

## Task 5: SQL Joins (Inner, Left, Right, Full)

### --1. Customer Table Creation and Insertion of Data--

```
CREATE TABLE `customer` (
    `customer_id` int(11) primary key auto_increment NOT NULL,
    `name` varchar(50) NOT NULL,
    `email` varchar(100) NOT NULL,
    `phone` varchar(20) NOT NULL,
    `address` text NOT NULL,
    `pincode` varchar(11) NOT NULL,
    `salary` int NOT NULL,
    `city` varchar(50) NOT NULL
);

INSERT INTO customer (customer_id, name, email, phone, address, pincode, salary, city)
VALUES
    (NULL, 'John Peterson', 'john.peterson@example.com', '+932025550147', '1407 Oak Street', '20001', 35000, 'Mumbai'),
    (NULL, 'Emma Johansson', 'emma.johansson@example.se', '+46 709123456', 'Vasagatan 12', '11120', 38000, 'Delhi'),
    (NULL, 'Liam McCarthy', 'liam.mccarthy@example.ie', '+35 3851234567', '32 O'Connell St', '90901', 52000, 'Delhi'),
    (NULL, 'Sofia Rossi', 'sofia.rossi@example.it', '+39 347890122', 'Via Roma 55, Milan, Italy', '20121', 30000, 'Bangalore');
```

Results

Query #1 Execution time: 0.39ms

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customer_id	name	email	phone	address	pincode	salary	city
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai
2	Emma Johansson	emma.johansson@example.se	+46 709123456	Vasagatan 12	11120	38000	Delhi
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi
4	Sofia Rossi	sofia.rossi@example.it	+39 347890122	Via Roma 55, Milan, Italy	20121	30000	Bangalore

### --2.Order Table Creation and Insertion of Data--

```
CREATE TABLE `orders` (
    `order_id` int(11) NOT NULL PRIMARY KEY AUTO_INCREMENT,
```

```

`customer_id` int(11) DEFAULT NULL,
`order_date` datetime DEFAULT current_timestamp(),
`total_amount` decimal(10,2) DEFAULT NULL
);

```

```

INSERT INTO orders
(order_id, customer_id, order_date, total_amount)
VALUES
(101, 1, NOW(), 35000.45),
(NULL, 3, NOW(), 23400.00),
(NULL, 3, NOW(), 73400.98),
(NULL, 2, NOW(), 11234.56),
(NULL, 1, NOW(), 98230.00);
select * from orders;

```

Query #2 Execution time: 0.17ms

order_id	customer_id	order_date	total_amount
101	1	2025-11-20 06:28:36	35000.45
102	3	2025-11-20 06:28:36	23400.00
103	3	2025-11-20 06:28:36	73400.98
104	2	2025-11-20 06:28:36	11234.56
105	1	2025-11-20 06:28:36	98230.00

### ---3. Inner Join

```

SELECT *
FROM customer
INNER JOIN orders

```

ON customer.customer\_id = orders.customer\_id;

Query #3 Execution time: 0.26ms

customer_id	name	email	phone	address	pincode	salary	city	order_id	customer_id	order_date	total_amount
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	101	1	2025-11-20 06:28:36	35000.45
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	102	3	2025-11-20 06:28:36	23400.00
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	103	3	2025-11-20 06:28:36	73400.98
2	Emma Johansson	emma.johansson@example.se	+46 709123456	Vasagatan 12	11120	38000	Delhi	104	2	2025-11-20 06:28:36	11234.56
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	105	1	2025-11-20 06:28:36	98230.00

#### ---4. Left Outer Join

*Example-1*

SELECT \*

FROM customer

LEFT OUTER JOIN orders

ON customer.customer\_id = orders.customer\_id;

Query #4 Execution time: 0.22ms

customer_id	name	email	phone	address	pincode	salary	city	order_id	customer_id	order_date	total_amount
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	101	1	2025-11-20 06:28:36	35000.45
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	102	3	2025-11-20 06:28:36	23400.00
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	103	3	2025-11-20 06:28:36	73400.98
2	Emma Johansson	emma.johansson@example.se	+46 709123456	Vasagatan 12	11120	38000	Delhi	104	2	2025-11-20 06:28:36	11234.56
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	105	1	2025-11-20 06:28:36	98230.00
4	Sofia Rossi	sofia.rossi@example.it	+39 347890122	Via Roma 55, Milan, Italy	20121	30000	Bangalore	null	null	null	null

*Example-2*

SELECT

c.customer\_id,

c.name,

o.order\_id,

o.total\_amount

FROM customer c

LEFT OUTER JOIN orders o

```
ON c.customer_id = o.customer_id;
```

Query #5 Execution time: 0.17ms

customer_id	name	order_id	total_amount
1	John Peterson	101	35000.45
3	Liam McCarthy	102	23400.00
3	Liam McCarthy	103	73400.98
2	Emma Johansson	104	11234.56
1	John Peterson	105	98230.00
4	Sofia Rossi	null	null

*Example-3*

```
SELECT c.*  
FROM customer c  
LEFT JOIN orders o  
ON c.customer_id = o.customer_id  
WHERE o.order_id IS NULL;
```

Query #6 Execution time: 0.19ms

customer_id	name	email	phone	address	pincode	salary	city
4	Sofia Rossi	sofia.rossi@example.it	+39 347890122	Via Roma 55, Milan, Italy	20121	30000	Bangalore

*Example-4*

```
SELECT DISTINCT customer.customer_id, name, email, phone, city  
FROM customer  
LEFT OUTER JOIN orders  
ON customer.customer_id = orders.customer_id;
```

Query #7 Execution time: 0.26ms

customer_id	name	email	phone	city
1	John Peterson	john.peterson@example.com	+932025550147	Mumbai
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	Delhi
2	Emma Johansson	emma.johansson@example.se	+46 709123456	Delhi
4	Sofia Rossi	sofia.rossi@example.it	+39 347890122	Bangalore

## ---5. Right Outer Join

*Example-1*

```
SELECT *  
FROM customer  
RIGHT OUTER JOIN orders
```

ON orders.customer\_id = customer.customer\_id;

Query #8 Execution time: 0.23ms

customer_id	name	email	phone	address	pincode	salary	city	order_id	customer_id	order_date	total_amount
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	101	1	2025-11-20 06:28:36	35000.45
1	John Peterson	john.peterson@example.com	+932025550147	1407 Oak Street	20001	35000	Mumbai	105	1	2025-11-20 06:28:36	98230.00
2	Emma Johansson	emma.johansson@example.se	+46 7091234567	Vasagatan 12	11120	38000	Delhi	104	2	2025-11-20 06:28:36	11234.56
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	102	3	2025-11-20 06:28:36	23400.00
3	Liam McCarthy	liam.mccarthy@example.ie	+35 3851234567	32 O'Connell St	90901	52000	Delhi	103	3	2025-11-20 06:28:36	73400.98

*Example-2*

SELECT

c.customer\_id,

c.name,

o.order\_id,

o.total\_amount

FROM orders o

LEFT OUTER JOIN customer c

ON o.customer\_id = c.customer\_id;

Query #9 Execution time: 0.18ms

customer_id	name	order_id	total_amount
1	John Peterson	101	35000.45
1	John Peterson	105	98230.00
2	Emma Johansson	104	11234.56
3	Liam McCarthy	102	23400.00
3	Liam McCarthy	103	73400.98

## ---6. Full Outer Join

SELECT

c.customer\_id,

c.name,

o.order\_id,

o.total\_amount

FROM customer c

LEFT JOIN orders o

ON c.customer\_id = o.customer\_id

UNION

```

SELECT
    c.customer_id,
    c.name,
    o.order_id,
    o.total_amount
FROM customer c
RIGHT JOIN orders o
ON c.customer_id = o.customer_id;

```

Query #10 Execution time: 0.36ms

customer_id	name	order_id	total_amount
1	John Peterson	101	35000.45
3	Liam McCarthy	102	23400.00
3	Liam McCarthy	103	73400.98
2	Emma Johansson	104	11234.56
1	John Peterson	105	98230.00
4	Sofia Rossi	null	null