Group 60 – Pharmacy Management Website

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Abstract:

Over the past few years, some pharmacists lack organization which leads to patients discomfort and wrong treatment. In this project, we are making a database for the pharmacist, it will ensure the patient gets the right treatment and proper organization in the pharmacy. We are doing that by making a page for all employees, which in our case are managers, assistants, and pharmacists. For the manager, he/she can add, search and update Inventory Items, and display all the employees' information. For the assistant, he/she can add, search, update, and delete each patient, appointment, delivery, and doctor, and can add prescription. For the pharmacist, he/she can add, search, update, and delete each prescription, and follow up and can only add, search, and delete vaccine records.

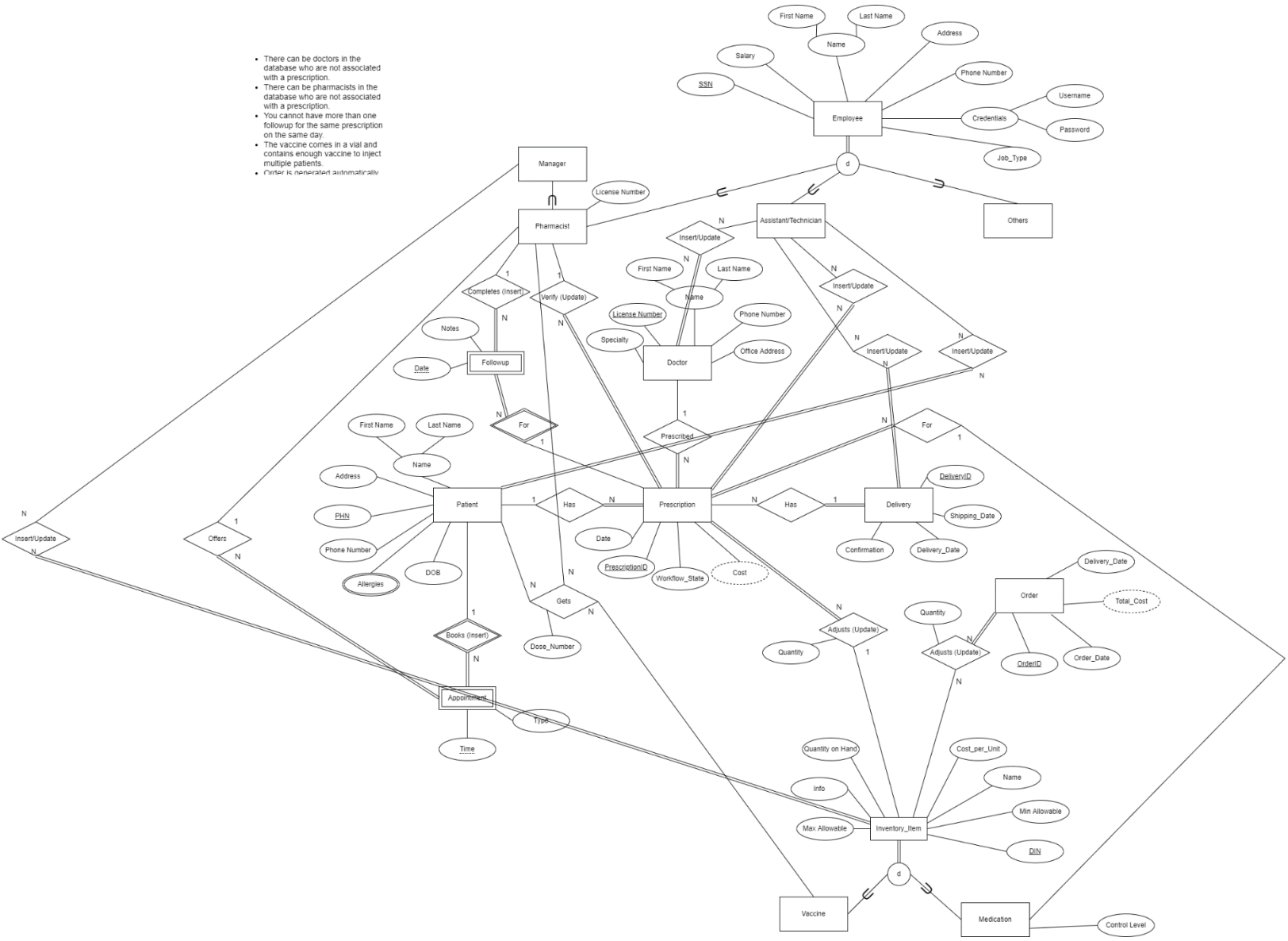
Introduction:

Retail pharmacies are a crucial part of the healthcare system. They process prescriptions, dispense medications, and provide counselling to patients. Pharmacies must have a reliable method to manage their operations to prevent harmful errors and decrease patient wait times. Databases can process and store large volumes of data so that multiple users can read and modify the data simultaneously. Using a database in a pharmacy will help pharmacists perform tasks quickly and efficiently instead of manually searching all patients' records if the system was paper based. We designed a website for pharmacy employees that will help them manage their tasks efficiently and find relevant information easily that is stored in the website database.

Project Design:

Our pharmacy website is designed to help pharmacy employees manage their prescriptions and associated data. There are three types of users, assistants, pharmacists and managers. Once a user logs in, they will be taken to the employee home page associated with their job type. The login is a secure entry point which prevents SQL injections. Once on their home page, assistants can enter, edit and delete patient, doctor, delivery and appointment information, as well as enter prescriptions. Pharmacists can edit and verify the prescriptions the assistants have entered and enter, edit and delete follow-ups and vaccine records. The manager has the power to enter, edit and delete inventory items, which include medications and vaccines. They can also view all employee information, which is hidden from other user types.

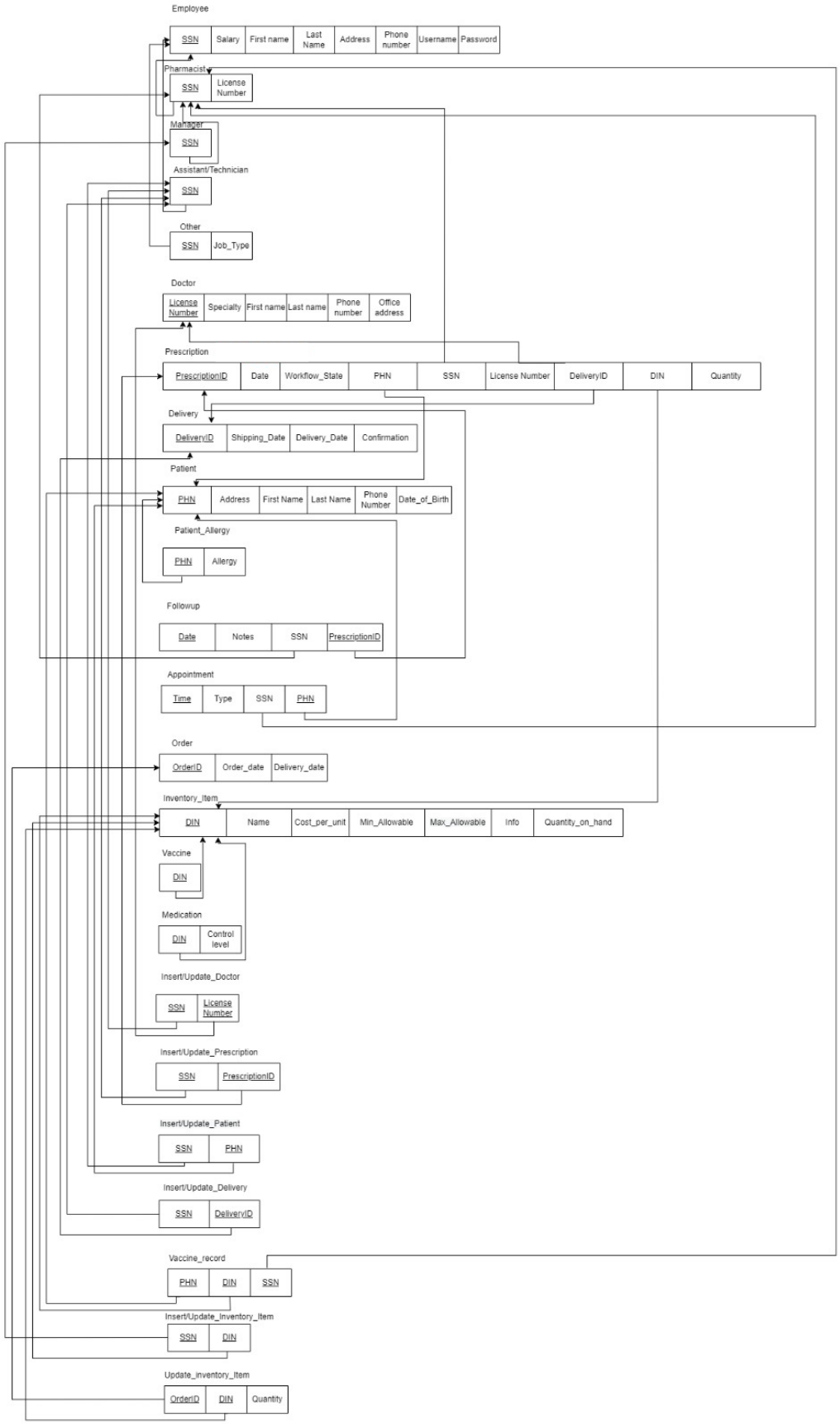
Please see below a thorough ER diagram of our project.



Several key elements of our ER diagram have been modified from the above version in the implementation of our project. We decided that instead of being a subset of pharmacist, manager should be its own entity with separate responsibilities in the implementation. We removed the “other” subset from employee since there was no practical purpose for it in the implementation of the project. We eliminated the vaccine and medication entities, due to their very close similarity. Instead, we used inventory item in place since both vaccine and medication were subsets of inventory item. Another change is the relationship between patient and appointment. Since this website is designed for pharmacy employees, not customers, we realized it would be more appropriate for an assistant to enter an appointment, at the request of a patient.

