

LEFT and RIGHT JOINS

JOINING DATA IN SQL



Chester Ismay

Data Science Evangelist, DataRobot

left_table

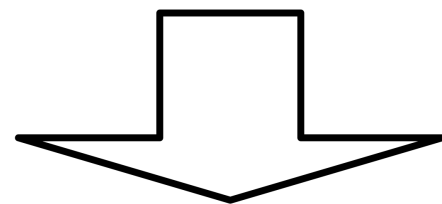
id val

1	L1
2	L2
3	L3
4	L4

right_table

id val

1	R1
4	R2
5	R3
6	R4



INNER JOIN

L_id	L_val	R_val
1	L1	R1
4	L4	R2

left_table

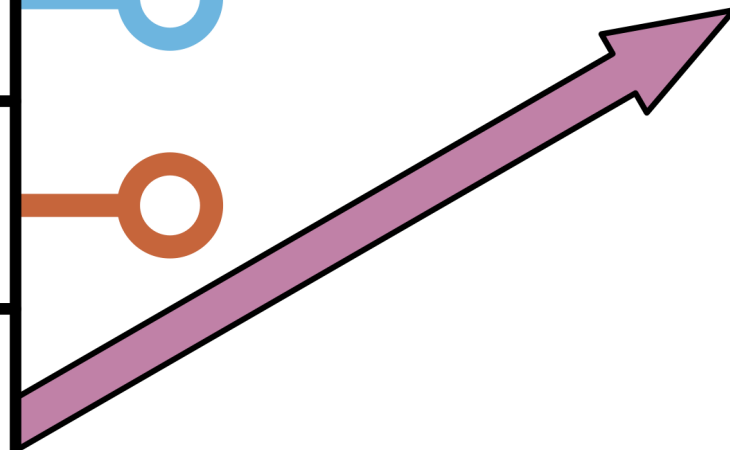
id val

1	L1
2	L2
3	L3
4	L4

right_table

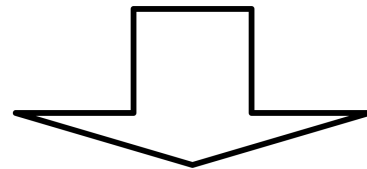
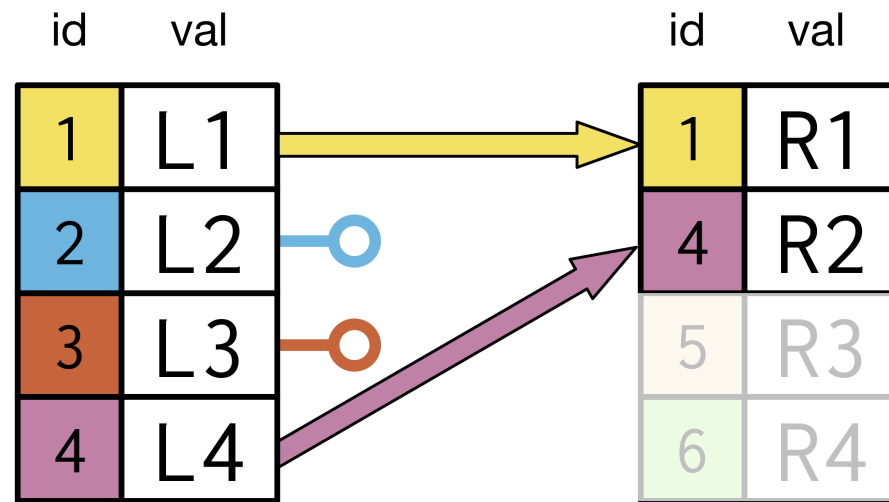
id val

