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Q1. SQL Joins: Inner Join, Outer Joins, Left and Right Outer Joins

1: Create Database

```
mysql> create database 23mca1030;  
Query OK, 1 row affected (0.00 sec)  
  
mysql>  
mysql> use 23mca1030;  
Database changed
```

2: Create Tables and Insert Values

```
mysql> CREATE TABLE 23mca1030_Country (  
->     country_id INT PRIMARY KEY,  
->     country_name VARCHAR(255)  
-> );  
Query OK, 0 rows affected (0.01 sec)  
  
mysql> INSERT INTO 23MCA1030_Country (country_id, country_name) VALUES  
-> (1, 'India'),  
-> (2, 'Russia'),  
-> (3, 'China'),  
-> (4, 'Japan'),  
-> (5, 'Canada'),  
-> (6, 'United States'),  
-> (7, 'United Kingdom'),  
-> (8, 'United States'),  
-> (9, NULL),  
-> (10, NULL);  
Query OK, 10 rows affected (0.01 sec)  
Records: 10  Duplicates: 0  Warnings: 0
```

3: Create Another Tables and Insert Values

```
mysql> CREATE TABLE 23MCA1030_state(  
-> state_id INT PRIMARY KEY,  
-> state_name VARCHAR(255));  
Query OK, 0 rows affected (0.01 sec)  
  
mysql> INSERT INTO 23MCA1030_State (  
-> state_id,  
-> state_name) VALUES  
-> (1, 'Delhi'),  
-> (2, 'Moscow'),  
-> (3, NULL),  
-> (4, 'Tokyo'),  
-> (5, 'Toronto'),  
-> (6, 'New York'),  
-> (7, 'London'),  
-> (8, NULL),  
-> (9, 'Paris'),  
-> (10, 'Dubai');  
Query OK, 10 rows affected (0.00 sec)  
Records: 10  Duplicates: 0  Warnings: 0
```

INNER JOIN

```
mysql> SELECT c.country_id, c.country_name, s.state_name  
-> FROM 23mca1030_Country c  
-> INNER JOIN 23MCA1030_State s ON c.country_id = s.state_id  
-> WHERE s.state_name IS NOT NULL;  
  
+-----+-----+-----+  
| country_id | country_name | state_name |  
+-----+-----+-----+  
|          1 | India        | Delhi      |  
|          2 | Russia       | Moscow     |  
|          4 | Japan        | Tokyo      |  
|          5 | Canada       | Toronto    |  
|          6 | United States | New York   |  
|          7 | United Kingdom | London    |  
|          9 | NULL         | Paris      |  
|         10 | NULL         | Dubai      |  
+-----+-----+-----+  
8 rows in set (0.00 sec)
```

OUTER JOIN

```
mysql> SELECT c.country_id, c.country_name, s.state_id, s.state_name
-> FROM 23mca1030_Country c
-> LEFT JOIN 23MCA1030_State s ON c.country_id = s.state_id
-> UNION
-> SELECT c.country_id, c.country_name, s.state_id, s.state_name
-> FROM 23mca1030_Country c
-> RIGHT JOIN 23MCA1030_State s ON c.country_id = s.state_id
-> WHERE c.country_id IS NULL;
```

country_id	country_name	state_id	state_name
1	India	1	Delhi
2	Russia	2	Moscow
3	China	3	NULL
4	Japan	4	Tokyo
5	Canada	5	Toronto
6	United States	6	New York
7	United Kingdom	7	London
8	United States	8	NULL
9	NULL	9	Paris
10	NULL	10	Dubai

10 rows in set (0.00 sec)

LEFT OUTER JOIN

```
mysql> SELECT c.country_id, c.country_name, s.state_id, s.state_name
-> FROM 23mca1030_Country c
-> LEFT JOIN 23MCA1030_State s ON c.country_id = s.state_id;
```

country_id	country_name	state_id	state_name
1	India	1	Delhi
2	Russia	2	Moscow
3	China	3	NULL
4	Japan	4	Tokyo
5	Canada	5	Toronto
6	United States	6	New York
7	United Kingdom	7	London
8	United States	8	NULL
9	NULL	9	Paris
10	NULL	10	Dubai

10 rows in set (0.00 sec)

RIGHT OUTER JOIN

```
mysql> SELECT c.country_id, c.country_name, s.state_id, s.state_name  
-> FROM 23mca1030_Country c  
-> RIGHT JOIN 23MCA1030_State s ON c.country_id = s.state_id;
```

country_id	country_name	state_id	state_name
1	India	1	Delhi
2	Russia	2	Moscow
3	China	3	NULL
4	Japan	4	Tokyo
5	Canada	5	Toronto
6	United States	6	New York
7	United Kingdom	7	London
8	United States	8	NULL
9	NULL	9	Paris
10	NULL	10	Dubai

10 rows in set (0.00 sec)

END