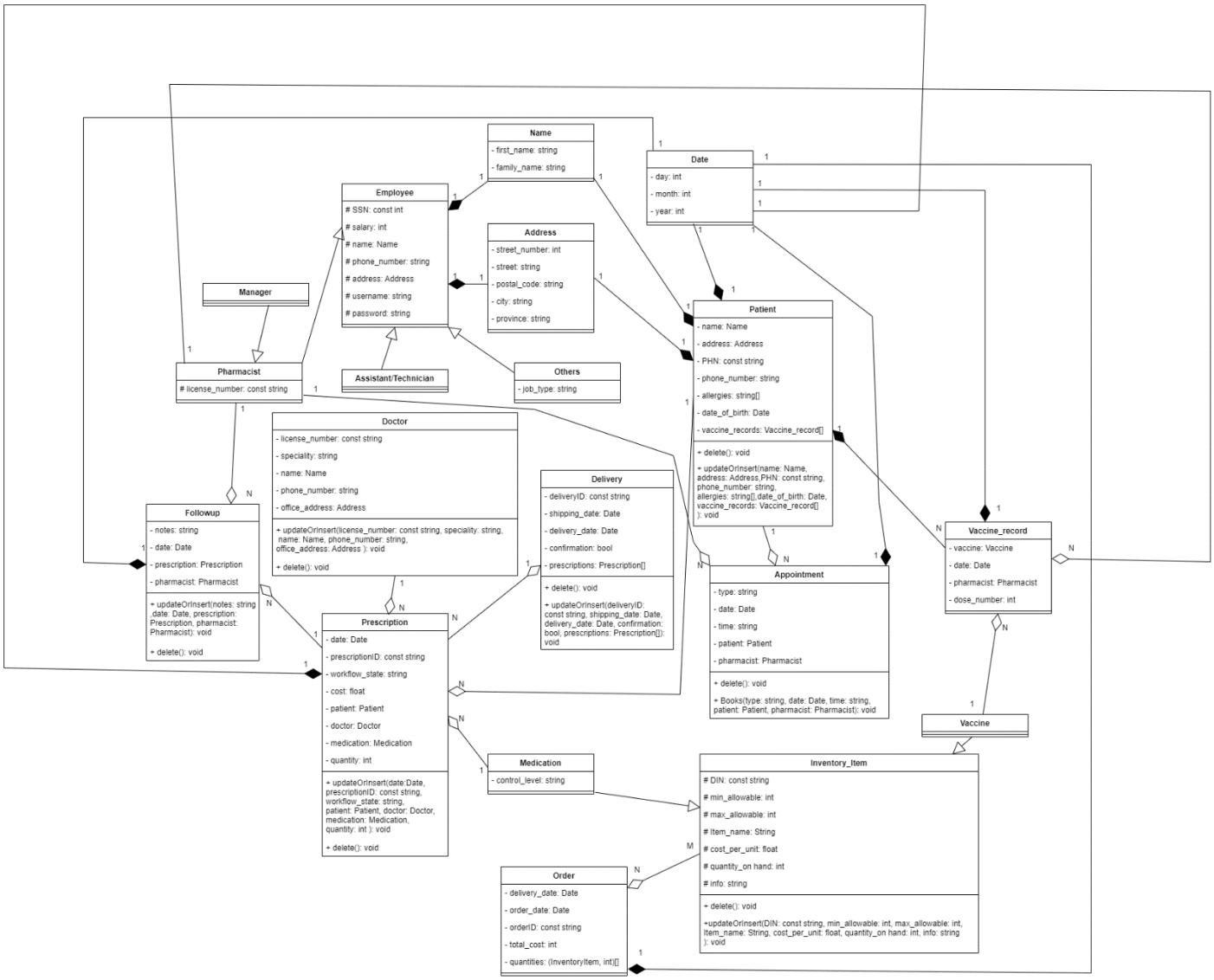
Implementation

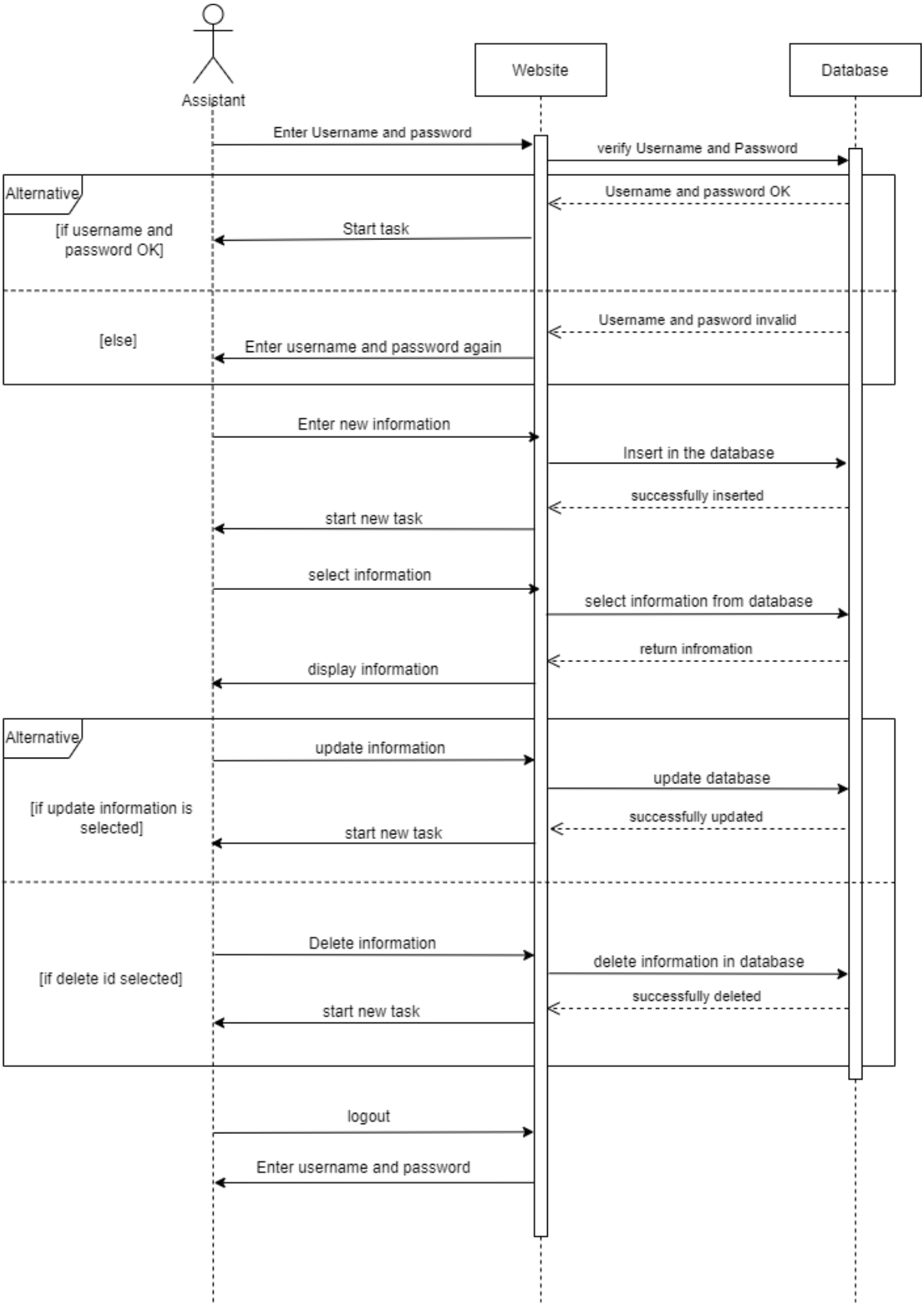
Please see below our relation model.


Employee
SSN
Salary
First name
Last Name
Address
Phone number
Username
Password
Pharmacist
SSN
License Number
Manager
SSN
Assistant/Technician
SSN
Other
SSN
Job_Type
Doctor
License Number
Specialty
First name
Last name
Phone number
Office address
Prescription
PrescriptionID
Date
Workflow_State
PHN
SSN
License Number
DeliveryID
DIN
Quantity
Delivery
DeliveryID
Shipping_Date
Delivery_Date
Confirmation
Patient
PHN
Address
First Name
Last Name
Phone Number
Date_of_Birth
Patient_Allergy
PHN
Allergy
Followup
Date
Notes
SSN
PrescriptionID
Appointment
Time
Type
SSN
PHN
Order
OrderID
Order_date
Delivery_date
Inventory_Item
DIN
Name
Cost_per_unit
Min_Allowable
Max_Allowable
Info
Quantity_on_hand
Vaccine
DIN
Medication
DIN
Control level
Insert/Update_Doctor
SSN
License Number
Insert/Update_Prescription
SSN
PrescriptionID
Insert/Update_Patient
SSN
PHN
Insert/Update_Delivery
SSN
DeliveryID
Vaccine_record
PHN
DIN
SSN
Insert/Update_Inventory_Item
SSN
DIN
Update_inventory_Item
OrderID
DIN
Quantity

We created our relational model by using the algorithm learned in class to convert a ER diagram to a relational model.

We then created a class diagram and a sequence diagram, shown below.




Assistant
Website
Database
Enter Username and password
verify Username and Password
Alternative
Username and password OK
[if username and password OK]
Start task
Username and pasword invalid
[else]
Enter username and password again
Enter new information
Insert in the database
successfully inserted
start new task
select information
select information from database
return infromation
display information
Alternative
update information
update database
[if update information is selected]
successfully updated
start new task
Delete information
delete information in database
[if delete id selected]
successfully deleted
start new task
logout
Enter username and password

The sequence diagram represents the login process, as well as the general purpose of our project, to add, update, delete different information. In our implementation, we added the ability for the manager to view employee information, which is not included in this diagram.

DBMS Used is XAMPP Control Panel, the modules we use are Apache and MySQL, and we connect to the database in any browser by typing 'Localhost'.
SQL Statements:

Inserting Values into Appointment

```
$sql = "INSERT INTO APPOINTMENT VALUES ('$Date', '$Time', '$Type1', '$SSN', '$PHN')";
```

Inserting Values into Delivery

```
$sql = "INSERT INTO DELIVERY VALUES ('$DeliveryID', '$Shipping_Date', '$Delivery_Date',
'$Confirmation')";
```

Inserting Values into Doctor

```
$sql = "INSERT INTO DOCTOR VALUES ('$License_Number', '$SPECIALTY', '$First_Name',
'$Last_Name', '$Phone_Number', '$Office_address')";
```

Inserting Values into Followup

```
$sql = "INSERT INTO FOLLOWUP VALUES ('$Date', '$Notes', '$SSN', '$PrescriptionID')";
```

Inserting Values into Inventory Item

```
$sql = "INSERT INTO INVENTORY_ITEM VALUES ('$DIN', '$Name', $Cost_per_item, $Min_allowable,
$Max_allowable, '$Info', $Quantity_on_hand)";
```

Inserting Values into Patient

```
$sql1 = "INSERT INTO PATIENT VALUES ('$PHN', '$Address', '$First_Name', '$Last_Name',
'$Phone_Number', '$Date_of_birth')";
```

Inserting Values into Patient Allergy

```
$sql2 = "INSERT INTO PATIENT_ALLERGY VALUES ('$PHN', '$Allergy')";
```

Inserting Values into Prescription

```
$sql = "INSERT INTO PRESCRIPTION VALUES ('$PrescriptionID', '$Date', '$Workflow_state',
'$PHN', '$SSN', '$License_number', '$DeliveryID', '$DIN', $Quantity)";
```

Inserting Values into Vaccine Record

```
$sql = "INSERT INTO VACCINE_RECORD VALUES ('$DIN', '$Date', '$SSN', '$DoseNumber')";
```

