



Take Home Assignment EER

Scenario 03 - PharmaLink Pharmacy Management

4 students per group

(Groups are given in a separate file)

Assignment Deadline : On or before 5th November 2023

PharmaLink is a chain of pharmacies dedicated to providing high-quality pharmaceutical products and services to the local community. The pharmacy offers a wide range of prescription and over-the-counter medications, as well as healthcare products and consultation services. The organization is divided into two main functional groups: the pharmacy staff, led by Chief Pharmacist. They are responsible for ensuring the quality and safety of pharmaceutical products and the administrative and sales team led by the CEO. They are responsible for customer service, financial management, and overall operations.

PharmaLink employs around 50 full-time and 30 part-time staff members, including pharmacists, pharmacy technicians, and sales associates. Among them, 10 full-time pharmacists and 5 part-time pharmacists are registered with the State Pharmacy Board, and the pharmacy records their registration numbers, hire and termination dates.

The non-pharmacy staff includes 20 sales associates who manage the front-end operations of the pharmacy. Each sales associate has an employee number, name, address, employment status (part-time or full-time), and contact number.

PharmaLink maintains a network of suppliers who provide pharmaceutical products. Each supplier has a unique identifier, name, address, contact number, and registration number provided by the regulatory authority. Additionally, for each product supplied by a vendor, the pharmacy records the supplied date, quantity, unit cost, and total cost.

PharmaLink's pharmacy stores medications in various categories, such as prescription drugs, over-the-counter drugs, and medical supplies. Each category has an identifier and a name. Medications are organized on shelves within the pharmacy, and each shelf has a unique identifier and location.

Patients visit PharmaLink to purchase medications or seek pharmaceutical advice. Each patient has a patient identifier, name, date of birth, address, and contact number. The pharmacy maintains a record of all medications purchased by each patient, including the date of purchase, medication name, quantity, and total cost.

Prescription medications require consultation with a pharmacist. Before dispensing a prescription, the pharmacist records the patient's vital signs, including blood pressure, pulse, and temperature. The date and time of these readings are also recorded. In addition to the vital signs, the pharmacist notes any symptoms described by the patient.

Pharmacists diagnose patients' conditions based on their symptoms and prescribe medications accordingly. Each diagnosis has a diagnosis code and name. Pharmacists may diagnose multiple conditions for a patient, and a diagnosis may apply to multiple patients. The pharmacy records the date and time of each diagnosis.

Prescribed medications are dispensed to patients, and the pharmacy maintains a record of each medication dispensed, including the date and time of dispensing, medication name, quantity, and the prescribing pharmacist.

PharmaLink also offers home delivery services for patients who cannot visit the pharmacy in person. The delivery service maintains records of delivery orders, including patient details, medication details, delivery address, and date of delivery.

The pharmacy's organizational structure includes departments such as inventory management, sales, and customer service. Each department has a department identifier and name. Employees are assigned to specific departments, and their roles within those departments are recorded.

At least the following sections must be covered in your implementation to achieve good grades for the assignment.

1. A consistent database design should be achieved for the system based on a good [ER \(or EER\) Diagram](#) followed by a [mapping process](#). If you make any assumptions, clearly state those assumptions in the document.
2. Implement the database using your knowledge of [SQL Data Definition](#) with appropriate constraints where necessary.

Hint: Download and install XAMPP (<https://www.apachefriends.org/download.html>) in your machines to set up a local web server. Run XAMPP control panel as administrator. Start Apache and MySQL. This is the first step needed to create a database using XAMPP.

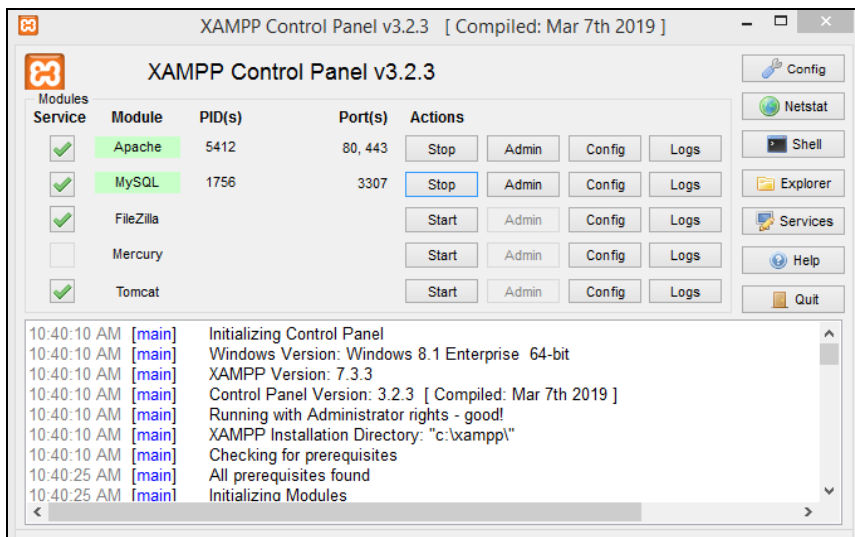


Figure 1: XAMPP Control Panel

After that, visit “localhost/xampp/index.php” from a Browser. Click on “phpMyAdmin” under the “Tools” Section. You will see the *phpMyAdmin* page as shown below.