1	R1
4	R2
5	R3
6	R4



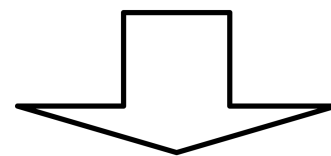
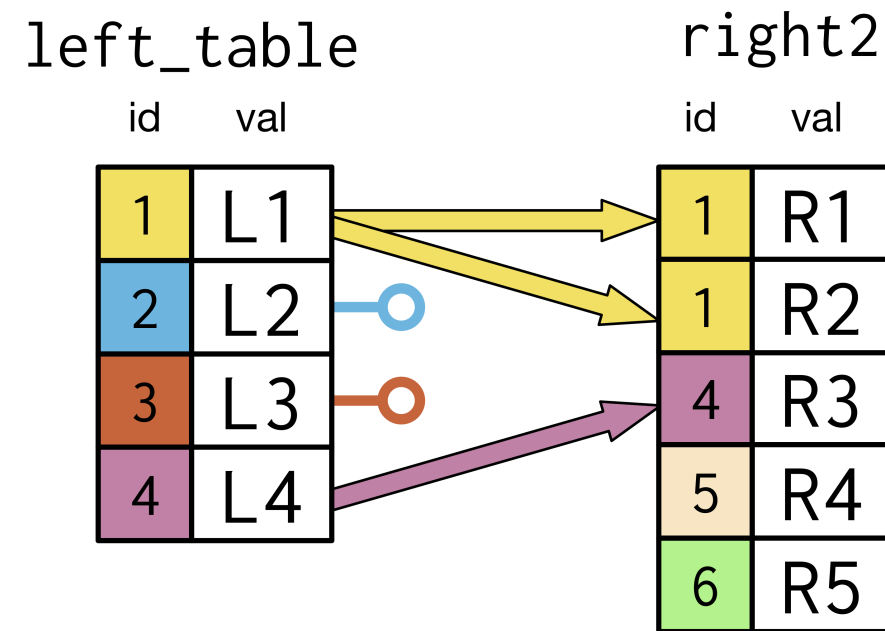
left_table

right_table



LEFT JOIN

L_id	L_val	R_val
1	L1	R1
2	L2	
3	L3	
4	L4	R2



LEFT JOIN

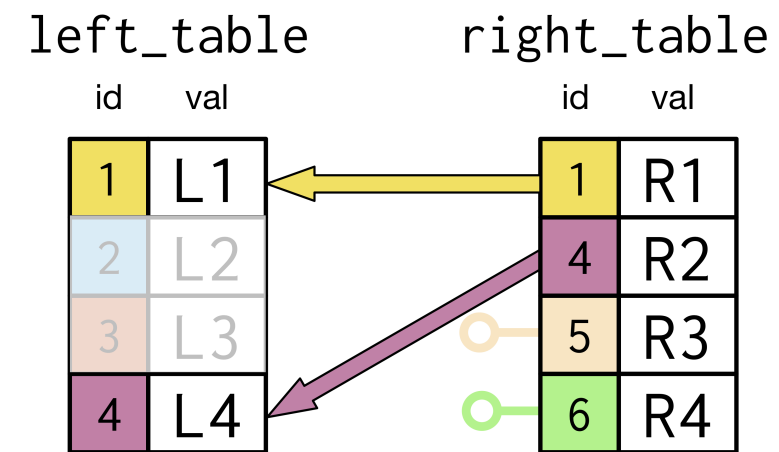
L_id	L_val	R_val
1	L1	R1
1	L1	R2
2	L2	
3	L3	
4	L4	R3

The syntax of a LEFT JOIN

```
SELECT p1.country, prime_minister, president
FROM prime_ministers AS p1
LEFT JOIN presidents AS p2
ON p1.country = p2.country;
```

country	prime_minister	president
Egypt	Sherif Ismail	Abdel Fattah el-Sisi
Portugal	Antonio Costa	Marcelo Rebelo de Sousa
Vietnam	Nguyen Xuan Phuc	Tran Dai Quang
Haiti	Jack Guy Lafontant	Jovenel Moise
India	Narendra Modi	
Australia	Malcolm Turnbull	
Norway	Erna Solberg	
Brunei	Hassanal Bolkiah	
Oman	Qaboos bin Said al Said	
Spain	Mariano Rajoy	

RIGHT JOIN



RIGHT JOIN

R_id	L_val	R_val
1	L1	R1
4	L4	R2
5		R3
6		R4

```
SELECT right_table.id AS R_id,  
       left_table.val AS L_val,  
       right_table.val AS R_val  
FROM left_table  
RIGHT JOIN right_table  
ON left_table.id = right_table.id;
```

Let's practice!

JOINING DATA IN SQL

FULL JOINS

JOINING DATA IN SQL



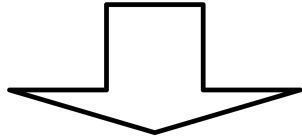
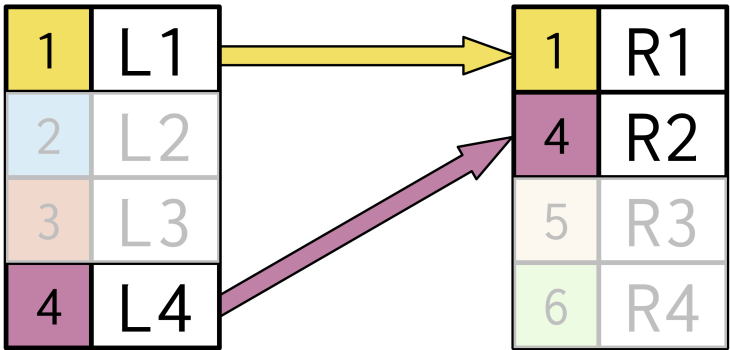
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INNER JOIN vs LEFT JOIN

