

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

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Query #1 Execution time: 0.39ms

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 709123456	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