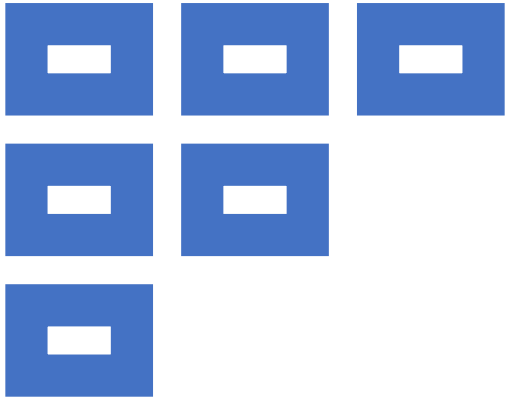
Healthy Otters: Final Project

By The Helping Otters



ER Diagram Description

- The ER diagram maps out the medical database and indicates the relationships between each table. All relationships, primary and foreign keys, and indices are represented on the ER diagram.
- We have placed indices on the patient **last_name** and **dob** (date of birth) columns, the doctor's **last_name** column and the pharmacy **name** column. We chose to do this because these columns will be accessed through searches often, and their tables will not be updated frequently.

Goals

- Make an intuitive website to communicate with our database.
- To make the database fast and efficient, while providing the necessary information.
- To create a database that links patients to doctors, doctors to prescriptions, prescriptions to their pharmaceutical companies, and pharmaceutical companies to contracts with pharmacies that sell their drug at specific prices.
- To configure cardinalities based on foreign and primary keys.

Assumptions

- We made the assumption that the **Quantity of Doses** refers to the number of pills prescribed by a doctor.
- The doctor is assumed to know the **drug_id** for the drug they are writing a prescription for.
- The report the pharmacy manager runs to see the quantity of drugs that have been used *in the last month* is generated based on the assumption that the report should be based on the last 30 days.
- We added a column to the prescription table indicating whether or not the prescription is currently filled. If the prescription is filled and the patient tries to fill it again, the system will not allow it.
- We added another column to the prescription table that keeps track of how many times a prescription has been filled. If the prescription does not have any more refills left, the system will not allow the patient to fill it.

Resolved Findings

- In order to normalize our tables, we decided to break down the patient and doctor **name** column into **first_name** and **last_name** columns. We also decided to break down the patient and pharmacy **address** columns into 5 single-value columns.
- Discovered the relationships between tables, deciphering whether each should be a one-to-one, one-to-many or many-to-many relationship. This included a one-to-many relationship from drug to prescription since we concluded that one drug can have many prescriptions for many patients.
- We decided to use the same naming conventions across all tables, as ambiguity would be eliminated when adding the table name to our queries e.g., **patient.first_name** and **doctor.first_name**.

