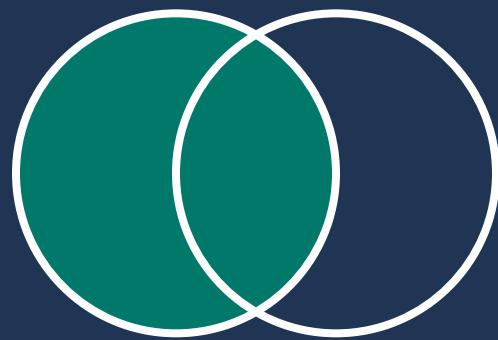
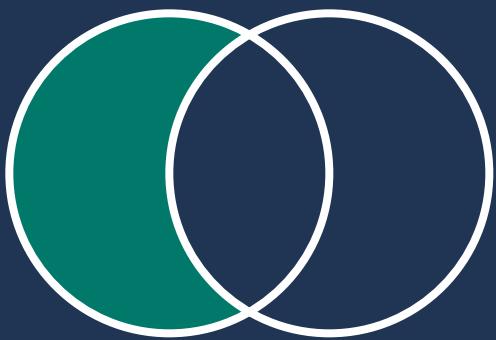


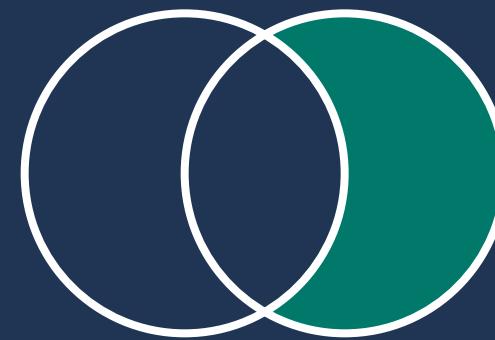
SQL JOINS



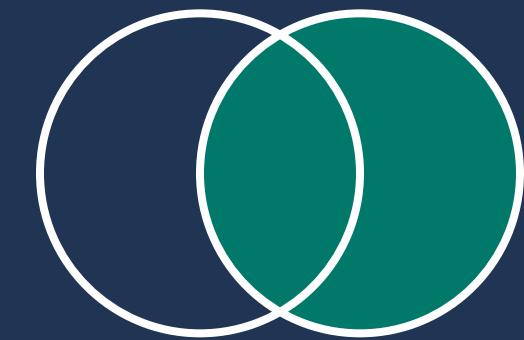
LEFT OUTER JOIN
(INCLUSIVE)



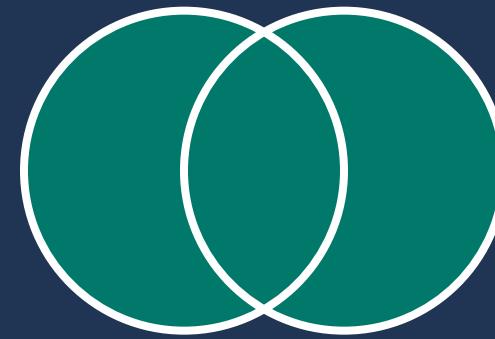
LEFT OUTER JOIN
(EXCLUSIVE)



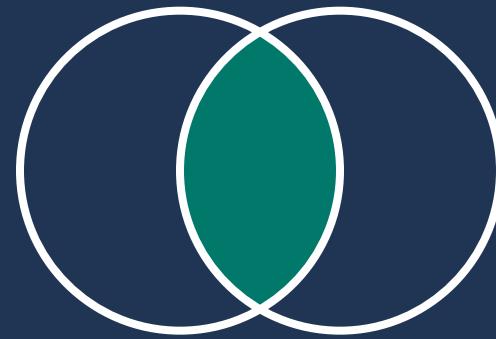
RIGHT OUTER JOIN
(EXCLUSIVE)



