Pharmacy Database

Group 115

Adam Gallina and Iain Moncrief

Web Interface URL: http://flip1.engr.oregonstate.edu:2235/web

Draft 2 Feedback by Peer Reviewers

You-Jin Lim

Does the overview describe what problem is to be solved by a website with DB back end?

Yes! I can fully understand about their database overview. They will record and update their prescription on their website.

Does the overview list specific facts?

Yes! They describes number of customers, medication and staff.

Are at least four entities described and does each one represent a single idea to be stored a s a list?

Yes, I can see Customers, Prescription_Status, Prescriptions, Pharmacists and Medications. There is more than four entities.

Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

Yes. All of entity has their ID and listed necessary information for each entity. They also has a description of entity. That helps me to understand each of them.

Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?

I think it looks correctly formulated and There is two M:M relationship in entities. It presents a logical view of database.

Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

Yes it is consistency naming between overview entity/attributes. I think overall of this draft is really good for me!

Guyllian Dela Rosa

Does the overview describe what problem is to be solved by a website with DB back end?

I think the need for a DB could have been fleshed out better. I realize group 115 stated that this is a busy pharmacy but I feel like they should have also stressed the importance of keeping track of medication and their customers.

Does the overview list specific facts?

Yes, the overview lists specific facts about the amount of customers the pharmacy caters to, the amount of different medications, and the size of the staff.

Are at least four entities described and does each one represent a single idea to be stored a s a list?

Yes, there are at least 4 entities and each on represents a single idea.

Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

Yes, the purpose of each entity is described well.

Pharmacists contains attributes relating to each pharmacist like id, first and last name, as well as address and phone number. However I'm not sure why job title is included, since I'm assuming all the pharmacists in this database have the same pharmacist title.

Prescription_Status is used as intersection table for the M:M relationship between Pharmacists and Prescriptions.

I think Prescriptions, Customers, and Medication entities also look good.

I do want to note, some attributes are their constraints, like "not NULL" or the varchar() values.

Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?

Yes, the 1:M relationships are correctly formulated.

There is at least 1 M:M relationship between Pharmacists and Prescriptions.

Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

Naming between overview and entity is consistent, same with entities being plural and attributes being singular.

I did notice a typo in the Customers outline that the attribute 'customerI_id' has an 'I' typo.

Christine Kuran

Hi Group 115,

Here is my review per the assignment questions:

· Does the overview describe what problem is to be solved by a website with DB back end?

Yes, it is outlined that the problem is a need to track prescriptions and medication inventory.

· Does the overview list specific facts?

Yes, we get an idea of how many customers, medications, and staff are part of this pharmacy.

· Are at least four entities described and does each one represent a single idea to be stored a s a list?

Yes, the entities are Pharmacists, Customers, Prescriptions, Prescription_Status, and Medications. I am curious as to why Pharmacists have a phone number and address associated with them – I was under the impression that they are all part of the same pharmacy, and if so, how are those attributes relevant to the problem?

· Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

Attributes have consistent naming, and details are clearly filled out. I think some clarification is needed for the M:M between Pharmacists and Prescriptions. A pharmacist can fill out many prescriptions, but how does a prescription get filled by multiple pharmacists? Or is a prescription filled by one pharmacist, but then can be managed by others? Based on current info, this seems like 1:M relationship, with the Prescription_Status as a category table for Prescriptions.

· Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?

See my comment for the previous question. For the ERD, I like that the entities are color-coded and neatly laid out.

· Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

Yes, everything is consistent and standardized.

Steven Nelson

The overview describes the problem well in a concise manner and gets the problem across to the reader. It also lists numbers involved with the size of the pharmacy and the workflow. One thing is maybe specific if the 2,000 customers are the script volume or just customers that frequent the pharmacy on a weekly / monthly basis. The draft has five entities that all relate to the pharmacy's business so it hits that checkmark on the project requirements. Also each entity has a short description letting the reader know what will be accomplished by each of them. There is also the M:M requirement being handled by the Prescription Status between Pharmacists and Prescriptions so that requirement is being met for the project too. Also the consistency across the naming of the entities and the attributes looks good to me, everything is either plural or singular based on if it's an entity or attribute. Below are just a few minor things I noticed that I might change / adjust.

