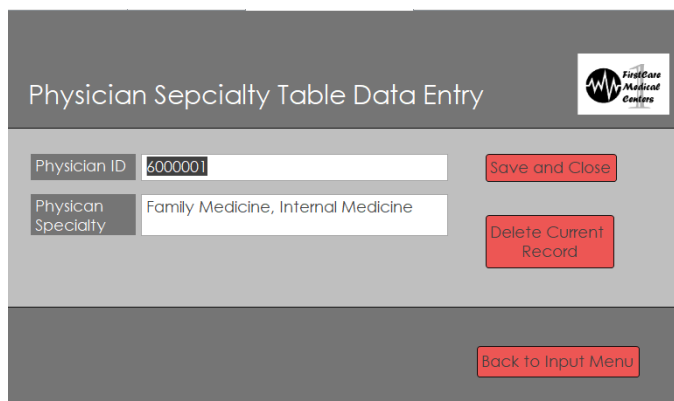
Save and Close

Delete Current Record

Back to Input Menu

If the Patient button is selected, the above screen will appear. This can be used to input data about patients. The user will be able to input the patient ID, patient first and last name, patient address (street, city, state, and zip code), phone number, and whether or not they have insurance. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
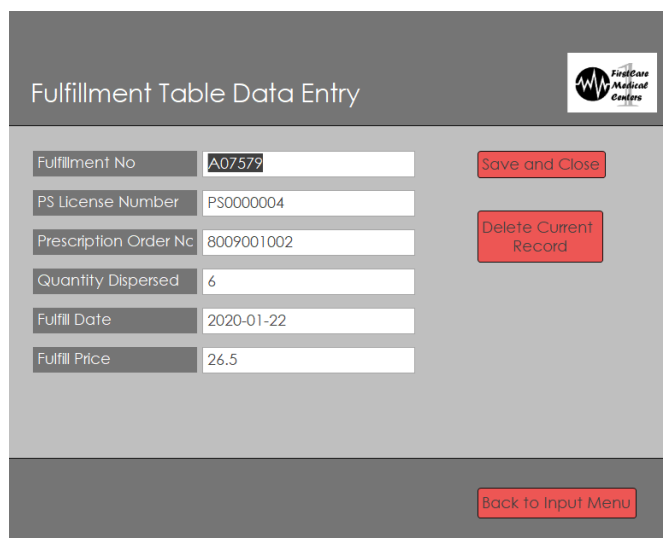
If the Physician button is selected, the above screen will appear. This can be used to input data about physicians. The user will be able to input physician ID, physician first and last name, pager number, and DEA number. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

If the Physician Specialty button is selected, the above screen will appear. This can be used to input data about physician specialties. The user will be able to input physician ID and physician specialty. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
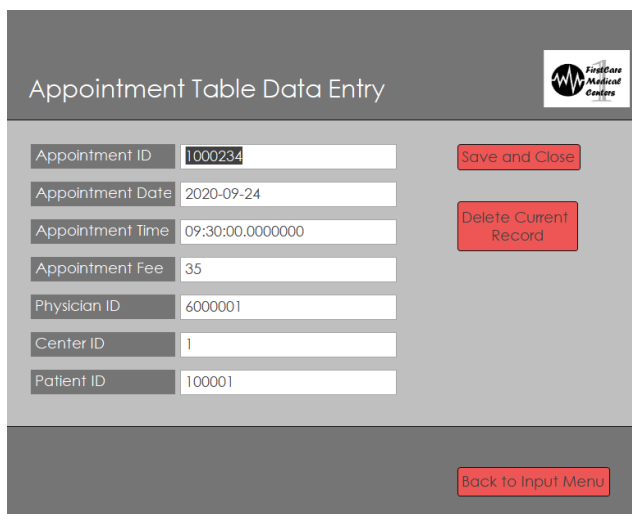
If the Assignment button is selected, the above screen will appear. This can be used to input data about assignments. The user will be able to input the center ID, physician ID, assignment date, and start and end times. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.
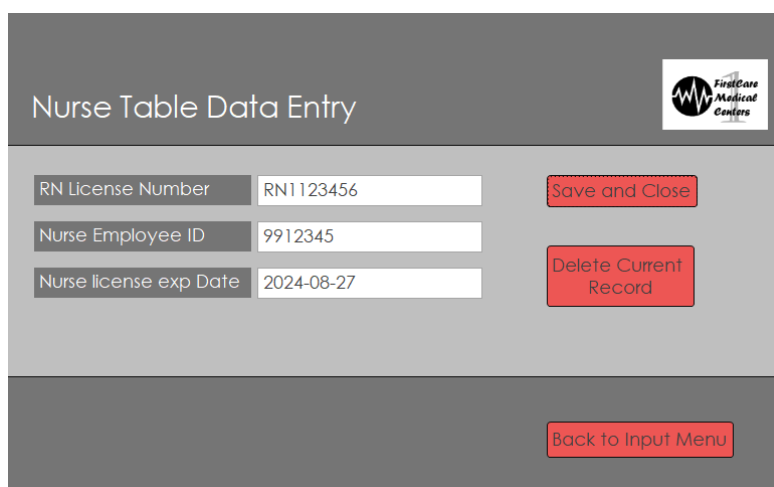