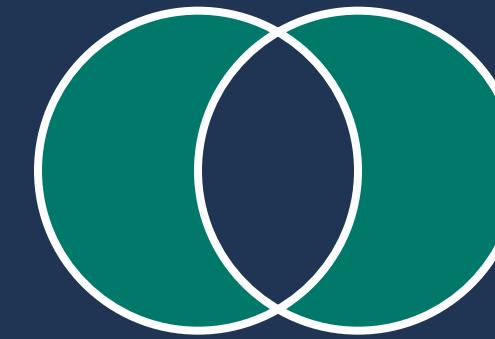
RIGHT OUTER JOIN
(INCLUSIVE)



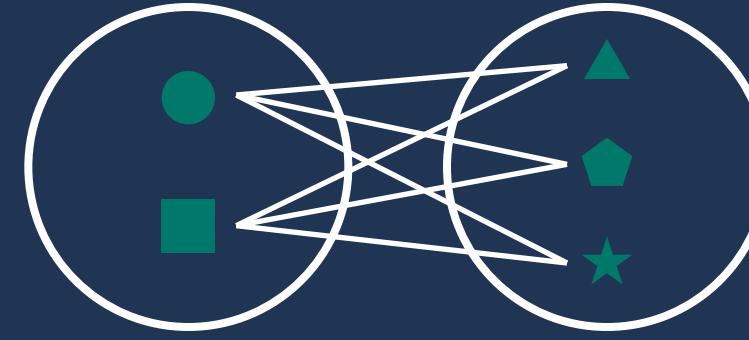
FULL OUTER JOIN
(INCLUSIVE)



INNER JOIN



FULL OUTER JOIN
(EXCLUSIVE)



CROSS JOIN

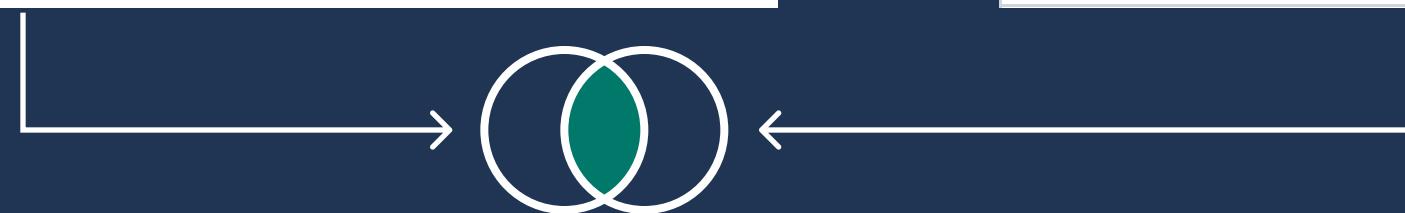
INNER JOIN: Retorna os registros que tenham correspondência em ambas as tabelas.

SQL

```
SELECT * FROM `POKEMONS`  
INNER JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



INNER JOIN						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
1	Bulbasaur	7	69	64	1	grass
1	Bulbasaur	7	69	64	1	poison
4	Charmander	6	85	62	4	fire
25	Pikachu	4	60	112	25	electric
146	Moltres	20	600	261	146	fire
146	Moltres	20	600	261	146	flying

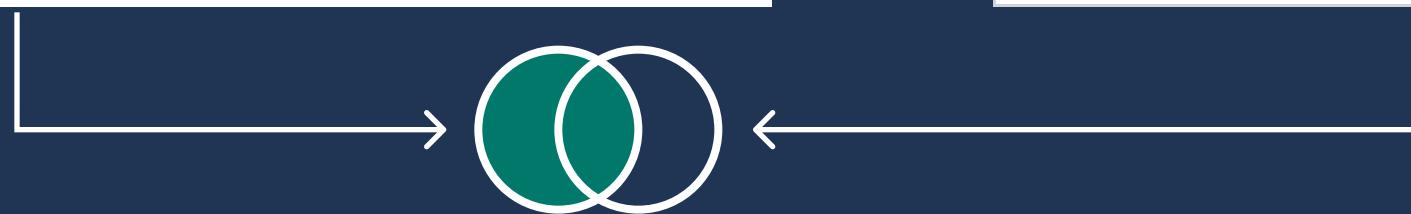
LEFT JOIN (INCLUSIVO): Retorna todos os registros da tabela à esquerda junto dos registros correspondentes da tabela à direita.

SQL

```
SELECT * FROM `POKEMONS`  
LEFT JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



LEFT JOIN (INCLUSIVO)						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
1	Bulbasaur	7	69	64	1	grass
1	Bulbasaur	7	69	64	1	poison
4	Charmander	6	85	62	4	fire
7	Squirtle	5	90	63	null	null
25	Pikachu	4	60	112	25	electric
145	Zapdos	16	526	261	null	null
146	Moltres	20	600	261	146	fire
146	Moltres	20	600	261	146	flying
150	Mewtwo	20	1220	306	null	null

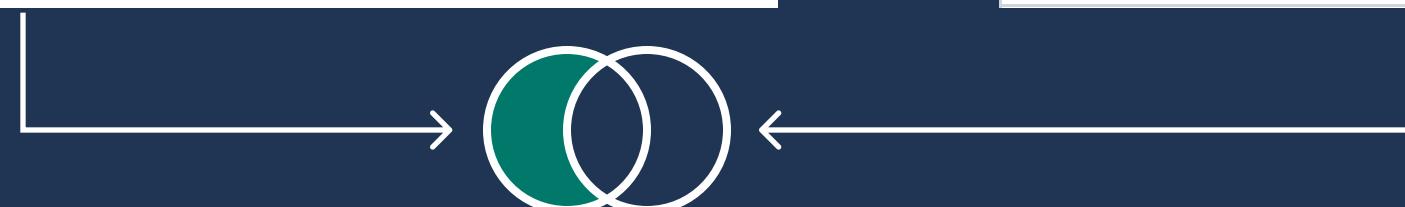
LEFT JOIN (EXCLUSIVO): Retorna somente os registros da tabela à esquerda que não tiverem correspondência com registros da tabela à direita.

SQL

```
SELECT * FROM `POKEMONS`  
LEFT JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`  
WHERE `POKEMON_TIPOS`.`POKEMON_ID` IS NULL
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



LEFT JOIN (EXCLUSIVO)						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
7	Squirtle	5	90	63	null	null
145	Zapdos	16	526	261	null	null
150	Mewtwo	20	1220	306	null	null

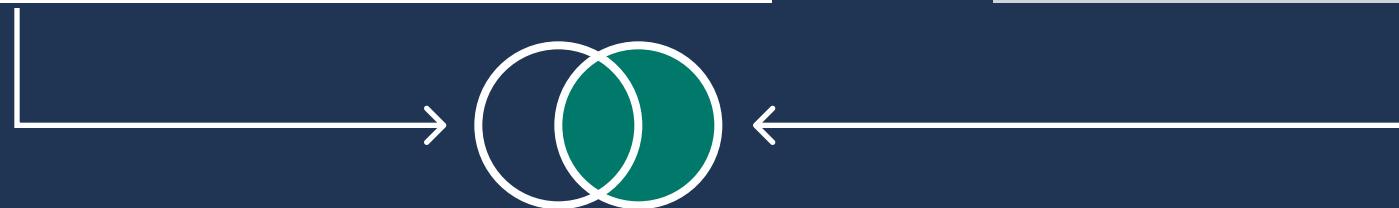
RIGHT JOIN (INCLUSIVO): Retorna todos os registros da tabela à direita junto dos registros correspondentes da tabela à esquerda.

SQL

```
SELECT * FROM `POKEMONS`  
RIGHT JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



RIGHT JOIN (INCLUSIVO)						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
1	Bulbasaur	7	69	64	1	grass
1	Bulbasaur	7	69	64	1	poison
4	Charmander	6	85	62	4	fire
25	Pikachu	4	60	112	25	electric
null	null	null	null	null	144	ice
146	Moltres	20	600	261	146	fire
146	Moltres	20	600	261	146	flying
null	null	null	null	null	144	flying
null	null	null	null	null	151	psychic

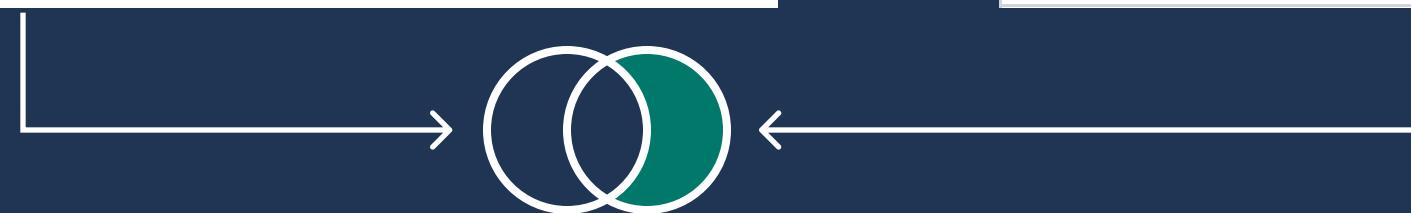
RIGHT JOIN (EXCLUSIVO): Retorna somente os registros da tabela à direita que não tiverem correspondência com registros da tabela à esquerda.

SQL

```
SELECT * FROM `POKEMONS`  
RIGHT JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`  
WHERE `POKEMONS`.`ID` IS NULL
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



RIGHT JOIN (EXCLUSIVO)						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
null	null	null	null	null	144	ice
null	null	null	null	null	144	flying
null	null	null	null	null	151	psychic

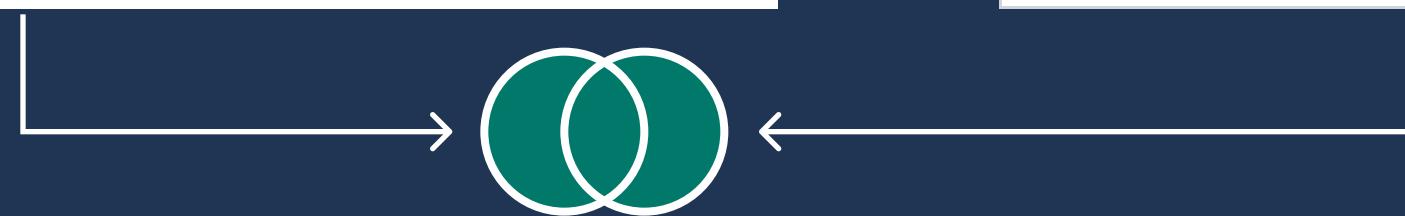
FULL JOIN (INCLUSIVO): Retorna todos os registros quando houver correspondência na tabela à esquerda ou à direita.

SQL

```
SELECT * FROM `POKEMONS`
FULL JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



FULL JOIN (INCLUSIVO)

ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
1	Bulbasaur	7	69	64	1	grass
1	Bulbasaur	7	69	64	1	poison
4	Charmander	6	85	62	4	fire
7	Squirtle	5	90	63	null	null
25	Pikachu	4	60	112	25	electric
145	Zapdos	16	526	261	null	null
null	null	null	null	null	144	ice
null	null	null	null	null	144	flying
146	Moltres	20	600	261	146	fire
146	Moltres	20	600	261	146	flying
150	Mewtwo	20	1220	306	null	null
null	null	null	null	null	151	psychic

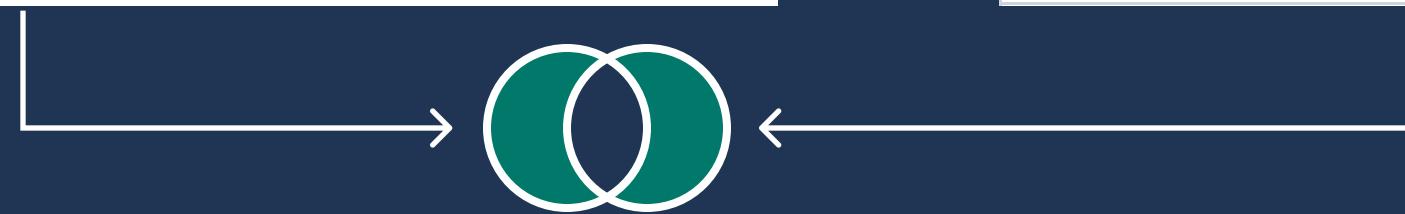
FULL JOIN (EXCLUSIVO): Retorna todos os registros quando houver correspondência na tabela à esquerda ou à direita, porém, não em ambas.

