JOINING DATA IN SQL

Welcome to the course!

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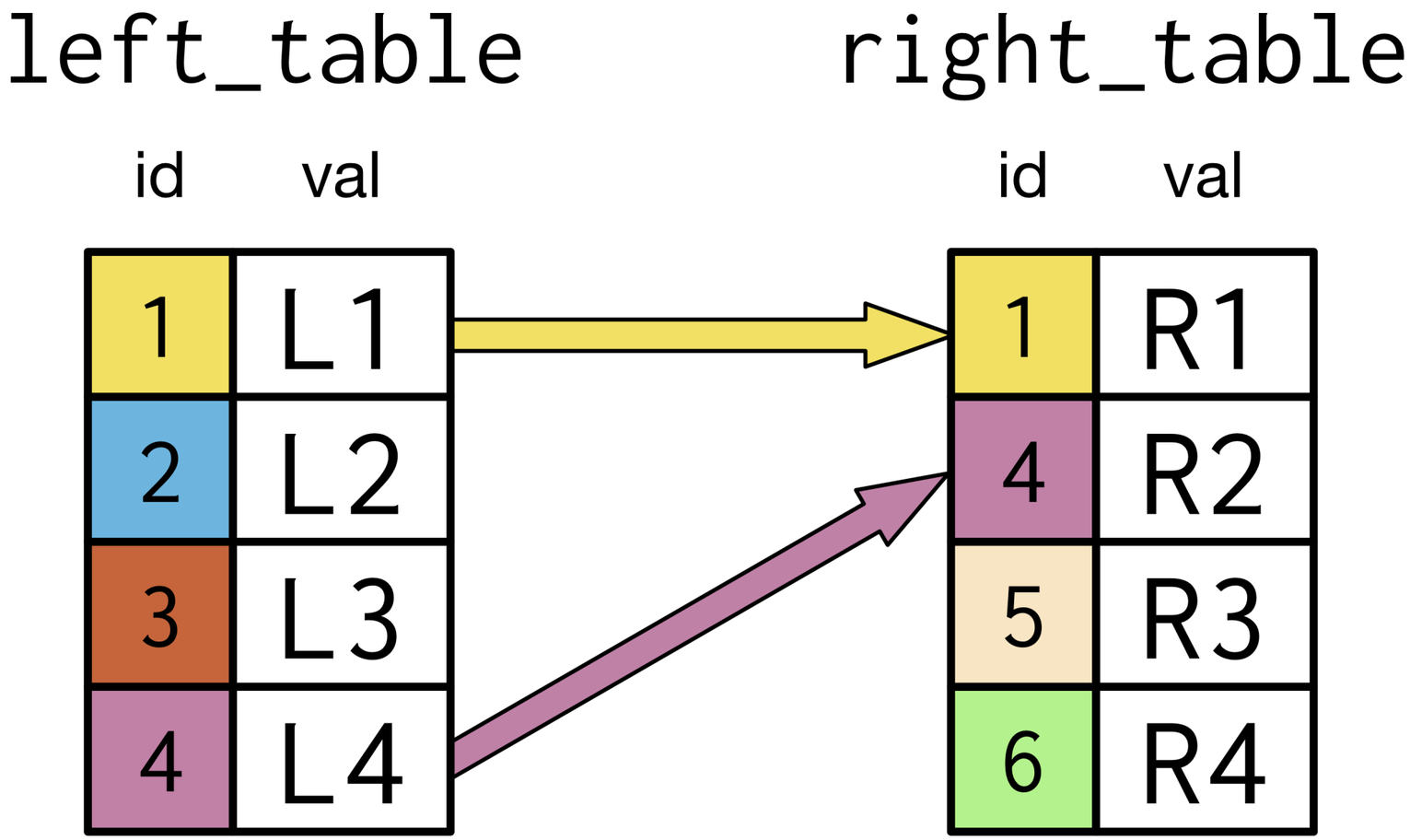
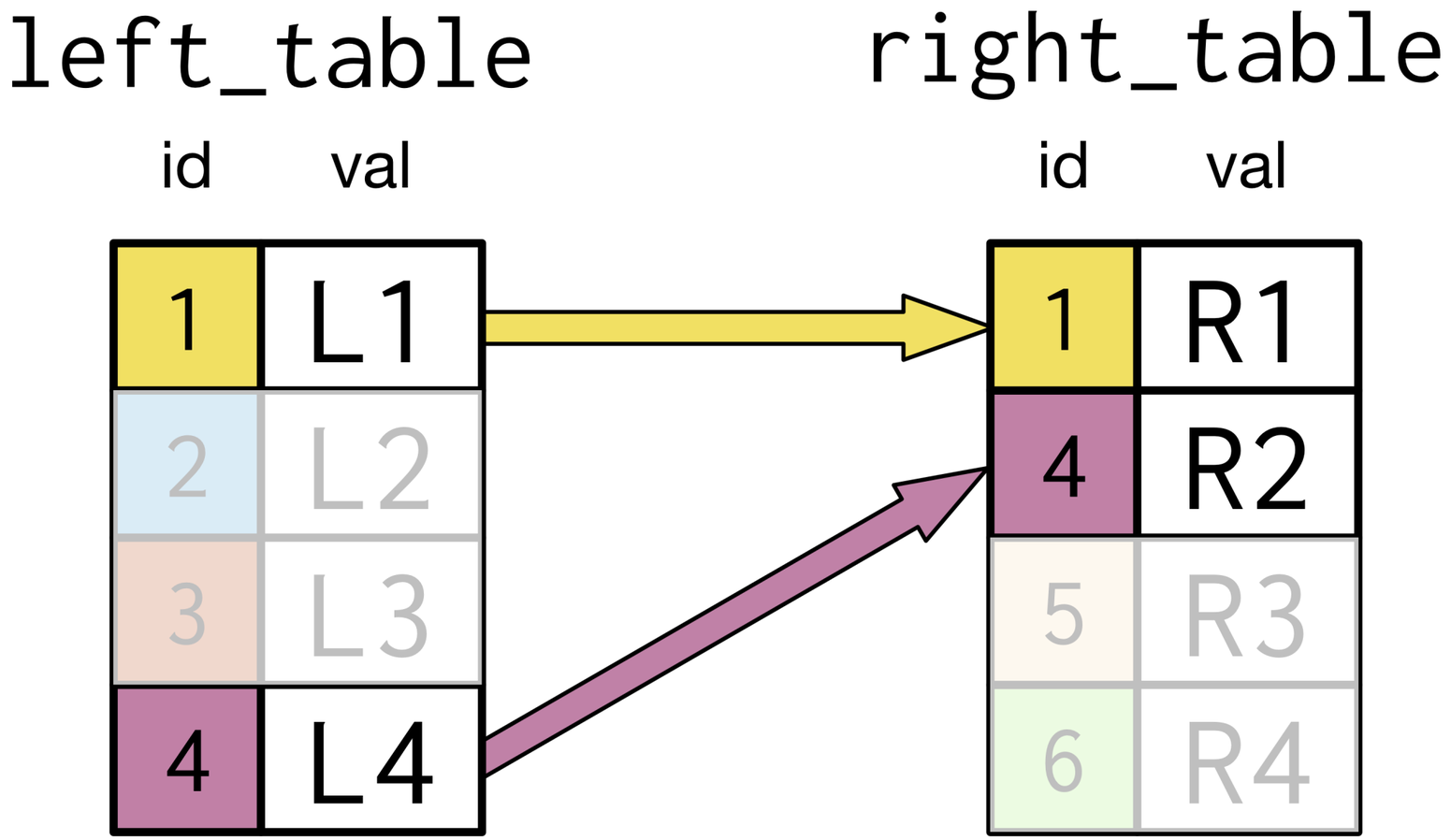
`left_table`