I noticed in the attribute under dosage 'dosage: int, not NULL', there are certain medications that have a decimal like an example would be Lisinopril has a 2.5 mg strength or how thyroid medications are in micrograms so you could put a decimal milligram. So maybe change int to

decimal to include medications that have a decimal in the strength. I also noticed, I wasn't sure if under 'customerI_id int, auto_increment, unique, not NULL, PK' you wanted it to say 'customer_id' or with the extra I in 'customerI_id' as a small typo. It looks really good though, its very clean and well organized.

Teagan Simoneau

Does the UI utilize a SELECT for every table in the schema?

Yes, there are 5 tables in the schema, and each one has SELECT statements to pull data, which is reflected in the UI.

Does at least one SELECT utilize a search/filter with a dynamically populated list of properties?

Yes, there are GET commands at the bottom that SELECT a specific pharmacist, customer, or medication.

Does the UI implement an INSERT for every table in the schema?

Yes, there are INSERT fields for each table.

Does each INSERT also add the corresponding FK attributes, including at least one M:M relationship?

Yes, the two appropriate FKs are present in the Prescriptions INSERTs, and the two appropriate FKs are present in the Prescription_Status INSERTs. The Prescription_Status table also handles the M:M relationship.

Is there at least one DELETE and does at least one DELETE remove things from a M:M relationship?

There is a command to DELETE a Pharmacist, and doing so removes the Pharmacist from corresponding Prescription_Status items.

Is there at least one UPDATE for any one entity?

Yes, every entity has a way to UPDATE, including the M:M table.

Is at least one relationship NULLable?

Yes, pharmacist_id is NULLable in the Prescription_Status table, and when a Pharmacist is deleted, the corresponding pharmacist_id is removed from any Prescription_Status items.

Do you have any other suggestions for the team to help with their HTML UI? For example using AS aliases to replace obscure column names such as fname with First Name.

Not at this time, no. Column names are already created using AS aliases to have very clear names, UI commands seem very well thought-out, all items seem clean. There is currently no visible way on the website to use the search functions listed at the bottom of the UI commands, but that is likely to come at a later date.

Seems like a super good start, nice work!

Alfred Nguyen

Does the UI utilize a SELECT for every table in the schema? In other words, data from each table in the schema should be displayed on the UI. Note: it is generally not acceptable for just a single query to join all tables and displays them.

Yes, there are 5 tables in the schema: pharmacists, customers, medications, prescriptions, and prescription_status. And, within the DML sql file, there are 5 SELECT queries, one for each of the five tables presented in the schema. And, within the UI, the HTML itself, the user can view all the tables.

Does at least one SELECT utilize a search/filter with a dynamically populated list of properties?

Yes, the intersection table prescription_status utilizes a search filter to populate its properties.

Does the UI implement an INSERT for every table in the schema? In other words, there should be UI input fields that correspond to each table and attribute in that table.

Four of the five tables presented in the schema have an INSERT implementation. However, I could see the logic behind omitting the 5th table, prescription_status, since it is an intersection table, but it should be noted that the Final Project does require that all tables have an INSERT implementation.

Does each INSERT also add the corresponding FK attributes, including at least one M:M relationship? In other words if there is a M:M relationship between Orders and Products, INSERTing a new Order (e.g. orderID, customerID, date, total), should also INSERT row(s) in the intersection table, e.g. OrderDetails (orderID, productID, qty, price and line_total).

If I am understanding the prompt, correctly, no, it does not automatically insert a new row into the intersection table. However, based on the design, Group 115 looks like they want to keep their intersection table manual, i.e. when an INSERT query is added to prescriptions, a manual INSERT of the prescription_status can be added after. This design choice makes logical sense is that a prescription may not have a prescription_status information yet until a pharmacist takes the order.

Is there at least one DELETE and does at least one DELETE remove things from a M:M relationship? In other words, if an order is deleted from the Orders table, it should also delete the corresponding rows from the OrderDetails table, BUT it should not delete any Products or Customers.

Yes, there is a DELETE present for the pharmacists table. Deleting a pharmacist does not erase a prescription.

Is there at least one UPDATE for any one entity? In other words, in the case of Products, can productName, listPrice, qtyOnHand, e.g. be updated for a single ProductID record?

Yes, there is an UPDATE to each of the five entities.

Is at least one relationship NULLable? In other words, there should be at least one optional relationship, e.g. having an Employee might be optional for any Order. Thus it should be feasible to edit an Order and change the value of Employee to be empty.

