



Experiment 2

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Subject Name: ADBMS

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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))
```



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)

-- 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;
```

	BOOK_TITLE	AUTHOR_NAME	AUTHOR_COUNTRY
▶	DSA	Tarun	India
	Think and Grow Rich	Nepolean	England
	Milange Jrur	Shiv Kumar	India



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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
```



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```
(  
    SELECT DeptID FROM Course GROUP BY DeptID HAVING COUNT(*) > 2  
);
```

Result Grid		Filter Rows:
	DeptName	
▶	Biology	

```
-- CREATING ADMIN  
CREATE LOGIN Inder_1 WITH PASSWORD = 'Inder123'  
  
-- CREATING USER  
CREATE USER Inder FOR LOGIN Inder_1;  
  
-- LOGGING TO Inder  
EXECUTE AS USER = 'Inder';  
  
-- GIVING SELECT ACCESS  
GRANT SELECT ON Department TO Inder;  
  
-- REVOKING SELECT ACCESS FROM Inder  
REVOKE SELECT ON Department FROM Inder;
```