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-- Q1: LIBRARY MANAGEMENT SYSTEM

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CREATE TABLE Authors (

AuthorID INT PRIMARY KEY,

Name VARCHAR(100) NOT NULL,

Country VARCHAR(50)

);

CREATE TABLE Books (

BookID INT PRIMARY KEY,

Title VARCHAR(100) NOT NULL,

AuthorID INT,

PublishedYear INT,

Genre VARCHAR(50),

FOREIGN KEY (AuthorID) REFERENCES Authors(AuthorID)

);

CREATE TABLE Borrowers (

BorrowerID INT PRIMARY KEY,

Name VARCHAR(100) NOT NULL,

Contact VARCHAR(15)

);

CREATE TABLE BorrowedBooks (

BorrowID INT PRIMARY KEY,

BorrowerID INT,

BookID INT,

BorrowDate DATE,

ReturnDate DATE,

FOREIGN KEY (BorrowerID) REFERENCES Borrowers(BorrowerID),

FOREIGN KEY (BookID) REFERENCES Books(BookID)

);

INSERT INTO Authors VALUES (1, 'George Orwell', 'UK');

INSERT INTO Authors VALUES (2, 'J.K. Rowling', 'UK');

INSERT INTO Authors VALUES (3, 'Dan Brown', 'USA');

INSERT INTO Authors VALUES (4, 'Chetan Bhagat', 'India');

INSERT INTO Authors VALUES (5, 'Haruki Murakami', 'Japan');

INSERT INTO Books VALUES (101, '1984', 1, 1949, 'Dystopian');

INSERT INTO Books VALUES (102, 'Animal Farm', 1, 1945, 'Satire');

INSERT INTO Books VALUES (103, 'Harry Potter', 2, 2001, 'Fantasy');

INSERT INTO Books VALUES (104, 'The Da Vinci Code', 3, 2003, 'Thriller');

INSERT INTO Books VALUES (105, 'Digital Fortress', 3, 1998, 'Thriller');

INSERT INTO Books VALUES (106, '2 States', 4, 2009, 'Romance');

INSERT INTO Books VALUES (107, 'The Alchemist', 5, 1988, 'Fiction');

INSERT INTO Books VALUES (108, 'Kafka on the Shore', 5, 2002, 'Fiction');

INSERT INTO Books VALUES (109, 'Norwegian Wood', 5, 1987, 'Fiction');

INSERT INTO Books VALUES (110, 'Half Girlfriend', 4, 2014, 'Romance');

INSERT INTO Borrowers VALUES (201, 'Alice', '1234567890');

INSERT INTO Borrowers VALUES (202, 'Bob', '9876543210');

INSERT INTO Borrowers VALUES (203, 'Charlie', '5555555555');

INSERT INTO Borrowers VALUES (204, 'David', '1111111111');

INSERT INTO Borrowers VALUES (205, 'Eva', '2222222222');

INSERT INTO BorrowedBooks VALUES (1, 201, 103, '2025-06-01', NULL);

INSERT INTO BorrowedBooks VALUES (2, 202, 104, '2025-06-05', '2025-06-15');

INSERT INTO BorrowedBooks VALUES (3, 203, 108, '2025-07-01', NULL);

INSERT INTO BorrowedBooks VALUES (4, 201, 107, '2025-06-10', '2025-06-20');

-- Q1 Queries

SELECT \* FROM Books WHERE PublishedYear > 2015;

SELECT DISTINCT b.Name

FROM Borrowers b

JOIN BorrowedBooks bb ON b.BorrowerID = bb.BorrowerID

JOIN Books bk ON bb.BookID = bk.BookID

WHERE bk.Genre = 'Fiction';

SELECT bk.Title, COUNT(\*) AS BorrowCount

FROM BorrowedBooks bb

JOIN Books bk ON bb.BookID = bk.BookID

GROUP BY bb.BookID

ORDER BY BorrowCount DESC

LIMIT 1;

SELECT DISTINCT a.Name

FROM Authors a

JOIN Books bk ON a.AuthorID = bk.AuthorID

JOIN BorrowedBooks bb ON bk.BookID = bb.BookID

WHERE bb.ReturnDate IS NULL;

SELECT Genre, COUNT(\*) AS TotalBooks

FROM Books

GROUP BY Genre;

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-- Q2 - Q4

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CREATE TABLE Salesman (

salesman\_id INT PRIMARY KEY,

name TEXT,

city TEXT,

commission REAL

);