If the Appointment button is selected, the above screen will appear. This can be used to input data about appointments. The user will be able to input the appointment ID, appointment date and time, appointment fee, physician ID, center ID, and patient ID. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Appointment Reason Table Data Entry

| AppointmentID | 1000234 | Save and Close |
| AppointmentReason | Complaints of Fever and Chills | Delete Current Record |

Back to Input Menu

If the Appointment Reason button is selected, the above screen will appear. This can be used to input data about appointment reasons. The user will be able to input the appointment ID and appointment reason. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Prescription Table Data Entry

Prescription Order No	1002003004	Save and Close
Prescription Date	2020-05-11	
Medication	Ayahuasca	Delete Current Record
Quantity Dispensed	32	
Drug Units	Tab	
Instructions	Take two per day, one in the morning and one	
Patient ID	100001	
Physician ID	6000001	

Back to Input Menu

If the Prescription button is selected, the above screen will appear. This can be used to input data about prescriptions. The user will be able to input prescription order number, prescription date, medication, quantity dispensed, drug units, instructions, patient ID and physician ID. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Drug Table Data Entry

NDC Number	1829046543
Drug Name	Nyquil
Drug Strength	5mg
Quantity Per Package	15
Unit	mg
AWP	5.99
Drug Class	Rx
Prescription Order No	3004005006

Save and Close

Delete Current Record

Back to Input Menu

If the Drug button is selected, the above screen will appear. This can be used to input data about different drugs. The user will be able to input the NDC number, drug name, drug strength, quantity per package, unit type, AWP, drug class, and prescription order number. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Inventory Table Data Entry

NDC Number	2948101847
PS License Numbe	PS0000001
Center ID	2
Package Quantity	25

Save and Close

Delete Current Record

Back to Input Menu

If the Inventory button is selected, the above screen will appear. This can be used to input data about inventory. The user will be able to input the NDC number, PS license number, center ID, and package quantity. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

If the Fulfillment button is selected, the above screen will appear. This can be used to input data about fulfillment information. The user will be able to input the fulfillment number, PS license number, prescription order number, quantity dispensed, fulfillment date, and the fulfillment price. The Save and Close button can be used to save the new entry and the Delete Records button will delete the selected record. The user can also go back using the Back to Input Menu button.

Just a word of warning, if you are going to try to enter data in an incorrect order, the database will not let you. For example, look below at a potential entry into the Nurse database.

Unfortunately, if you try to enter this into the database as it is currently presented, it will not compute. This is because the Employee ID 9912345 does not yet exist in the database. When you try to submit this, you get something approximating the following error:

Microsoft Access   ✕
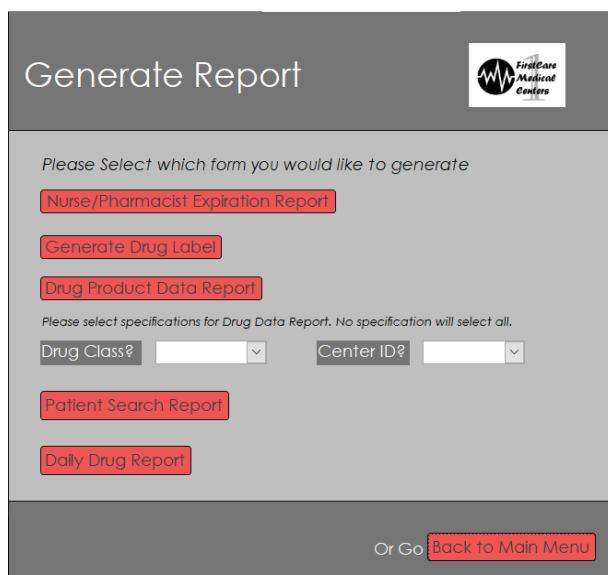
⚠ ODBC--call failed.

[Microsoft][ODBC SQL Server Driver][SQL Server]The UPDATE statement conflicted with the FOREIGN KEY constraint "NurseEmployeeFK". The conflict occurred in database "SP21_S3Team5", table "dbo.Employee", column 'EmployeeID'. (#547) [Microsoft][ODBC SQL Server Driver][SQL Server]The statement has been terminated. (#3621)

[OK]   [Help]

When you get this error, it is critical that you first click ok to the first error, and then click 'Yes' on the next popup window, and then restart your entry process, being certain to input all the data in the correct order.

Next we are moving on to the generating output form of the database. If you recall from the very beginning, you had a second option when originally opening the database to the main menu. If instead of clicking the "Input Data" button you click the "Generate Report" button, you will then see this screen.

From this screen, you will be able to generate one of out of 5 different reports, as well as go back to the main menu. The first option which you can choose from is the Nurse/Pharmacist Expiration report. This report is pictured below.

License Expire Risk

Employee ID	First Name	Last Name	CenterID	QuantityDispersed	Expire Date	Days Until Expired
7700005	Jay	Cutler	1	17	2021-05-29	36
7700008	Andrea	Edwards	1	30	2021-05-09	16
9900005	Regina	Cantrell	4		2021-05-10	17
9900009	Drew	Miller	3		2021-05-20	27
9900004	Sam	Broda	2		2021-08-26	125
9900001	Tom	Joseph	1		2021-07-20	88

This report will pull up all nurses and pharmacists who are within 6 months of their license expiring, as well as provide their Employee ID, their First Name, their Last Name, the Center ID where they work, their License Expire date, as well as the days until that license expires. This form will also tell how many prescriptions that they have filled if they are a pharmacist.

This form allows users to click on the drop down menus under Select Full Name and Select Physician and select the name of the Patient or the name of the Physician. Once the search criteria is selected, the user can hit the search button next to the selected criteria to create a Patient Profile Report.
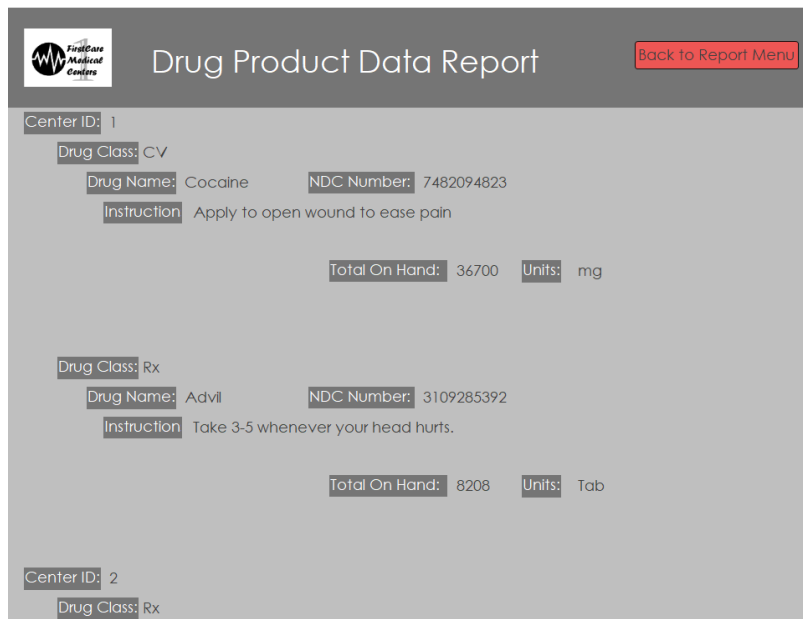
This form allows users to click on the drop down menus under Select Drug Class and Select Center to select the desired Drug Class or Center Name. Once the search criteria is selected, the user can hit the search button next to the selected criteria to create a Drug Log Report Report.