Delete Appointment with the PHN and Date inserted

```
$sql = "DELETE  FROM `APPOINTMENT` WHERE PHN = '$PHN'AND Date = '$Date'";
```

Delete Delivery with the Delivery ID inserted

```
$sql = "DELETE  FROM `DELIVERY` WHERE DeliveryID = '$DeliveryID'";
```

Delete Doctor with the License Number inserted

```
$sql = "DELETE  FROM `DOCTOR` WHERE License_number = $licenseNumber";
```

Delete Follow up with the Date and Prescription ID inserted

```
$sql = "DELETE  FROM `FOLLOWUP` WHERE Date = '$date' AND PrescriptionID = '$PrescriptionID'";
```

Delete Inventory Item with the Inventory Item and DIN inserted

```
$sql = "DELETE  FROM `INVENTORY_ITEM` WHERE DIN = '$din'";
```

Delete Patient with the PHN inserted

```
$sql = "DELETE  FROM `PATIENT` WHERE PHN = '$PHN'";
```

Delete Prescription with the Prescription ID inserted

```
$sql = "DELETE  FROM `PRESCRIPTION` WHERE  PrescriptionID = '$PrescriptionID'";
```

Delete Vaccnine Record with the DIN, Date, and Dose Number inserted

```
$sql = "DELETE  FROM `VACCINE_RECORD` WHERE DIN = '$DIN'AND Date = '$Date'AND DoseNumber =
$DoseNumber";
```

Select All from Manager

```
$sql = "SELECT * FROM MANAGER";
```

Select All from Pharmacist

```
$sql = "SELECT * FROM PHARMACIST";
```

Select All from Assistant

```
$sql = "SELECT * FROM ASSISTANT";
```

Select All from Appointment with the PHN and Date inserted

```
$sql = "SELECT * FROM `APPOINTMENT` WHERE PHN = '$PHN' AND Date = '$Date'";
```

Select All from Delivery with Delivery ID inserted

```
$sql = "SELECT * FROM `DELIVERY` WHERE DeliveryID = '$deliveryID'";
```

Select All from Doctor with License Number inserted

```
$sql = "SELECT * FROM `DOCTOR` WHERE License_number = '$licenseNumber'";
```

Select All from Follow up with Date and Prescription ID inserted

```
$sql = "SELECT * FROM `FOLLOWUP` WHERE Date = '$Date' AND PrescriptionID =
'$PrescriptionID'";
```

Select All from Inventory Item with DIN inserted

```
$sql = "SELECT * FROM `INVENTORY_ITEM` WHERE DIN = '$inventoryItem'";
```

Select All from Patient with PHN inserted

```
$sql = "SELECT * FROM `PATIENT` WHERE PHN = '$patient'";
```

Select All from Prescription with PrescriptionID inserted

```
$sql = "SELECT * FROM `PRESCRIPTION` WHERE PrescriptionID = '$PrescriptionID'";
```

Select All from Vaccine Record with DIN, Date, and Dose Number inserted

```
$sql = "SELECT * FROM `VACCINE_RECORD` WHERE DIN = '$DIN' AND Date = '$Date' AND DoseNumber =
'$DoseNumber'";
```

Update Appointment entries

```
$sql = "UPDATE `APPOINTMENT` SET Type1 = '$Type1', SSN = '$SSN' WHERE PHN = '$PHN'AND Date =
'$Date'";
```

Update Delivery entries

```
$sql = "UPDATE DELIVERY SET Shipping_date ='$Shipping_date', Delivery_date =
'$Delivery_date', Confirmation = '$Confirmation' WHERE DeliveryID = '$DeliveryID'";
```

Update Doctor entries

```
$sql = "UPDATE DOCTOR SET SPECIALTY ='$SPECIALTY', First_Name = '$First_Name', Last_Name =
'$Last_Name', Phone_number = $Phone_number, Office_address = '$Office_address' WHERE
License_number = '$License_number'";
```

Update Follow Up entries

```
$sql = "UPDATE FOLLOWUP SET Notes ='$notes', SSN = $SSN WHERE Date = '$date' AND
PrescriptionID = $PrescriptionID";
```

Update Inventory Item entries

```
$sql = "UPDATE INVENTORY_ITEM SET Name ='$name', Cost_per_item = $Cost_per_item,
Min_allowable = $Min_allowable, Max_allowable = $Max_allowable, Info = '$Info',
Quantity_on_hand = $Quantity_on_hand WHERE DIN = '$din'";
```

Update Patient entries

```
$sql = "UPDATE PATIENT SET Address ='$Address', First_Name = '$First_Name', Last_Name =
'$Last_Name', Phone_number = '$Phone_number', Date_of_birth = '$Date_of_birth' WHERE PHN =
'$PHN'";
```

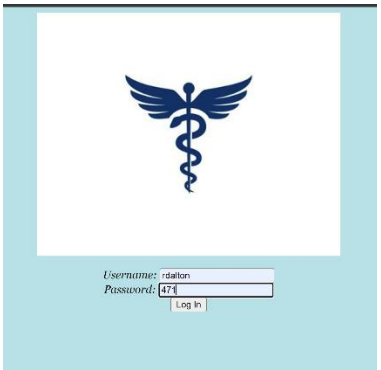
Update Prescription entries

```
$sql = "UPDATE PRESCRIPTION SET Date ='$Date', Workflow_state = '$Workflow_state', PHN =
'$PHN', SSN = '$SSN', License_number = '$License_number', DeliveryID = '$DeliveryID', DIN =
'$DIN', QUANTITY = $QUANTITY WHERE PrescriptionID = '$PrescriptionID'";
```

Select Job Type of the employee with the username and password inserted

```
$sql = "SELECT Job_type FROM EMPLOYEE WHERE Username = '$username' AND Password =
'$password'";
```

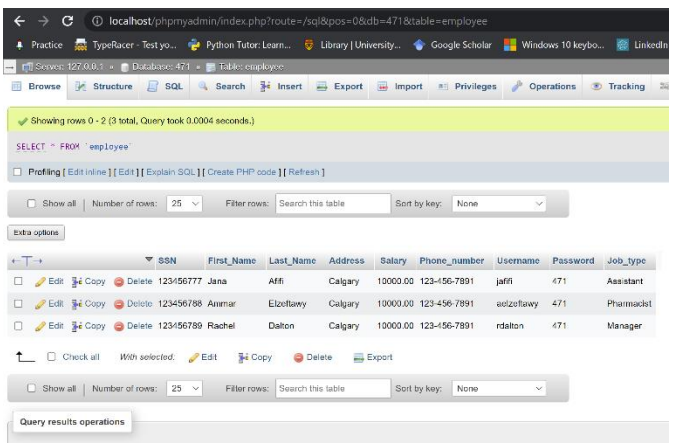
User Manual:

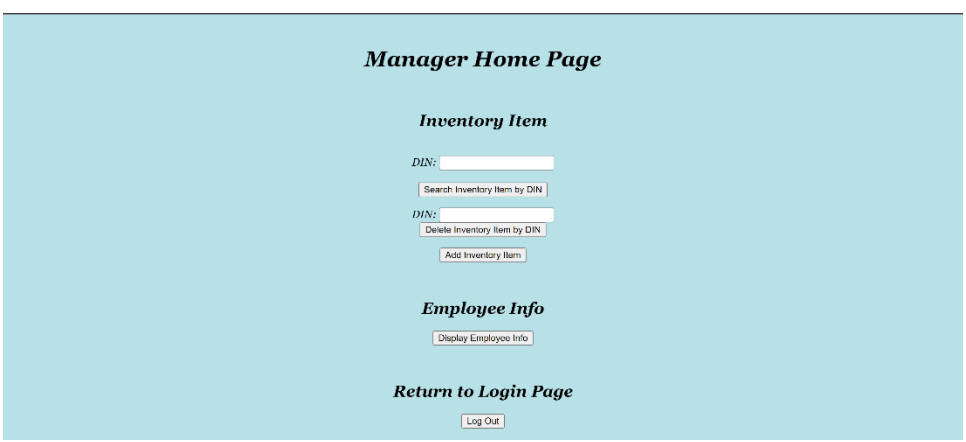


Login Page:

Employee can login either as a manager, assistant or a pharmacist.

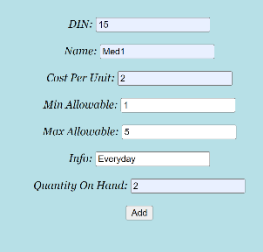
We already created 3 employees in the database as shown below, and we are logging in as a manager



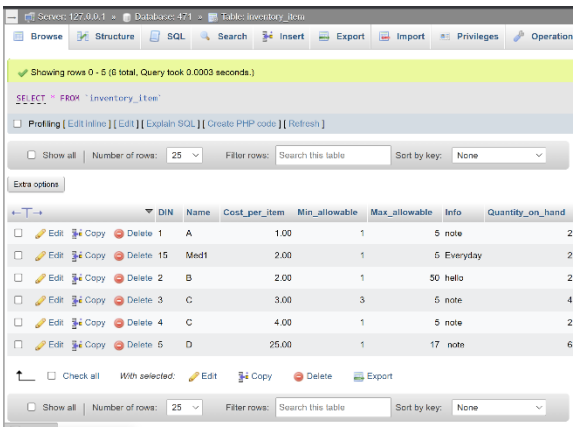


This is the manager's home page, where we have 3 parts.