Yes, pharmacist is optional to the prescription_status and can be set to NULL.

Do you have any other suggestions for the team to help with their HTML UI? For example using AS aliases to rplace obscure column names such as fname with First Name.

I believe Group 115 did a fantastic job on their html UI. It is simple and clean; it is easy on the eyes, especially with the choice of typography and mouse over CSS . Keep it up! I personally cannot wait to see this project fly in the next couple of steps.

Draft 3 Feedback by Peer Reviewers

Ishanshi Bhardwaj

Does the UI utilize a SELECT for every table in the schema? In other words, data from each table in the schema should be displayed on the UI. Note: it is generally not acceptable for just a single query to join all tables and displays them.

Yes, the UI utilizes a SELECT for every table in the schema.

Does at least one SELECT utilize a search/filter with a dynamically populated list of properties?

Yes, there is at least one SELECT utilize a search/filter like the Pharmacists table.

Does the UI implement an INSERT for every table in the schema? In other words, there should be UI input fields that correspond to each table and attribute in that table.

Yes there is an INSERT statement for each table present.

Does each INSERT also add the corresponding FK attributes, including at least one M:M relationship? In other words if there is a M:M relationship between Orders and Products, INSERTing a new Order (e.g. orderID, customerID, date, total), should also INSERT row(s) in the intersection table, e.g. OrderDetails (orderID, productID, qty, price and line_total).

Yes, each INSERT also add the corresponding FK attribute, including at least one M:M relationship.

Is there at least one DELETE and does at least one DELETE remove things from a M:M relationship? In other words, if an order is deleted from the Orders table, it should also delete the corresponding rows from the OrderDetails table, BUT it should not delete any Products or Customers.

Yes there is a DELETE button that removes it from the M:M relationship.

Is there at least one UPDATE for any one entity? In other words, in the case of Products, can productName, listPrice, qtyOnHand, e.g. be updated for a single ProductID record?

The Pharmacist page has an update button.

Is at least one relationship NULLable? In other words, there should be at least one optional relationship, e.g. having an Employee might be optional for any Order. Thus it should be feasible to edit an Order and change the value of Employee to be empty.

Yes there is at least one relationship that is NULLable.

Do you have any other suggestions for the team to help with their HTML UI? For example using AS aliases to replace obscure column names such as fname with First Name.

I really like the UI as it really is professional looking and I think that the CSS is very well done overall you guys did a great job.

Morgan Curtis

Does the UI utilize a SELECT for every table in the schema? In other words, data from each table in the schema should be displayed on the UI. Note: it is generally not acceptable for just a single query to join all tables and displays them.

Yes, every table has a SELECT statement that represent each table as it appears in the schema.

Does at least one SELECT utilize a search/filter with a dynamically populated list of properties?

Yes, the Pharmacists table has a Select that utilizes a dynamically populated list of properties.

Does the UI implement an INSERT for every table in the schema? In other words, there should be UI input fields that correspond to each table and attribute in that table.

Yes, there are INSERT statements for each table present in the sql

Does each INSERT also add the corresponding FK attributes, including at least one M:M relationship? In other words if there is a M:M relationship between Orders and Products, INSERTing a new Order (e.g. orderID, customerID, date, total), should also INSERT row(s) in the intersection table, e.g. OrderDetails (orderID, productID, qty, price and line_total).

Yes, there are M:M relationships present and they have added the corresponding FK attributes

Is there at least one DELETE and does at least one DELETE remove things from a M:M relationship? In other words, if an order is deleted from the Orders table, it should also delete the corresponding rows from the OrderDetails table, BUT it should not delete any Products or Customers.

Yes the Pharmacists page has a DELETE button that removes it from a M:M relationship.

Is there at least one UPDATE for any one entity? In other words, in the case of Products, can productName, listPrice, qtyOnHand, e.g. be updated for a single ProductID record?

Yes, the Pharmacists page also has a UPDATE buttun that can update a single entry.

Is at least one relationship NULLable? In other words, there should be at least one optional relationship, e.g. having an Employee might be optional for any Order. Thus it should be feasible to edit an Order and change the value of Employee to be empty.

Yes the are relationships that are NULLable, in Pharmacists and the Pharmacists_status page the pharmacists_ID can be set to NULL.