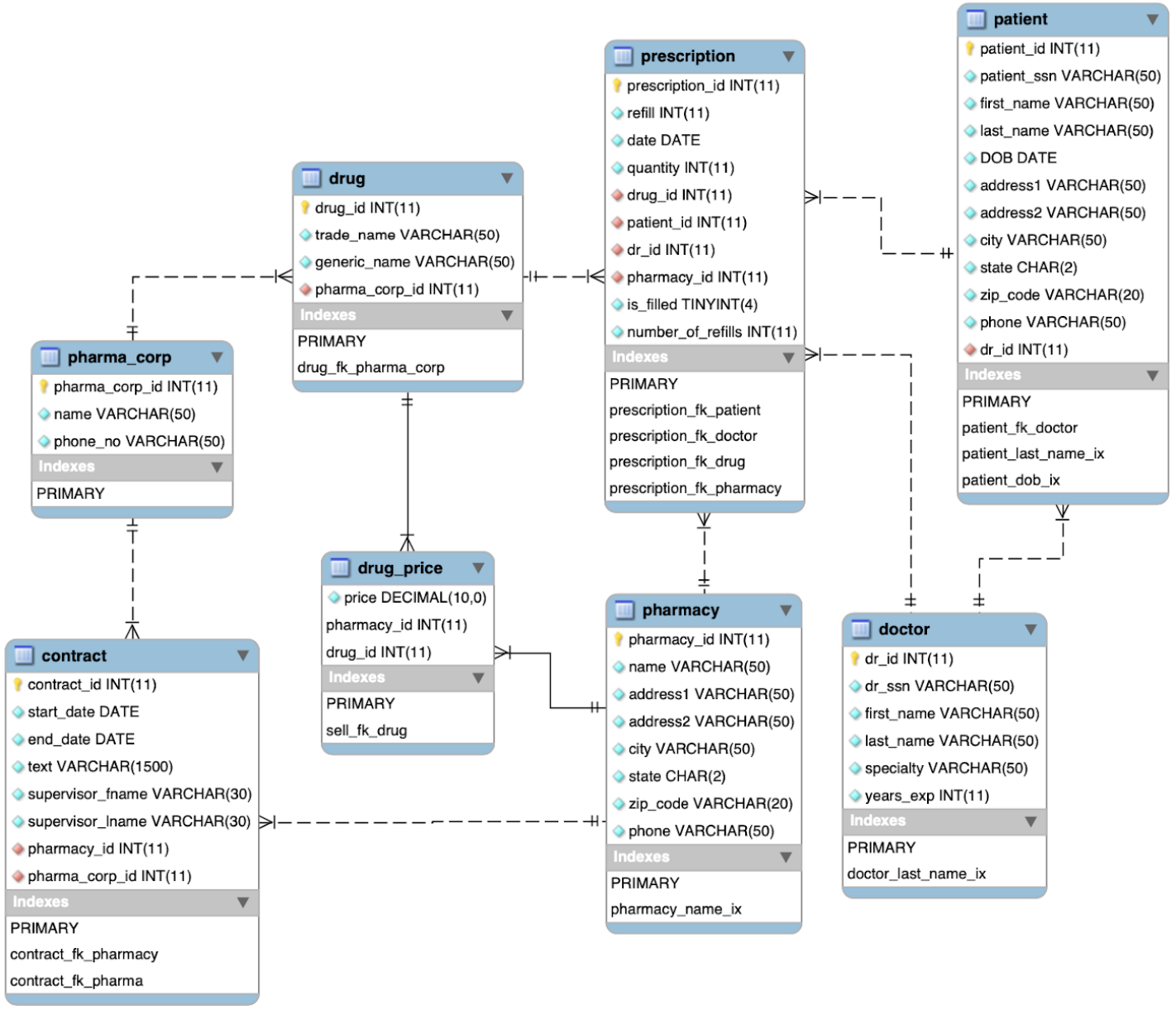
Resolved Findings Continued

- Initially, we were not certain about how to handle the age column. We did not think keeping the age column would be viable going forward as the larger our database grows, we would need to constantly update that column which would be a waste of resources. For that reason, we decided to convert the age column to the Date of Birth (DOB) column. This way we can derive the age for any calculations that are needed.

