Welcome to the course!

JOINING DATA IN SQL

SQL

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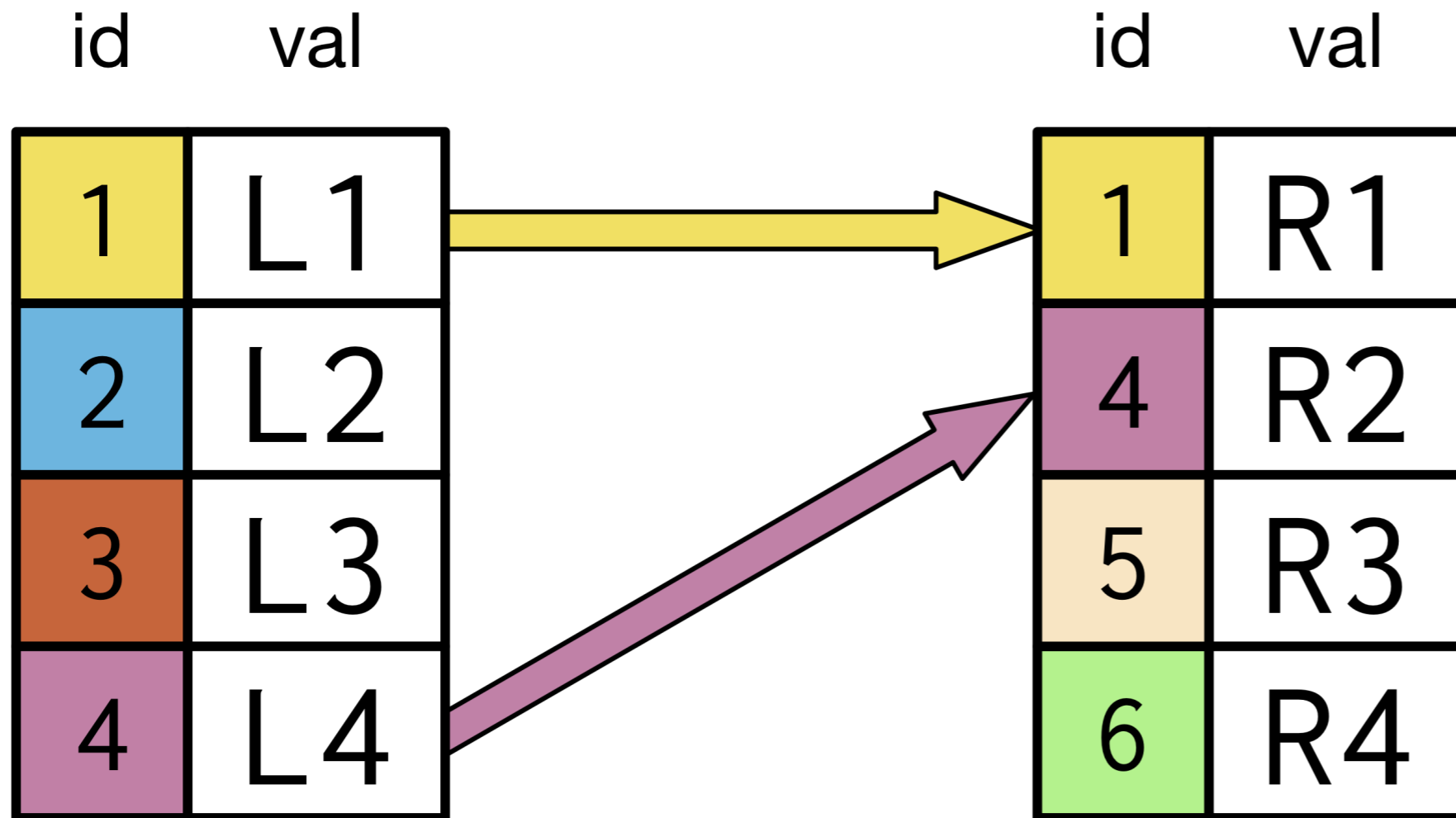
datacamp