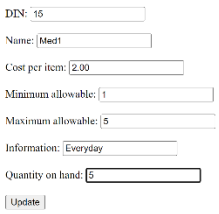
1. Inventory Item: Where we can add inventory item by clicking on Add Inventory Item



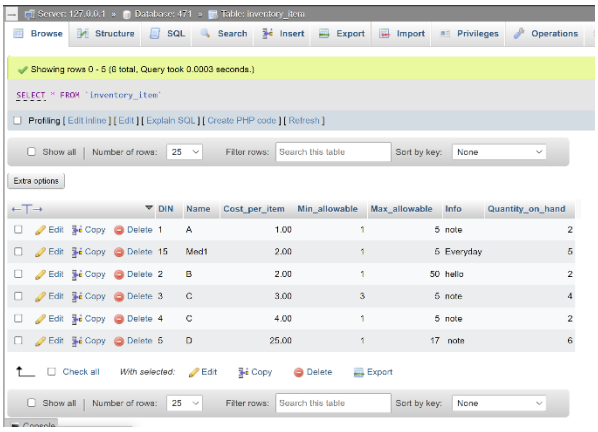
We added this inventory item to the database as shown below (2nd entry)



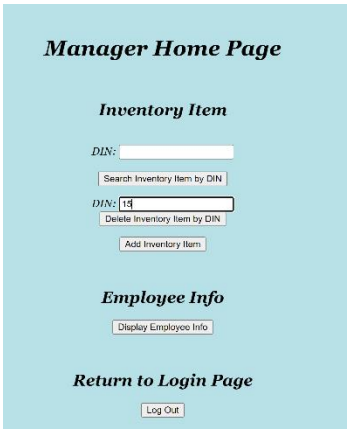
We can search for the inventory item by its primary key (DIN) and update its entries by clicking on Search Inventory Item by DIN

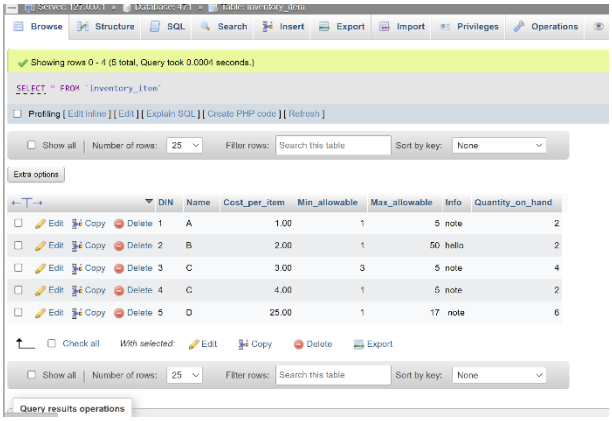


Click update

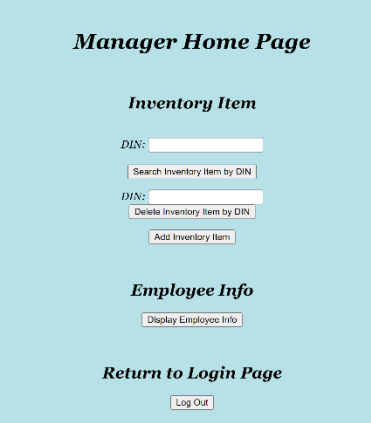


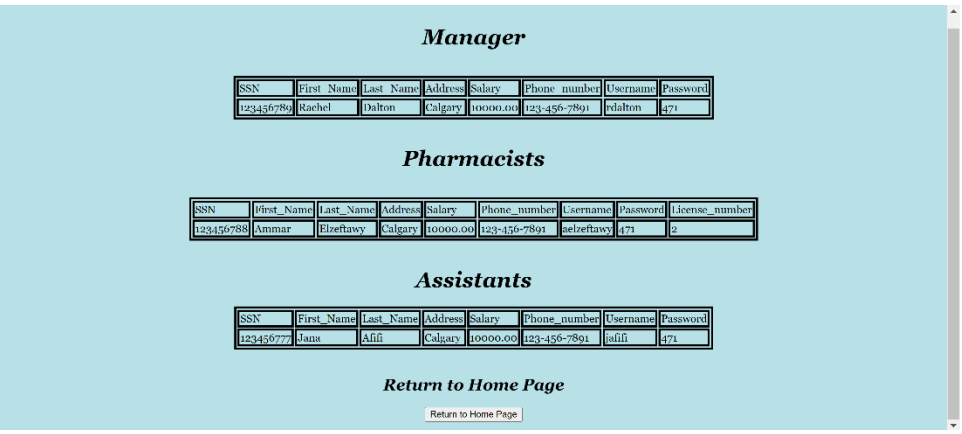
We can also delete the inventory item by its DIN by clicking on Delete Inventory Item





2. Employee Info: Where we can see the employees and their information





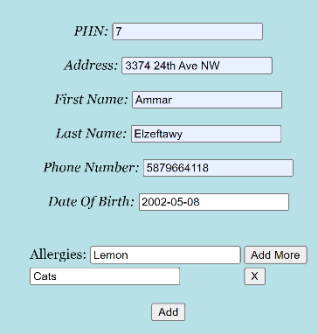
Then click on return to home page to go back to the manager home page

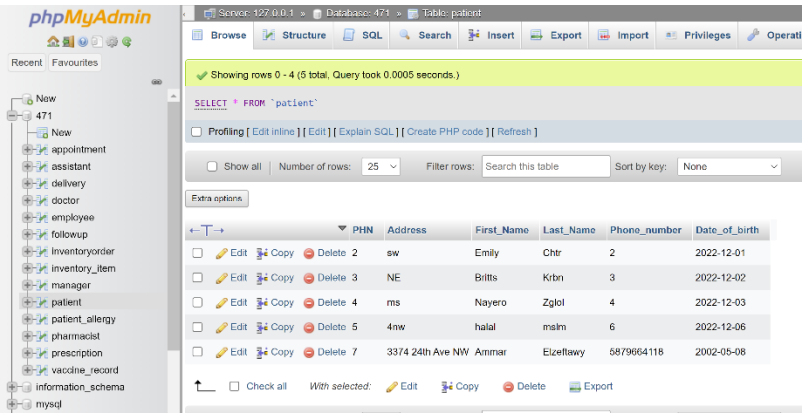
3. Return to login page where it takes us back to the login page

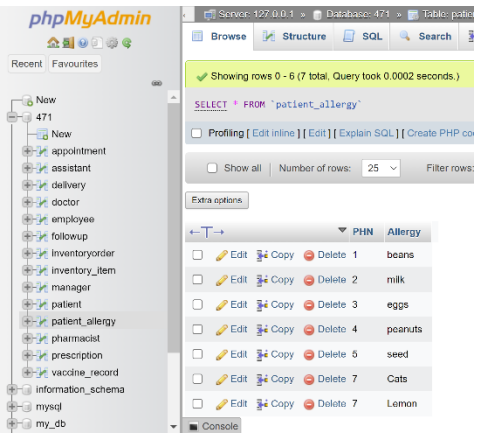
Let's login as an assistant

This is the assistant home page, where it consists of 6 parts.

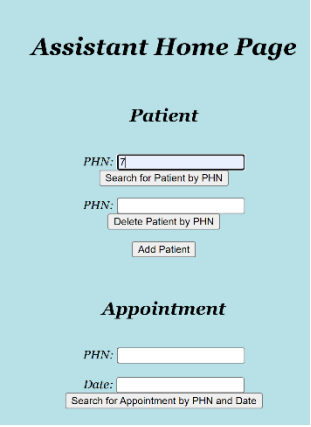
1. Patient: you can add a patient and his/her allergies by clicking on Add Patient

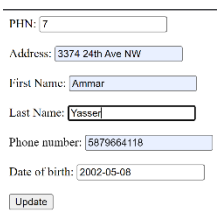




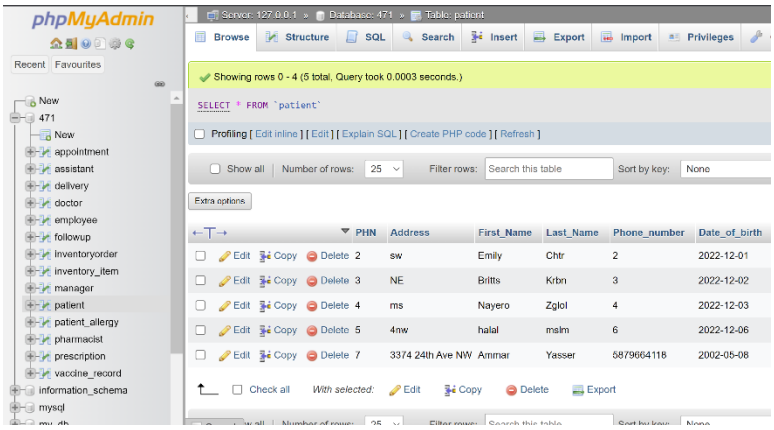


You can search for patient by his/her PHN and update entries by clicking on Search for Patient by PHN