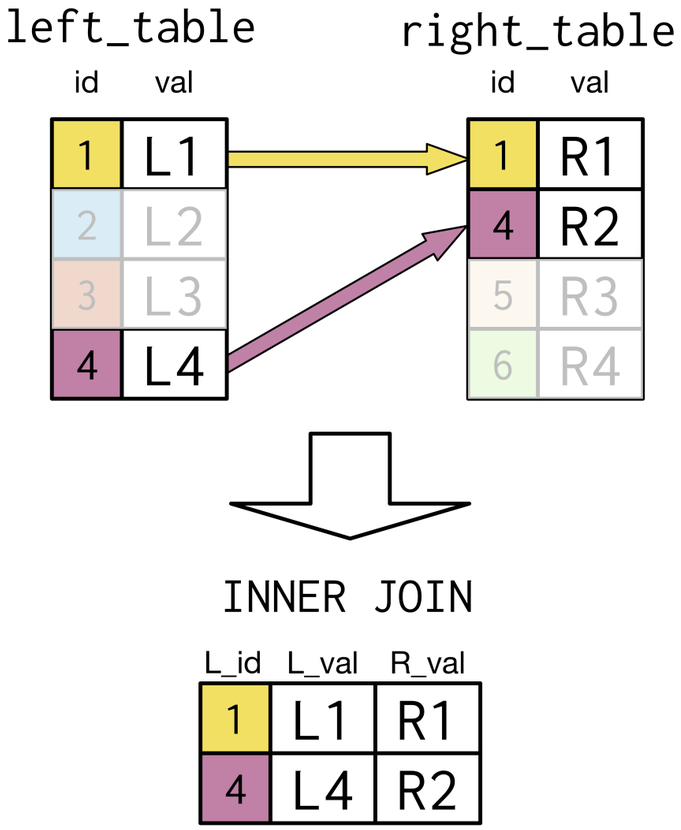
id	val
1	L1
2	L2
3	L3
4	L4

`right_table`

id	val
1	R1
4	R2
5	R3
6	R4


left_table
id
val
1
L1
2
L2
3
L3
4
L4
right_table
id
val
1
R1
4
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


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

prime_ministers table

country	continent	prime_minister
Egypt	Africa	Sherif Ismail
Portugal	Europe	Antonio Costa
Vietnam	Asia	Nguyen Xuan Phuc
Haiti	North America	Jack Guy Lafontant
India	Asia	Narendra Modi
Australia	Oceania	Malcolm Turnbull
Norway	Europe	Erna Solberg
Brunei	Asia	Hassanal Bolkiah
Oman	Asia	Qaboos bin Said al Said
Spain	Europe	Mariano Rajoy

presidents table

```
SELECT *
FROM presidents;
```

```
+-----------+---------------+--------------------------+
| country   | continent     | president                |
|-----------+---------------+--------------------------|
| Egypt     | Africa        | Abdel Fattah el-Sisi     |
| Portugal  | Europe        | Marcelo Rebelo de Sousa  |
| Haiti     | North America | Jovenel Moise            |
| Uruguay   | South America | Jose Mujica              |
| Liberia   | Africa        | Ellen Johnson Sirleaf    |
| Chile     | South America | Michelle Bachelet        |
| Vietnam   | Asia          | Tran Dai Quang           |
+-----------+---------------+--------------------------+
```

INNER JOIN in SQL

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

```
+-----------+---------------+--------------------+-------------------------+
| country   | continent     | prime_minister     | president               |
|-----------+---------------+--------------------+-------------------------|
| Egypt     | Africa        | Sherif Ismail      | Abdel Fattah el-Sisi    |
| Portugal  | Europe        | Antonio Costa      | Marcelo Rebelo de Sousa |
| Vietnam   | Asia          | Nguyen Xuan Phuc   | Tran Dai Quang          |
| Haiti     | North America | Jack Guy Lafontant | Jovenel Moise           |
+-----------+---------------+--------------------+-------------------------+
```

JOINING DATA IN SQL

Let's practice!

