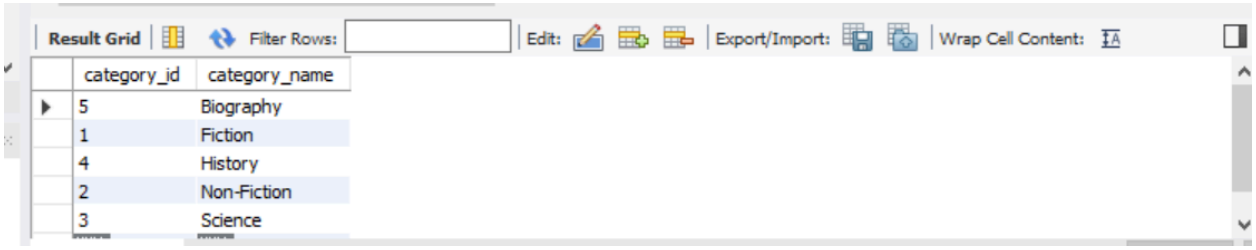
Assignment 2 :- Design a database schema for a library system, including tables, fields, and constraints like NOT NULL, UNIQUE, and CHECK. Include primary and foreign keys to establish relationships between tables.

Queries :-

```
CREATE DATABASE LibraryManagementSystem;
USE LibraryManagementSystem;
CREATE TABLE Categories (
    category_id INT AUTO_INCREMENT PRIMARY KEY,
    category_name VARCHAR(255) UNIQUE NOT NULL
);

INSERT INTO Categories (category_name) VALUES
('Fiction'),
('Non-Fiction'),
('Science'),
('History'),
('Biography');

SELECT * from Categories;
```

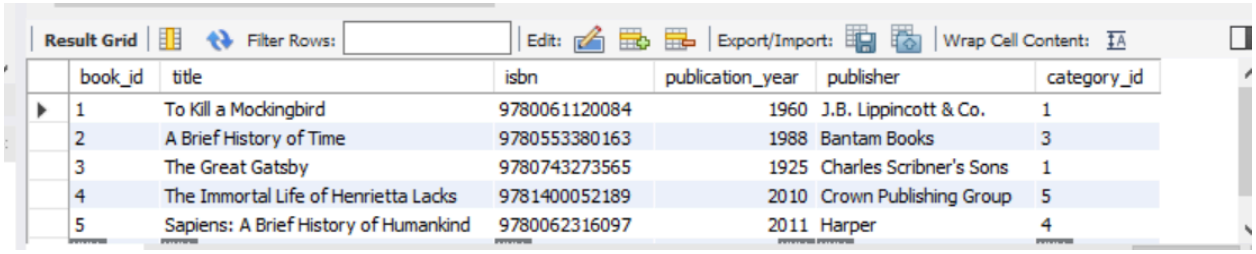


category_id	category_name
5	Biography
1	Fiction
4	History
2	Non-Fiction
3	Science

```
CREATE TABLE Books (
    book_id INT AUTO_INCREMENT PRIMARY KEY,
    title VARCHAR(255) NOT NULL,
    isbn VARCHAR(13) UNIQUE NOT NULL,
    publication_year YEAR CHECK (publication_year >= 1500),
    publisher VARCHAR(255),
    category_id INT,
    FOREIGN KEY (category_id) REFERENCES Categories(category_id)
```

```
);
INSERT INTO Books (title, isbn, publication_year, publisher, category_id)
VALUES
('To Kill a Mockingbird', '9780061120084', 1960, 'J.B. Lippincott & Co.', 1),
('A Brief History of Time', '9780553380163', 1988, 'Bantam Books', 3),
('The Great Gatsby', '9780743273565', 1925, 'Charles Scribner\'s Sons', 1),
('The Immortal Life of Henrietta Lacks', '9781400052189', 2010, 'Crown
Publishing Group', 5),
('Sapiens: A Brief History of Humankind', '9780062316097', 2011, 'Harper',
4);

SELECT * from Books;
```

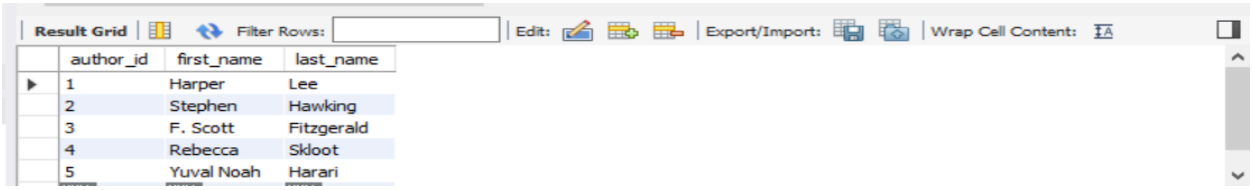


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

book_id	title	isbn	publication_year	publisher	category_id
1	To Kill a Mockingbird	9780061120084	1960	J.B. Lippincott & Co.	1
2	A Brief History of Time	9780553380163	1988	Bantam Books	3
3	The Great Gatsby	9780743273565	1925	Charles Scribner's Sons	1
4	The Immortal Life of Henrietta Lacks	9781400052189	2010	Crown Publishing Group	5
5	Sapiens: A Brief History of Humankind	9780062316097	2011	Harper	4

```
CREATE TABLE Authors (
    author_id INT AUTO_INCREMENT PRIMARY KEY,
    first_name VARCHAR(255) NOT NULL,
    last_name VARCHAR(255) NOT NULL
);
INSERT INTO Authors (first_name, last_name) VALUES
('Harper', 'Lee'),
('Stephen', 'Hawking'),
('F. Scott', 'Fitzgerald'),
('Rebecca', 'Skloot'),
('Yuval Noah', 'Harari');

SELECT * from Authors;
```

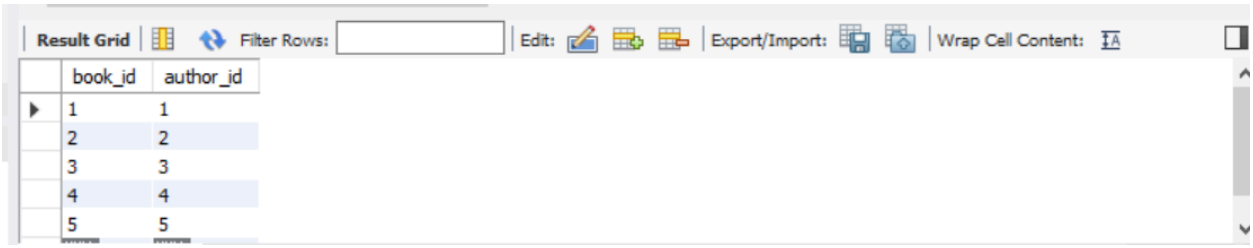


author_id	first_name	last_name
1	Harper	Lee
2	Stephen	Hawking
3	F. Scott	Fitzgerald
4	Rebecca	Skloot
5	Yuval Noah	Harari

```
CREATE TABLE BookAuthors (
    book_id INT,
    author_id INT,
    PRIMARY KEY (book_id, author_id),
     FOREIGN KEY (book_id) REFERENCES Books(book_id) ON DELETE
CASCADE,
        FOREIGN KEY (author_id) REFERENCES Authors(author_id) ON
DELETE CASCADE
);

INSERT INTO BookAuthors (book_id, author_id) VALUES
(1, 1),
(2, 2),
(3, 3),
(4, 4),
(5, 5);

SELECT * from BookAuthors;
```