Do you have any other suggestions for the team to help with their HTML UI? For example using AS aliases to replace obscure column names such as fname with First Name.

You guys have a very well designed UI and the website looks great. I dont think I could add anything better to the design! Goodluck on the rest of the assignment.

Actions Based on Feedback

Fixed typo in Customers table (customerI_id -> customer_id)
Clarified use of Prescription_Status table
The dosage field for prescriptions changed to decimal(4,2)

We decided to keep the address/phone number fields in the pharmacist table, those were intended to be used as personal contact information for individual pharmacists, rather than describing the area they work in. We'll instead ensure that the meaning of those fields is clear in the web application.

2/16/2023
Fixed typos in DDL and ensured column names were consistent (name -> medication_name)
Removed NOT NULL constraint for pharmacist_id in prescription_status table as a pharmacist does not always need to add a new status, e.g. when adding a new prescription

3/2/2023
No changes required for the database schema or ERD. Also no changes from last draft review cycle.

Upgrades to Draft Version

No updates required.

Overview

This application will be a pharmacist facing database that allows the pharmacist to track prescriptions and medication inventory. The website will record *Pharmacists* filling *Prescriptions* for *Customers*. They will update prescription status information, as the state of the prescription changes, from the time of drop off, to pick up. This is a busy pharmacy, so they have over 2000 frequent customers, a selection of about 500 different medications, and a staff size of about 20. This database is specific for tracking prescriptions, so it neglects information about changes in staff and their personal information.

Database Outline

Pharmacists: A list of employees

- pharmacist_id: int, auto_increment, unique, not NULL, PK
- job_title: varchar
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- address: varchar

- phone_number: varchar, not NULL
    - Relationships: A M:M relationship with prescriptions is handled by the PrescriptionStatus table containing a pharmacistID FK

Prescriptions: A list of current prescriptions and their refill frequency

- prescription_id: int, auto_increment, unique, not NULL, PK
- customer_id: int, not NULL, FK
- medication_id: int, not NULL, FK
- dosage: decimal(4,2), not NULL
- refill_count: int
    - How many refills for the prescription
- refill_frequency: int
    - Days between refills
    - Relationships:
        - A M:1 relationship with prescriptions is implemented by the Prescription entry containing a medication FK
        - A M:1 relationship with customers is implemented by the Prescription entry containing a customer FK
        - A M:M relationship with Pharmacists is implemented by the PrescriptionStatus table containing a prescription FK

Prescription_Status: A log of status updates of customers prescriptions

- prescription_id: int, not NULL, FK
- pharmacist_id: int, not NULL, FK
- status: varchar, not NULL
    - Description of the status of the prescription, e.g. “filled”, “picked up”
- update_date: date, not NULL
    - Relationships: Handles a M:M relationship by storing FKs from the Prescription and Pharmacist tables

