**Day-9 (Assignment-1)**

# **Q1) Design a database schema for a library system, including tables, fields, and constraints like NOT NULL, UNIQUE, and CHECK. Include primary and foreign keys to establish relationships between tables.**

**CREATE TABLE Members (**

**MemberID INT NOT NULL AUTO\_INCREMENT,**

**FirstName VARCHAR(50) NOT NULL,**

**LastName VARCHAR(50) NOT NULL,**

**DateOfBirth DATE NOT NULL,**

**Email VARCHAR(100) NOT NULL UNIQUE,**

**Phone VARCHAR(15) NOT NULL,**

**Address VARCHAR(255) NOT NULL,**

**MembershipDate DATE NOT NULL,**

**PRIMARY KEY (MemberID)**

**);**

**CREATE TABLE Books (**

**BookID INT NOT NULL AUTO\_INCREMENT,**

**ISBN VARCHAR(13) NOT NULL UNIQUE,**

**Title VARCHAR(255) NOT NULL,**

**Author VARCHAR(255) NOT NULL,**

**Publisher VARCHAR(255) NOT NULL,**

**Year INT NOT NULL CHECK (Year >= 1000 AND Year <= YEAR(CURDATE())),**

**CopiesAvailable INT NOT NULL CHECK (CopiesAvailable >= 0),**

**PRIMARY KEY (BookID)**

**);**

**CREATE TABLE BorrowingRecords (**

**RecordID INT NOT NULL AUTO\_INCREMENT,**

**MemberID INT NOT NULL,**

**BookID INT NOT NULL,**

**BorrowDate DATE NOT NULL,**

**DueDate DATE NOT NULL,**

**ReturnDate DATE,**

**PRIMARY KEY (RecordID),**

**FOREIGN KEY (MemberID) REFERENCES Members(MemberID),**

**FOREIGN KEY (BookID) REFERENCES Books(BookID) );**

**CREATE TABLE Categories (**

**CategoryID INT NOT NULL AUTO\_INCREMENT,**

**CategoryName VARCHAR(50) NOT NULL UNIQUE,**

**PRIMARY KEY (CategoryID)**

**);**

**CREATE TABLE BookCategories (**

**BookID INT NOT NULL,**

**CategoryID INT NOT NULL,**

**PRIMARY KEY (BookID, CategoryID),**

**FOREIGN KEY (BookID) REFERENCES Books(BookID),**

**FOREIGN KEY (CategoryID) REFERENCES Categories(CategoryID)**

**);**