ADBMS

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Experiment - 1

1.**Problem Statement**

You are tasked with designing a basic book management system. Create two tables — Authors and Books — to represent a one-to-many relationship (one author can write multiple books). Use proper primary and foreign key constraints while designing the schema.

Query

```
CREATE TABLE Authors (
    author_id INT PRIMARY KEY,
    name VARCHAR(50),
    country VARCHAR(50)
);
CREATE TABLE Books (
    book_id INT PRIMARY KEY,
    title VARCHAR(100),
    author_id INT,
    FOREIGN KEY (author_id) REFERENCES Authors(author_id)
);
```

Output

```
ysql> desc Authors;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| author_id | int(11)     | NO   | PRI | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| country   | varchar(50) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
rows in set (0.02 sec)

ysql> desc Books;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| book_id   | int(11)      | NO   | PRI | NULL    |       |
| title     | varchar(100) | YES  |     | NULL    |       |
| author_id | int(11)      | YES  | MUL | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
rows in set (0.02 sec)
```

2.**Problem Statement**

After creating the Authors and Books tables, your next task is to insert sample records. Insert at least 3 authors and 3 books, ensuring books reference valid authors using the foreign key.

Query

```
INSERT INTO Authors (author_id, name, country) VALUES
(1, 'Ashish', 'India'),
(2, 'Smaran', 'USA'),
(3, 'Vaibhav', 'UK');
INSERT INTO Books (book_id, title, author_id) VALUES
(101, 'Data Science Basics', 1),
(102, 'AI in Education', 2),
(103, 'SQL Simplified', 1);
```

Output

```
mysql> select*from Authors;
+-----------+---------+---------+
| author_id | name    | country |
+-----------+---------+---------+
|         1 | Ashish  | India   |
|         2 | Smaran  | USA     |
|         3 | Vaibhav | UK      |
+-----------+---------+---------+
3 rows in set (0.00 sec)

mysql> select*from books;
+---------+---------------------+-----------+
| book_id | title               | author_id |
+---------+---------------------+-----------+
|     101 | Data Science Basics |         1 |
|     102 | AI in Education     |         2 |
|     103 | SQL Simplified      |         1 |
+---------+---------------------+-----------+
3 rows in set (0.00 sec)
```

3.**Problem Statement**

Given two tables, Authors and Books, retrieve the titles of all books along with their author's name and country. This involves creating tables, inserting data, and using an INNER JOIN to combine records based on author_id.

Query

```
SELECT

    Books.title,

        Authors.name,

            Authors.country

            FROM

                Books

                INNER JOIN

                    Authors

                    ON

                        Books.author_id = Authors.author_id;
```

Output

```
ysql> desc Authors;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| author_id | int(11)     | NO   | PRI | NULL    |       |
| name      | varchar(50) | YES  |     | NULL    |       |
| country   | varchar(50) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
rows in set (0.02 sec)

ysql> desc Books;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| book_id   | int(11)      | NO   | PRI | NULL    |       |
| title     | varchar(100) | YES  |     | NULL    |       |
| author_id | int(11)      | YES  | MUL | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
rows in set (0.02 sec)
```