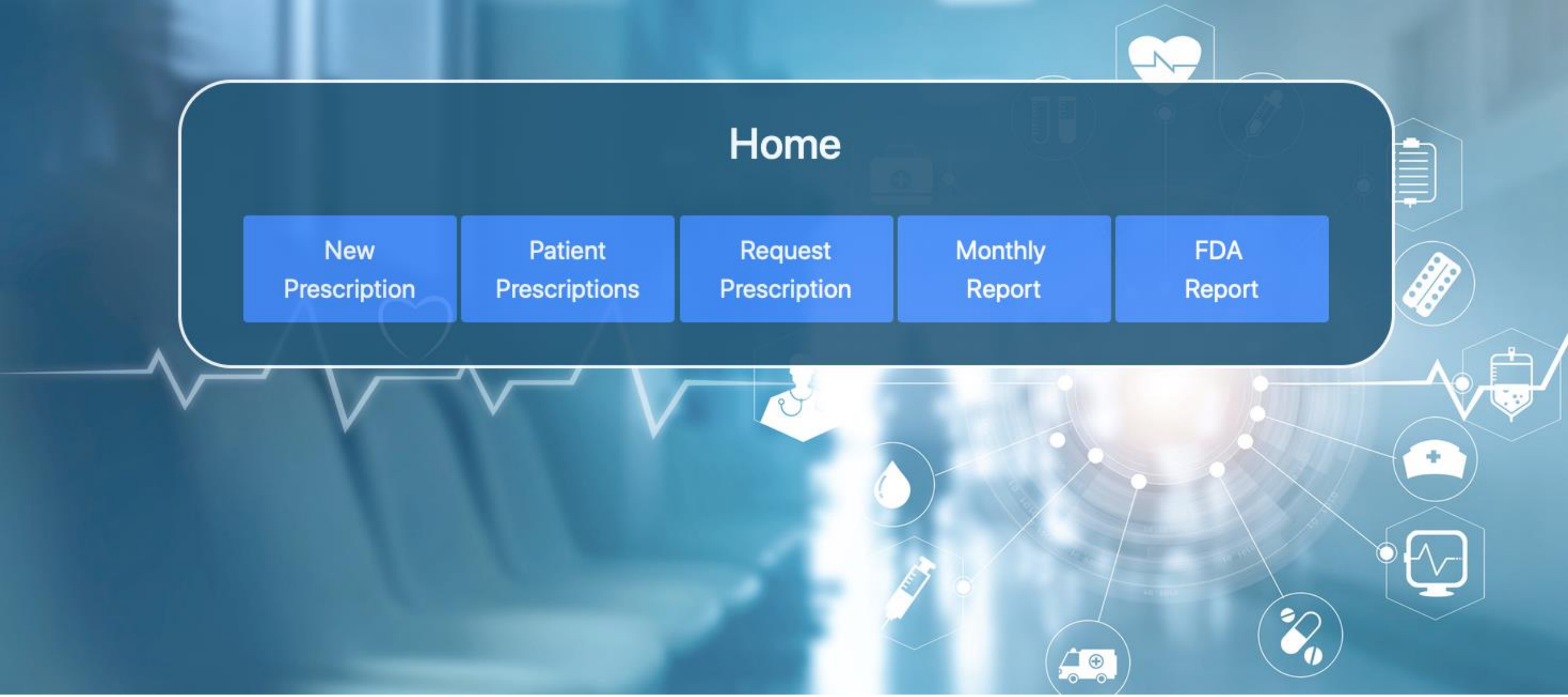
Unresolved Findings (Design Issues)

- Should we create a separate table for the supervisor in the contract table because the person supervising the contract would most likely need to have a name and contact information associated in case issues with the contract need to be resolved?

ER Diagram


patient
patient_id INT(11)
patient_ssn VARCHAR(50)
first_name VARCHAR(50)
last_name VARCHAR(50)
DOB DATE
address1 VARCHAR(50)
address2 VARCHAR(50)
city VARCHAR(50)
state CHAR(2)
zip_code VARCHAR(20)
phone VARCHAR(50)
dr_id INT(11)
Indexes
PRIMARY
patient_fk_doctor
patient_last_name_ix
patient_dob_ix
prescription
prescription_id INT(11)
refill INT(11)
date DATE
quantity INT(11)
drug_id INT(11)
patient_id INT(11)
dr_id INT(11)
pharmacy_id INT(11)
is_filled TINYINT(4)
number_of_refills INT(11)
Indexes
PRIMARY
prescription_fk_patient
prescription_fk_doctor
prescription_fk_drug
prescription_fk_pharmacy
drug
drug_id INT(11)
trade_name VARCHAR(50)
generic_name VARCHAR(50)
pharma_corp_id INT(11)
Indexes
PRIMARY
drug_fk_pharma_corp
pharma_corp
pharma_corp_id INT(11)
name VARCHAR(50)
phone_no VARCHAR(50)
Indexes
PRIMARY
drug_price
price DECIMAL(10,0)
pharmacy_id INT(11)
drug_id INT(11)
Indexes
PRIMARY
sell_fk_drug
pharmacy
pharmacy_id INT(11)
name VARCHAR(50)
address1 VARCHAR(50)
address2 VARCHAR(50)
city VARCHAR(50)
state CHAR(2)
zip_code VARCHAR(20)
phone VARCHAR(50)
Indexes
PRIMARY
pharmacy_name_ix
doctor
dr_id INT(11)
dr_ssn VARCHAR(50)
first_name VARCHAR(50)
last_name VARCHAR(50)
specialty VARCHAR(50)
years_exp INT(11)
Indexes
PRIMARY
doctor_last_name_ix
contract
contract_id INT(11)
start_date DATE
end_date DATE
text VARCHAR(1500)
supervisor_fname VARCHAR(30)
supervisor_lname VARCHAR(30)
pharmacy_id INT(11)
pharma_corp_id INT(11)
Indexes
PRIMARY
contract_fk_pharmacy
contract_fk_pharma

