Experiment 1

Student Name: Rachit Kumar
UID: 23BCS11597
Branch: BE CSE
Section: 23BCS_KRG-2/A
Subject Name: Advanced Database. and Management System
Subject Code: 23CSP-333
Date :24/07/2025
Semester: 5th

1. Aim:
Author-Book Relationships using Joins and basic SQL Operations.
1. Design Two tables – one for storing author details and the other for book details.
2. Ensure Foreign Key relationship from book to its respective author.
3. Insert at least three records in each table.
4. Perform an Inner Join to link each book with its author using the common author ID.
5. Select the book title, author name, and author's country.

2. Tools Used: SQL Server (One compiler)

3. Code:

```
CREATE TABLE Author (
  author_id INT PRIMARY KEY,
  author_name VARCHAR(20),
  country VARCHAR(20)
);

CREATE TABLE Book (
  book_id INT PRIMARY KEY,
  book_title VARCHAR(20),
  author_id INT,
  FOREIGN KEY (author_id) REFERENCES Author(author_id)
);

INSERT INTO Author (author_id, author_name, country)
VALUES
  (1, 'rachit', 'india'),
  (2, 'Naman', 'China'),
  (3, 'Ashu', 'Russia');

INSERT INTO Book (book_id, book_title, author_id)
VALUES
  (100, 'science', 1),
```

```
(200, 'biology', 2),
(300, 'English', 1);

SELECT * FROM Author;

SELECT * FROM Book;

SELECT A.*, B.*
FROM Author AS A
INNER JOIN Book AS B ON A.author_id = B.author_id;
```

Output:

Output:

```
+-----------+-------------+---------+
| author_id | author_name | country |
+-----------+-------------+---------+
|         1 | rachit      | india   |
|         2 | Naman       | China   |
|         3 | Ashu        | Russia  |
+-----------+-------------+---------+
+---------+------------+-----------+
| book_id | book_title | author_id |
+---------+------------+-----------+
|     100 | science    |         1 |
|     200 | biology    |         2 |
|     300 | English    |         1 |
+---------+------------+-----------+
+-----------+-------------+---------+---------+------------+-----------+
| author_id | author_name | country | book_id | book_title | author_id |
+-----------+-------------+---------+---------+------------+-----------+
|         1 | rachit      | india   |     100 | science    |         1 |
|         1 | rachit      | india   |     300 | English    |         1 |
|         2 | Naman       | China   |     200 | biology    |         2 |
+-----------+-------------+---------+---------+------------+-----------+
```

4. Learning Outcomes

- **Design relational tables** with appropriate **Primary Keys** and **Foreign Keys**.
- **Enforce referential integrity** between related tables.
- **Insert multiple records** into tables and understand how relationships are preserved.
- **Apply INNER JOIN operations** to combine data from multiple tables based on a common key.

- **Write selective queries** to extract meaningful information (e.g., book title, author name, and country).

- Develop a clear understanding of **one-to-many relationships** (one author can write many books).