CREATE TABLE Customer (

customer\_id INT PRIMARY KEY,

cust\_name TEXT,

city TEXT,

grade INT,

salesman\_id INT,

FOREIGN KEY (salesman\_id) REFERENCES Salesman(salesman\_id)

);

CREATE TABLE Orders (

ord\_no INT PRIMARY KEY,

purch\_amt REAL,

ord\_date DATE,

customer\_id INT,

salesman\_id INT,

FOREIGN KEY (customer\_id) REFERENCES Customer(customer\_id),

FOREIGN KEY (salesman\_id) REFERENCES Salesman(salesman\_id)

);

INSERT INTO Salesman VALUES (5001, 'James Hoog', 'New York', 0.15);

INSERT INTO Salesman VALUES (5002, 'Nail Knite', 'Paris', 0.13);

INSERT INTO Salesman VALUES (5005, 'Pit Alex', 'London', 0.11);

INSERT INTO Salesman VALUES (5006, 'Mc Lyon', 'Paris', 0.14);

INSERT INTO Salesman VALUES (5003, 'Lauson Hen', 'San Jose', 0.12);

INSERT INTO Salesman VALUES (5007, 'Paul Adam', 'Rome', 0.13);

INSERT INTO Customer VALUES (3002, 'Nick Rimando', 'New York', 100, 5001);

INSERT INTO Customer VALUES (3005, 'Graham Zusi', 'California', 200, 5002);

INSERT INTO Customer VALUES (3001, 'Brad Guzan', 'London', 100, 5005);

INSERT INTO Customer VALUES (3004, 'Fabian Johnson', 'Paris', 300, 5006);

INSERT INTO Customer VALUES (3007, 'Brad Davis', 'New York', 200, 5001);

INSERT INTO Customer VALUES (3009, 'Geoff Cameron', 'Berlin', 100, 5003);

INSERT INTO Customer VALUES (3008, 'Julian Green', 'London', 300, 5002);

INSERT INTO Customer VALUES (3003, 'Jozy Altidor', 'Moscow', 200, 5007);

INSERT INTO Orders VALUES (70001, 150.50, '2012-10-05', 3005, 5002);

INSERT INTO Orders VALUES (70009, 270.65, '2012-09-10', 3001, 5005);

INSERT INTO Orders VALUES (70002, 65.26, '2012-10-05', 3002, 5001);

INSERT INTO Orders VALUES (70004, 110.50, '2012-08-17', 3009, 5003);

INSERT INTO Orders VALUES (70007, 948.50, '2012-09-10', 3005, 5002);

INSERT INTO Orders VALUES (70005, 2400.60, '2012-07-27', 3007, 5001);

INSERT INTO Orders VALUES (70008, 5760.00, '2012-09-10', 3002, 5001);

INSERT INTO Orders VALUES (70010, 1983.43, '2012-10-10', 3004, 5006);

-- Q2

SELECT \*

FROM Customer

WHERE customer\_id = 2001 AND salesman\_id < (

SELECT salesman\_id FROM Salesman WHERE name = 'Mc Lyon'

);

-- Q3

SELECT

c.cust\_name AS CustomerName,

c.city AS CustomerCity,

s.name AS SalesmanName,

s.city AS SalesmanCity,

s.commission

FROM Customer c

JOIN Salesman s ON c.salesman\_id = s.salesman\_id

WHERE c.city != s.city AND s.commission > 0.12;

-- Q4

SELECT

c.cust\_name,

c.city,

o.ord\_no,

o.ord\_date,

o.purch\_amt

FROM Orders o

LEFT JOIN Customer c ON o.customer\_id = c.customer\_id

WHERE o.customer\_id IS NOT NULL;

Final\_output.txt

Charlie

Alice

Kafka on the Shore|1

J.K. Rowling

Haruki Murakami

Dystopian|1

Fantasy|1

Fiction|3

Romance|2

Satire|1

Thriller|2

Graham Zusi|California|Nail Knite|Paris|0.13

Julian Green|London|Nail Knite|Paris|0.13

Jozy Altidor|Moscow|Paul Adam|Rome|0.13

Graham Zusi|California|70001|2012-10-05|150.5

Brad Guzan|London|70009|2012-09-10|270.65

Nick Rimando|New York|70002|2012-10-05|65.26

Geoff Cameron|Berlin|70004|2012-08-17|110.5

Graham Zusi|California|70007|2012-09-10|948.5

Brad Davis|New York|70005|2012-07-27|2400.6

Nick Rimando|New York|70008|2012-09-10|5760.0

Fabian Johnson|Paris|70010|2012-10-10|1983.43