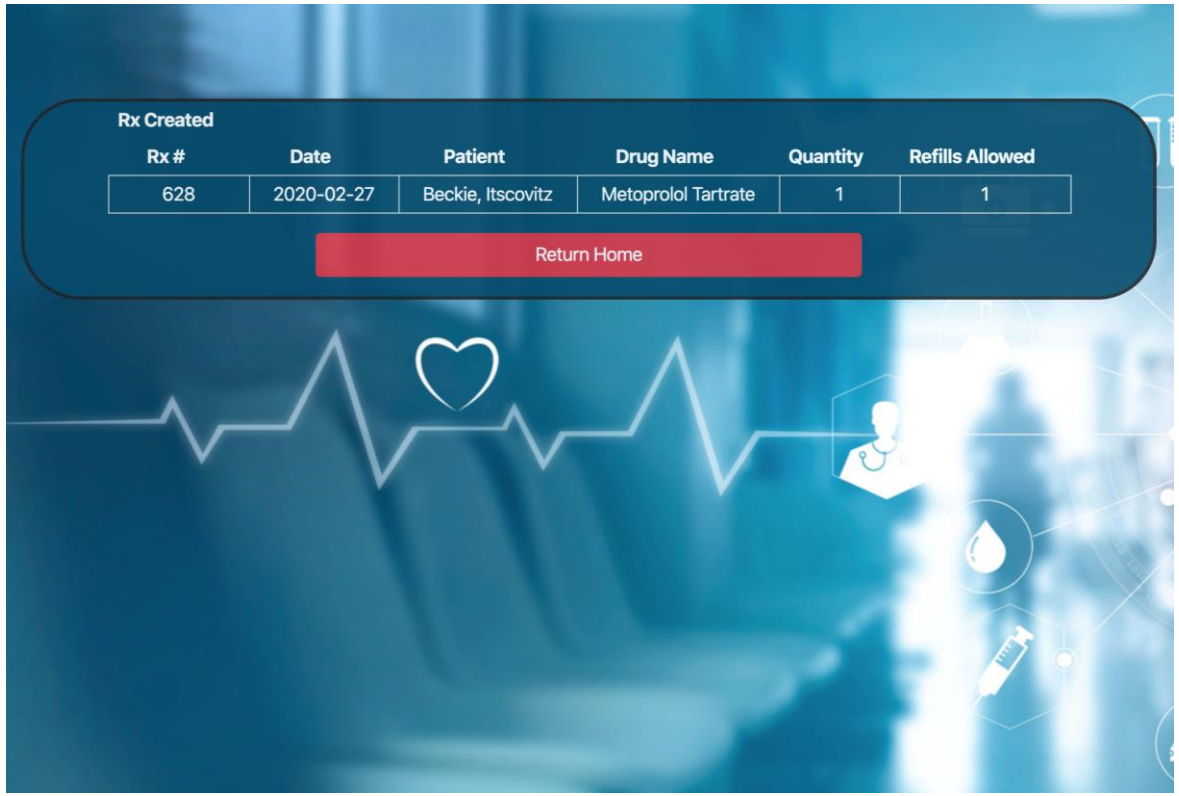
Screenshots


Home
New Prescription
Patient Prescriptions
Request Prescription
Monthly Report
FDA Report

