

Library Management (Schema)

```
mysql> use db;
```

Database changed

```
mysql> CREATE TABLE Users (
```

```
->  user_id INT PRIMARY KEY AUTO_INCREMENT,  
->  first_name VARCHAR(50),  
->  last_name VARCHAR(50),  
->  phone VARCHAR(15),  
->  membership_date DATE  
-> );
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> CREATE TABLE Books (
```

```
->  book_id INT PRIMARY KEY AUTO_INCREMENT,  
->  title VARCHAR(100),  
->  author VARCHAR(100),  
->  isbn VARCHAR(20),  
->  quantity INT  
-> );
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> CREATE TABLE Transactions (
```

```
->  transaction_id INT PRIMARY KEY AUTO_INCREMENT,  
->  user_id INT,  
->  book_id INT,  
->  transaction_type VARCHAR(10),  
->  borrow_date DATE,  
->  return_date DATE,  
->  due_date DATE,  
->  FOREIGN KEY (user_id) REFERENCES Users(user_id),  
->  FOREIGN KEY (book_id) REFERENCES Books(book_id)  
-> );
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> CREATE TABLE Authors (
```

```
->  author_id INT PRIMARY KEY AUTO_INCREMENT,  
->  name VARCHAR(100));
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> CREATE TABLE Categories (
```

```
->  category_id INT PRIMARY KEY AUTO_INCREMENT,  
->  name VARCHAR(50)  
-> );
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> CREATE TABLE Book_Category (
```

```
->  book_id INT,  
->  category_id INT,  
->  FOREIGN KEY (book_id) REFERENCES Books(book_id),  
->  FOREIGN KEY (category_id) REFERENCES Categories(category_id),  
->  PRIMARY KEY (book_id, category_id)
```

```
-> );
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> insert into Users values(1,'Sneha','Agrawal','12345','202-12-02');
Query OK, 1 row affected (0.00 sec)
mysql> insert into Users values(2,'Vansh','Agrawal','123456','2024-04-11');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from Users;
+-----+-----+-----+-----+-----+
| user_id | first_name | last_name | phone | membership_date |
+-----+-----+-----+-----+-----+
| 1 | Sneha | Agrawal | 12345 | 0202-12-02 |
| 2 | Vansh | Agrawal | 123456 | 2024-04-11 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> insert into Books values(101,'The Java Programming Language', 'James Gosling',
'978-0134484074', 5),(102,'Introduction to Algorithms', 'Thomas H. Cormen','978-0262033848', 3);
Query OK, 2 rows affected (0.00 sec)
Records: 2 Duplicates: 0 Warnings: 0
mysql> select * from Books;
```

```
+-----+-----+-----+-----+-----+
| book_id | title | author | isbn | quantity |
+-----+-----+-----+-----+-----+
| 101 | The Java Programming Language | James Gosling | 978-0134484074 | 5 |
| 102 | Introduction to Algorithms | Thomas H. Cormen | 978-0262033848 | 3 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Transactions (user_id, book_id, transaction_type, borrow_date, return_date,
due_date)
```

```
-> VALUES
-> (1, 2, 'Borrow', '2024-12-01', NULL, '2024-12-15'),
-> (2, 1, 'Borrow', '2023-11-16', '2023-11-20', '2023-11-20'),
-> (3, 3, 'Borrow', '2022-07-11', NULL, '2022-07-25');
```

```
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails
(`db`.`transactions`, CONSTRAINT `transactions_ibfk_2` FOREIGN KEY (`book_id`) REFERENCES
`books` (`book_id`))
```

```
mysql> INSERT INTO Transactions (user_id, book_id, transaction_type, borrow_date, return_date,
due_date)
```

```
-> VALUES
->
```

```
(1,102,'Borrow','0202-12-02',NULL,'0202-12-15'),(2,101,'Borrow','2024-04-11','2024-04-20','2024-04-20');
Query OK, 2 rows affected (0.00 sec)
Records: 2 Duplicates: 0 Warnings: 0
mysql> select * from Transactions;
```

transaction_id	user_id	book_id	transaction_type	borrow_date	return_date	due_date
4	1	102	Borrow	2022-12-02	NULL	2022-12-15
5	2	101	Borrow	2024-04-11	2024-04-20	2024-04-20

2 rows in set (0.00 sec)

mysql> insert into Authors values(202,'James gosling');

Query OK, 1 row affected (0.00 sec)

mysql> insert into Authors values(204,'Thomas H. Cormen');

Query OK, 1 row affected (0.00 sec)

mysql> select * from Authors;

author_id	name
202	James gosling
204	Thomas H. Cormen

2 rows in set (0.00 sec)

mysql> insert into categories values(1001,'Programming'),(1002,'Computer science');

Query OK, 2 rows affected (0.01 sec)

Records: 2 Duplicates: 0 Warnings: 0

mysql> select * from categories;

category_id	name
1001	Programming
1002	Computer science

2 rows in set (0.00 sec)

mysql> insert into Book_Category values (101,1002),(102,1001);

Query OK, 2 rows affected (0.00 sec)

Records: 2 Duplicates: 0 Warnings: 0

mysql> select * from Book_Category;

book_id	category_id
102	1001
101	1002

2 rows in set (0.00 sec)