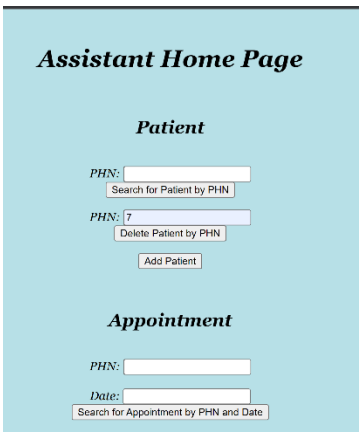


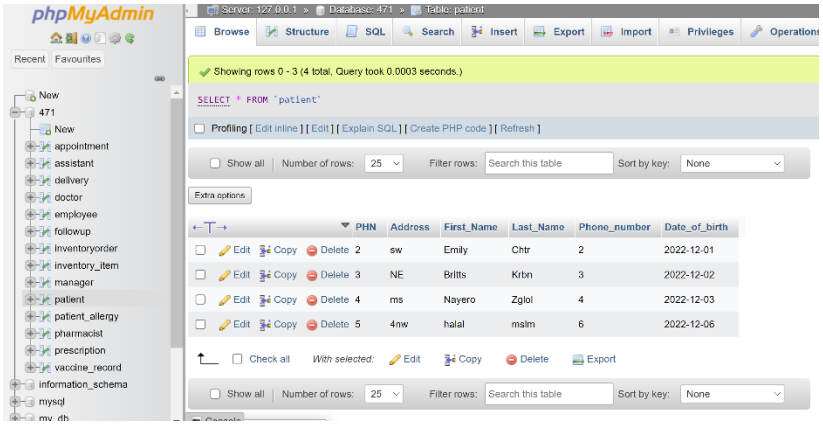


Click update

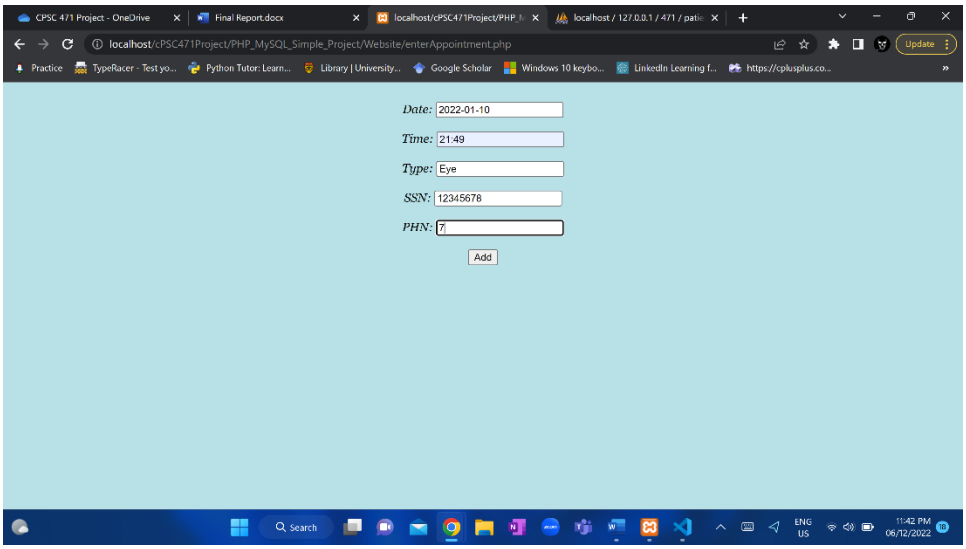


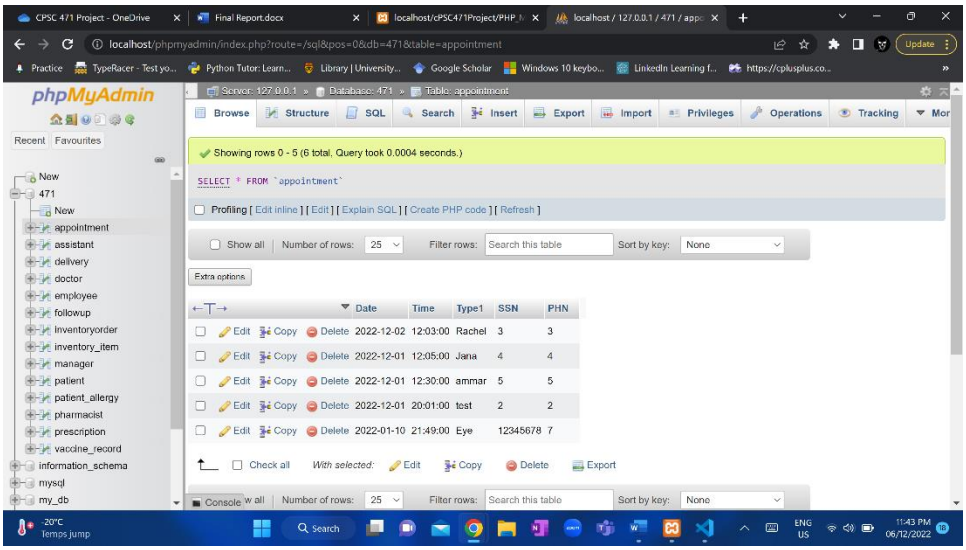
And you can delete patient by PHN by clicking on Delete Patient by PHN



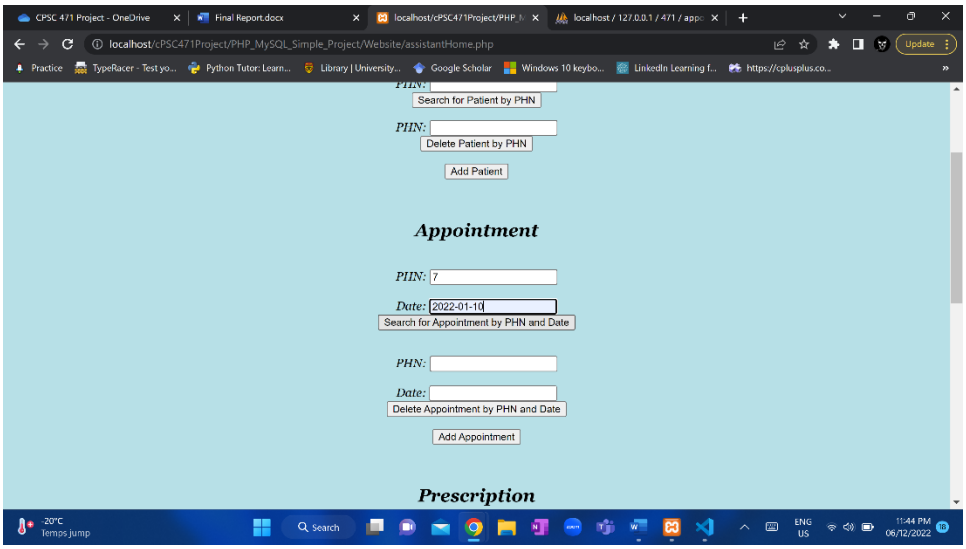


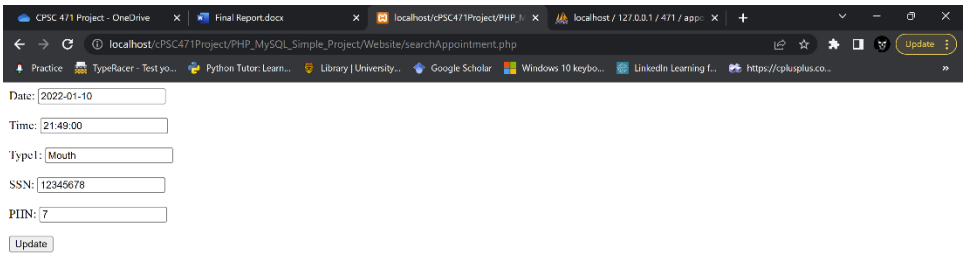
2. Appointment: You can add appointment by clicking on Add Appointment

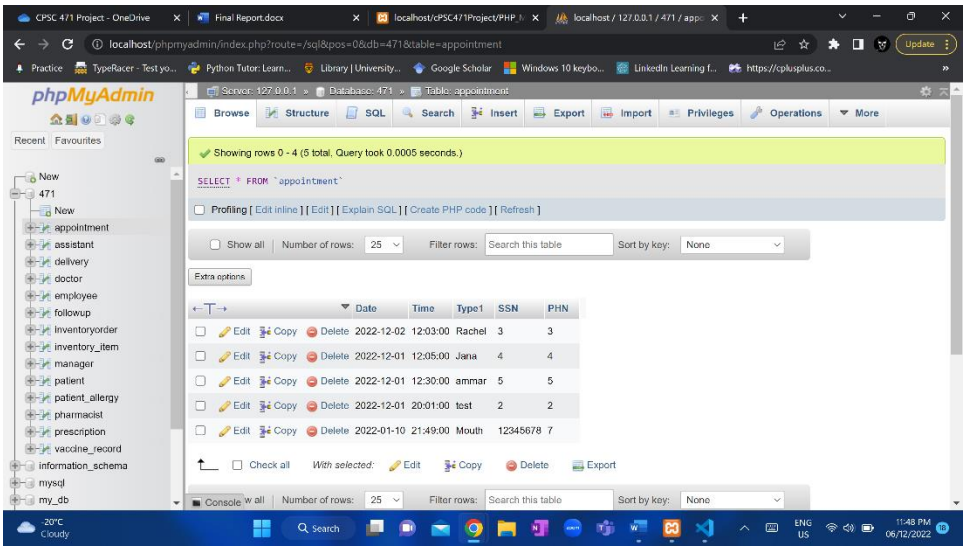




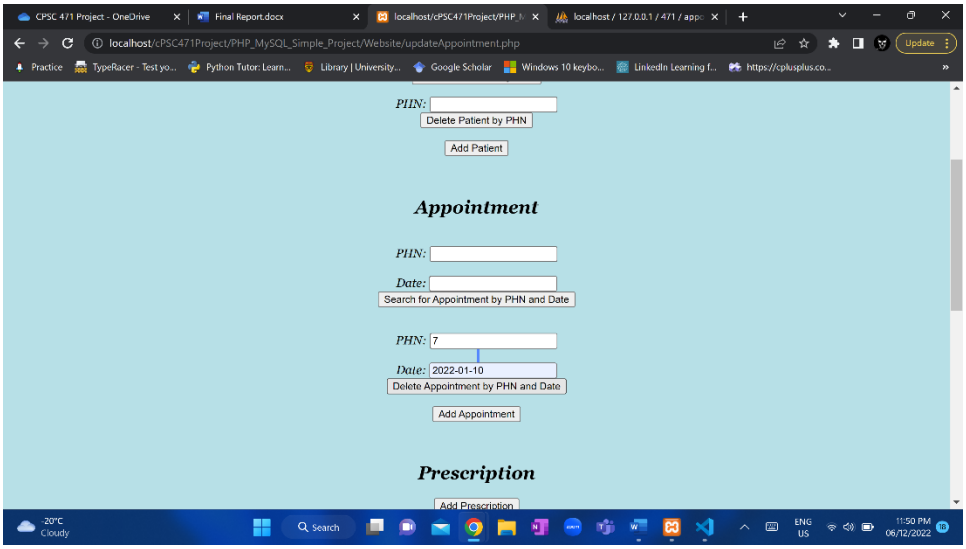
We can search for appointment by PHN and Date and update entries by clicking on Search for Appointment by PHN and Date

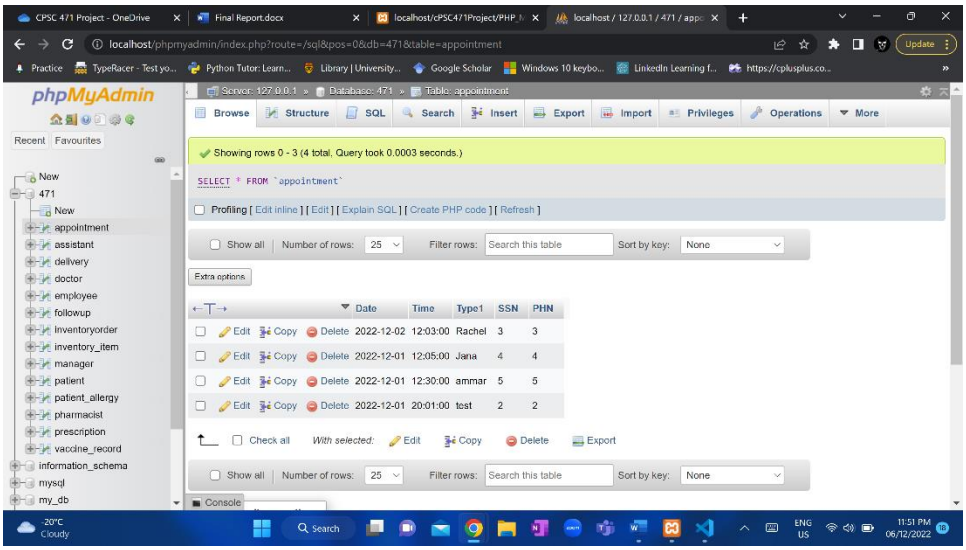

localhost/cPSC471Project/PHP_MySQL_Simple_Project/Website/assistantHome.php
Search for Patient by PHN
PIIN:
Delete Patient by PHN
Add Patient
Appointment
PIIN: 7
Date: 2022-01-10
Search for Appointment by PHN and Date
PHN:
Date:
Delete Appointment by PHN and Date
Add Appointment
Prescription


localhost/cPSC471Project/PHP_MySQL_Simple_Project/Website/searchAppointment.php
Date: 2022-01-10
Time: 21:49:00
Type1: Mouth
SSN: 12345678
PIIN: 7
Update