Home Page

New Prescription

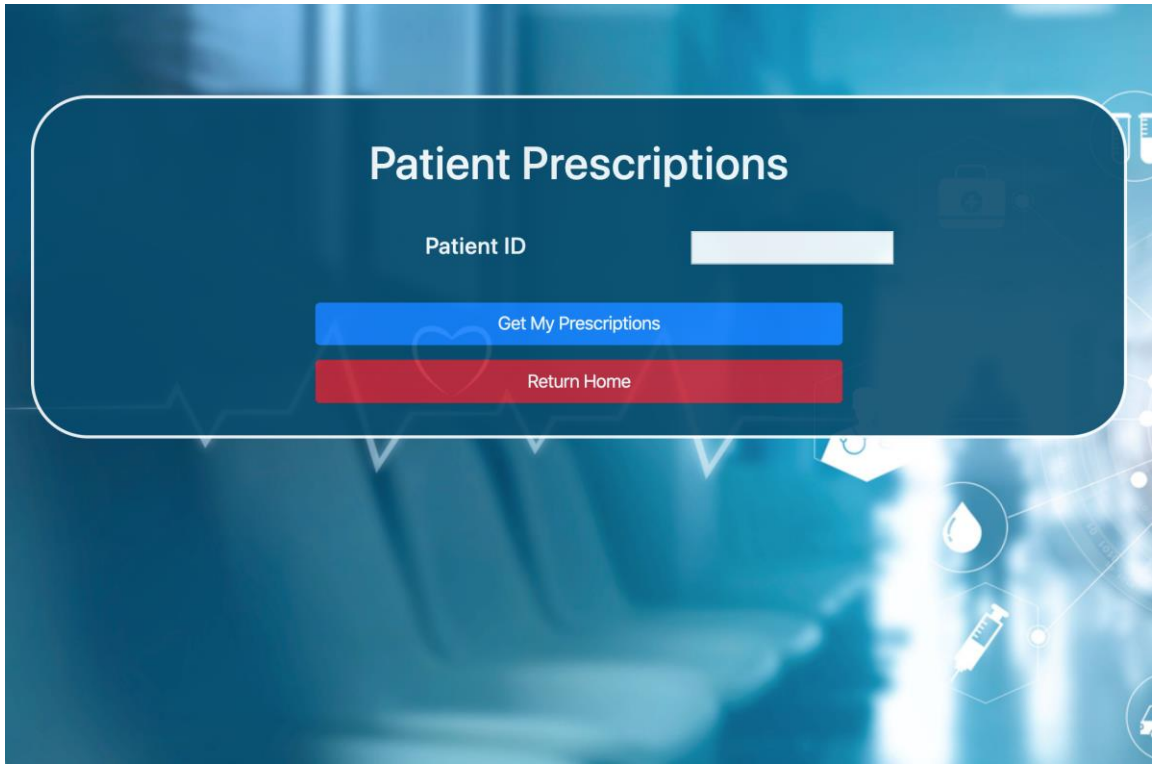
- A doctor writes a prescription for a patient for a drug and a quantity and how many refills (if any) are allowed