JOINING DATA IN SQL

INNER JOIN via USING

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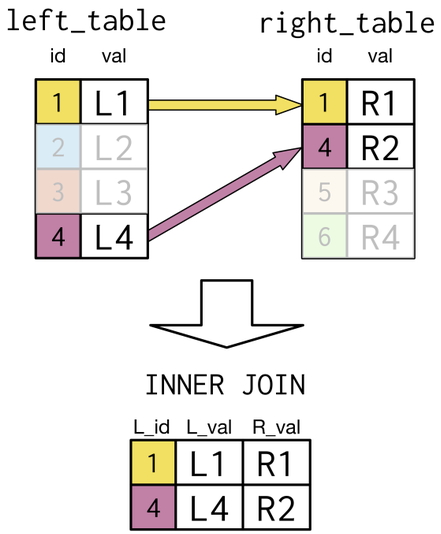
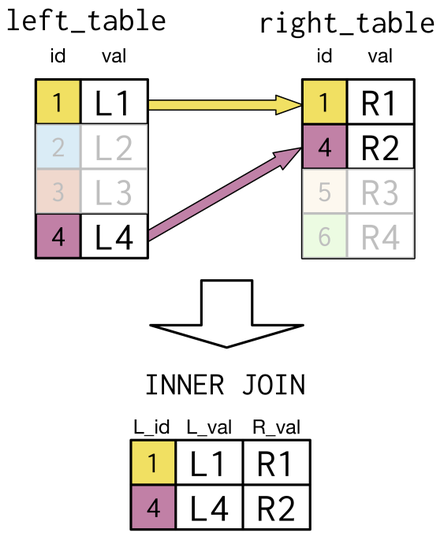
The INNER JOIN diagram again




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

The INNER JOIN diagram with USING




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

Countries with prime ministers and presidents - again

```
SELECT p1.country, p1.continent, prime_minister, president
FROM ___ AS p1
INNER JOIN ___ AS p2
___ (___);
```

One answer:

```
SELECT p1.country, p1.continent, prime_minister, president
FROM presidents AS p1
INNER JOIN prime_ministers AS p2
USING (country);
```

```
+-----------+---------------+--------------------+-------------------------+
| country   | continent     | prime_minister     | president               |
|-----------+---------------+--------------------+-------------------------|
| Egypt     | Africa        | Sherif Ismail      | Abdel Fattah el-Sisi    |
| Portugal  | Europe        | Antonio Costa      | Marcelo Rebelo de Sousa |
| Vietnam   | Asia          | Nguyen Xuan Phuc   | Tran Dai Quang          |
| Haiti     | North America | Jack Guy Lafontant | Jovenel Moise           |
+-----------+---------------+--------------------+-------------------------+
```

JOINING DATA IN SQL

Let's practice!

JOINING DATA IN SQL

Self-ish joins, just in CASE

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Join a table to itself?

```
+-----------+---------------+-------------------------+
| country   | continent     | prime_minister          |
|-----------+---------------+-------------------------|
| Egypt     | Africa        | Sherif Ismail           |
| Portugal  | Europe        | Antonio Costa           |
| Vietnam   | Asia          | Nguyen Xuan Phuc        |
| Haiti     | North America | Jack Guy Lafontant      |
| India     | Asia          | Narendra Modi           |
| Australia | Oceania       | Malcolm Turnbull        |
| Norway    | Europe        | Erna Solberg            |
| Brunei    | Asia          | Hassanal Bolkiah        |
| Oman      | Asia          | Qaboos bin Said al Said |
| Spain     | Europe        | Mariano Rajoy           |
+-----------+---------------+-------------------------+
```

