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BSCpE-2A

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:
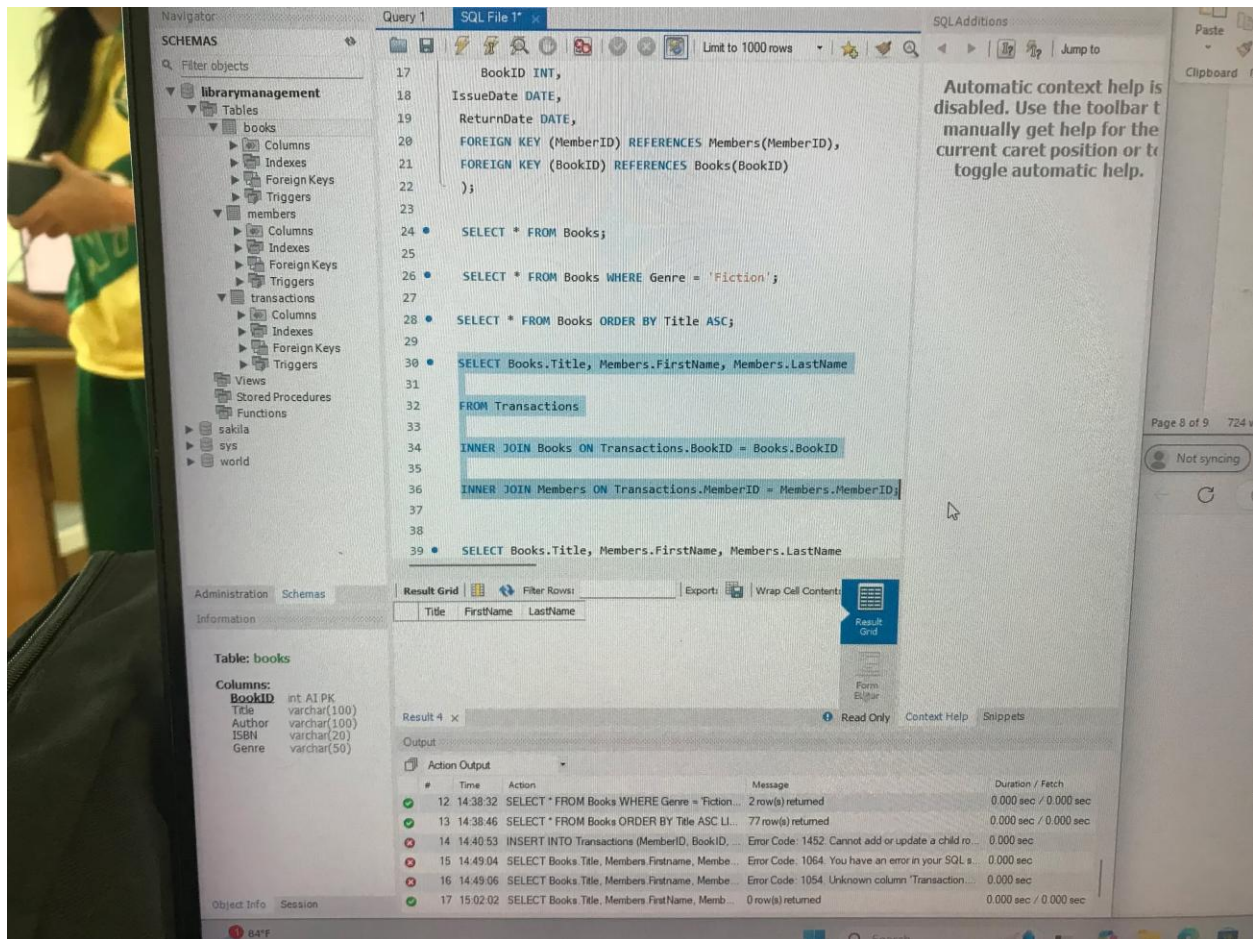
sql