This is an example of a drug in the database. This one is the third drug of 28 in the database. On the bottom left corner, the user can toggle between all 28 of the drugs.
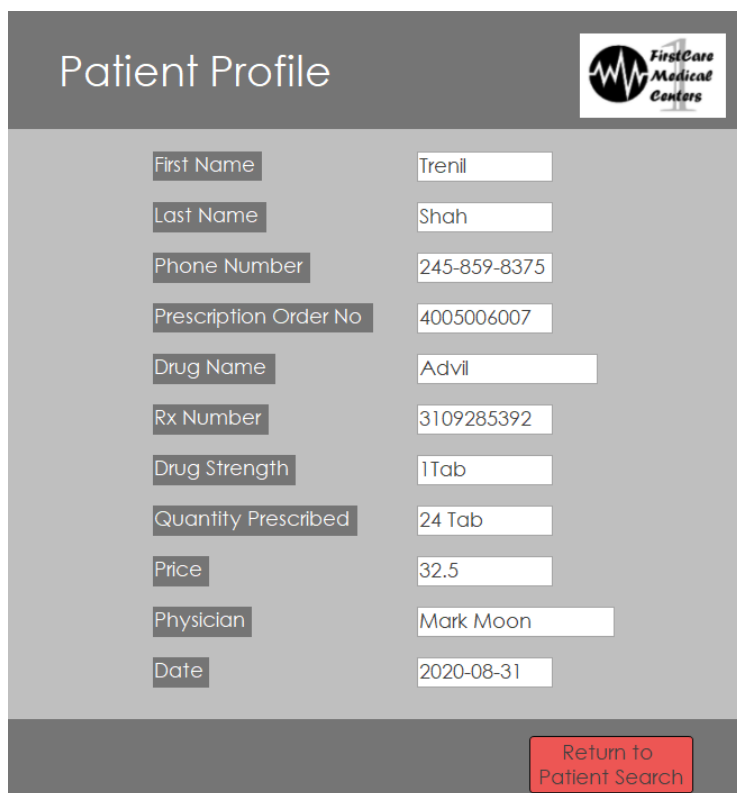
This report can be used to generate drug product data at each center by drug class. It can be searched by center ID or drug class. It shows relevant use of each drug based on center and drug class.

Once the Patient Profile is created the user can click the Return to Patient Search button located at the bottom of the form to return to the Patient Search form to search again.

Once the Dispense Drug Log is created the user can click the Return to DrugSearch button located at the bottom of the form to return to the Daily Drug Log Report Search form to search again.

Appendix: All Generated Forms and Reports

License Expiration Risk Report

Employee ID	First Name	Last Name	CenterID	Quantity	Dispersed	Expire Date	Days Until Expired
7700005	Jay	Cutler	1	17		2021-05-29	36
7700008	Andrea	Edwards	1	30		2021-05-09	16
9900005	Regina	Cantrell	4			2021-05-10	17
9900009	Drew	Miller	3			2021-05-20	27
9900004	Sam	Broda	2			2021-08-26	125
9900001	Tom	Joseph	1			2021-07-20	88

Drug Label Form

First Care Drug Label	
Drug Name	Nyquil
Drug Strength	5mg
Unit	mg
Drug Class	Rx
Patient First	Bill
Patient Last	Williams
Physician First	Tammy
Physician Last	Joran
Quantity Dispensed	75
Fulfill Date	2020-09-07
Center Street	21st Street
Pharmacist First	Ben
Pharmacist Last	Simmons

Drug Product Data Report

Patient Profile Report searched by Patient

Patient Profile Report by Physician

Drug Report by Class

Drug Report by Center

Dispensed Drug Log

NDCNumber	2948101847
Drug Name	Codeine
Drug Class	Rx
Total Dispensed	7200
CenterID	1
Center Name	Queen First Care Medical Center
Center Phone	865-555-4367
Pharmacy	Y

NDCNumber	7482094823
Drug Name	Cocaine
Drug Class	CV