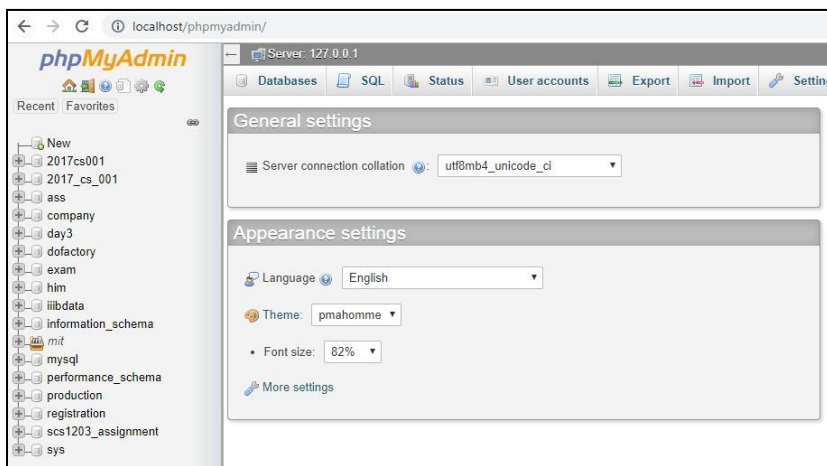


Figure 2: *phpmyadmin* Interface

Click on the Databases tab. Type a database name in the “Create database” textfield, and click on the Create button. A database will be created.

Having implemented the database, the system should demonstrate its ability or inability to manipulate (select, insert, update and delete) specific records from the database ([SQL Data Manipulation](#)) based on an appropriate privilege assignment scheme assigned for various user

levels (SQL Data Security). Use of an [Authorization Diagram](#) for your demonstration is highly recommended.

Hint: After identifying an appropriate set of user levels (not individual users, but user levels, i.e. for example: Manager, Client etc. if it is for a bank) within your system domain, create separate user accounts for each, using the same SQL interface of *phpMyAdmin*. Use the same SQL interface for granting privileges as well.

Manipulation of database records: Implement a simple web interface (PHP+MySQL) to perform manipulation. You should be able to select a particular user level from your program and to demonstrate the execution of an example set of SELECT|INSERT|UPDATE and DELETE operations on request. (See Figure 3)

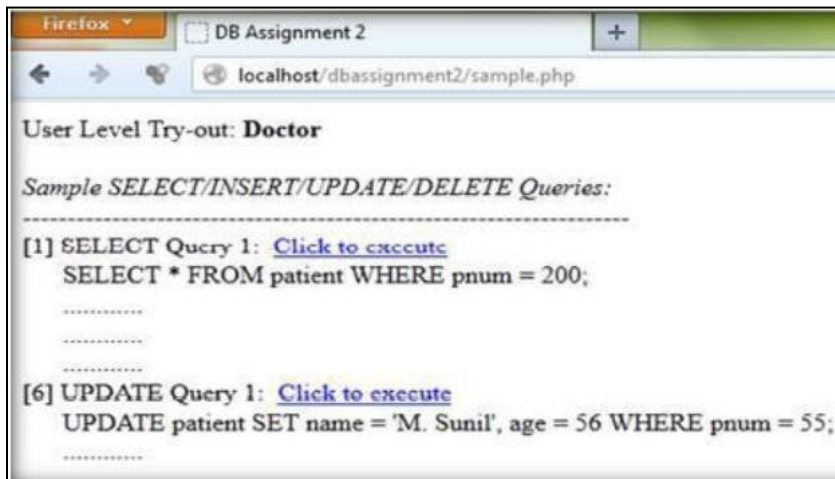


Figure 3: Sample Web Interface

Ability or inability to execute these queries should be based on the restrictions imposed by privileges assigned to a selected user level which should be **supported by an appropriate response** from the server side.

Reference materials for the development are as follows.

Tutorial: <http://www.w3schools.com/sql/default.asp>

HTML Tutorial : <http://www.w3schools.com/html/default.asp>

PHP Tutorials : <http://www.w3schools.com/php/default.asp>

<http://php.net/manual/en/tutorial.php>

A reasonable number of appropriate views ([SQL Views](#)) to output valuable information from the system as reports for various user levels are also essential.

A suitable project documentation covering all your implementation details (EER/ER, mappings, assumptions, individual contribution of each member of the group) must be submitted with a soft copy of your implementation **on or before the mentioned deadline**. Make sure you upload all the necessary files associated with your implementation as you are expected to sit for a Viva and a Demonstration based on that.