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
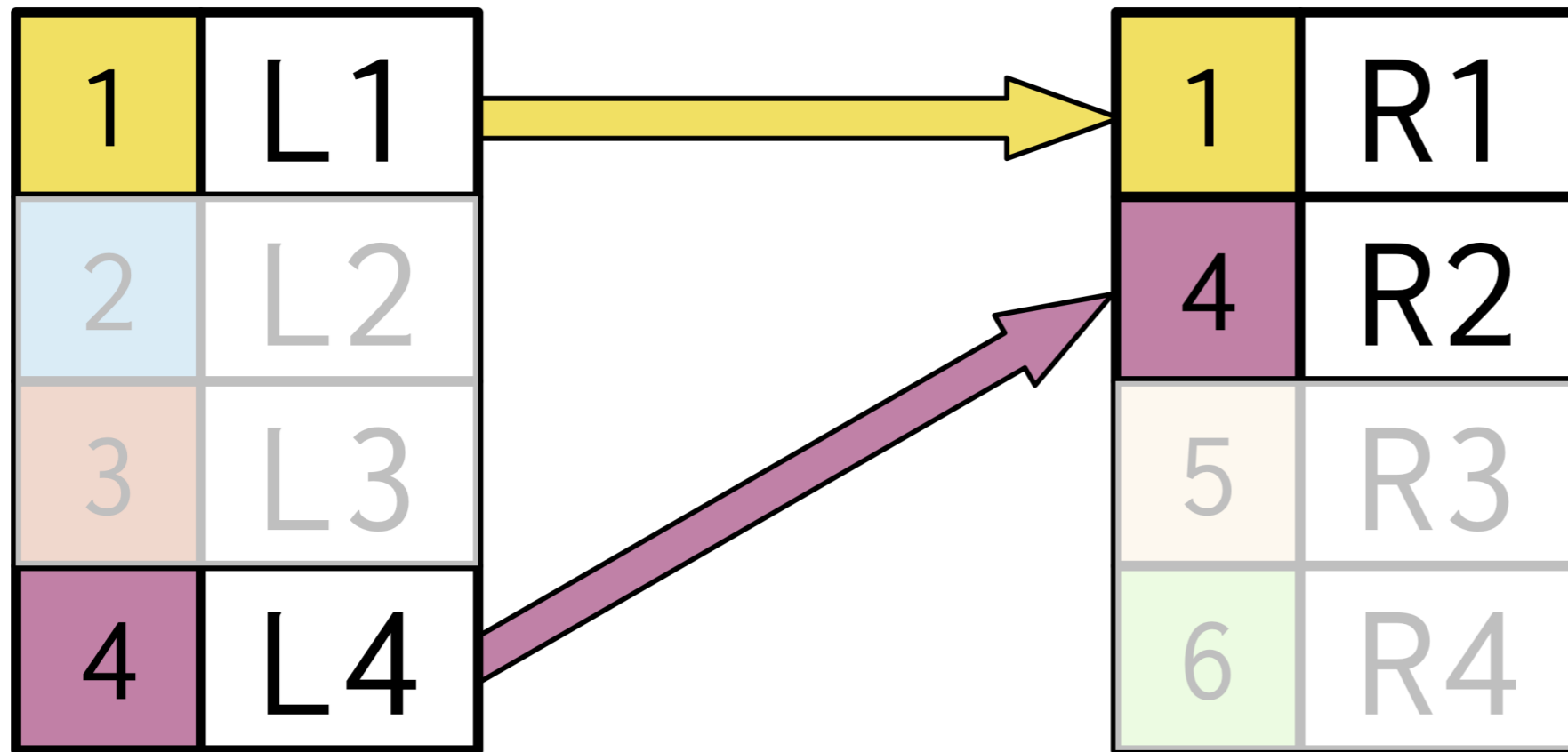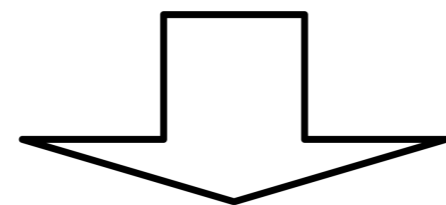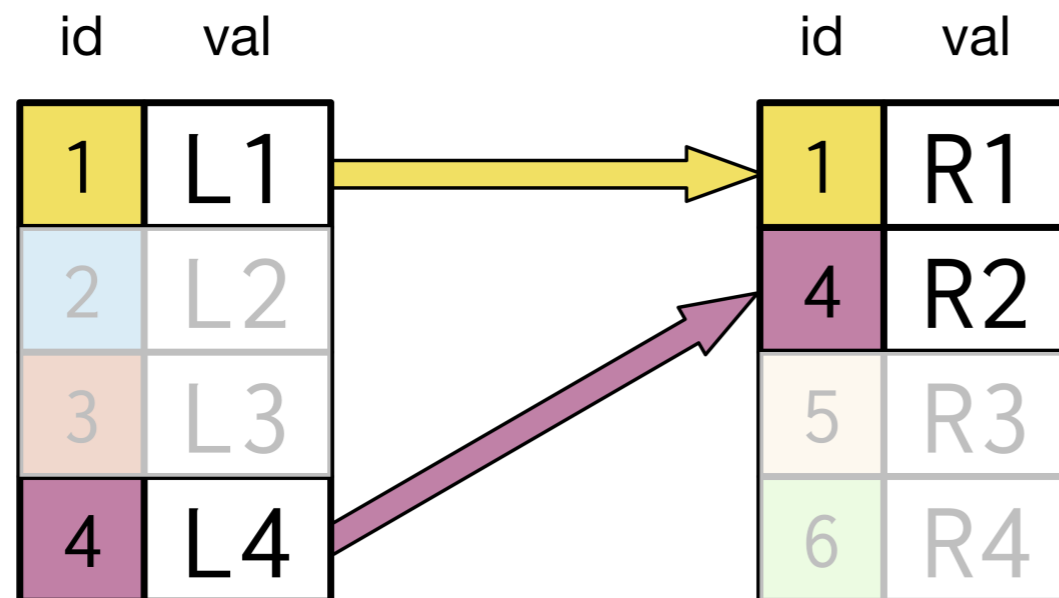
INNER JOIN