Copy code

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;

```sql
17        BookID INT,
18    IssueDate DATE,
19    ReturnDate DATE,
20    FOREIGN KEY (MemberID) REFERENCES Members(MemberID),
21    FOREIGN KEY (BookID) REFERENCES Books(BookID)
22    );
23
24 •  SELECT * FROM Books;
25
26 •  SELECT * FROM Books WHERE Genre = 'Fiction';
27
28 •  SELECT * FROM Books ORDER BY Title ASC;
29
30 •  SELECT Books.Title, Members.FirstName, Members.LastName
31
32    FROM Transactions
33
34    INNER JOIN Books ON Transactions.BookID = Books.BookID
35
36    INNER JOIN Members ON Transactions.MemberID = Members.MemberID;
37
38
39 •  SELECT Books.Title, Members.FirstName, Members.LastName
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Title	FirstName	LastName

Table: books

Columns:

BookID	int AI PK
Title	varchar(100)
Author	varchar(100)
ISBN	varchar(20)
Genre	varchar(50)

Action Output

#	Time	Action	Message	Duration / Fetch
12	14:38:32	SELECT * FROM Books WHERE Genre = 'Fiction...	2 row(s) returned	0.000 sec / 0.000 sec
13	14:38:46	SELECT * FROM Books ORDER BY Title ASC LI...	77 row(s) returned	0.000 sec / 0.000 sec
14	14:40:53	INSERT INTO Transactions (MemberID, BookID, ...	Error Code: 1452. Cannot add or update a child ro...	0.000 sec
15	14:49:04	SELECT Books.Title, Members.Firstname, Membe...	Error Code: 1064. You have an error in your SQL s...	0.000 sec
16	14:49:06	SELECT Books.Title, Members.Firstname, Membe...	Error Code: 1054. Unknown column 'Transaction...	0.000 sec
17	15:02:02	SELECT Books.Title, Members.FirstName, Memb...	0 row(s) returned	0.000 sec / 0.000 sec

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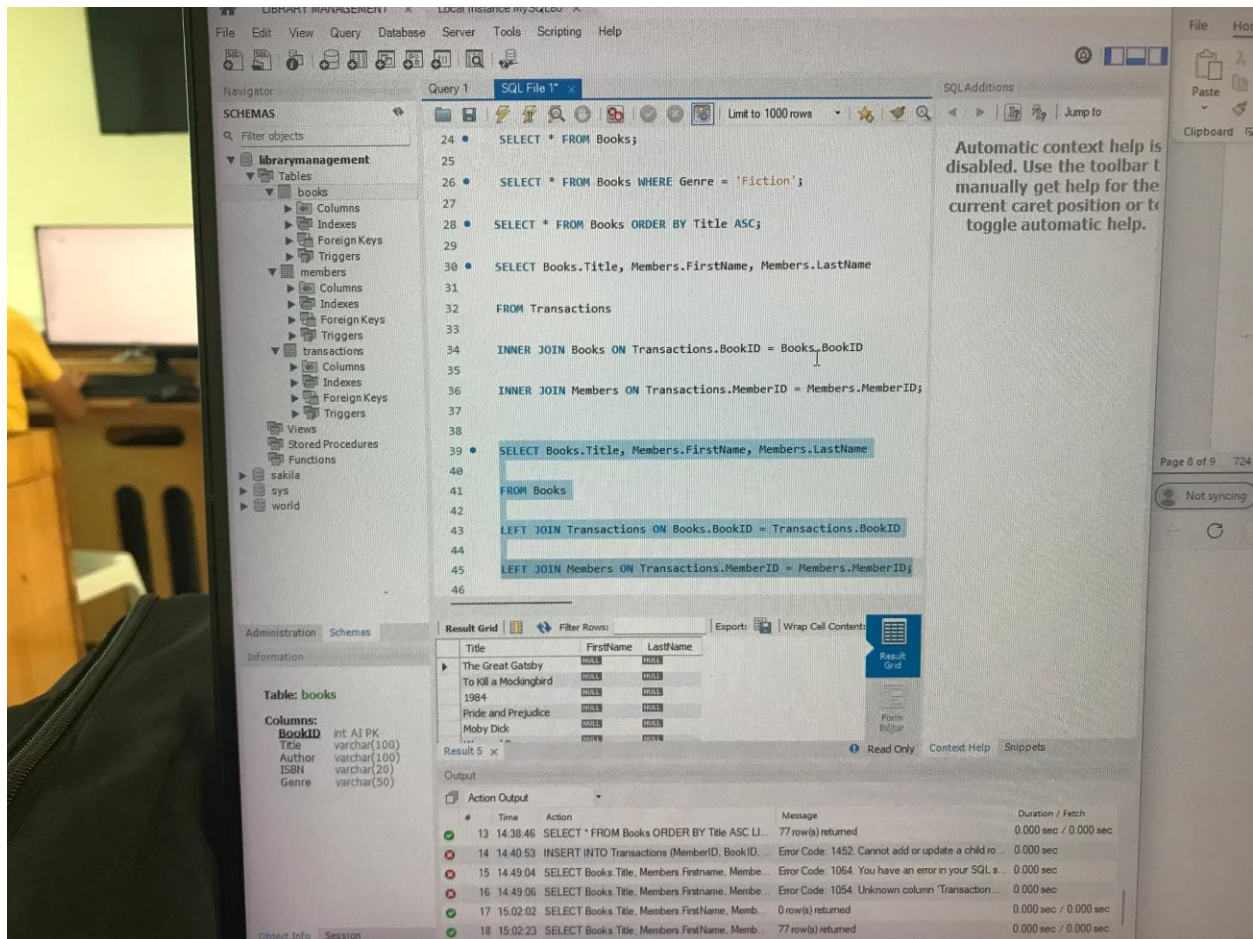
sql

Copy code

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?

Answer: A LEFT JOIN returns all rows from the left table, even if there's no match on the right table. An INNER JOIN only returns rows where there's a match in both tables.

Conclusions: