

## **Experiment 2**

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**Branch:** BE CSE **Section/Group:**23BCS\_KRG-3A **Date of Performance:** 17 JULY,25

Subject Name: ADBMS Subject Code: 23CSP-333

**1. Aim:** Problem A: Author-Book Relationship Using Joins and Basic SQL Operations (Easy Level Problem)

Problem B: Department-Course Sub query and Access Control (Medium Level Problem).

## 2. Objective:

Problem A:

- 1. Design two tables one for storing author details and the other for book details.
- 2. Ensure a foreign key relationship from the book to its respective author.
- 3. Insert at least three records in each table.
- 4. Perform an INNER JOIN to link each book with its author using the common author ID.
- 5. Select the book title, author name, and author's country.

## 6. Sample Output Description:

When the join is performed, we get a list where each book title is shown along with its author's name and their country.

### Problem B:

- 1. Design normalized tables for departments and the courses they offer, maintaining a foreign key relationship.
- 2. Insert five departments and at least ten courses across those departments.
- 3. Use a subquery to count the number of courses under each department.
- 4. Filter and retrieve only those departments that offer more than two courses.
- 5. Grant SELECT-only access on the courses table to a specific user.

### 6. Sample Output Description:

The result shows the names of departments which are associated with more than two courses in the system.

# 3. DBMS Script and Output:

## **Problem A Code:**

-- BASE TABLE
CREATE TABLE TBL\_AUTHORS(
AUTHOR\_ID int PRIMARY KEY,
AUTHOR\_NAME VARCHAR(MAX),
AUTHOR\_COUNTRY VARCHAR(MAX)

)
-- CHILD TABLE
CREATE TABLE TBL\_BOOKS(
BOOK\_ID INT PRIMARY KEY,
BOOK\_TITLE VARCHAR(MAX),
AUTHORID INT,
FOREIGN KEY (AUTHORID) REFERENCES TBL\_AUTHORS(AUTHOR\_ID)
);

#### -- INSERTING INTO AUTHORS TABLE

INSERT INTO TBL\_AUTHORS(AUTHOR\_ID, AUTHOR\_NAME, AUTHOR\_COUNTRY) VALUES (101, 'Tarun', 'India'), (102, 'Nepolean', 'England'), (103, 'Shiv Kumar', 'India');

#### -- INSERTING INTO BOOKS TABLE

INSERT INTO TBL\_BOOKS(BOOK\_ID, BOOK\_TITLE, AUTHORID) VALUES(1, 'DSA', 101), (2, 'Think and grow rich', 102), (3, 'Milange Jrur', 103);

-- APPLYING JOIN ON TABLES

```
SELECT

TBL_BOOKS.BOOK_TITLE,

TBL_AUTHORS.AUTHOR_NAME,

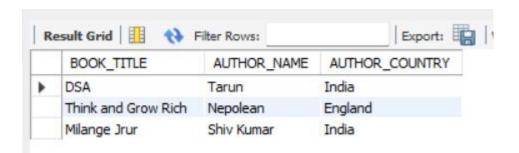
TBL_AUTHORS.AUTHOR_COUNTRY

FROM

TBL_AUTHORS
INNER JOIN

TBL_BOOKS
ON

TBL AUTHORS.AUTHOR ID = TBL_BOOKS.AUTHORID;
```



### **Problem B Code:**

```
-- Create Department Table
CREATE TABLE Department (
  DeptID INT PRIMARY KEY,
  DeptName VARCHAR(100)
);
-- Create Course Table
CREATE TABLE Course (
  CourseID INT PRIMARY KEY,
  CourseName VARCHAR(100),
  DeptID INT,
  FOREIGN KEY (DeptID) REFERENCES Department(DeptID)
);
-- Insert Departments
INSERT INTO Department VALUES
(1, 'Computer Science'),
(2, 'Physics'),
(3, 'Mathematics'),
(4, 'Chemistry'),
(5, 'Biology');
-- Insert Course
INSERT INTO Course VALUES
(101, 'Data Structures', 1),
(102, 'Operating Systems', 1),
(103, 'Quantum Mechanics', 2),
(104, 'Electromagnetism', 2),
(105, 'Linear Algebra', 3),
(106, 'Calculus', 3),
(107, 'Organic Chemistry', 4),
(108, 'Physical Chemistry', 4),
(109, 'Genetics', 5),
(110, 'Molecular Biology', 5);
INSERT INTO Course VALUES (111, 'Engineering Chemistry', 5);
```

SELECT DeptName from Department WHERE DeptID IN

(  $\mbox{SELECT DeptID FROM Course GROUP BY DeptID HAVING COUNT(*)} > 2 \ );$ 



- -- CREATING ADMIN
  CREATE LOGIN Inder\_1 WITH PASSWORD = 'Inder123'
- --CREATING USER
  CREATE USER Inder FOR LOGIN Inder\_1;
- -- LOGINING TO Inder EXECUTE AS USER = 'Inder';
- -- GIVING SELECT ACCESS
  GRANT SELECT ON Department TO Inder;
- -- REVOKING SELECT ACCESS FORM Inder REVOKE SELECT ON Department FROM Inder;