Join prime_ministers to itself?

```
SELECT p1.country AS country1, p2.country AS country2, p1.continent
FROM prime_ministers AS p1
INNER JOIN prime_ministers AS p2
ON p1.continent = p2.continent
LIMIT 14;
```

```
+------------+------------+---------------+
| country1   | country2   | continent     |
|------------+------------+---------------|
| Egypt      | Egypt      | Africa        |
| Portugal   | Spain      | Europe        |
| Portugal   | Norway     | Europe        |
| Portugal   | Portugal   | Europe        |
| Vietnam    | Oman       | Asia          |
| Vietnam    | Brunei     | Asia          |
| Vietnam    | India      | Asia          |
| Vietnam    | Vietnam    | Asia          |
| Haiti      | Haiti      | North America |
| India      | Oman       | Asia          |
| India      | Brunei     | Asia          |
| India      | India      | Asia          |
| India      | Vietnam    | Asia          |
| Australia  | Australia  | Oceania       |
+------------+------------+---------------+
```

Finishing off the self-join on prime_ministers

```
SELECT p1.country AS country1, p2.country AS country2, p1.continent
FROM prime_ministers AS p1
INNER JOIN prime_ministers AS p2
ON p1.continent = p2.continent AND p1.country <> p2.country
LIMIT 13;
```

```
+------------+------------+-------------+
| country1   | country2   | continent   |
|------------+------------+-------------|
| Portugal   | Spain      | Europe      |
| Portugal   | Norway     | Europe      |
| Vietnam    | Oman       | Asia        |
| Vietnam    | Brunei     | Asia        |
| Vietnam    | India      | Asia        |
| India      | Oman       | Asia        |
| India      | Brunei     | Asia        |
| India      | Vietnam    | Asia        |
| Norway     | Spain      | Europe      |
| Norway     | Portugal   | Europe      |
| Brunei     | Oman       | Asia        |
| Brunei     | India      | Asia        |
| Brunei     | Vietnam    | Asia        |
+------------+------------+-------------+
```

CASE WHEN and THEN

```
+-----------+---------------+--------------+
| name      | continent     |   indep_year |
|-----------+---------------+--------------|
| Australia | Oceania       |         1901 |
| Brunei    | Asia          |         1984 |
| Chile     | South America |         1810 |
| Egypt     | Africa        |         1922 |
| Haiti     | North America |         1804 |
| India     | Asia          |         1947 |
| Liberia   | Africa        |         1847 |
| Norway    | Europe        |         1905 |
| Oman      | Asia          |         1951 |
| Portugal  | Europe        |         1143 |
| Spain     | Europe        |         1492 |
| Uruguay   | South America |         1828 |
| Vietnam   | Asia          |         1945 |
+-----------+---------------+--------------+
```

Preparing indep_year_group in states

```
SELECT name, continent, indep_year,
    CASE WHEN ___ < ___  THEN 'before 1900'
        WHEN indep_year <= 1930 THEN '___'
        ELSE '___' END
        AS indep_year_group
FROM states
ORDER BY indep_year_group;
```

Creating indep_year_group in states

```
SELECT name, continent, indep_year,
    CASE WHEN indep_year < 1900 THEN 'before 1900'
         WHEN indep_year <= 1930 THEN 'between 1900 and 1930'
         ELSE 'after 1930' END
         AS indep_year_group
FROM states
ORDER BY indep_year_group;
```

```
+-----------+---------------+--------------+----------------------+
| name      | continent     |   indep_year | indep_year_group     |
|-----------+---------------+--------------+----------------------|
| Brunei    | Asia          |         1984 | after 1930           |
| India     | Asia          |         1947 | after 1930           |
| Oman      | Asia          |         1951 | after 1930           |
| Vietnam   | Asia          |         1945 | after 1930           |
| Liberia   | Africa        |         1847 | before 1900          |
| Chile     | South America |         1810 | before 1900          |
| Haiti     | North America |         1804 | before 1900          |
| Portugal  | Europe        |         1143 | before 1900          |
| Spain     | Europe        |         1492 | before 1900          |
| Uruguay   | South America |         1828 | before 1900          |
| Norway    | Europe        |         1905 | between 1900 and 1930 |
| Australia | Oceania       |         1901 | between 1900 and 1930 |
| Egypt     | Africa        |         1922 | between 1900 and 1930 |
+-----------+---------------+--------------+----------------------+
```

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Let's practice!