left_table right_table

id	val	id	val
1	L1	1	R1
2	L2	4	R2
3	L3	5	R3
4	L4	6	R4

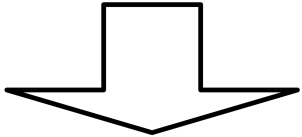
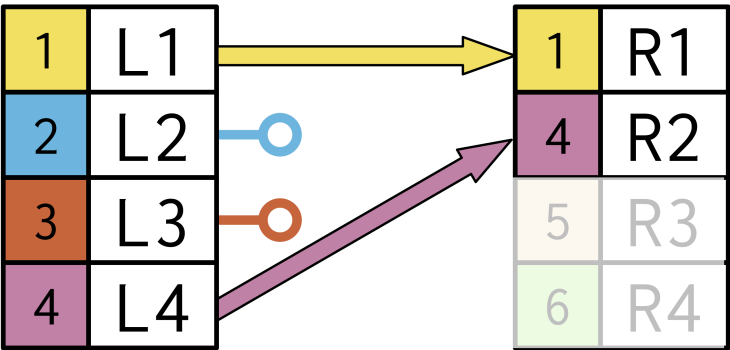


INNER JOIN

L_id	L_val	R_val
1	L1	R1
4	L4	R2

left_table right_table

id	val	id	val
1	L1	1	R1
2	L2	4	R2
3	L3	5	R3
4	L4	6	R4



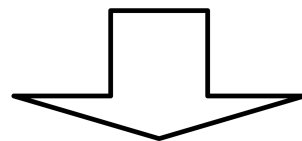
LEFT JOIN

L_id	L_val	R_val
1	L1	R1
2	L2	
3	L3	
4	L4	R2

LEFT JOIN vs RIGHT JOIN

left_table right_table

id	val		id	val
1	L1	→	1	R1
2	L2	○	4	R2
3	L3	○	5	R3
4	L4	→	6	R4

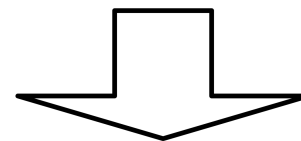


LEFT JOIN

L_id	L_val	R_val
1	L1	R1
2	L2	
3	L3	
4	L4	R2

left_table right_table

id	val		id	val
1	L1	←	1	R1
2	L2		4	R2
3	L3	○	5	R3
4	L4	←	6	R4



RIGHT JOIN

R_id	L_val	R_val
1	L1	R1
4	L4	R2
5		R3
6		R4

left_table

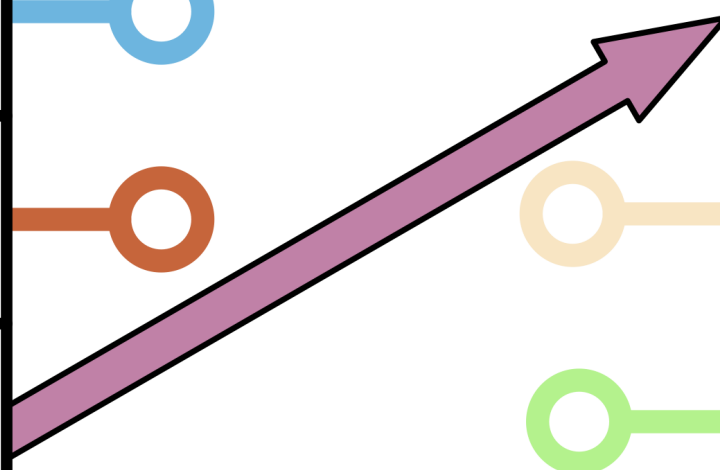
id val

1	L1
2	L2
3	L3
4	L4

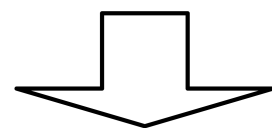
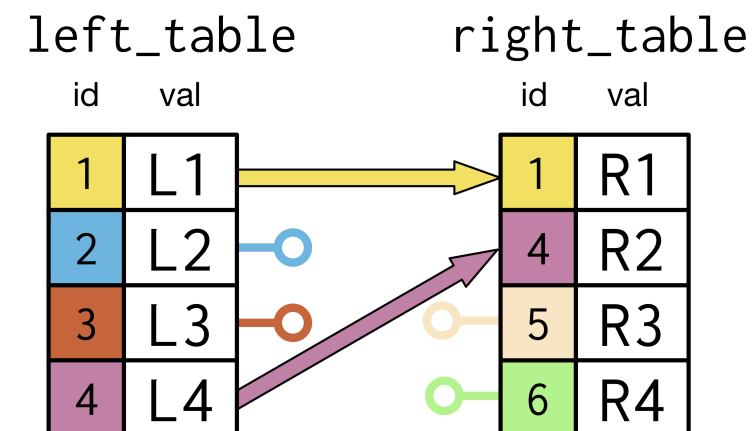
right_table

id val

1	R1
4	R2
5	R3
6	R4



FULL JOIN diagram



FULL JOIN

L_id	R_id	L_val	R_val
1	1	L1	R1
2		L2	
3		L3	
4	4	L4	R2
	5		R3
	6		R4

```
SELECT left_table.id AS L_id,  
       right_table.id AS R_id,  
       left_table.val AS L_val,  
       right_table.val AS R_val  
FROM left_table  
FULL JOIN right_table  
USING (id);
```

FULL JOIN example using leaders database

```
SELECT p1.country AS pm_co, p2.country AS pres_co,  
       prime_minister, president
```

FULL JOIN example using leaders database

```
SELECT p1.country AS pm_co, p2.country AS pres_co,  
       prime_minister, president  
FROM prime_ministers AS p1
```

FULL JOIN example using leaders database

```
SELECT p1.country AS pm_co, p2.country AS pres_co,  
       prime_minister, president  
FROM prime_ministers AS p1  
FULL JOIN presidents AS p2
```


FULL JOIN example using leaders database

```
SELECT p1.country AS pm_co, p2.country AS pres_co,  
       prime_minister, president  
FROM prime_ministers AS p1  
FULL JOIN presidents AS p2  
ON p1.country = p2.country;
```

FULL JOIN example results using leaders

pm_co	pres_co	prime_minister	president
Egypt	Egypt	Sherif Ismail	Abdel Fattah el-Sisi
Portugal	Portugal	Antonio Costa	Marcelo Rebelo de Sousa
Vietnam	Vietnam	Nguyen Xuan Phuc	Tran Dai Quang
Haiti	Haiti	Jack Guy Lafontant	Jovenel Moise
India		Narendra Modi	
Australia		Malcolm Turnbull	
Norway		Erna Solberg	
Brunei		Hassanal Bolkiah	
Oman		Qaboos bin Said al Said	
Spain		Mariano Rajoy	
	Uruguay		Jose Mujica
	Chile		Michelle Bachelet
	Liberia		Ellen Johnson Sirleaf

Let's practice!

JOINING DATA IN SQL

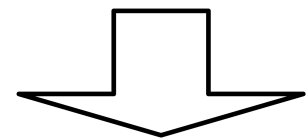
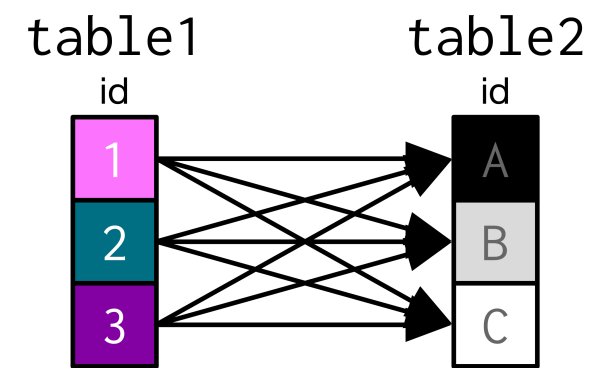
CROSSing the Rubicon

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CROSS JOIN

id1	id2
1	A
1	B
1	C
2	A
2	B
2	C
3	A
3	B
3	C

Pairing prime ministers with presidents

```
SELECT prime_minister, president
FROM prime_ministers AS p1
CROSS JOIN presidents AS p2
WHERE p1.continent IN ('North America', 'Oceania');
```

```
+-----+-----+
| prime_minister | president |
+-----+-----+
| Jack Guy Lafontant | Abdel Fattah el-Sisi |
| Malcolm Turnbull | Abdel Fattah el-Sisi |
| Jack Guy Lafontant | Marcelo Rebelo de Sousa |
| Malcolm Turnbull | Marcelo Rebelo de Sousa |
| Jack Guy Lafontant | Jovenel Moise |
| Malcolm Turnbull | Jovenel Moise |
| Jack Guy Lafontant | Jose Mujica |
| Malcolm Turnbull | Jose Mujica |
| Jack Guy Lafontant | Ellen Johnson Sirleaf |
| Malcolm Turnbull | Ellen Johnson Sirleaf |
| Jack Guy Lafontant | Michelle Bachelet |
| Malcolm Turnbull | Michelle Bachelet |
| Jack Guy Lafontant | Tran Dai Quang |
| Malcolm Turnbull | Tran Dai Quang |
+-----+-----+
```

Let's practice!

JOINING DATA IN SQL