Assignment 2

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. **Books Table**:
    - Fields:
        - book_id (Primary Key)
        - title
        - author
        - genre
        - publication_year
        - ISBN (UNIQUE)
    - Constraints:
        - book_id NOT NULL
        - title NOT NULL
        - author NOT NULL
        - genre NOT NULL
        - publication_year NOT NULL
        - ISBN NOT NULL
2. **Members Table**:
    - Fields:
        - member_id (Primary Key)
        - name
        - address
        - phone_number
        - email (UNIQUE)
    - Constraints:
        - member_id NOT NULL
        - name NOT NULL
        - address NOT NULL
        - phone_number NOT NULL
        - email NOT NULL
3. **Borrowings Table**:
    - Fields:
        - borrowing_id (Primary Key)
        - book_id (Foreign Key referencing Books table)
        - member_id (Foreign Key referencing Members table)
        - borrow_date
        - return_date
    - Constraints:
        - borrowing_id NOT NULL
        - book_id NOT NULL
        - member_id NOT NULL

        - borrow_date NOT NULL
        - return_date (CHECK: return_date >= borrow_date)
4. **Authors Table**:
    - Fields:
        - author_id (Primary Key)
        - author_name
    - Constraints:
        - author_id NOT NULL
        - author_name NOT NULL
5. **Genres Table**:
    - Fields:
        - genre_id (Primary Key)
        - genre_name
    - Constraints:
        - genre_id NOT NULL
        - genre_name NOT NULL

In this schema:

- Each book in the library is uniquely identified by its `book_id`, and each member by their `member_id`.
- Each borrowing instance is uniquely identified by its `borrowing_id`.
- Relationships between tables are established through foreign keys (`book_id` and `member_id`).
- Constraints ensure that necessary fields are not left empty (`NOT NULL`), and certain fields have unique values (`UNIQUE`). Additionally, there's a check constraint to ensure the return date is not before the borrow date.