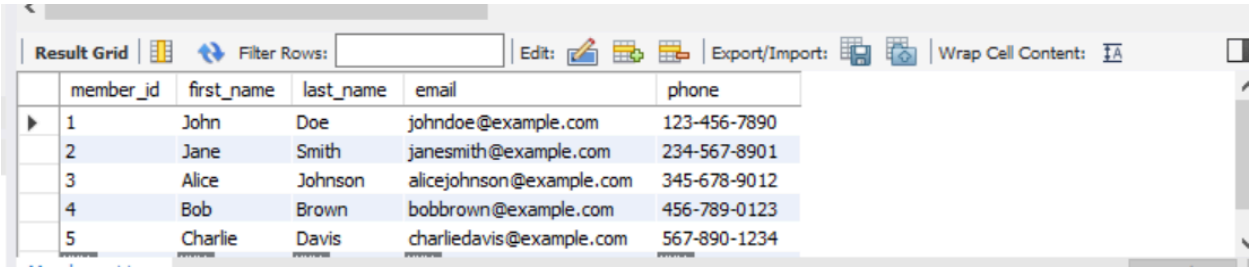
book_id	author_id
1	1
2	2
3	3
4	4
5	5

```
CREATE TABLE Members (
    member_id INT AUTO_INCREMENT PRIMARY KEY,
    first_name VARCHAR(255) NOT NULL,
    last_name VARCHAR(255) NOT NULL,
    email VARCHAR(255) UNIQUE NOT NULL,
```

```
    phone VARCHAR(15) UNIQUE
);


INSERT INTO Members (first_name, last_name, email, phone) VALUES
('John', 'Doe', 'johndoe@example.com', '123-456-7890'),
('Jane', 'Smith', 'janesmith@example.com', '234-567-8901'),
('Alice', 'Johnson', 'alicejohnson@example.com', '345-678-9012'),
('Bob', 'Brown', 'bobbrown@example.com', '456-789-0123'),
('Charlie', 'Davis', 'charliedavis@example.com', '567-890-1234');

SELECT * from Members;
```



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

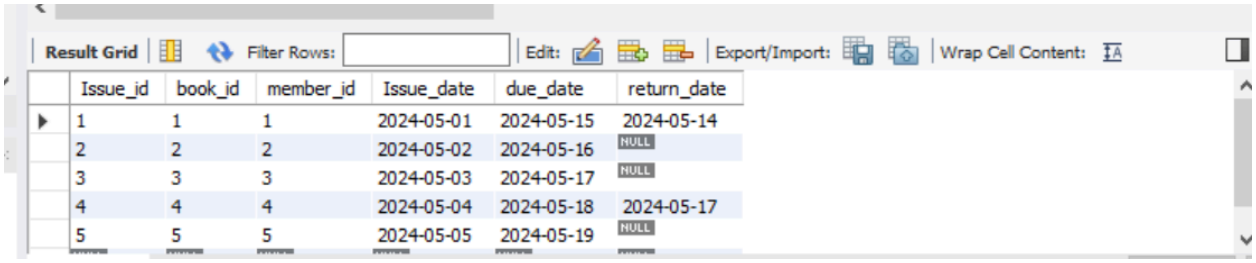
member_id	first_name	last_name	email	phone
1	John	Doe	johndoe@example.com	123-456-7890
2	Jane	Smith	janesmith@example.com	234-567-8901
3	Alice	Johnson	alicejohnson@example.com	345-678-9012
4	Bob	Brown	bobbrown@example.com	456-789-0123
5	Charlie	Davis	charliedavis@example.com	567-890-1234

```
CREATE TABLE Issue (
    Issue_id INT AUTO_INCREMENT PRIMARY KEY,
    book_id INT,
    member_id INT,
    Issue_date DATE NOT NULL,
    due_date DATE NOT NULL,
    return_date DATE,
     FOREIGN KEY (book_id) REFERENCES Books(book_id) ON DELETE
CASCADE,
     FOREIGN KEY (member_id) REFERENCES Members(member_id) ON
DELETE CASCADE
);

INSERT INTO Issue (book_id, member_id, Issue_date, due_date,
return_date) VALUES
(1, 1, '2024-05-01', '2024-05-15', '2024-05-14'),
```

(2, 2, '2024-05-02', '2024-05-16', NULL),
(3, 3, '2024-05-03', '2024-05-17', NULL),
(4, 4, '2024-05-04', '2024-05-18', '2024-05-17'),
(5, 5, '2024-05-05', '2024-05-19', NULL);

SELECT * from Issue;



Issue_id	book_id	member_id	Issue_date	due_date	return_date
1	1	1	2024-05-01	2024-05-15	2024-05-14
2	2	2	2024-05-02	2024-05-16	NULL
3	3	3	2024-05-03	2024-05-17	NULL
4	4	4	2024-05-04	2024-05-18	2024-05-17
5	5	5	2024-05-05	2024-05-19	NULL