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BSCpE 3A

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DBMS

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;
```
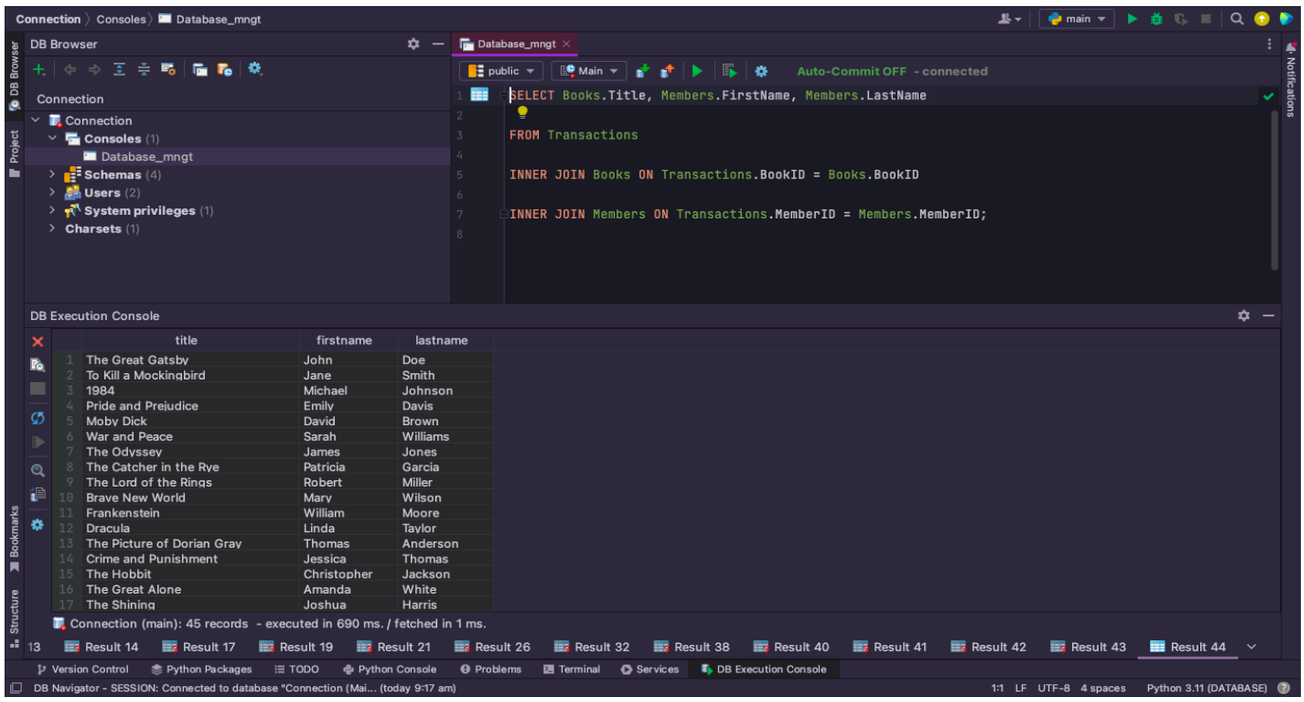
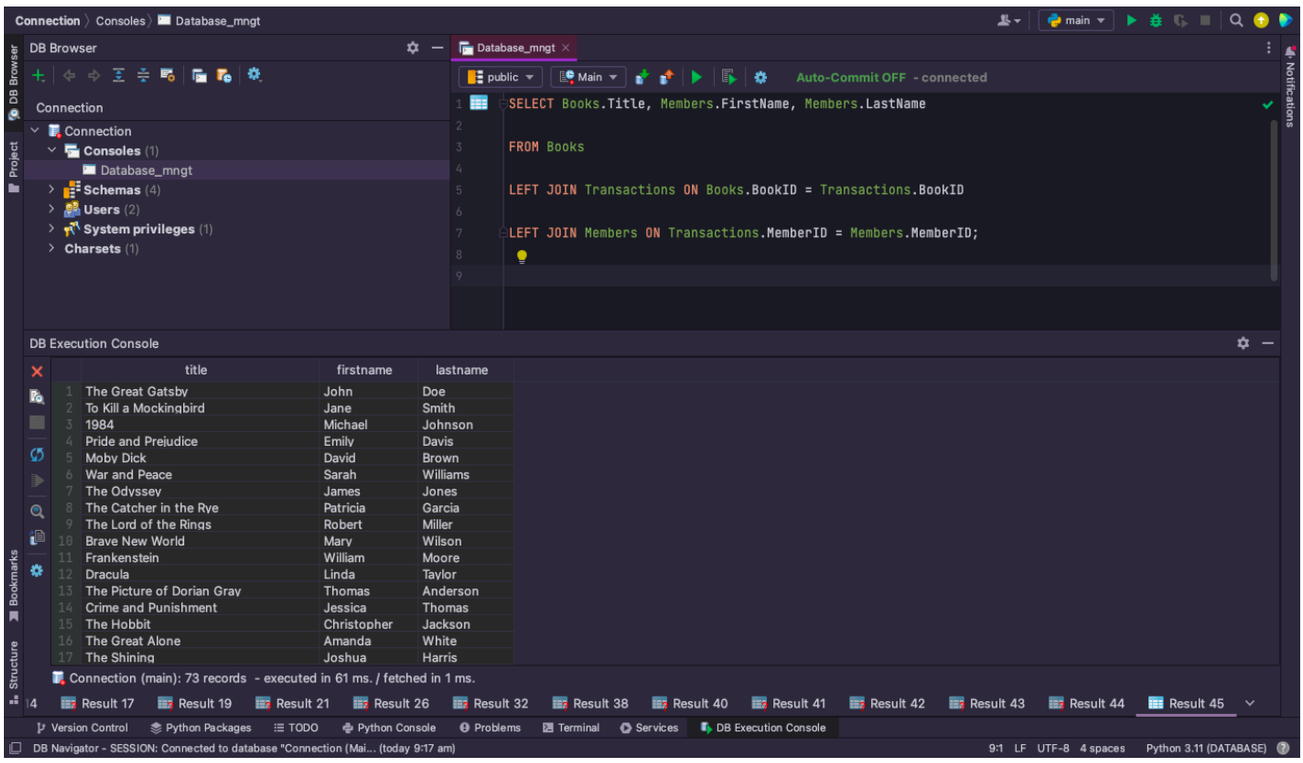

Result:
JOIN operations linking tables to retrieve combined data.





Additional Questions/Discussions:

- How does the LEFT JOIN differ from the INNER JOIN?
    - `LEFT JOIN` returns all records from the left table and the matching records from the right table; if no match is found, NULL values are returned for columns from the right table. In contrast, `INNER JOIN` only returns records where there is a match in both tables, excluding unmatched rows. This means `LEFT JOIN` retains all left table data, while `INNER JOIN` focuses only on common records.
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Conclusions:

`LEFT JOIN` ensures that all records from the left table are included, even if there is no match in the right table, making it useful for retrieving complete datasets. `INNER JOIN` is more restrictive, returning only records with matches in both tables, which is ideal for filtering relevant data. Choosing between them depends on whether you need all records from one table or only matching records from both.