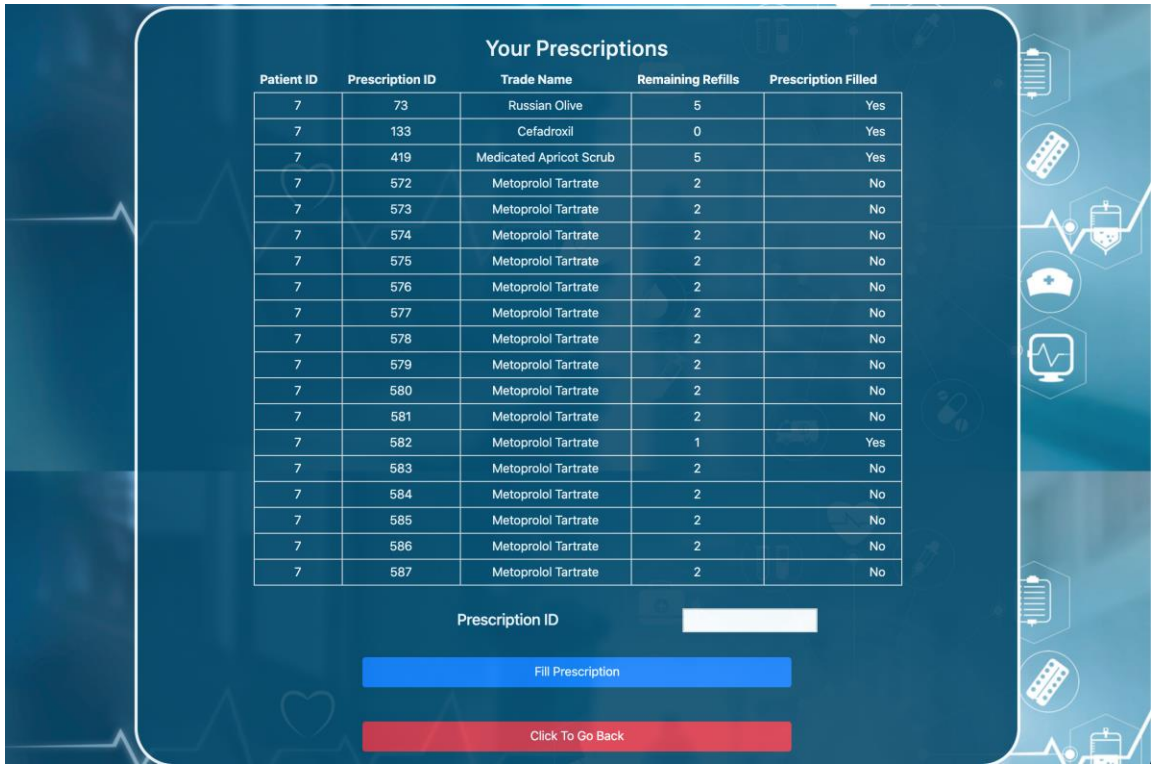


Prompt 1

Patient Prescriptions

A patient displays prescriptions for themselves and requests a refill for a prescription.

