Library Management System Assignment

Scenario:

A library maintains records of books, members, and book loans. You are tasked to create a database to manage the library and write queries to interact with it.

Schema

Books Table:

Column	Type	Constraints
BookID	INT	PRIMARY KEY
Title	VARCHAR(100)	NOT NULL
Author	VARCHAR(100)	
ISBN	VARCHAR(13)	UNIQUE
PublishedYear	INT	
CopiesAvailable	INT	DEFAULT 0

Members Table:

Column	Type	Constraints
MemberID	INT	PRIMARY KEY
FirstName	VARCHAR(50)	
LastName	VARCHAR(50)	
MembershipDate	DATE	

Loans Table:

Column	Type	Constraints
LoanID	INT	PRIMARY KEY
MemberID	INT	FOREIGN KEY
BookID	INT	FOREIGN KEY
LoanDate	DATE	
ReturnDate	DATE	

Assignment Tasks

Part 1: Creating the Database and Tables
1. Write a query to create a database named LibraryDB.
2. Create the Books table with the columns and constraints mentioned above.
3. Create the Members table with the columns and constraints mentioned above.
4. Create the Loans table with the columns and constraints mentioned above.

Part 2: Inserting Data
5. Insert at least 5 records into the Books table.
6. Add 3 members to the Members table.
7. Create at least 2 records in the Loans table to track book loans.

Part 3: Basic Queries
8. Write a query to list all books in the library.
9. Write a query to list all members who joined after a specific date.
10. Retrieve details of books that have more than 5 copies available.

Part 4: Updating and Deleting
11. Write a query to update the number of available copies for a book after it is loaned out.
12. Write a query to delete a member who has not borrowed any books.

Part 5: Joins
13. Write a query to list the names of members and the titles of books they have borrowed.
14. Write a query to count how many books each member has borrowed.

Deliverables

SQL scripts for creating databases and tables.

SQL queries for each task above.