-- 1. Create Tables

CREATE TABLE Authors (

author\_id INT PRIMARY KEY,

name VARCHAR(100),

country VARCHAR(100)

);

CREATE TABLE Books (

book\_id INT PRIMARY KEY,

title VARCHAR(255),

author\_id INT,

genre VARCHAR(50),

total\_copies INT,

available\_copies INT,

FOREIGN KEY (author\_id) REFERENCES Authors(author\_id)

);

CREATE TABLE Members (

member\_id INT PRIMARY KEY,

name VARCHAR(100),

email VARCHAR(100),

phone VARCHAR(20),

membership\_date DATE

);

CREATE TABLE Issued\_Books (

issue\_id INT PRIMARY KEY,

book\_id INT,

member\_id INT,

issue\_date DATE,

due\_date DATE,

return\_date DATE,

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

FOREIGN KEY (member\_id) REFERENCES Members(member\_id)

);

-- 2. Insert Sample Authors

INSERT INTO Authors VALUES (1, 'J.K. Rowling', 'UK');

INSERT INTO Authors VALUES (2, 'George Orwell', 'UK');

INSERT INTO Authors VALUES (3, 'Jane Austen', 'UK');

INSERT INTO Authors VALUES (4, 'Mark Twain', 'USA');

-- 3. Insert Sample Books

INSERT INTO Books VALUES (101, 'Harry Potter and the Sorcerer''s Stone', 1, 'Fantasy', 10, 10);

INSERT INTO Books VALUES (102, '1984', 2, 'Dystopian', 5, 5);

INSERT INTO Books VALUES (103, 'Pride and Prejudice', 3, 'Romance', 8, 8);

INSERT INTO Books VALUES (104, 'Adventures of Huckleberry Finn', 4, 'Adventure', 6, 6);

-- 4. Insert Sample Members

INSERT INTO Members VALUES (201, 'Alice Johnson', 'alice@gmail.com', '1234567890', '2023-01-15');

INSERT INTO Members VALUES (202, 'Bob Smith', 'bob@gmail.com', '0987654321', '2023-02-10');

INSERT INTO Members VALUES (203, 'Charlie Brown', 'charlie@gmail.com', '1122334455', '2023-03-05');

-- 5. Issue Books

INSERT INTO Issued\_Books VALUES (301, 101, 201, '2025-06-10', '2025-06-20', NULL);

UPDATE Books SET available\_copies = available\_copies - 1 WHERE book\_id = 101;

INSERT INTO Issued\_Books VALUES (302, 102, 202, '2025-06-15', '2025-06-25', NULL);

UPDATE Books SET available\_copies = available\_copies - 1 WHERE book\_id = 102;

-- 6. Return a Book

UPDATE Issued\_Books SET return\_date = '2025-06-18' WHERE issue\_id = 301;

UPDATE Books SET available\_copies = available\_copies + 1 WHERE book\_id = 101;

-- 7. Query: List All Books

SELECT \* FROM Books;

-- 8. Query: Available Books

SELECT book\_id, title, available\_copies

FROM Books

WHERE available\_copies > 0;

-- 9. Query: Currently Issued Books

SELECT

i.issue\_id,

b.title,

m.name AS member\_name,

i.issue\_date,

i.due\_date

FROM Issued\_Books i

JOIN Books b ON i.book\_id = b.book\_id

JOIN Members m ON i.member\_id = m.member\_id

WHERE i.return\_date IS NULL;

-- 10. Query: Overdue Books

SELECT

i.issue\_id,

b.title,

m.name AS member\_name,

i.due\_date

FROM Issued\_Books i

JOIN Books b ON i.book\_id = b.book\_id

JOIN Members m ON i.member\_id = m.member\_id

WHERE i.return\_date IS NULL AND i.due\_date < CURRENT\_DATE;

-- 11. Query: Members and Number of Books Borrowed

SELECT

m.name,

COUNT(i.issue\_id) AS books\_borrowed

FROM Members m

LEFT JOIN Issued\_Books i ON m.member\_id = i.member\_id

GROUP BY m.name;

-- 12. Query: Book Borrow History

SELECT

b.title,

m.name AS borrowed\_by,

i.issue\_date,

i.return\_date

FROM Issued\_Books i

JOIN Books b ON i.book\_id = b.book\_id

JOIN Members m ON i.member\_id = m.member\_id

ORDER BY i.issue\_date DESC;

-- 13. Add New Member

INSERT INTO Members VALUES (204, 'Diana Prince', 'diana@gmail.com', '5566778899', '2025-06-20');

-- 14. Add New Book

INSERT INTO Books VALUES (105, 'Emma', 3, 'Romance', 4, 4);

-- 15. Book Search by Title or Author

SELECT

b.book\_id,

b.title,

a.name AS author\_name

FROM Books b

JOIN Authors a ON b.author\_id = a.author\_id

WHERE b.title LIKE '%Emma%' OR a.name LIKE '%Jane%';