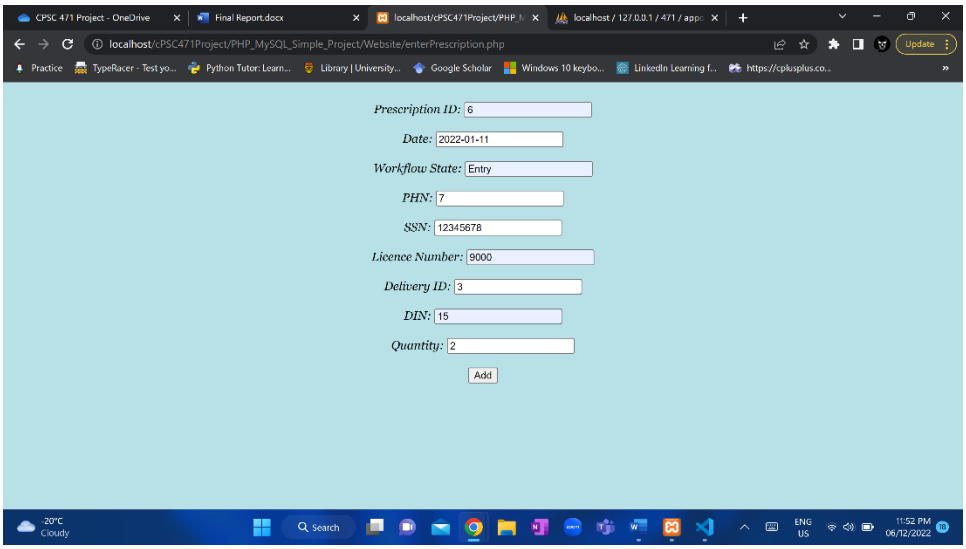

localhost/phpmyadmin/index.php?route=/sql&pos=0&db=471&table=appointment
phpMyAdmin
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
More
Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)
SELECT * FROM `appointment`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None
Extra options
Date Time Type1 SSN PHN
Edit Copy Delete 2022-12-02 12:03:00 Rachel 3 3
Edit Copy Delete 2022-12-01 12:05:00 Jana 4 4
Edit Copy Delete 2022-12-01 12:30:00 ammar 5 5
Edit Copy Delete 2022-12-01 20:01:00 test 2 2
Edit Copy Delete 2022-01-10 21:49:00 Mouth 12345678 7
Check all With selected: Edit Copy Delete Export

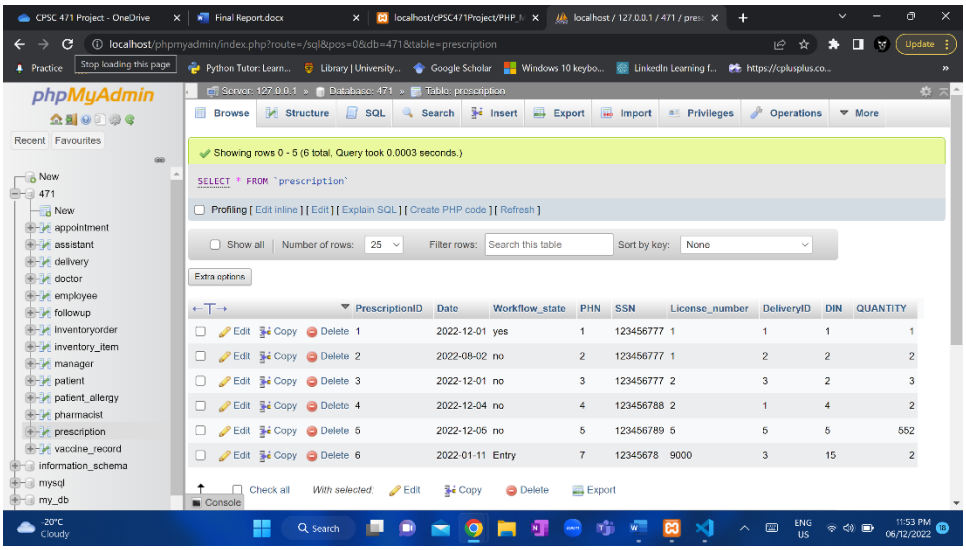
You can also delete Appointment by PHN and Date by clicking on Delete Appointment by PHN and Date



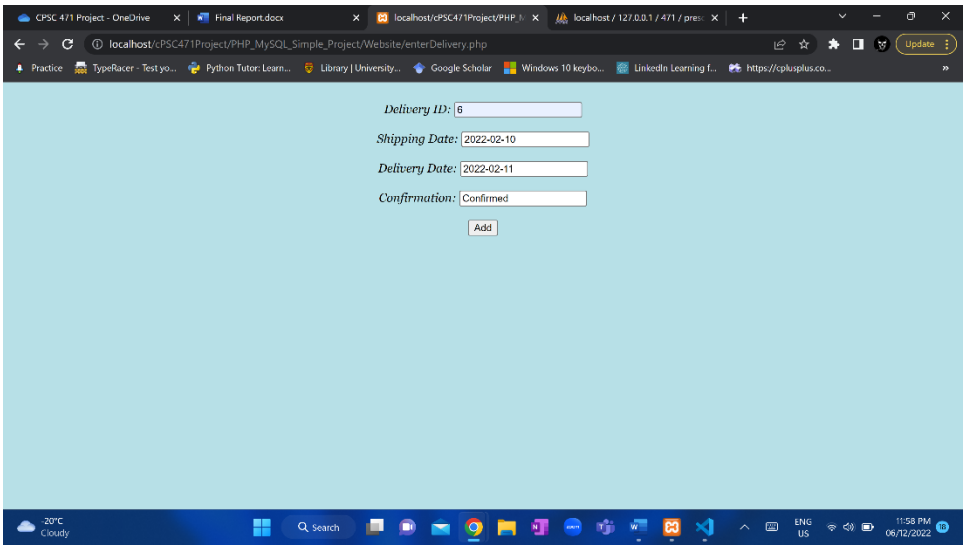


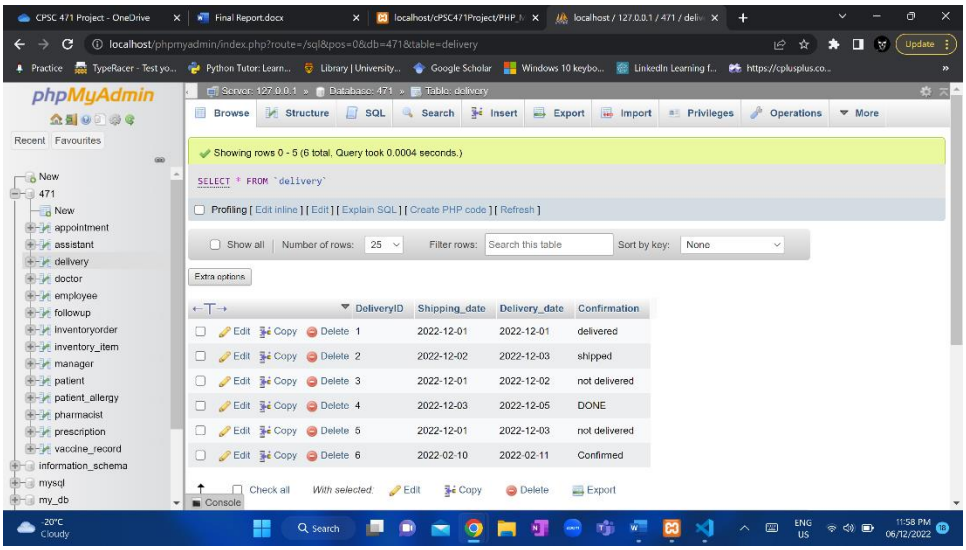
3. Prescription: You can add prescription by clicking on Add prescription



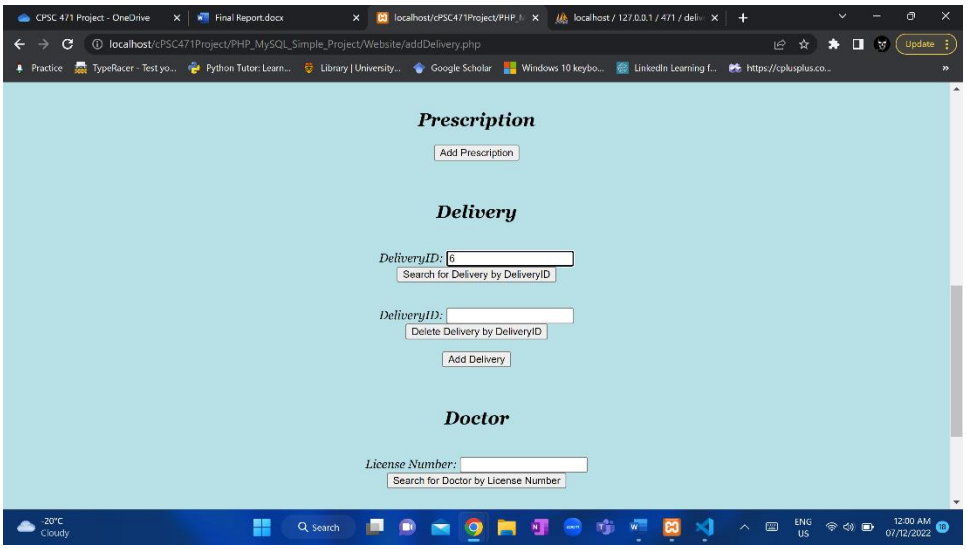


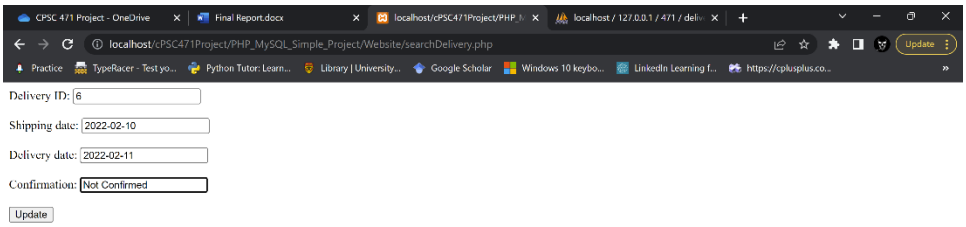
4. Delivery: You can add delivery by clicking on Add Delivery

