**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 (

user\_id INT PRIMARY KEY AUTO\_INCREMENT,

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50) NOT NULL,

email VARCHAR(100) NOT NULL UNIQUE,

phone VARCHAR(15),

address VARCHAR(255),

membership\_date DATE NOT NULL,

membership\_type VARCHAR(20) NOT NULL CHECK (membership\_type IN ('Regular', 'Premium'))

);

CREATE TABLE Books (

book\_id INT PRIMARY KEY AUTO\_INCREMENT,

title VARCHAR(255) NOT NULL,

author VARCHAR(255) NOT NULL,

publisher VARCHAR(255) NOT NULL,

published\_year YEAR NOT NULL,

isbn VARCHAR(13) NOT NULL UNIQUE,

copies\_available INT NOT NULL CHECK (copies\_available >= 0)

);

CREATE TABLE Loans (

loan\_id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

book\_id INT NOT NULL,

loan\_date DATE NOT NULL,

due\_date DATE NOT NULL,

return\_date DATE,

FOREIGN KEY (user\_id) REFERENCES Users(user\_id),

FOREIGN KEY (book\_id) REFERENCES Books(book\_id)

);

CREATE TABLE Reservations (

reservation\_id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

book\_id INT NOT NULL,

reservation\_date DATE NOT NULL,

status VARCHAR(20) NOT NULL CHECK (status IN ('Pending', 'Fulfilled', 'Cancelled')),

FOREIGN KEY (user\_id) REFERENCES Users(user\_id),

FOREIGN KEY (book\_id) REFERENCES Books(book\_id)

);



