Debakshmi Pan

Assignment 2: 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.

1. Tables:
   - Books: Contains information about books in the library.
     - Fields: BookID (Primary Key), Title, AuthorID (Foreign Key), Genre, PublishedYear.
     - Constraints: BookID (NOT NULL), Title (NOT NULL), AuthorID (NOT NULL), Title + AuthorID (UNIQUE).
   - Authors: Stores information about authors.
     - Fields: AuthorID (Primary Key), AuthorName.
     - Constraints: AuthorID (NOT NULL), AuthorName (NOT NULL).
   - Loans: Tracks loans made by library members.
     - Fields: LoanID (Primary Key), BookID (Foreign Key), LoanDate, ReturnDate.
     - Constraints: LoanID (NOT NULL), BookID (NOT NULL), LoanDate (NOT NULL), ReturnDate (CHECK: ReturnDate > LoanDate).

2. Relationships:
   - Books-Authors: Many-to-One relationship between Books and Authors. Each book is written by one author, but an author can write multiple books.
   - Loans-Books: Many-to-One relationship between Loans and Books. Each loan is for one book, but a book can be loaned multiple times.

This schema ensures data integrity by enforcing constraints such as NOT NULL, UNIQUE, and CHECK. It also establishes relationships between tables using primary and foreign keys.