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

```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           |
+-----------+---------------+-------------------+-------------------------+
```

Let's practice!

JOINING DATA IN SQL

datacamp

INNER JOIN via USING

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The INNER JOIN diagram again
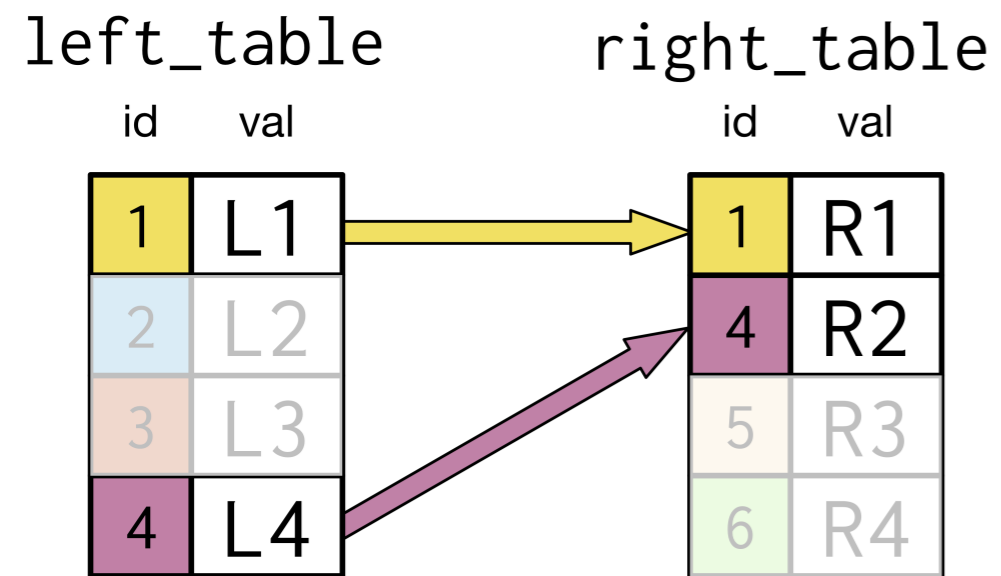
left_table

id	val
1	L1
2	L2
3	L3
4	L4

right_table

id	val
1	R1
4	R2
5	R3
6	R4

```
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;
```
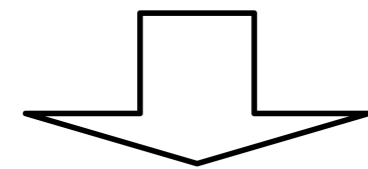
INNER JOIN

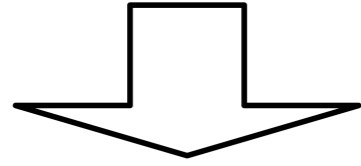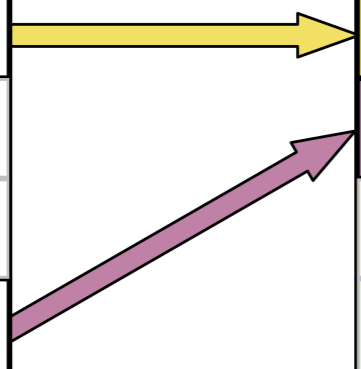| L_id	L_val	R_val
1	L1	R1
4	L4	R2

The INNER JOIN diagram with USING

left_table

id	val
1	L1
2	L2
3	L3
4	L4

right_table

id	val
1	R1
4	R2
5	R3
6	R4

```sql
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);
```

INNER JOIN

L_id	L_val	R_val
1	L1	R1
4	L4	R2

Countries with prime ministers and presidents

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

One answer:

```sql
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             |
+-----------+--------------+------------------+-----------------------------+
```

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?

```sql
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

```sql
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

```sql
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

```sql
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 |
+----------+---------------+------------+-----------------------+
```

Let's practice!

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