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-- Library Management System Database with Sample Data

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-- Create the database

CREATE DATABASE IF NOT EXISTS LibraryDB;

USE LibraryDB;

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-- Table: Authors

-- =========================================================

CREATE TABLE Authors (

authorID INT AUTO\_INCREMENT PRIMARY KEY,

firstName VARCHAR(50) NOT NULL,

lastName VARCHAR(50) NOT NULL,

UNIQUE (firstName, lastName)

);

-- Sample data

INSERT INTO Authors (firstName, lastName) VALUES

('J.K.', 'Rowling'),

('George', 'Orwell'),

('Jane', 'Austen'),

('Mark', 'Twain');

-- =========================================================

-- Table: Categories

-- =========================================================

CREATE TABLE Categories (

categoryID INT AUTO\_INCREMENT PRIMARY KEY,

categoryName VARCHAR(50) NOT NULL UNIQUE

);

-- Sample data

INSERT INTO Categories (categoryName) VALUES

('Fiction'),

('Science Fiction'),

('Fantasy'),

('Biography');

-- =========================================================

-- Table: Books

-- =========================================================

CREATE TABLE Books (

bookID INT AUTO\_INCREMENT PRIMARY KEY,

title VARCHAR(100) NOT NULL,

authorID INT NOT NULL,

categoryID INT NOT NULL,

publishedYear YEAR,

isbn VARCHAR(20) UNIQUE,

copiesAvailable INT DEFAULT 0,

FOREIGN KEY (authorID) REFERENCES Authors(authorID),

FOREIGN KEY (categoryID) REFERENCES Categories(categoryID)

);

-- Sample data

INSERT INTO Books (title, authorID, categoryID, publishedYear, isbn, copiesAvailable) VALUES

('Harry Potter and the Philosopher''s Stone', 1, 3, 1997, '9780747532699', 5),

('1984', 2, 2, 1949, '9780451524935', 3),

('Pride and Prejudice', 3, 1, 1813, '9780141439518', 4),

('Adventures of Huckleberry Finn', 4, 1, 1884, '9780486280615', 2);

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-- Table: Members

-- =========================================================

CREATE TABLE Members (

memberID INT AUTO\_INCREMENT PRIMARY KEY,

firstName VARCHAR(50) NOT NULL,

lastName VARCHAR(50) NOT NULL,

email VARCHAR(100) UNIQUE NOT NULL,

phone VARCHAR(20),

membershipDate DATE DEFAULT CURRENT\_DATE

);

-- Sample data

INSERT INTO Members (firstName, lastName, email, phone) VALUES

('Alice', 'Johnson', 'alice.johnson@example.com', '555-1234'),

('Bob', 'Smith', 'bob.smith@example.com', '555-5678'),

('Carol', 'Williams', 'carol.williams@example.com', '555-8765');

-- =========================================================

-- Table: Loans

-- =========================================================

CREATE TABLE Loans (

loanID INT AUTO\_INCREMENT PRIMARY KEY,

bookID INT NOT NULL,

memberID INT NOT NULL,

loanDate DATE DEFAULT CURRENT\_DATE,

dueDate DATE NOT NULL,

returnDate DATE,

FOREIGN KEY (bookID) REFERENCES Books(bookID),

FOREIGN KEY (memberID) REFERENCES Members(memberID)

);

-- Sample data

INSERT INTO Loans (bookID, memberID, loanDate, dueDate) VALUES

(1, 1, '2025-08-10', '2025-08-24'),

(2, 2, '2025-08-11', '2025-08-25'),

(3, 3, '2025-08-12', '2025-08-26');

-- =========================================================

-- Table: BookAuthors (many-to-many)

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CREATE TABLE BookAuthors (

bookID INT NOT NULL,

authorID INT NOT NULL,

PRIMARY KEY (bookID, authorID),

FOREIGN KEY (bookID) REFERENCES Books(bookID),

FOREIGN KEY (authorID) REFERENCES Authors(authorID)

);

-- Sample data

INSERT INTO BookAuthors (bookID, authorID) VALUES

(1, 1),

(2, 2),

(3, 3),

(4, 4);

-- =========================================================

-- Table: BookCategories (optional M-M)

-- =========================================================

CREATE TABLE BookCategories (

bookID INT NOT NULL,

categoryID INT NOT NULL,

PRIMARY KEY (bookID, categoryID),

FOREIGN KEY (bookID) REFERENCES Books(bookID),

FOREIGN KEY (categoryID) REFERENCES Categories(categoryID)

);

-- Sample data

INSERT INTO BookCategories (bookID, categoryID) VALUES

(1, 3),

(2, 2),

(3, 1),

(4, 1);

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-- End of Library Management System SQL Script with Sample Data

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