Hackathon 1st Library Management System

-- Books Table

CREATE TABLE Books (

    BookID INT PRIMARY KEY AUTO_INCREMENT,

    ISBN VARCHAR(20) UNIQUE NOT NULL,

    Title VARCHAR(100) <u>NOT</u> NULL,

    Author VARCHAR(100) NOT NULL,

    Genre VARCHAR(50),

    Availability BOOLEAN DEFAULT TRUE

);

-- Users Table

CREATE TABLE Users (

    UserID INT PRIMARY KEY AUTO_INCREMENT,

    Name VARCHAR(100) NOT NULL,

    Email VARCHAR(100) UNIQUE NOT NULL

);

-- Transactions Table

CREATE TABLE Transactions (

    TransactionID INT PRIMARY KEY AUTO_INCREMENT,

    UserID INT,

    BookID INT,

    IssueDate DATE,

    ReturnDate DATE,

    FOREIGN KEY (UserID) REFERENCES Users(UserID),

    FOREIGN KEY (BookID) REFERENCES Books(BookID)

);

// sample datas

```sql
INSERT INTO Books (ISBN, Title, Author, Genre, Availability)
VALUES
('978-3-16-148410-0', 'The Alchemist', 'Paulo Coelho', 'Fiction', TRUE),
('978-0-7432-7356-5', 'Angels and Demons', 'Dan Brown', 'Thriller', TRUE);

INSERT INTO Users (Name, Email)
VALUES
('Arun Kumar', 'arun@example.com'),
('Priya Ramesh', 'priya@example.com'),
('Karthik Raja', 'karthik@example.com'),
('Deepa Suresh', 'deepa@example.com'),
('Vikram Anand', 'vikram@example.com'),
('Anjali Devi', 'anjali@example.com'),
('Ravi Chandran', 'ravi@example.com'),
('Meera Venkat', 'meera@example.com'),
('Sundar Mohan', 'sundar@example.com'),
('Lakshmi Narayan', 'lakshmi@example.com');

INSERT INTO Transactions (UserID, BookID, IssueDate, ReturnDate)
VALUES
(1, 1, '2025-03-01', '2025-03-10'),
(2, 2, '2025-03-05', NULL);
```

```
// Fetch Books by Genre


SELECT * FROM Books WHERE Genre = 'Fiction';


// Fetch Available Books

SELECT * FROM Books WHERE Availability = TRUE;


// Track Overdue Books


SELECT t.TransactionID, u.Name, b.Title, t.IssueDate, t.ReturnDate

FROM Transactions t

JOIN Users u ON t.UserID = u.UserID

JOIN Books b ON t.BookID = b.BookID

WHERE t.ReturnDate IS NULL AND t.IssueDate < CURDATE() - INTERVAL 14
DAY;



// User Borrowing History


SELECT u.Name, b.Title, t.IssueDate, t.ReturnDate

FROM Transactions t

JOIN Users u ON t.UserID = u.UserID

JOIN Books b ON t.BookID = b.BookID

WHERE u.UserID = 1;
```

// Generate Report on Late Returns

```sql
SELECT u.Name, b.Title, DATEDIFF(CURDATE(), t.IssueDate) AS DaysLate

FROM Transactions t

JOIN Users u ON t.UserID = u.UserID

JOIN Books b ON t.BookID = b.BookID

WHERE t.ReturnDate IS NULL AND DATEDIFF(CURDATE(), t.IssueDate) > 14;
```