**Assignment 2: Design a database schema for a library system, including tables, fields, and constraints like NOT NULL, UNIQUE, and CHECK. Include primary and foreign keys to establish relationships between tables.**

CREATE TABLE Users (

UserID INT NOT NULL AUTO\_INCREMENT,

FirstName VARCHAR(50) NOT NULL,

LastName VARCHAR(50) NOT NULL,

Email VARCHAR(100) NOT NULL UNIQUE,

Phone VARCHAR(15),

PRIMARY KEY (UserID)

);

CREATE TABLE Books (

BookID INT NOT NULL AUTO\_INCREMENT,

Title VARCHAR(255) NOT NULL,

Publisher VARCHAR(100),

YearPublished YEAR CHECK (YearPublished >= 1500 AND YearPublished <= YEAR(CURDATE())),

ISBN VARCHAR(13) UNIQUE,

PRIMARY KEY (BookID)

);

CREATE TABLE Authors (

AuthorID INT NOT NULL AUTO\_INCREMENT,

FirstName VARCHAR(50) NOT NULL,

LastName VARCHAR(50) NOT NULL,

PRIMARY KEY (AuthorID)

);

CREATE TABLE Genres (

GenreID INT NOT NULL AUTO\_INCREMENT,

GenreName VARCHAR(50) NOT NULL UNIQUE,

PRIMARY KEY (GenreID)

);

CREATE TABLE BookAuthors (

BookID INT NOT NULL,

AuthorID INT NOT NULL,

PRIMARY KEY (BookID, AuthorID),

FOREIGN KEY (BookID) REFERENCES Books(BookID) ON DELETE CASCADE,

FOREIGN KEY (AuthorID) REFERENCES Authors(AuthorID) ON DELETE CASCADE

);

CREATE TABLE BookGenres (

BookID INT NOT NULL,

GenreID INT NOT NULL,

PRIMARY KEY (BookID, GenreID),

FOREIGN KEY (BookID) REFERENCES Books(BookID) ON DELETE CASCADE,

FOREIGN KEY (GenreID) REFERENCES Genres(GenreID) ON DELETE CASCADE

);

CREATE TABLE Loans (

LoanID INT NOT NULL AUTO\_INCREMENT,

BookID INT NOT NULL,

UserID INT NOT NULL,

LoanDate DATE NOT NULL,

ReturnDate DATE,

PRIMARY KEY (LoanID),

FOREIGN KEY (BookID) REFERENCES Books(BookID) ON DELETE CASCADE,

FOREIGN KEY (UserID) REFERENCES Users(UserID) ON DELETE CASCADE,

CHECK (ReturnDate IS NULL OR ReturnDate >= LoanDate)

);

**Assignment 3:**

**Write a SELECT query to retrieve all columns from a 'customers' table, and modify it to return only the customer name and email address for customers in a specific city.**

SELECT \* FROM customers;

SELECT CustomerName, EmailAddress

FROM customers

WHERE City = 'SpecificCity';

**Assignment 4: Craft a query using an INNER JOIN to combine 'orders' and 'customers' tables for customers in a specified region, and a LEFT JOIN to display all customers including those without orders.**

Query Using INNER JOIN to Combine 'orders' and 'customers' Tables for Customers in a Specified Region

SELECT c.CustomerID, c.CustomerName, c.EmailAddress, c.City, c.Region, o.OrderID, o.OrderDate, o.OrderAmount

FROM customers c

INNER JOIN orders o ON c.CustomerID = o.CustomerID

WHERE c.Region = 'SpecifiedRegion';