-- Task : SQL Joins (Inner, Left, Right, Full)

-- Database: library_management_system

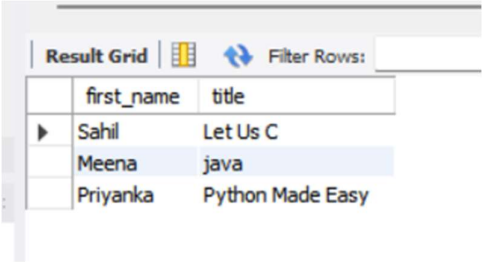
use library_management_system ;

-- 1 INNER JOIN: Readers who issued books

-- Shows only those readers who have actually issued a book

```
SELECT r.first_name, b.title
FROM Readers r
INNER JOIN Issue i ON r.reader_id = i.reader_id
INNER JOIN Books b ON i.isbn = b.isbn;
```

Output:-



first_name	title
Sahil	Let Us C
Meena	java
Priyanka	Python Made Easy

-- 2 LEFT JOIN: All readers (even if they never issued a book)

-- If a reader hasn't issued any book, the title will be NULL

```
SELECT r.first_name, b.title
FROM Readers r
LEFT JOIN Issue i ON r.reader_id = i.reader_id
LEFT JOIN Books b ON i.isbn = b.isbn;
```

Output:-

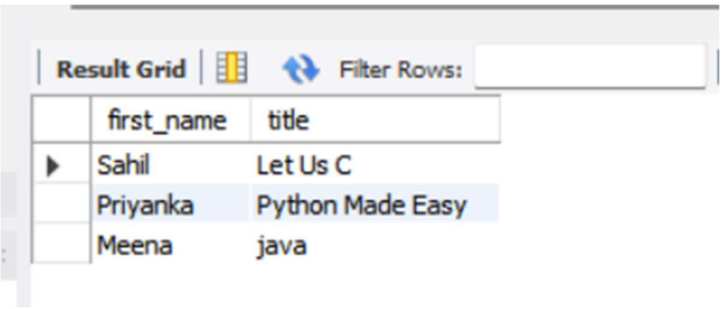
first_name	title
Sahil	Let Us C
Meena	java
Priyanka	Python Made Easy
Ashish	NULL
Aarav	NULL
Sahil	NULL

-- 3 RIGHT JOIN: All issued books (even if reader info is missing)

-- Shows all issued records and their books

```
SELECT r.first_name, b.title
FROM Readers r
RIGHT JOIN Issue i ON r.reader_id = i.reader_id
RIGHT JOIN Books b ON i.isbn = b.isbn;
```

Output:-



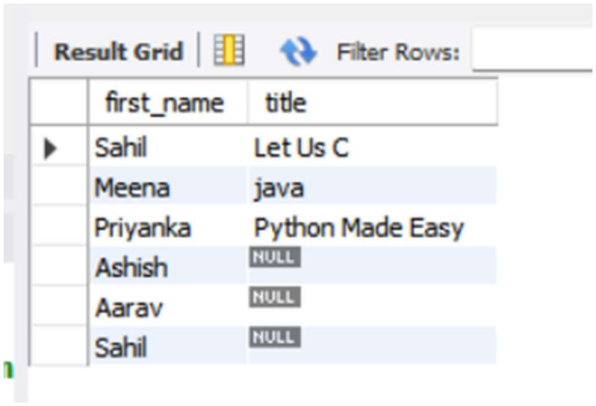
first_name	title
Sahil	Let Us C
Priyanka	Python Made Easy
Meena	java

-- 4 FULL OUTER JOIN: Combine LEFT & RIGHT joins

-- MySQL doesn't directly support FULL JOIN, so we use UNION

```
SELECT r.first_name, b.title
FROM Readers r
LEFT JOIN Issue i ON r.reader_id = i.reader_id
LEFT JOIN Books b ON i.isbn = b.isbn
UNION
SELECT r.first_name, b.title
FROM Readers r
RIGHT JOIN Issue i ON r.reader_id = i.reader_id
RIGHT JOIN Books b ON i.isbn = b.isbn;
```

Output:-



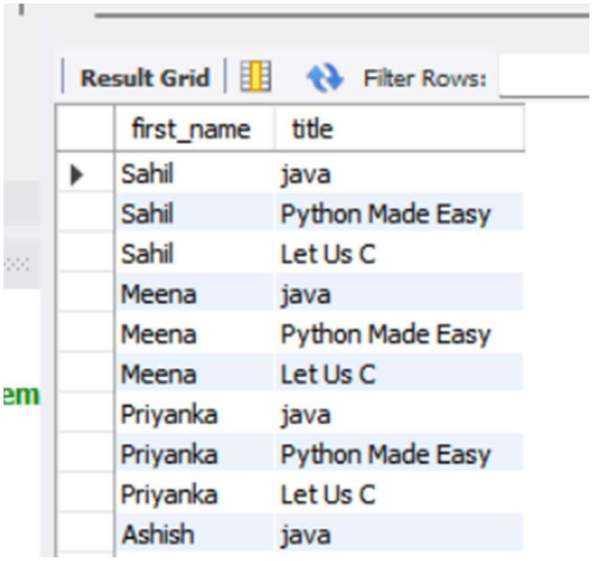
first_name	title
Sahil	Let Us C
Meena	java
Priyanka	Python Made Easy
Ashish	NULL
Aarav	NULL
Sahil	NULL

-- 5 CROSS JOIN: Every reader with every book

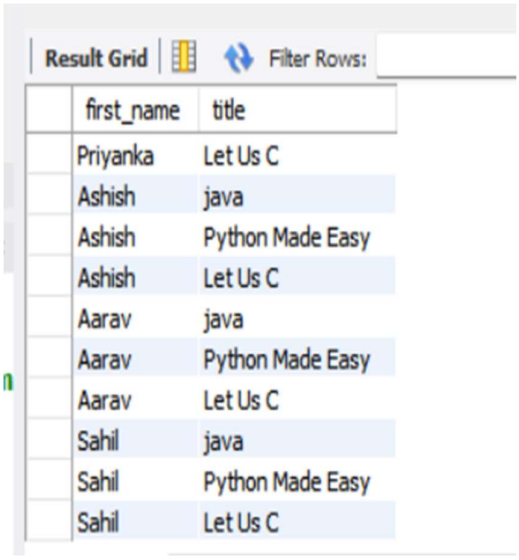
-- Creates a big list of all possible reader-book pairs

```
SELECT r.first_name, b.title
FROM Readers r
CROSS JOIN Books b;
```

Output:-



first_name	title
Sahil	java
Sahil	Python Made Easy
Sahil	Let Us C
Meena	java
Meena	Python Made Easy
Meena	Let Us C
Priyanka	java
Priyanka	Python Made Easy
Priyanka	Let Us C
Ashish	java



first_name	title
Priyanka	Let Us C
Ashish	java
Ashish	Python Made Easy
Ashish	Let Us C
Aarav	java
Aarav	Python Made Easy
Aarav	Let Us C
Sahil	java
Sahil	Python Made Easy
Sahil	Let Us C