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**1NT22CS143**

**1.Database Schema for a Student Library scenario Consider that a database named Student Library is developed by an application software NMITSoft company. There are 4 tables in the database. Relationship scheme for the tables is as below: Student (Stud\_no : integer,Stud\_name: string) Membership (Mem\_no: integer,Stud\_no: integer) Book (book\_no: integer, book\_name:string, author: string) Iss\_rec (iss\_no:integer, iss\_date: date, Mem\_no: integer, book\_no: integer) For the above schema, perform the following**

**a) Create the tables with the appropriate integrity constraints**

**b) Insert around 10 records in each of the tables c) List all the student names with their membership numbers**

**d) List all the issues for the current date with student and Book names**

**e) Give a count of how many books have been bought by each student**

**f) Give a list of books taken by student with stud\_no as 5**

create database library;

use library;

CREATE TABLE Student (

Stud\_no INTEGER PRIMARY KEY,

Stud\_name VARCHAR(100) NOT NULL

);

CREATE TABLE Membership (

Mem\_no INTEGER PRIMARY KEY,

Stud\_no INTEGER,

FOREIGN KEY (Stud\_no) REFERENCES Student(Stud\_no)

);

CREATE TABLE Book (

book\_no INTEGER PRIMARY KEY,

book\_name VARCHAR(200) NOT NULL,

author VARCHAR(100) NOT NULL

);

CREATE TABLE Iss\_rec (

iss\_no INTEGER PRIMARY KEY,

iss\_date DATE NOT NULL,

Mem\_no INTEGER,

book\_no INTEGER,

FOREIGN KEY (Mem\_no) REFERENCES Membership(Mem\_no),

FOREIGN KEY (book\_no) REFERENCES Book(book\_no)

);

-- Insert records into Student

INSERT INTO Student (Stud\_no, Stud\_name) VALUES

(1, 'Alice'),

(2, 'Bob'),

(3, 'Charlie'),

(4, 'David'),

(5, 'Eve'),

(6, 'Frank'),

(7, 'Grace'),

(8, 'Hank'),

(9, 'Ivy'),

(10, 'Jack');

-- Insert records into Membership

INSERT INTO Membership (Mem\_no, Stud\_no) VALUES

(101, 1),

(102, 2),

(103, 3),

(104, 4),

(105, 5),

(106, 6),

(107, 7),

(108, 8),

(109, 9),

(110, 10);

-- Insert records into Book

INSERT INTO Book (book\_no, book\_name, author) VALUES

(1001, 'Introduction to Algorithms', 'Thomas H. Cormen'),

(1002, 'Clean Code', 'Robert C. Martin'),

(1003, 'The Pragmatic Programmer', 'Andrew Hunt'),

(1004, 'Design Patterns', 'Erich Gamma'),

(1005, 'Refactoring', 'Martin Fowler'),

(1006, 'Code Complete', 'Steve McConnell'),

(1007, 'The Mythical Man-Month', 'Frederick P. Brooks Jr.'),

(1008, 'The Art of Computer Programming', 'Donald E. Knuth'),

(1009, 'Structure and Interpretation of Computer Programs', 'Harold Abelson'),

(1010, 'Modern Operating Systems', 'Andrew S. Tanenbaum');

-- Insert records into Iss\_rec

INSERT INTO Iss\_rec (iss\_no, iss\_date, Mem\_no, book\_no) VALUES

(1, '2024-06-18', 101, 1001),

(2, '2024-06-18', 102, 1002),

(3, '2024-06-17', 103, 1003),

(4, '2024-06-16', 104, 1004),

(5, '2024-06-15', 105, 1005),

(6, '2024-06-14', 106, 1006),

(7, '2024-06-13', 107, 1007),

(8, '2024-06-12', 108, 1008),

(9, '2024-06-11', 109, 1009),

(10, '2024-06-10', 110, 1010);

SELECT s.Stud\_name, m.Mem\_no

FROM Student s

JOIN Membership m ON s.Stud\_no = m.Stud\_no;

SELECT s.Stud\_name, b.book\_name

FROM Iss\_rec i

JOIN Membership m ON i.Mem\_no = m.Mem\_no

JOIN Student s ON m.Stud\_no = s.Stud\_no

JOIN Book b ON i.book\_no = b.book\_no

WHERE i.iss\_date = CURDATE();

SELECT s.Stud\_name, COUNT(i.book\_no) AS book\_count

FROM Student s

JOIN Membership m ON s.Stud\_no = m.Stud\_no

JOIN Iss\_rec i ON m.Mem\_no = i.Mem\_no

GROUP BY s.Stud\_name;

SELECT b.book\_name

FROM Iss\_rec i

JOIN Membership m ON i.Mem\_no = m.Mem\_no

JOIN Book b ON i.book\_no = b.book\_no

WHERE m.Stud\_no = 5;

Screenshots: