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BSCpE – 3A

Laboratory Activity 4:

Laboratory Title: SQL - JOIN Operation
Chapter No. and Topic: Chapter 2 - Structured Query Language (SQL)
Discussions:
This activity introduces students to SQL JOIN operations for combining data from multiple tables.

Activity Description:
Learn how to use INNER JOIN, LEFT JOIN, and RIGHT JOIN to combine tables.

Objectives:

- Write SQL JOIN queries to retrieve data from multiple tables.
- Use INNER JOIN, LEFT JOIN, and RIGHT JOIN.

Materials:

- MySQL Workbench or SQL client

Procedure:

1. Retrieve a list of all transactions, including book title and member name:

```
sql

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SELECT Books.Title, Members.FirstName, Members.LastName

FROM Transactions

INNER JOIN Books ON Transactions.BookID = Books.BookID

INNER JOIN Members ON Transactions.MemberID = Members.MemberID;
```

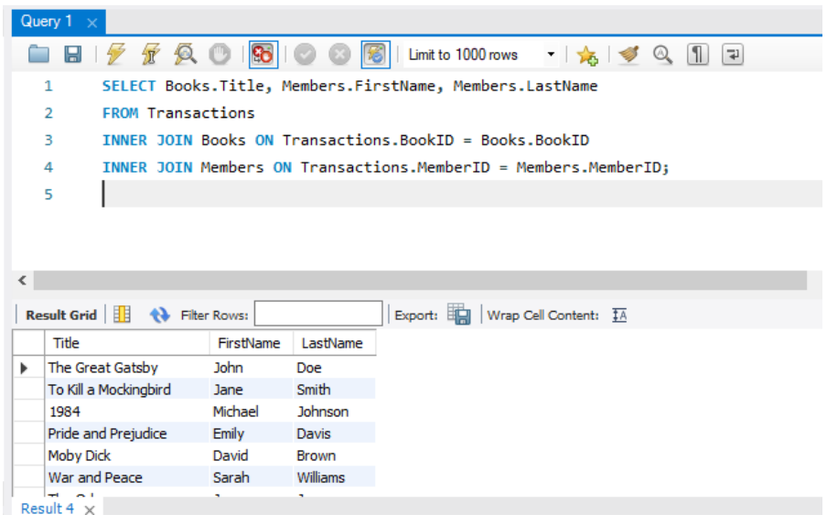

1. Retrieve a list of all books with transaction details, even those without transactions (LEFT JOIN):

```
sql

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```
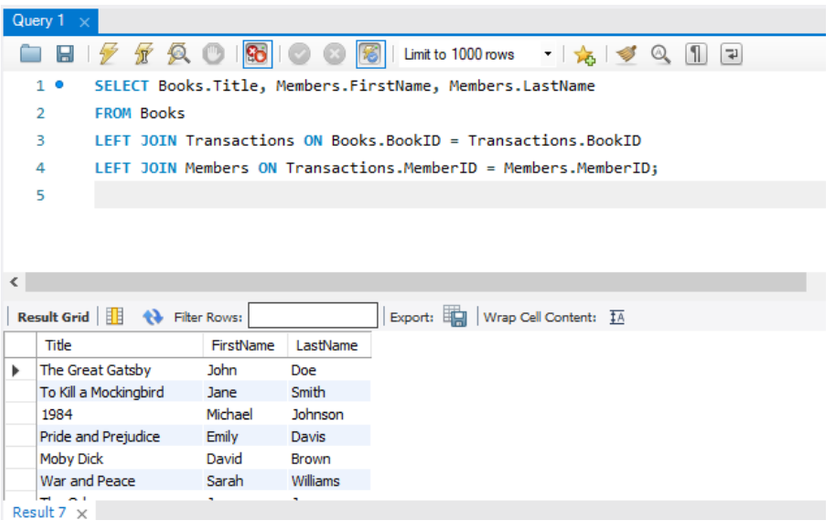

```
SELECT Books.Title, Members.FirstName, Members.LastName

FROM Books

LEFT JOIN Transactions ON Books.BookID = Transactions.BookID

LEFT JOIN Members ON Transactions.MemberID = Members.MemberID;
```



Result:
JOIN operations linking tables to retrieve combined data.

Additional Questions/Discussions:

- How does the LEFT JOIN differ from the INNER JOIN?

  The `INNER JOIN` returns only the rows where there is a match in both tables, excluding unmatched rows. In contrast, the `LEFT JOIN` returns all rows from the left table and the matching rows from the right table; if there's no match, it still includes rows from the left table with `NULL` values for columns from the right table.

Conclusions:

Using INNER JOIN, LEFT JOIN, and RIGHT JOIN allows you to combine data from multiple tables based on relationships between them. INNER JOIN retrieves only matching rows, while LEFT JOIN includes all rows from the left table, filling unmatched right table rows with NULL. RIGHT JOIN includes all rows from the right table, with NULL for unmatched left table rows. These joins are essential for efficiently querying and combining related data across tables.