SQL INNER JOIN

JOIN

countries

	id [PK] integer	name text
1	1	Canada
2	2	USA
3	3	Mexico

capital_cities

	id [PK] integer	name text	country_id integer
1	1	Washington D.C.	2
2	2	Ottawa	1
3	3	Mexico City	3

JOIN

countries

	id [PK] integer	name text
1	1	Canada
2	2	USA
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capital_cities

	id [PK] integer	name text	country_id integer
1	1	Washington D.C.	2
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JOIN

	capital_city_name text	country_name text
1	Washington D.C.	USA
2	Ottawa	Canada
3	Mexico City	Mexico

Join

Query from multiple tables based on values of common columns between related tables

Common columns are typically PRIMARY KEY or FOREIGN KEY

JOIN can be performed on any columns

Emphasizes the relationships between entities

Types: INNER (default), LEFT, RIGHT, FULL

```
SELECT select_list
FROM left_table
[INNER | LEFT | RIGHT | FULL] JOIN right_table
ON left_column = right_column;
```

INNER JOIN

JOIN is INNER JOIN by default

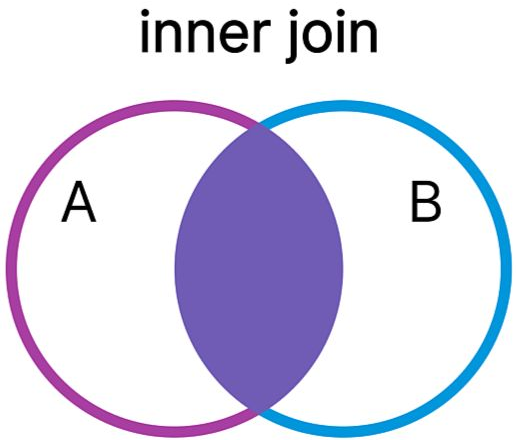
1. Selects rows from left_table

2. Compares left_column to right_column

3. If equal, adds selected colums to result set

4. Otherwise, skips

```
SELECT select_list
FROM left_table
[INNER | LEFT | RIGHT | FULL] JOIN right_table
ON left_column = right_column;
```



INNER JOIN one-to-many example

Query for customer name, amount spent for each order

customers

	id [PK] integer	name text
1	1	Alice
2	2	Bob
3	3	Carol
4	4	Dave
5	5	Eve
6	6	Faythe
7	7	Grace

```
SELECT
cc.name AS capital_city_name,
c.name AS country_name
FROM capital_cities cc
INNER JOIN countries c
ON cc.country_id = c.id;
```

	name text	dollar_amount_spent numeric
1	Alice	100.12
2	Bob	32.99
3	Carol	49.12
4	Carol	43.01
5	Bob	75.12
6	Grace	211.43

orders

	dollar_amount_spent numeric	customer_id integer
1	100.12	1
2	32.99	2
3	49.12	3
4	10.11	[illegible]
5	43.01	3
6	75.12	2
7	27.11	[illegible]
8	211.43	7

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3	49.12	3
4	10.11	[illegible]
5	43.01	3
6	75.12	2
7	27.11	[illegible]
8	211.43	7

INNER JOIN many-to-many example

Query for customer name, amount spent for each order

books

	id [PK] integer	name text
1	1	Ten Ways to Tie Your Shoes
2	2	Oh, Me: a Memoir
3	3	Sweet and Sour Cookbook
4	4	Leap of Faith

books_authors

	book_id integer	author_id integer
1	3	3
2	1	1
3	2	2
4	3	1
5	3	4
6	1	3

authors

	id [PK] integer	name text
1	1	Alice
2	2	Bob
3	3	Carol
4	4	Dave
5	5	Eve
6	6	Faythe
7	7	Grace

```
SELECT
a.name AS author,
b.name AS book
FROM authors a
INNER JOIN books_authors ba
ON a.id = ba.author_id
INNER JOIN books b
ON b.id = ba.book_id;
```

INNER JOIN many-to-many example

Query for customer name, amount spent for each order

books_authors

	book_id integer	author_id integer
1	3	3
2	1	1
3	2	2
4	3	1
5	3	4
6	1	3

authors

	id [PK] integer	name text
1	1	Alice
2	2	Bob
3	3	Carol
4	4	Dave
5	5	Eve
6	6	Faythe
7	7	Grace

INNER JOIN many-to-many example

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3	3	Sweet and Sour Cookbook
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books_authors

	book_id integer	author_id integer
1	3	3
2	1	1
3	2	2
4	3	1
5	3	4
6	1	3

authors

	id [PK] integer	name text
1	1	Alice
2	2	Bob
3	3	Carol
4	4	Dave
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7	7	Grace

```
SELECT
a.name AS author,
b.name AS book
FROM authors a
INNER JOIN books_authors ba
ON a.id = ba.author_id
INNER JOIN books b
ON b.id = ba.book_id;
```

INNER JOIN many-to-many example

Query for customer name, amount spent for each order

```
SELECT
a.name AS author,
b.name AS book
FROM authors a
INNER JOIN books_authors ba
ON a.id = ba.author_id
INNER JOIN books b
ON b.id = ba.book_id;
```

	author text	book text
1	Carol	Sweet and Sour Cookbook
2	Alice	Ten Ways to Tie Your Shoes
3	Bob	Oh, Me: a Memoir
4	Alice	Sweet and Sour Cookbook
5	Dave	Sweet and Sour Cookbook
6	Carol	Ten Ways to Tie Your Shoes