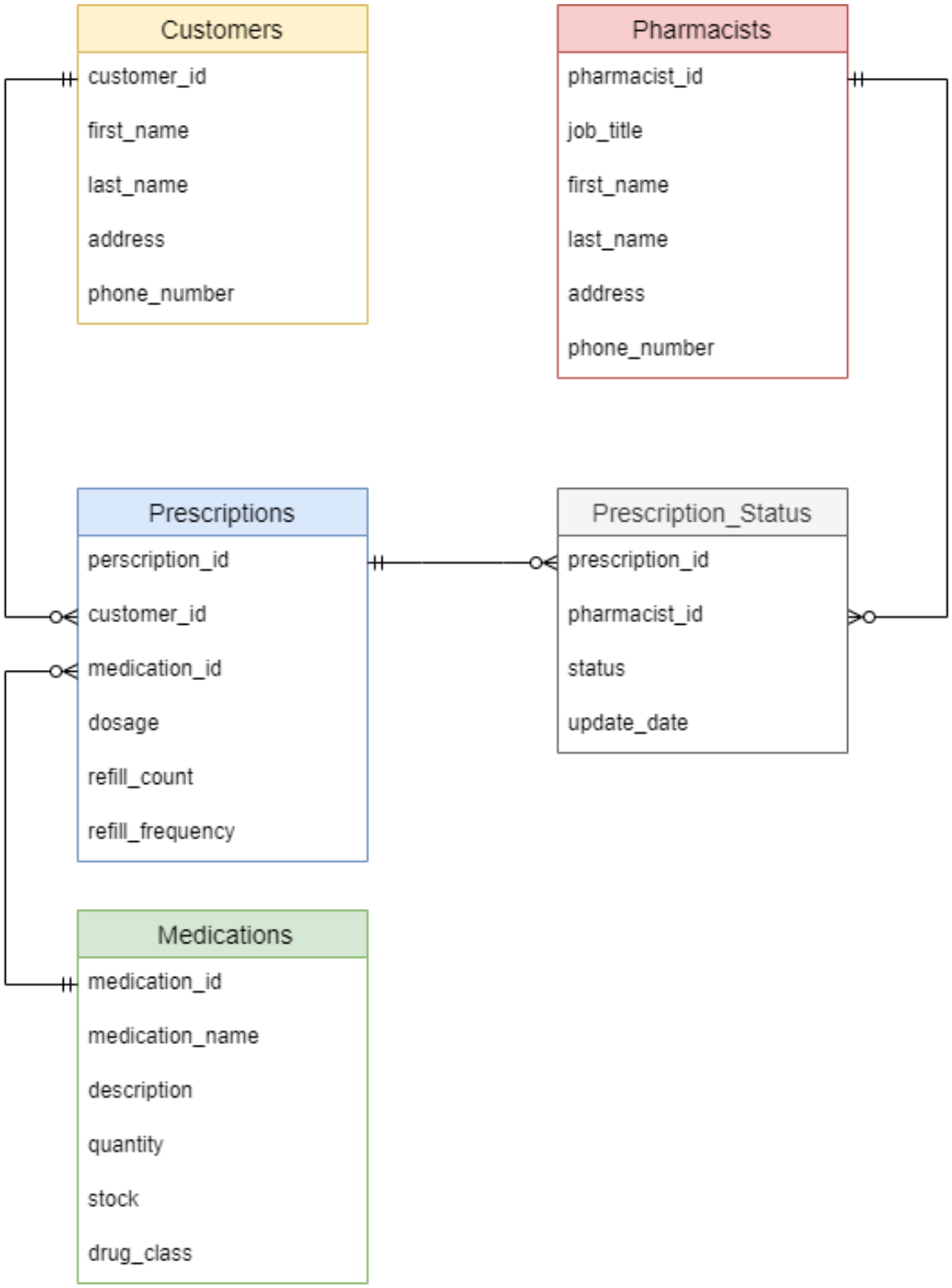
Customers: Records information about customers

- customer_id int, auto_increment, unique, not NULL, PK
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- address: varchar
- phone_number: varchar, not NULL
    - Relationships: A 1:M relationship is handled by the Prescription table storing a customerID as a FK

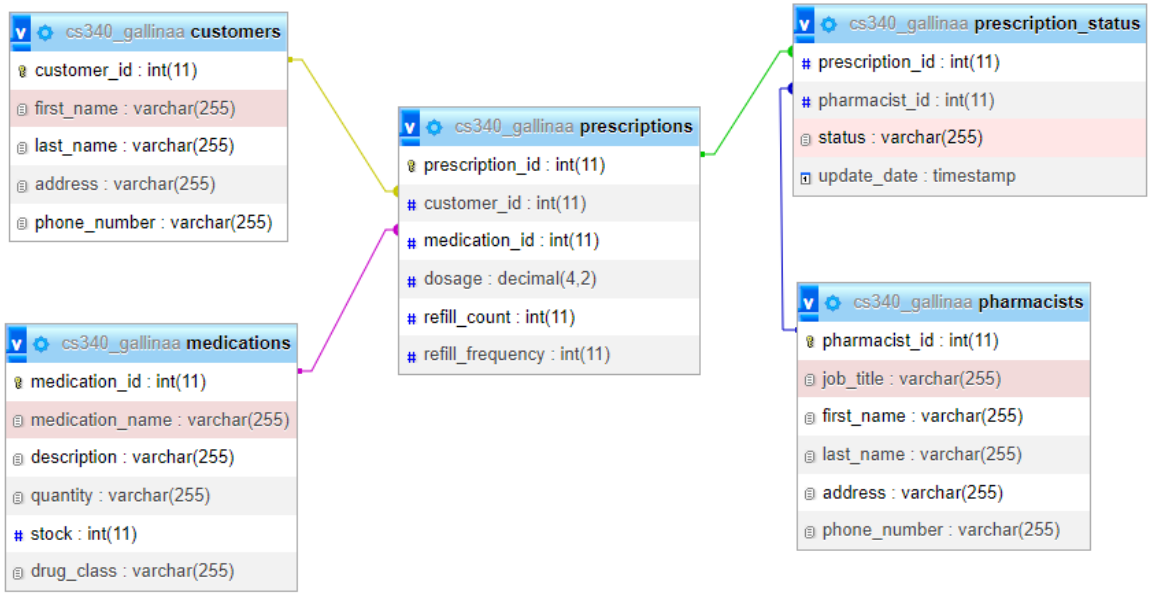
Medications: Records information about medications and current inventory