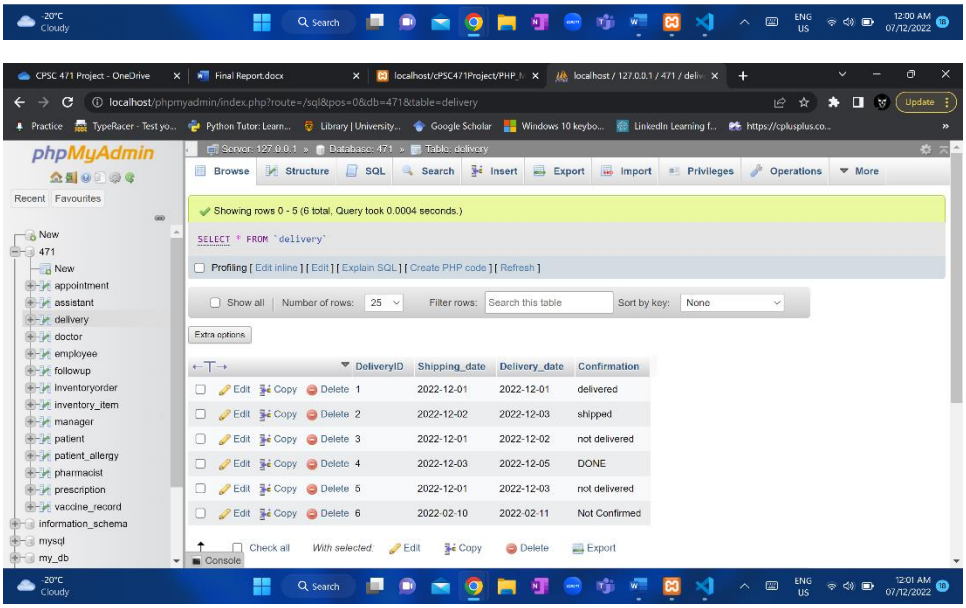




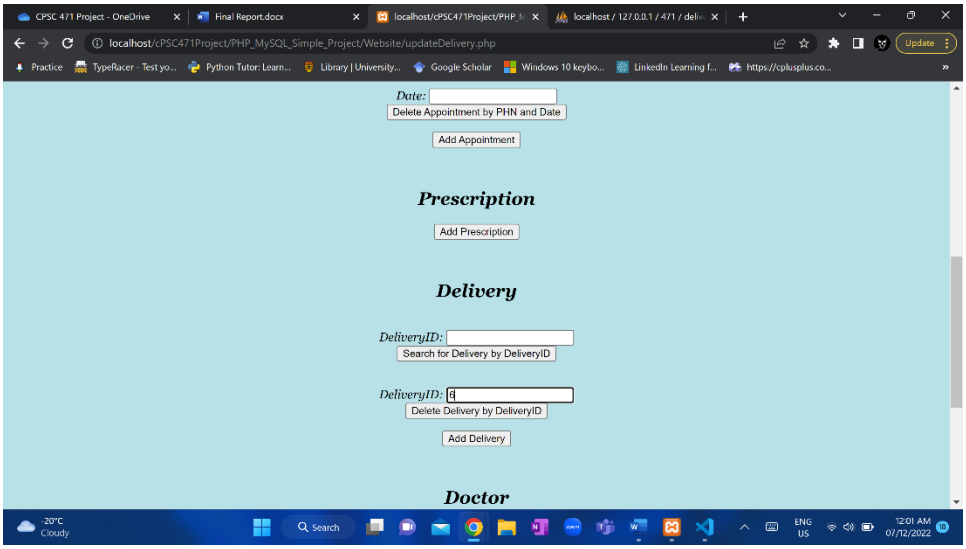
You can search for delivery by DeliveryID and update enteries by clicking on Search for Delivery by DeliveryID

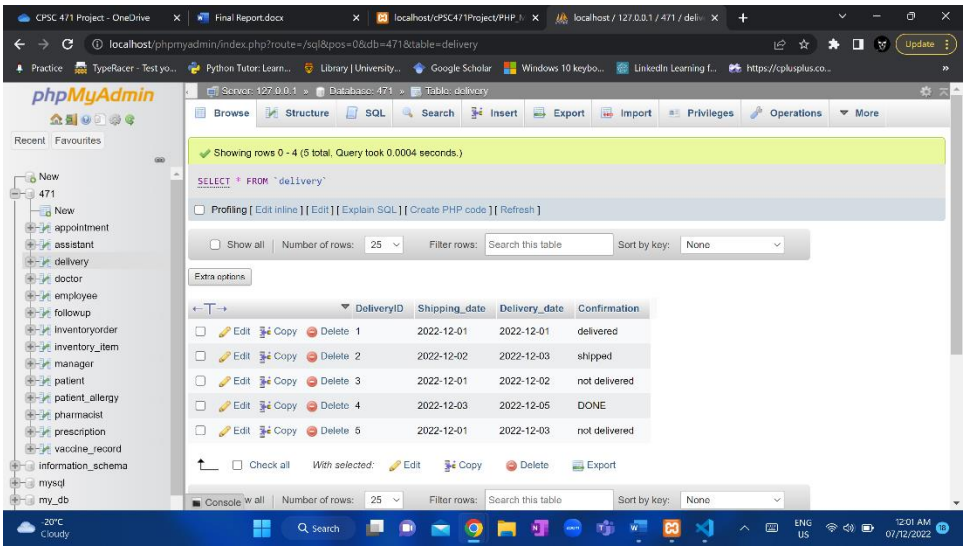

localhost/cPSC471Project/PHP_MySQL_Simple_Project/Website/addDelivery.php
Prescription
Add Prescription
Delivery
DeliveryID: 6
Search for Delivery by DeliveryID
DeliveryID:
Delete Delivery by DeliveryID
Add Delivery
Doctor
License Number:
Search for Doctor by License Number


localhost/cPSC471Project/PHP_MySQL_Simple_Project/Website/searchDelivery.php
Delivery ID: 6
Shipping date: 2022-02-10
Delivery date: 2022-02-11
Confirmation: Not Confirmed
Update

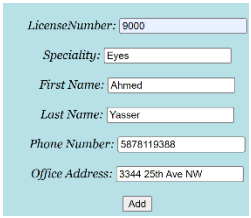

localhost/phpmyadmin/index.php?route=/sql&pos=0&db=471&table=delivery
phpMyAdmin
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
More
Showing rows 0 - 5 (6 total, Query took 0.0004 seconds.)
SELECT * FROM `delivery`
DeliveryID Shipping_date Delivery_date Confirmation
1 2022-12-01 2022-12-01 delivered
2 2022-12-02 2022-12-03 shipped
3 2022-12-01 2022-12-02 not delivered
4 2022-12-03 2022-12-05 DONE
5 2022-12-01 2022-12-03 not delivered
6 2022-02-10 2022-02-11 Not Confirmed

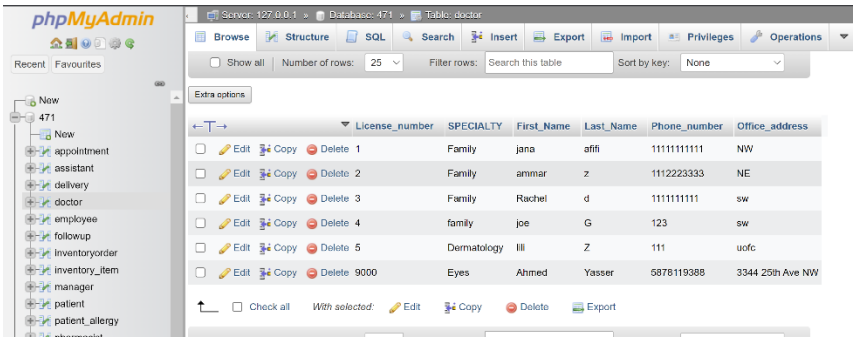
You can delete Delivery by DeliveryID by clicking on Delete Delivery by DeliveryID



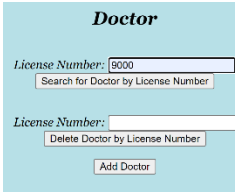


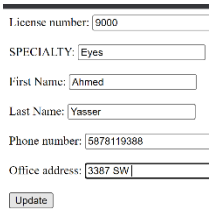
5. Doctor: You can add doctor by clicking on Add Doctor

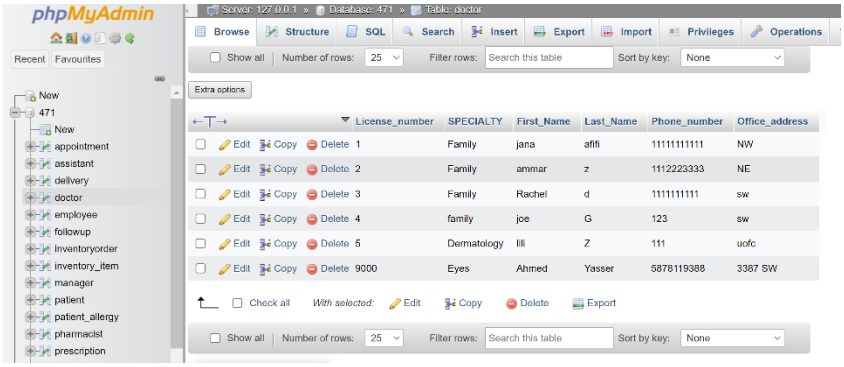




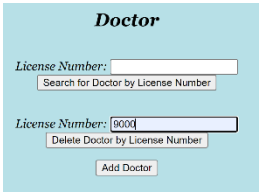
You can search for doctor by License number and update entries by clicking on Search Doctor by License Number

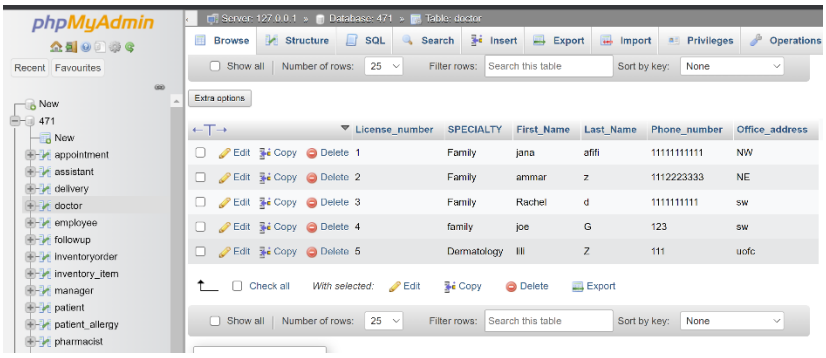






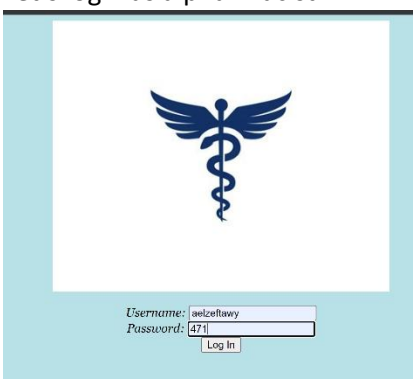
You can delete Doctor by License Number by clicking on Delete Doctor by License Number



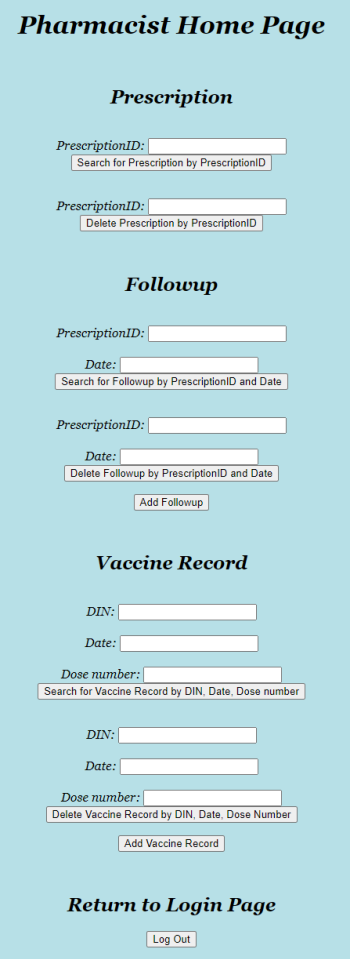


6. Return to login page where it takes us back to the login page

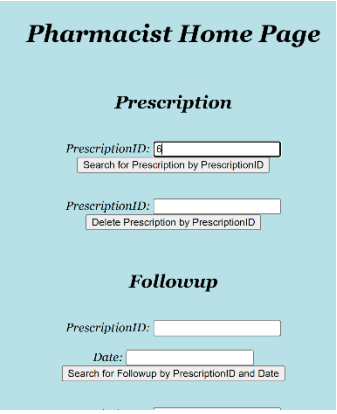
Let's login as a pharmacist



This is the pharmacist home page, where it consists of 4 parts.



