Advanced DBMS Lab - Questions and Answers (MySQL)

Question 1: Create a table 'authors' in MySQL database

```
CREATE TABLE authors (
    author_id INT PRIMARY KEY,
    author_name VARCHAR(25) NOT NULL,
    nationality VARCHAR(15),
    birth_year INT DEFAULT 1900 CHECK (birth_year BETWEEN 1700 AND 2000)
);
```

Question 2: Create a table 'books' in MySQL database

```
CREATE TABLE books (
    book_id INT PRIMARY KEY,
    author_id INT,
    title VARCHAR(100) NOT NULL UNIQUE,
    genre VARCHAR(50),
    price DECIMAL(5,2) CHECK (price BETWEEN 0 AND 1000),
    FOREIGN KEY (author_id) REFERENCES authors(author_id)
);
```

Question 3: Insert the following records to the table 'authors'

```
INSERT INTO authors VALUES
(1, 'F. Scott Fitzgerald', 'American', 1896),
(2, 'Harper Lee', 'American', 1926),
(3, 'J.K. Rowling', 'British', 1965),
(4, 'J.R.R. Tolkien', 'British', 1892),
(5, 'Dan Brown', 'American', 1964),
(6, 'Stieg Larsson', 'Swedish', 1954),
(7, 'Suzanne Collins', 'American', 1962);
```

Question 4: Insert the following records to the table 'books'

```
INSERT INTO books VALUES
(1, 1, 'The Great Gatsby', 'Fiction', 150.25),
(2, 2, 'To Kill a Mockingbird', 'Fiction', 230.70),
(3, 3, 'Harry Potter', 'Fantasy', 600.00),
(4, 4, 'The Hobbit', 'Fantasy', 720.00),
(5, 5, 'The Da Vinci Code', 'Mystery', 800.00),
(6, 6, 'The Girl with the Sword', 'Mystery', 950.00),
(7, 7, 'The Hunger Games', 'Sci-Fi', 120.00),
(8, 6, 'Pride and Prejudice', 'Fiction', 240.30);
```

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Question 5.1: Retrieve all books and their corresponding authors

```
SELECT b.book_id, a.author_name, b.title
FROM books b
JOIN authors a ON b.author_id = a.author_id;
```

Question 5.2: Display authors whose name ends with 'n'

```
SELECT author_name
FROM authors
WHERE author_name LIKE '%n';
```

Question 5.3: Get the details of the book with the highest price

```
SELECT book_id, title, price
FROM books
ORDER BY price DESC
LIMIT 1;
```

Question 5.4: Get titles of all books by American authors

```
SELECT b.book_id, b.title, a.author_name, a.nationality
FROM books b
JOIN authors a ON b.author_id = a.author_id
WHERE a.nationality = 'American';
```

Question 5.5: List authors and their birth year ordered ascending

```
SELECT author_name, birth_year
FROM authors
ORDER BY birth_year ASC;
```

Question 5.6: Get the genre with the most books

```
SELECT genre, COUNT(*) AS total_books
FROM books
GROUP BY genre
ORDER BY total_books DESC
LIMIT 1;
```

Question 5.7: Display genres with total price > 1000

```
SELECT genre, SUM(price) AS total_price
```

```
FROM books
GROUP BY genre
HAVING SUM(price) > 1000;
```

Question 5.8: Find number of books written by each author

```
SELECT a.author_name, COUNT(b.book_id) AS book_count
FROM authors a
LEFT JOIN books b ON a.author_id = b.author_id
GROUP BY a.author_name;
```