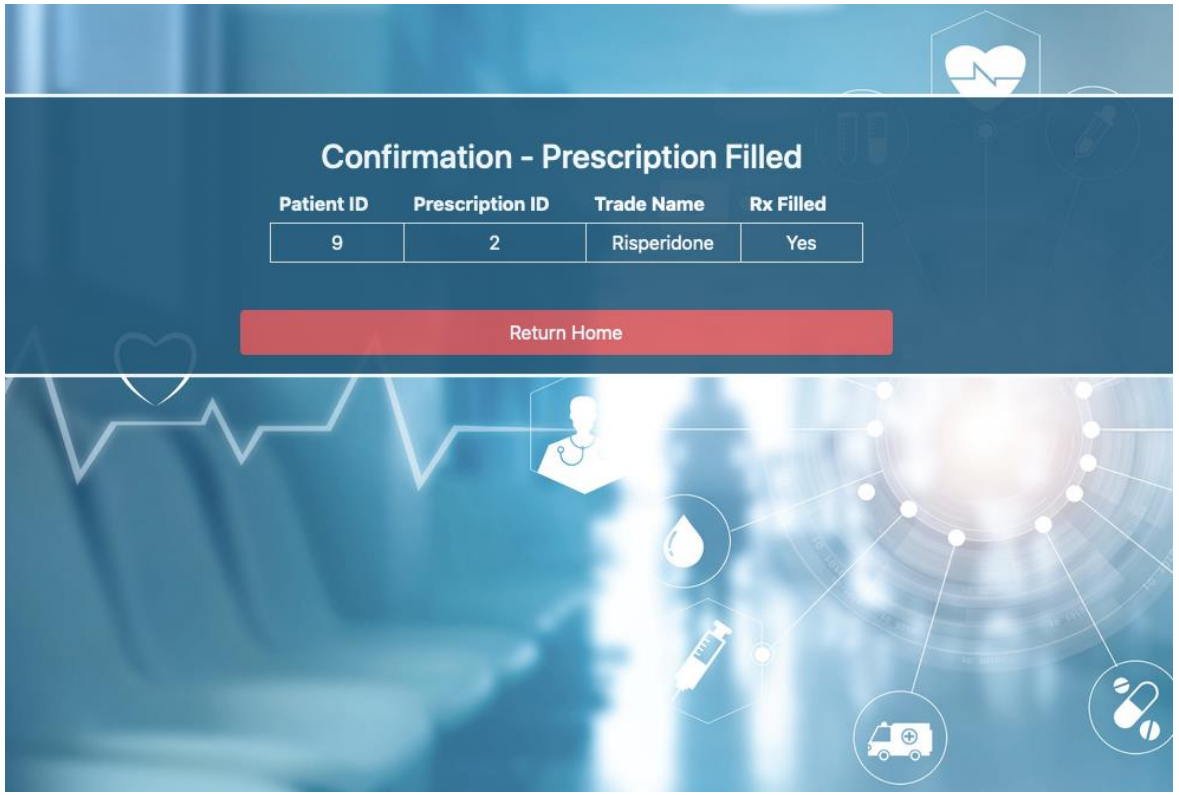




Prompt 2

Request Prescription

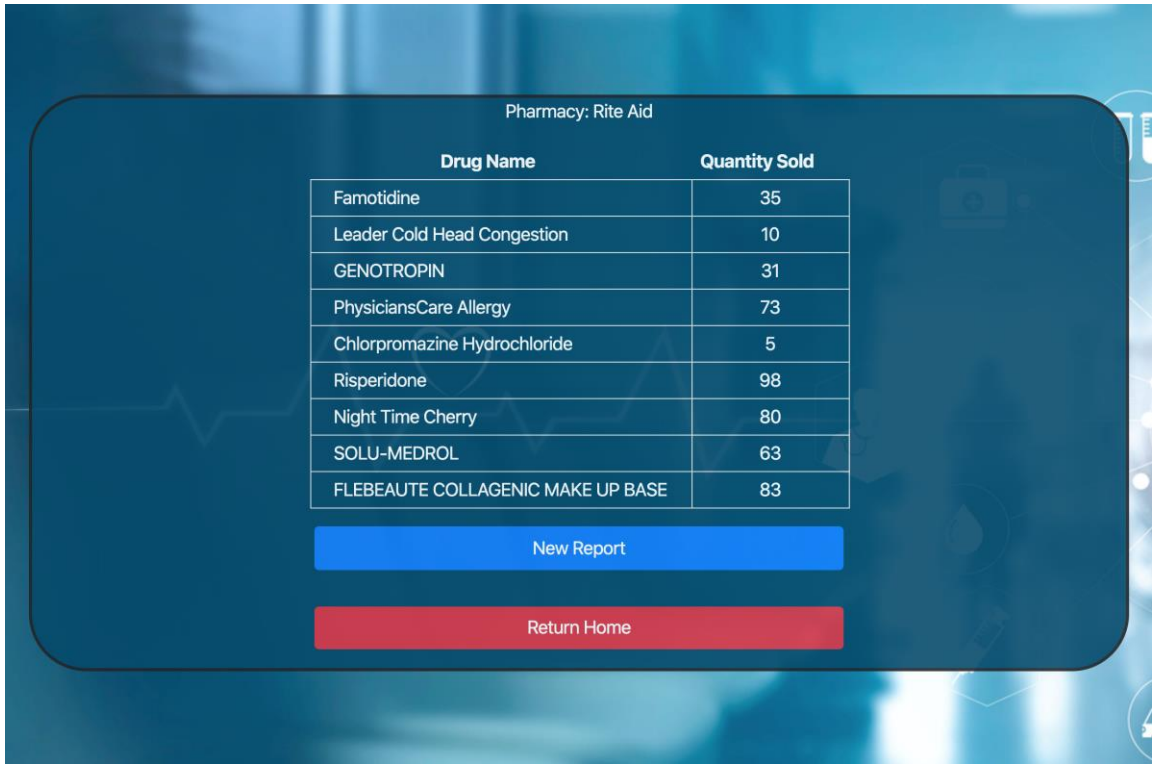
- A patient requests that a pharmacy fill a prescription. The program should inform the patient of the estimated cost of the prescription and ask the patient if they want to continue with the order. If the patient continues, then the prescription is sent to a pharmacist at a pharmacy. If the user decides not to continue then the prescription is not updated.