1. Prescription: You can search for Prescription by PrescriptionID and update entries by clicking on Search for Prescription by PrescriptionID



Prescription ID: 6

Date: 2022-01-11

Workflow state: Not Entry

PHN: 7

SSN: 12345678

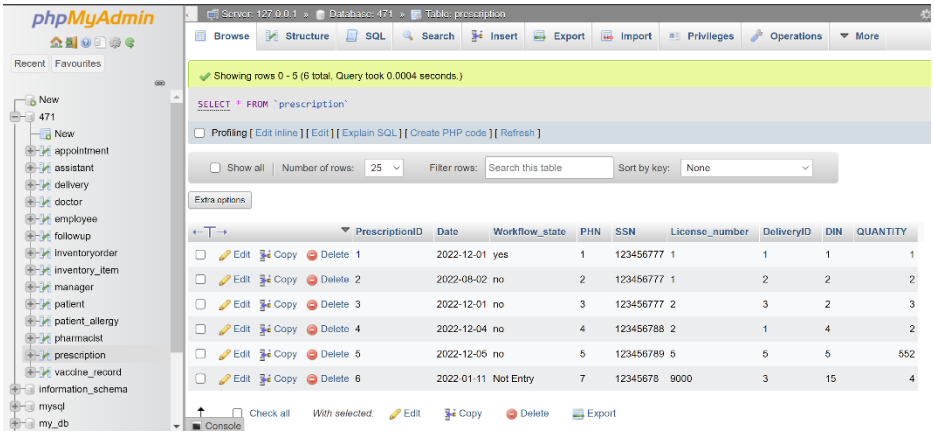
License number: 9000

Delivery ID: 3

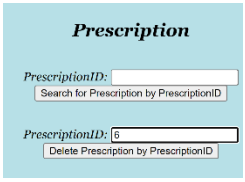
DIN: 15

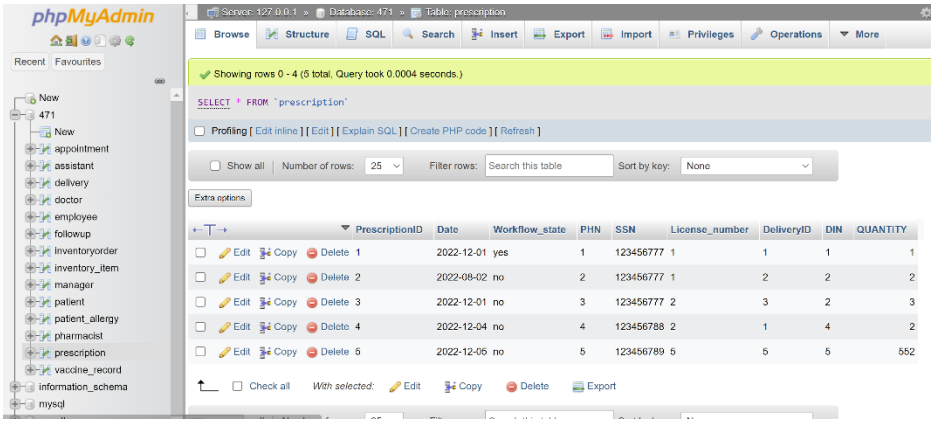
Quantity: 4

Update

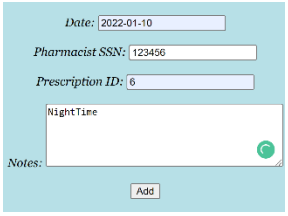


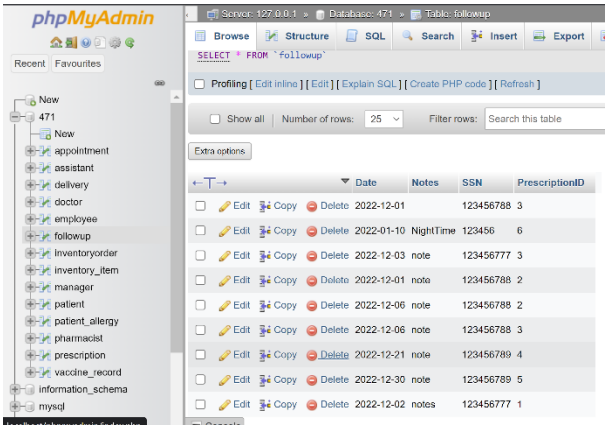
You can delete Prescription by PrescriptionID by clicking on Delete Prescription by PrescriptionID



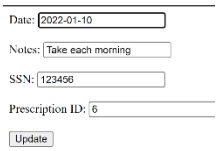


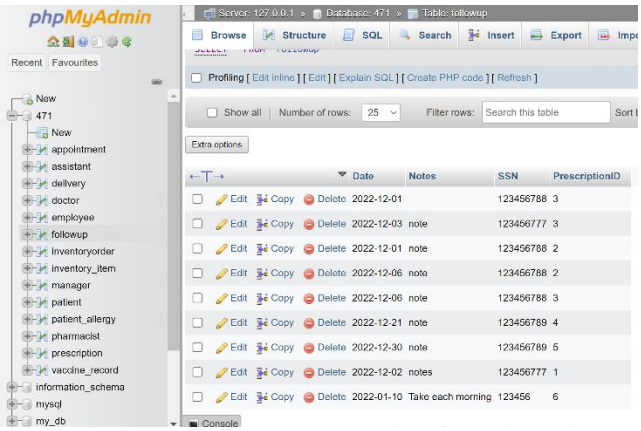
2. Followup: You can add Followup by clicking on Add Followup



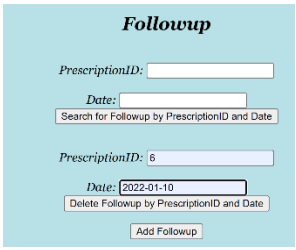


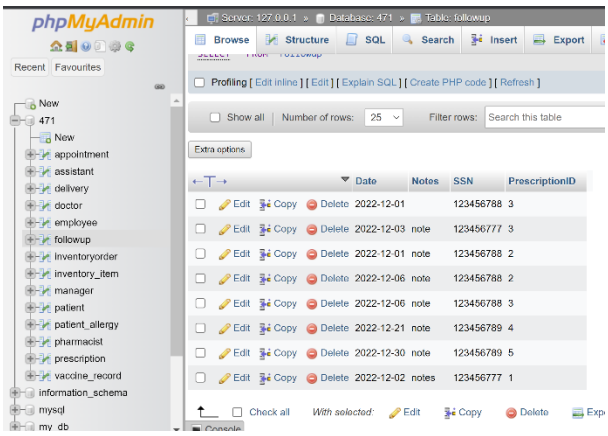
You can search for followup by PrescriptionID and Date and update entries by clicking on Search for Followup by PrescriptionID and Date



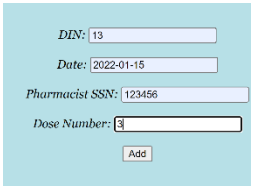


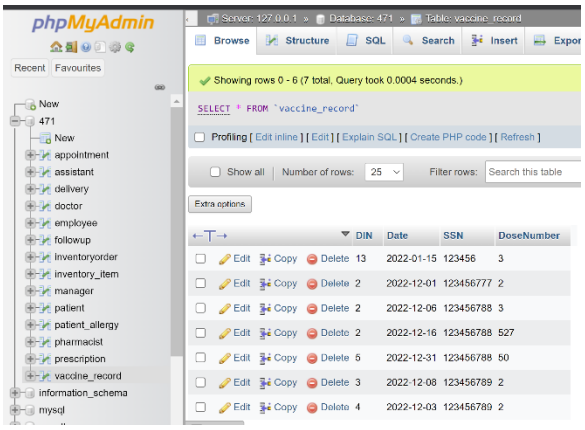
You can delete Followup by PrescriptionID and Date by clicking on Delete Followup by PrescriptionID and Date



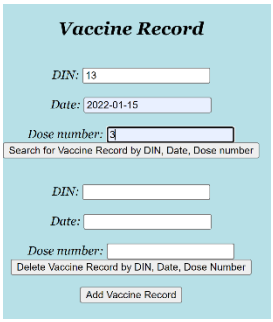


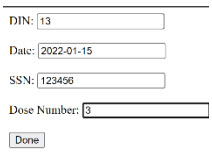
3. Vaccine Record: You can add a new Vaccine Record by clicking on Add Vaccine Record



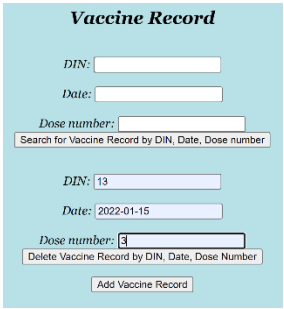


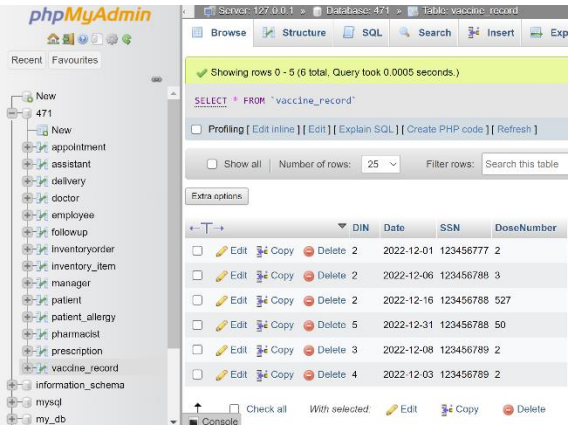
You can search for Vaccine Record by DIN, Date, and Dosenumber by clicking on Search for Vaccine Record by DIN, Date, DoseNumber





You can delete Vaccine Record by DIN, Date, and Dosenumber by clicking on Delete Vaccine Record by DIN, Date, Dosenumber





4. Return to login page where it takes us back to the login page