

SQL INNER 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



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

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

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

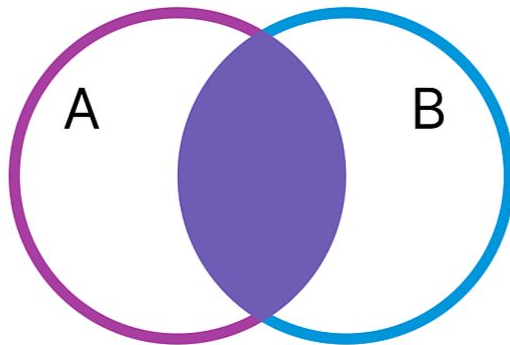
```
SELECT select_list
FROM left_table
[INNER | LEFT | RIGHT | FULL] JOIN right_table
ON left_column = right_column;
```

JOIN is INNER JOIN by default

1. Selects rows from left_table
2. Compares left_column to right_column
3. If equal, adds selected columns 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



INNER JOIN one-to-one example

Query for capital city name / country name pairs

countries

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



```
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;
```



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



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 c.name, o.dollar_amount_spent
FROM customers c
INNER JOIN
orders o
ON o.customer_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	3
5	43.01	3
6	75.12	2
7	27.11	3
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

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

```
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