Database Schema

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Schema:

```sql
CREATE TABLE User (
    id int PRIMARY KEY,
    name VARCHAR(100),
    email VARCHAR(100),
    phone VARCHAR(20),
    address VARCHAR(200),
    user_type VARCHAR(50),
    fine DECIMAL(10,2) DEFAULT 0
);

CREATE TABLE Book (
    id int PRIMARY KEY,
    title VARCHAR(100),
    author VARCHAR(100),
    isbn VARCHAR(20),
    publication_year INT,
    genre VARCHAR(50),
    IsLoanable TINYINT(1) NOT NULL DEFAULT 0,
    IsExtendable TINYINT(1) NOT NULL,
    book_type VARCHAR(50)
);

CREATE TABLE Loan (
    user_id int,
    book_id int,
    loanDate DATE,
    returnDate DATE,
    loan_fee DECIMAL(10,2) DEFAULT 0.0,
```

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        isExtended TINYINT(1) NOT NULL DEFAULT 0,
        FOREIGN KEY (user_id) REFERENCES User(id),
        FOREIGN KEY (book_id) REFERENCES Book(id)
);
```

Initial Insertions:

```
INSERT INTO Book (id, title, author, isbn, publication_year,
genre, IsLoanable, IsExtendable, book_type) VALUES
(1, 'Introduction to Algorithms', 'Thomas H. Cormen', '978026
2033848', 2009, 'Computer Science', 1, 1, 'textbook'),
(2, 'The Great Gatsby', 'F. Scott Fitzgerald', '978074327356
5', 1925, 'Fiction', 1, 0, 'novel'),
(3, 'A Brief History of Time', 'Stephen Hawking', '9780553380
163', 1988, 'Science', 0, 0, 'referencebook'),
(4, 'The Catcher in the Rye', 'J.D. Salinger', '978031676948
8', 1951, 'Fiction', 1, 0, 'novel'),
(5, 'Advanced Engineering Mathematics', 'Erwin Kreyszig', '97
80470458365', 2010, 'Engineering', 1, 1, 'textbook'),
(6, 'To Kill a Mockingbird', 'Harper Lee', '9780061120084', 1
960, 'Fiction', 1, 0, 'novel'),
(7, 'Encyclopedia of World History', 'Peter N. Stearns', '978
0195222219', 2001, 'History', 0, 0, 'referencebook'),
(8, 'Linear Algebra and Its Applications', 'Gilbert Strang',
'9780030105678', 2009, 'Mathematics', 1, 1, 'textbook'),
(9, 'War and Peace', 'Leo Tolstoy', '9781853260629', 1869, 'C
lassic', 1, 0, 'novel'),
(10, 'Modern Physics', 'Paul A. Tipler', '9781429201247', 200
7, 'Science', 1, 1, 'textbook');
```

```
INSERT INTO User (id, name, email, phone, address, user_type,
fine) VALUES
(1, 'John Doe', 'johndoe@example.com', '555-1234', '123 Main
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St', 'student', 0.00),
(2, 'Jane Smith', 'janesmith@example.com', '555-5678', '456 O
ak Ave', 'faculty', 0.00),
(3, 'Bob Johnson', 'bobjohnson@example.com', '555-9101', '789
Pine Rd', 'publicmember', 0.00),
(4, 'Alice Williams', 'alicewilliams@example.com', '555-121
3', '321 Elm St', 'student', 0.00),
(5, 'Charlie Brown', 'charliebrown@example.com', '555-1415',
'654 Maple Dr', 'faculty', 0.00),
(6, 'David Lee', 'davidlee@example.com', '555-1617', '987 Ced
ar Ln', 'publicmember', 0.00),
(7, 'Susan Davis', 'susandavis@example.com', '555-1819', '111
Birch Blvd', 'student', 0.00),
(8, 'Michael Scott', 'michaelscott@example.com', '555-2021',
'222 Aspen St', 'faculty', 0.00),
(9, 'Linda Taylor', 'lindataylor@example.com', '555-2223', '3
33 Willow Way', 'publicmember', 0.00),
(10, 'James White', 'jameswhite@example.com', '555-2425', '44
4 Cherry Cir', 'student', 0.00);
```