- medication_id: int, auto_increment, unique, not NULL, PK
- name: varchar, not NULL
- description: varchar
- quantity: varchar, not NULL
    - Amount and unit of measurement
- stock: int, not NULL
- drug_class: varchar
    - How controlled the substance is
    - Relationships: a 1:M relationship is handled by the Prescription table storing a medicationID as a FK

Entity-Relationship Diagram:



Schema


cs340_gallinaa customers
customer_id : int(11)
first_name : varchar(255)
last_name : varchar(255)
address : varchar(255)
phone_number : varchar(255)
cs340_gallinaa prescriptions
prescription_id : int(11)
customer_id : int(11)
medication_id : int(11)
dosage : decimal(4,2)
refill_count : int(11)
refill_frequency : int(11)
cs340_gallinaa prescription_status
prescription_id : int(11)
pharmacist_id : int(11)
status : varchar(255)
update_date : timestamp
cs340_gallinaa medications
medication_id : int(11)
medication_name : varchar(255)
description : varchar(255)
quantity : varchar(255)
stock : int(11)
drug_class : varchar(255)
cs340_gallinaa pharmacists
pharmacist_id : int(11)
job_title : varchar(255)
first_name : varchar(255)
last_name : varchar(255)
address : varchar(255)
phone_number : varchar(255)

Sample Data

Customers

customer_id	first_name	last_name	address	phone_number
1	Sarah	Johnson	111 Main St	555-555-1215
2	Michael	Smith	222 Elm St	555-555-1216
3	Emily	Brown	333 Oak St	555-555-1217
4	William	Jones	444 Main St	555-555-1218
5	Ashley	Miller	555 Elm St	555-555-1219
6	David	Davis	666 Oak St	555-555-1220
7	Bob	Johnson	420 Balze St	555-555-2222

Medication

medication_id	name	description	quantity	stock	drug_class
1	Aspirin	Pain reliever	100mg	200	NSAID
2	Amoxicillin	Antibiotic	250mg	150	Penicillin
3	Ibuprofen	Pain reliever	200mg	100	NSAID
4	Acetaminophen	Pain reliever	325mg	200	NSAID
5	Penicillin	Antibiotic	500mg	250	Penicillin
6	Naproxen	Pain reliever	500mg	150	NSAID

Pharmacists

pharmacist_id	job_title	first_name	last_name	address	phone_number
1	Pharmacist	John	Doe	123 Main St	555-555-1212
2	Pharmacist	Jane	Doe	456 Elm St	555-555-1213
3	Pharmacist	Jim	Smith	789 Oak St	555-555-1214
4	Pharmacist	James	Johnson	111 Elm St	555-555-1215
5	Pharmacist	Jennifer	Brown	222 Main St	555-555-1216
6	Pharmacist	Jessica	Davis	333 Oak St	555-555-1217

Prescriptions

prescription_id	customer_id	medication_id	dosage	refil_count	refil_frequency
1	1	1	2	3	7
2	2	2	3	2	14
3	3	3	1	5	30
4	4	5	99.99	2	30
5	5	3	99.99	3	45
6	6	2	99.99	0	0
7	7	4	5	1	60

Prescription_Status

prescription_id	pharmacist_id	status	update_date
7	1	filled	2023-02-09 17:52:29
3	2	waiting_pickup	2023-02-09 17:52:29
5	3	pending	2023-02-09 17:52:29
2	4	filled	2023-02-09 17:52:29
2	2	dropped_off	2023-02-09 17:52:29
7	4	filled	2023-02-09 17:52:29