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C/Y/S: BSCpE – 2 B2

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

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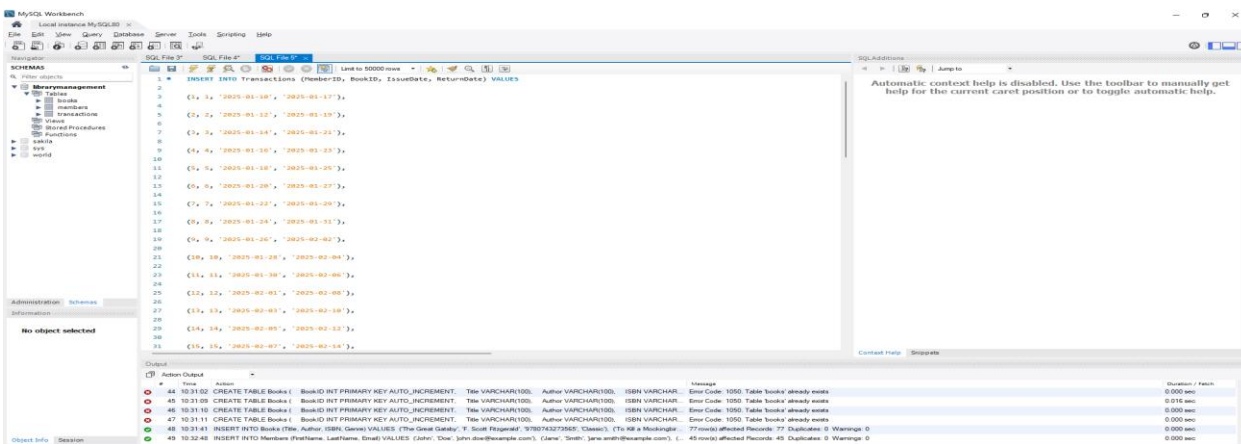
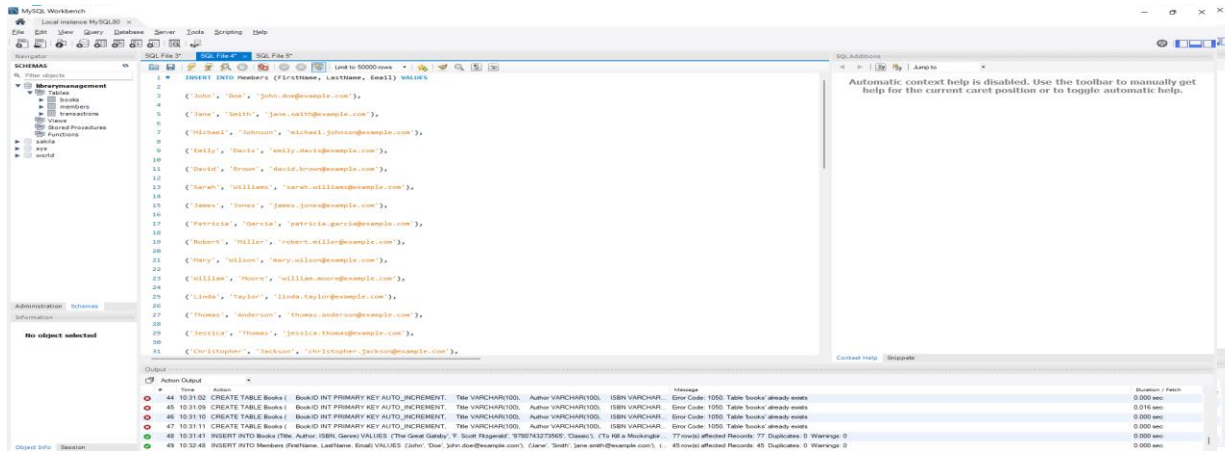
```
CREATE TABLE Books (  
    BookID INT PRIMARY KEY AUTO_INCREMENT,  
    Title VARCHAR(100),  
    Author VARCHAR(100),  
    ISBN VARCHAR(20),  
    Genre VARCHAR(50)  
);
```

```
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:

Three tables (Books, Members, and Transactions) are created.



Additional Questions/Discussions:

- What is the importance of primary keys in a relational database?

Ans: A **primary key** is a unique identifier assigned to each record within a database table. It ensures that each record can be uniquely identified, which is crucial for maintaining data integrity and enabling efficient data retrieval.

- How do foreign keys maintain referential integrity?

Ans: A foreign key maintains referential integrity by **preventing changes to data in the primary key table if those changes invalidate the link to data in the foreign key table**.

Conclusions:

This lab activity is to teach us students how to create table within an mySQL database and also how to input data unto the tables created.

