***Assignment 4:*** *Write SQL statements to CREATE a new database and tables that reflect the library schema you designed earlier. Use ALTER statements to modify the table structures and DROP statements to remove a redundant table.*

***SQL statements to CREATE, ALTER, and DROP tables for the library schema:***

***CREATE Database:***

*CREATE DATABASE LibrarySystem;*

*``"*

*\*\*USE Database:\*\**

*```sql*

*USE LibrarySystem;*

*CREATE Tables:*

*SQL*

*CREATE TABLE Libraries (*

*LibraryID INT PRIMARY KEY,*

*Name VARCHAR(50) NOT NULL,*

*Address VARCHAR(100) NOT NULL,*

*City VARCHAR(50) NOT NULL,*

*State VARCHAR(50) NOT NULL,*

*Zip VARCHAR(10) NOT NULL*

*);*

*CREATE TABLE Books (*

*BookID INT PRIMARY KEY,*

*Title VARCHAR(100) NOT NULL,*

*Author VARCHAR(50) NOT NULL,*

*Publisher VARCHAR(50) NOT NULL,*

*PublicationDate DATE NOT NULL,*

*ISBN VARCHAR(20) UNIQUE NOT NULL,*

*LibraryID INT NOT NULL,*

*FOREIGN KEY (LibraryID) REFERENCES Libraries(LibraryID)*

*);*

*CREATE TABLE Borrowers (*

*BorrowerID INT PRIMARY KEY,*

*Name VARCHAR(50) NOT NULL,*

*Email VARCHAR(100) UNIQUE NOT NULL,*

*Phone VARCHAR(20) NOT NULL,*

*Address VARCHAR(100) NOT NULL*

*);*

*CREATE TABLE Loans (*

*LoanID INT PRIMARY KEY,*

*BookID INT NOT NULL,*

*BorrowerID INT NOT NULL,*

*LoanDate DATE NOT NULL,*

*DueDate DATE NOT NULL,*

*ReturnDate DATE,*

*FOREIGN KEY (BookID) REFERENCES Books(BookID),*

*FOREIGN KEY (BorrowerID) REFERENCES Borrowers(BorrowerID)*

*);*

*CREATE TABLE Fines (*

*FineID INT PRIMARY KEY,*

*LoanID INT NOT NULL,*

*FineAmount DECIMAL(10, 2) NOT NULL,*

*FineDate DATE NOT NULL,*

*FOREIGN KEY (LoanID) REFERENCES Loans(LoanID)*

*);*

***ALTER Table:***

*ALTER TABLE Books*

*ADD COLUMN Edition VARCHAR(10) NOT NULL;*

*ALTER TABLE Loans*

*MODIFY COLUMN DueDate DATE NOT NULL DEFAULT (CURRENT\_DATE + INTERVAL 14 DAY);*

***DROP Table:***

*-- Drop redundant table*

*DROP TABLE IF EXISTS RedundantTable;*

***Additional Constraints:***

*ALTER TABLE Books*

*ADD CONSTRAINT chk\_PublicationDate CHECK (PublicationDate < CURRENT\_DATE);*

*ALTER TABLE Loans*

*ADD CONSTRAINT chk\_DueDate CHECK (DueDate > LoanDate);*

***Index Creation:***

*CREATE INDEX idx\_LibraryID ON Books (LibraryID);*

*CREATE INDEX idx\_BorrowerID ON Loans (BorrowerID);*

*CREATE INDEX idx\_BookID ON Loans (BookID);*

*These SQL statements create the library database schema, modify table structures, and remove redundant tables.*