Worksheet 1

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Branch: BE-CSE **Section/Group: KRG2-B**
Semester: 5TH **Date of Performance:21/07/25**
Subject Name: ADBMS **Subject Code:23CSP-333**

1. Aim:

A). Author-Book Relationship Using Joins and Basic SQL Operations
B). Department-Course Subquery and Access Control

2. Objective:

A)

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

B)

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

3. DBMS script

A)

```
CREATE TABLE AUTHOR (
   AUTHOR_ID INT PRIMARY KEY,
   AUTHOR_NAME VARCHAR(100),
   COUNTRY VARCHAR(50)
);

CREATE TABLE BOOKS (
   BOOK_ID INT PRIMARY KEY,
   BOOK_NAME VARCHAR(100),
   AUTHOR_ID INT,
   FOREIGN KEY (AUTHOR_ID) REFERENCES AUTHOR(AUTHOR_ID)
);
INSERT INTO AUTHOR (AUTHOR_ID, AUTHOR_NAME, COUNTRY) VALUES
(1, 'Author X', 'USA'),
(2, 'Author Y', 'India'),
(3, 'Author Z', 'Canada');

INSERT INTO BOOKS (BOOK_ID, BOOK_NAME, AUTHOR_ID) VALUES
(101, 'Book A', 1),
(102, 'Book B', 2),
(103, 'Book C', 3);
SELECT
   B.BOOK_NAME,
```

```
    A.AUTHOR_NAME,
    A.COUNTRY
FROM
    BOOKS B
INNER JOIN
    AUTHOR A ON B.AUTHOR_ID = A.AUTHOR_ID;
```

B)

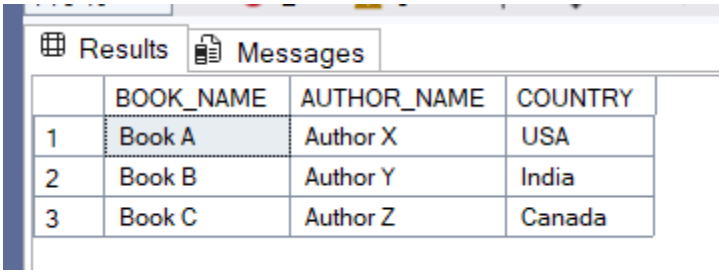
```
CREATE TABLE departments (
    department_id INT PRIMARY KEY,
    department_name VARCHAR(100) NOT NULL
);

-- 2. Create Courses table with foreign key
CREATE TABLE courses (
    course_id INT PRIMARY KEY,
    course_name VARCHAR(100) NOT NULL,
    department_id INT FOREIGN KEY REFERENCES departments(department_id)
);

-- 3. Insert Departments
INSERT INTO departments (department_id, department_name) VALUES
(1, 'Computer Science'),
(2, 'Mathematics'),
(3, 'Physics'),
```

```
(4, 'English'),
(5, 'Biology');

-- 4. Insert Courses
INSERT INTO courses (course_id, course_name, department_id) VALUES
(101, 'Data Structures', 1),
(102, 'Algorithms', 1),
(103, 'Operating Systems', 1),
(201, 'Calculus I', 2),
(202, 'Linear Algebra', 2),
(301, 'Quantum Mechanics', 3),
(302, 'Electromagnetism', 3),
(303, 'Thermodynamics', 3),
(401, 'English Literature', 4),
(501, 'Genetics', 5);

-- 5. Query: Departments offering more than 2 courses
SELECT department_name
FROM departments
WHERE department_id IN (
    SELECT department_id
    FROM courses
    GROUP BY department_id
    HAVING COUNT(*) > 2
);
```

GRANT SELECT ON courses TO readonly_user;

4.Output:

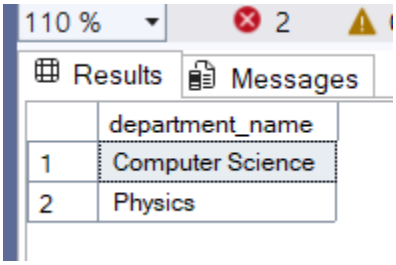
A)



Results | Messages

	BOOK_NAME	AUTHOR_NAME	COUNTRY
1	Book A	Author X	USA
2	Book B	Author Y	India
3	Book C	Author Z	Canada

B)



110 % | 2 | Results | Messages

	department_name
1	Computer Science
2	Physics