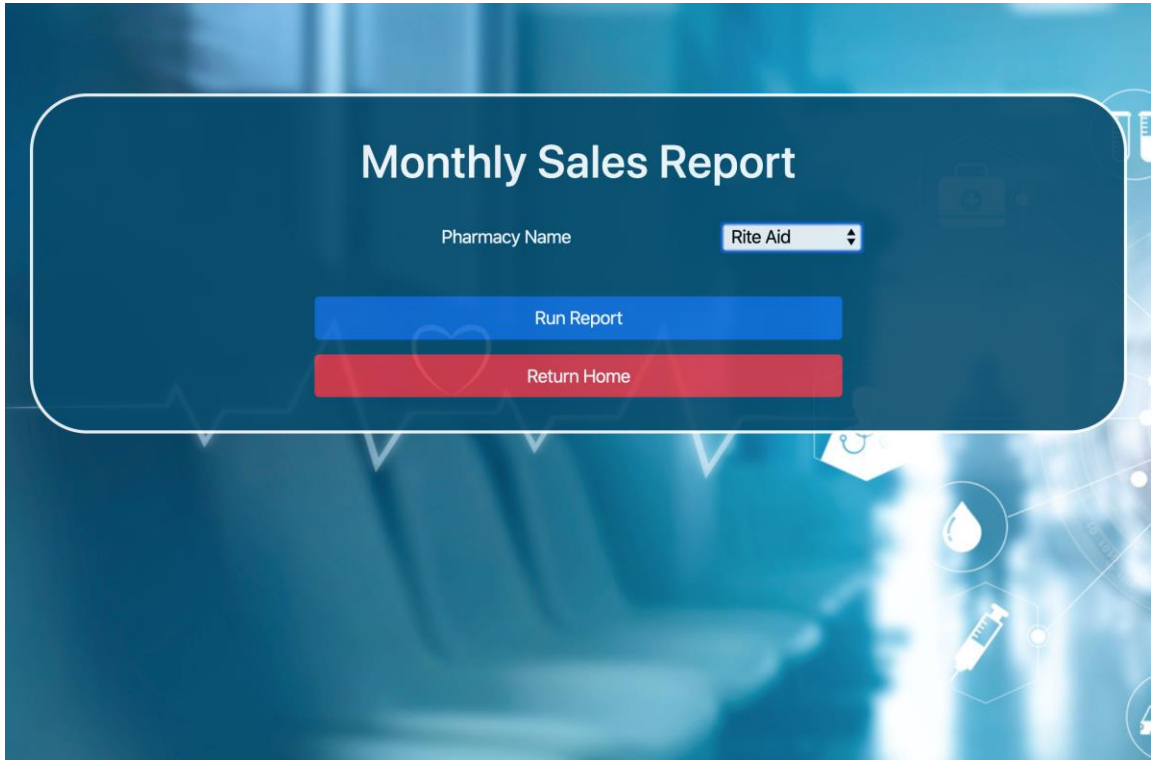


Prompt 3

Monthly Report

Quantity of drugs that have been used in the last month by pharmacy. Report contains the name of the drug and the quantity used.





Prompt 4

First Name	Last Name	Drug Name (Generic)	Quantity Prescribed
Brunhilde	Boughey	Acetaminophen	371
Brunhilde	Boughey	Chlorpromazine Hydrochloride	42
Brunhilde	Boughey	Diphenhydramine HCl	74
Brunhilde	Boughey	Echinacea Angustifolia	35
Brunhilde	Boughey	FAMOTIDINE	24
Brunhilde	Boughey	GENTAMICIN SULFATE	42
Brunhilde	Boughey	Metoprolol Tartrate	14
Brunhilde	Boughey	Naproxen Sodium	31
Brunhilde	Boughey	OCTINOXATE	64
Brunhilde	Boughey	Risperidone	58
Brunhilde	Boughey	Russian Olive	98
Brunhilde	Boughey	Salicylic acid	4
Brunhilde	Boughey	somatropin	68
Brunhilde	Boughey	TITANIUM DIOXIDE	90
Celestine	Pott	Acetaminophen	268
Celestine	Pott	Cefadroxil	54
Celestine	Pott	Chlorpromazine Hydrochloride	40
Celestine	Pott	Diphenhydramine HCl	24
Celestine	Pott	FAMOTIDINE	61
Celestine	Pott	GENTAMICIN SULFATE	52
Celestine	Pott	methylprednisolone sodium succinate	61
Celestine	Pott	Metoprolol Tartrate	91

FDA Report

Quantity of drugs that each doctor has prescribed in the last 6 months

Prompt 5