EMMAN ACE MENION **DBMS-2B**
BSCpE 3A **SCORE:_____**

Laboratory Activity 2:

Laboratory Title: Creating Tables and Establishing Primary Keys
Chapter No. and Topic: Chapter 1 - Relational Database Concepts
Discussions:
This activity focuses on creating the main tables for the Library Management System, with primary keys for each table.

Activity Description:
Create tables such as `Books`, `Members`, and `Transactions` for the library system.

Objectives:

- Create tables for library management.
- Define primary keys for each table.

Materials:

- MySQL Workbench or SQL client

Procedure:

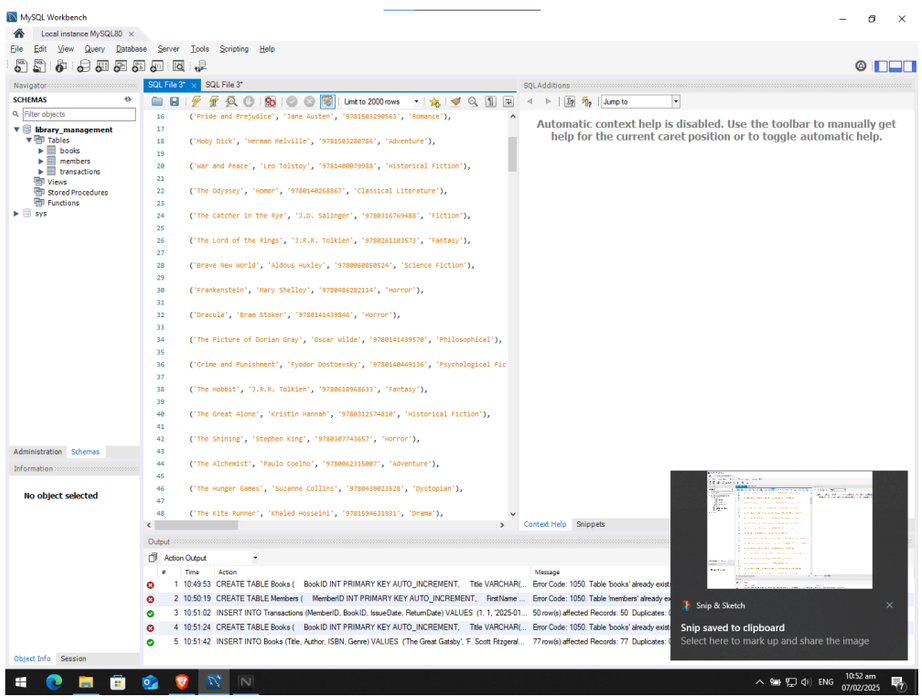
1. Open MySQL Workbench and connect to the `LibraryManagement` database.
2. Create the following tables:

```
sql

Copy code

CREATE TABLE Books (

  BookID INT PRIMARY KEY AUTO_INCREMENT,

  Title VARCHAR(100),

  Author VARCHAR(100),

  ISBN VARCHAR(20),

  Genre VARCHAR(50)

);

CREATE TABLE Members (

  MemberID INT PRIMARY KEY AUTO_INCREMENT,

  FirstName VARCHAR(50),

  LastName VARCHAR(50),

  Email VARCHAR(100)

);
```

```
CREATE TABLE Transactions (
  TransactionID INT PRIMARY KEY AUTO_INCREMENT,
  MemberID INT,
  BookID INT,
  IssueDate DATE,
  ReturnDate DATE,
  FOREIGN KEY (MemberID) REFERENCES Members(MemberID),
  FOREIGN KEY (BookID) REFERENCES Books(BookID)
);
```

1. Verify the tables are created by running `SHOW TABLES;`.

Result:



Additional Questions/Discussions:

- What is the importance of primary keys in a relational database?
  - A primary key uniquely identifies each record in a table, ensuring data integrity and preventing duplicate entries. It allows efficient indexing, enabling fast searches and reliable relationships between tables.
- How do foreign keys maintain referential integrity?
  - Foreign keys link tables by referencing a primary key in another table, ensuring that relationships remain valid. They prevent invalid data entry and maintain consistency by restricting deletions or updates that could break dependencies.

Conclusions:

In this activity, students successfully created the main tables for the Library Management System and defined primary keys to ensure data integrity. They learned how primary keys uniquely identify records and how foreign keys establish relationships between tables to maintain referential integrity. By completing this task, students gained practical experience in structuring a relational database, which is essential for managing interconnected data efficiently.