

Joining Tables – Inner

Let us understand how to join data from multiple tables.

- We will primarily focus on ANSI style join (**JOIN with ON**).
- There are different types of joins.
 - **INNER JOIN** - Get all the records from both the datasets which satisfies **JOIN** condition.
 - **OUTER JOIN** - We will get into the details as part of the next topic
- Example for **INNER JOIN**

```
SELECT o.order_id,
       o.order_date,
       o.order_status,
       oi.order_item_subtotal
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
LIMIT 10
```

- We can join more than 2 tables in one query. Here is how it will look like.

```
SELECT o.order_id,
       o.order_date,
       o.order_status,
       oi.order_item_subtotal
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
      JOIN products p
      ON p.product_id = oi.order_item_product_id
LIMIT 10
```

- If we have to apply additional filters, it is recommended to use **WHERE** clause. **ON** clause should only have join conditions.
- We can have non equal join conditions as well, but they are not used that often.
- Here are some of the examples for **INNER JOIN**:
 - Get order id, date, status and item revenue for all order items.
 - Get order id, date, status and item revenue for all order items for all orders where order status is either **COMPLETE** or **CLOSED**.
 - Get order id, date, status and item revenue for all order items for all orders where order status is either **COMPLETE** or **CLOSED** for the orders that are placed in the month of 2014 January.

```
%load_ext sql
```

The sql extension is already loaded. To reload it, use:
%reload_ext sql

```
%env
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_retail_db
```

```
env:
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_retail_db
```

```
%%sql

SELECT o.order_id,
       o.order_date,
       o.order_status,
       oi.order_item_subtotal
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
LIMIT 10
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
10 rows affected.
```

order_id	order_date	order_status	order_item_subtotal
1	2013-07-25 00:00:00	CLOSED	299.98
2	2013-07-25 00:00:00	PENDING_PAYMENT	199.99
2	2013-07-25 00:00:00	PENDING_PAYMENT	250.0
2	2013-07-25 00:00:00	PENDING_PAYMENT	129.99
4	2013-07-25 00:00:00	CLOSED	49.98
4	2013-07-25 00:00:00	CLOSED	299.95
4	2013-07-25 00:00:00	CLOSED	150.0
4	2013-07-25 00:00:00	CLOSED	199.92
5	2013-07-25 00:00:00	COMPLETE	299.98
5	2013-07-25 00:00:00	COMPLETE	299.95

```
%sql SELECT count(1) FROM orders
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.
```

count

68883

```
%sql SELECT count(1) FROM order_items
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.
```

count

172198

```
%%sql
SELECT count(1)
FROM orders o JOIN order_items oi
ON o.order_id = oi.order_item_order_id
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.
```

count

172198

```
%%sql
SELECT o.order_id,
       o.order_date,
       o.order_status,
       oi.order_item_subtotal
FROM orders o JOIN order_items oi
ON o.order_id = oi.order_item_order_id
WHERE o.order_status IN ('COMPLETE', 'CLOSED')
LIMIT 10
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
10 rows affected.
```

order_id	order_date	order_status	order_item_subtotal
1	2013-07-25 00:00:00	CLOSED	299.98
4	2013-07-25 00:00:00	CLOSED	49.98
4	2013-07-25 00:00:00	CLOSED	299.95
4	2013-07-25 00:00:00	CLOSED	150.0
4	2013-07-25 00:00:00	CLOSED	199.92
5	2013-07-25 00:00:00	COMPLETE	299.98
5	2013-07-25 00:00:00	COMPLETE	299.95
5	2013-07-25 00:00:00	COMPLETE	99.96
5	2013-07-25 00:00:00	COMPLETE	299.98
5	2013-07-25 00:00:00	COMPLETE	129.99

```
%%sql
```

```
SELECT count(1)
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
WHERE o.order_status IN ('COMPLETE', 'CLOSED')
LIMIT 10
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.
```

count

75408

```
%%sql
```

```
SELECT o.order_id,
       o.order_date,
       o.order_status,
       oi.order_item_subtotal
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
WHERE o.order_status IN ('COMPLETE', 'CLOSED')
      AND to_char(order_date, 'yyyy-MM') = '2014-01'
LIMIT 10
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
10 rows affected.
```

order_id	order_date	order_status	order_item_subtotal
25882	2014-01-01 00:00:00	COMPLETE	299.97
25882	2014-01-01 00:00:00	COMPLETE	100.0
25882	2014-01-01 00:00:00	COMPLETE	79.98
25882	2014-01-01 00:00:00	COMPLETE	399.98
25888	2014-01-01 00:00:00	COMPLETE	299.98
25889	2014-01-01 00:00:00	COMPLETE	99.96
25889	2014-01-01 00:00:00	COMPLETE	19.99
25891	2014-01-01 00:00:00	CLOSED	150.0
25891	2014-01-01 00:00:00	CLOSED	50.0
25891	2014-01-01 00:00:00	CLOSED	119.97

```
%%sql
```

```
SELECT count(1)
FROM orders o JOIN order_items oi
      ON o.order_id = oi.order_item_order_id
WHERE o.order_status IN ('COMPLETE', 'CLOSED')
      AND to_char(order_date, 'yyyy-MM') = '2014-01'
LIMIT 10
```

```
* postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
1 rows affected.
```

count

6198