SQL

```
SELECT * FROM `POKEMONS`  
FULL JOIN `POKEMON_TIPOS` ON `POKEMONS`.`ID` = `POKEMON_TIPOS`.`POKEMON_ID`  
WHERE `POKEMONS`.`ID` IS NULL OR `POKEMON_TIPOS`.`POKEMON_ID` IS NULL
```

POKEMONS				
ID	NOME	ALTURA	PESO	XP_BASE
1	Bulbasaur	7	69	64
4	Charmander	6	85	62
7	Squirtle	5	90	63
25	Pikachu	4	60	112
145	Zapdos	16	526	261
146	Moltres	20	600	261
150	Mewtwo	20	1220	306

POKEMON_TIPOS	
POKEMON_ID	TIPO
1	grass
1	poison
4	fire
25	electric
144	ice
144	flying
146	fire
146	flying
151	psychic



FULL JOIN (EXCLUSIVO)						
ID	NOME	ALTURA	PESO	XP_BASE	POKEMON_ID	TIPO
null	null	null	null	null	144	ice
null	null	null	null	null	144	flying
null	null	null	null	null	151	psychic
7	Squirtle	5	90	63	null	null
145	Zapdos	16	526	261	null	null
150	Mewtwo	20	1220	306	null	null

CROSS JOIN: Retorna todas as combinações entre os registros da tabela à esquerda e à direita.

SQL

-- TODAS AS COMBINAÇÕES POSSÍVEIS

SELECT

```
J1.FORMA AS JOGADOR_1,  
J2.FORMA AS JOGADOR_2  
FROM `JOKENPO` AS J1  
CROSS JOIN `JOKENPO` AS `J2`
```

SQL

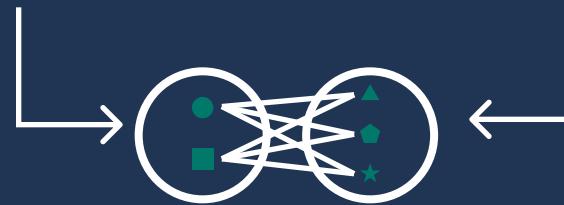
-- COMBINAÇÕES DE JOGADAS DIFERENTES

SELECT

```
J1.FORMA AS JOGADOR_1,  
J2.FORMA AS JOGADOR_2  
FROM `JOKENPO` AS J1  
CROSS JOIN `JOKENPO` AS `J2`  
WHERE J1.FORMA <> J2.FORMA
```

JOKENPO

FORMA
pedra
papel
tesoura

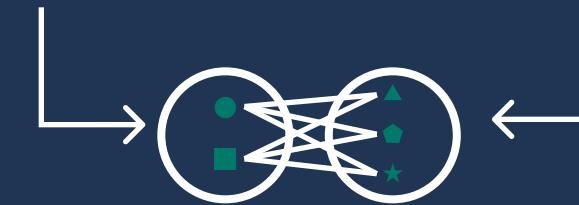


CROSS JOIN

JOGADOR_1	JOGADOR_2
pedra	pedra
pedra	papel
pedra	tesoura
papel	pedra
papel	papel
papel	tesoura
tesoura	pedra
tesoura	papel
tesoura	tesoura

JOKENPO

FORMA
pedra
papel
tesoura



CROSS JOIN

JOGADOR_1	JOGADOR_2
pedra	papel
pedra	tesoura
papel	pedra
papel	tesoura
tesoura	pedra
tesoura	papel

Bônus

As instruções **INNER** e **OUTER** são opcionais, sendo assim os comandos **INNER JOIN**, **LEFT JOIN**, **RIGHT JOIN** e **FULL JOIN** podem ser escritos das seguintes formas:

- **JOIN** ou **INNER JOIN**
- **LEFT JOIN** ou **LEFT OUTER JOIN**
- **RIGHT JOIN** ou **RIGHT OUTER JOIN**
- **FULL JOIN** ou **FULL OUTER JOIN**

Os comandos podem ser testados na plataforma **SQLFiddle** pelo link:
<http://sqlfiddle.com/#!17/425986/3>

Referências

https://www.w3schools.com/sql/sql_join.asp

Obrigado!