Subqueries inside WHERE and SELECT clauses

JOINING DATA IN SQL

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datacamp

Subquery inside WHERE clause set-up

name	indep_year	fert_rate	women_parli_perc
Australia	1901	1.88	32.74
Brunei	1984	1.96	6.06
Chile	1810	1.8	15.82
Egypt	1922	2.7	14.9
Haiti	1804	3.03	2.74
India	1947	2.43	11.58
Liberia	1847	4.64	11.65
Norway	1905	1.93	39.6
Oman	1951	2.75	8.82
Portugal	1143	1.31	34.8
Spain	1492	1.53	38.64
Uruguay	1828	2.03	22.31
Vietnam	1945	1.7	24

Average fert_rate

```
SELECT AVG(fert_rate)
FROM states;
```

```
+----------+
|      avg |
|----------|
| 2.28385  |
+----------+
```

Asian countries below average `fert_rate`

```
SELECT name, fert_rate
FROM states
WHERE continent = 'Asia'
```

Asian countries below average `fert_rate`

```
SELECT name, fert_rate
FROM states
WHERE continent = 'Asia'
    AND fert_rate <
```

Asian countries below average `fert_rate`

```
SELECT name, fert_rate
FROM states
WHERE continent = 'Asia'
    AND fert_rate <
        (SELECT AVG(fert_rate)
         FROM states);
```

Asian countries below average `fert_rate`

```
SELECT name, fert_rate
FROM states
WHERE continent = 'Asia'
    AND fert_rate <
        (SELECT AVG(fert_rate)
         FROM states);
```

```
+---------+-------------+
| name    |   fert_rate |
|---------+-------------|
| Brunei  |        1.96 |
| Vietnam |        1.7  |
+---------+-------------+
```

Subqueries inside SELECT clauses - setup

```
SELECT DISTINCT continent
FROM prime_ministers;
```

```
+---------------+
| continent     |
|---------------|
| Africa        |
| Asia          |
| Europe        |
| North America |
| Oceania       |
+---------------+
```

Subquery inside SELECT clause - complete

```
SELECT DISTINCT continent,
    (SELECT COUNT(*)
     FROM states
     WHERE prime_ministers.continent = states.continent) AS countries_num
FROM prime_ministers;
```

```
+---------------+-----------------+
| continent     |   countries_num |
|---------------+-----------------|
| Africa        |               2 |
| Asia          |               4 |
| Europe        |               3 |
| North America |               1 |
| Oceania       |               1 |
+---------------+-----------------+
```

Let's practice!

JOINING DATA IN SQL

Subquery inside the FROM clause

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Build-up

```
SELECT continent, MAX(women_parli_perc) AS max_perc
FROM states
GROUP BY continent
ORDER BY continent;
```

```
+---------------+------------+
| continent     |   max_perc |
|---------------+------------|
| Africa        |      14.9  |
| Asia          |      24    |
| Europe        |      39.6  |
| North America |       2.74 |
| Oceania       |      32.74 |
| South America |      22.31 |
+---------------+------------+
```

Focusing on records in monarchs

```
SELECT monarchs.continent
FROM monarchs, states
WHERE monarchs.continent = states.continent
ORDER BY continent;
```

```
+-------------+
| continent   |
|-------------|
| Asia        |
| Asia        |
| Asia        |
| Asia        |
| Asia        |
| Asia        |
| Asia        |
| Asia        |
| Europe      |
| Europe      |
| Europe      |
| Europe      |
| Europe      |
| Europe      |
| Europe      |
+-------------+
```

Finishing off the subquery

```
SELECT DISTINCT monarchs.continent, subquery.max_perc
FROM monarchs,
    (SELECT continent, MAX(women_parli_perc) AS max_perc
     FROM states
     GROUP BY continent) AS subquery
WHERE monarchs.continent = subquery.continent
ORDER BY continent;
```

```
+-------------+------------+
| continent   |   max_perc |
|-------------+------------|
| Asia        |       24   |
| Europe      |       39.6 |
+-------------+------------+
```

Let's practice!

JOINING DATA IN SQL

Course Review

JOINING DATA IN SQL

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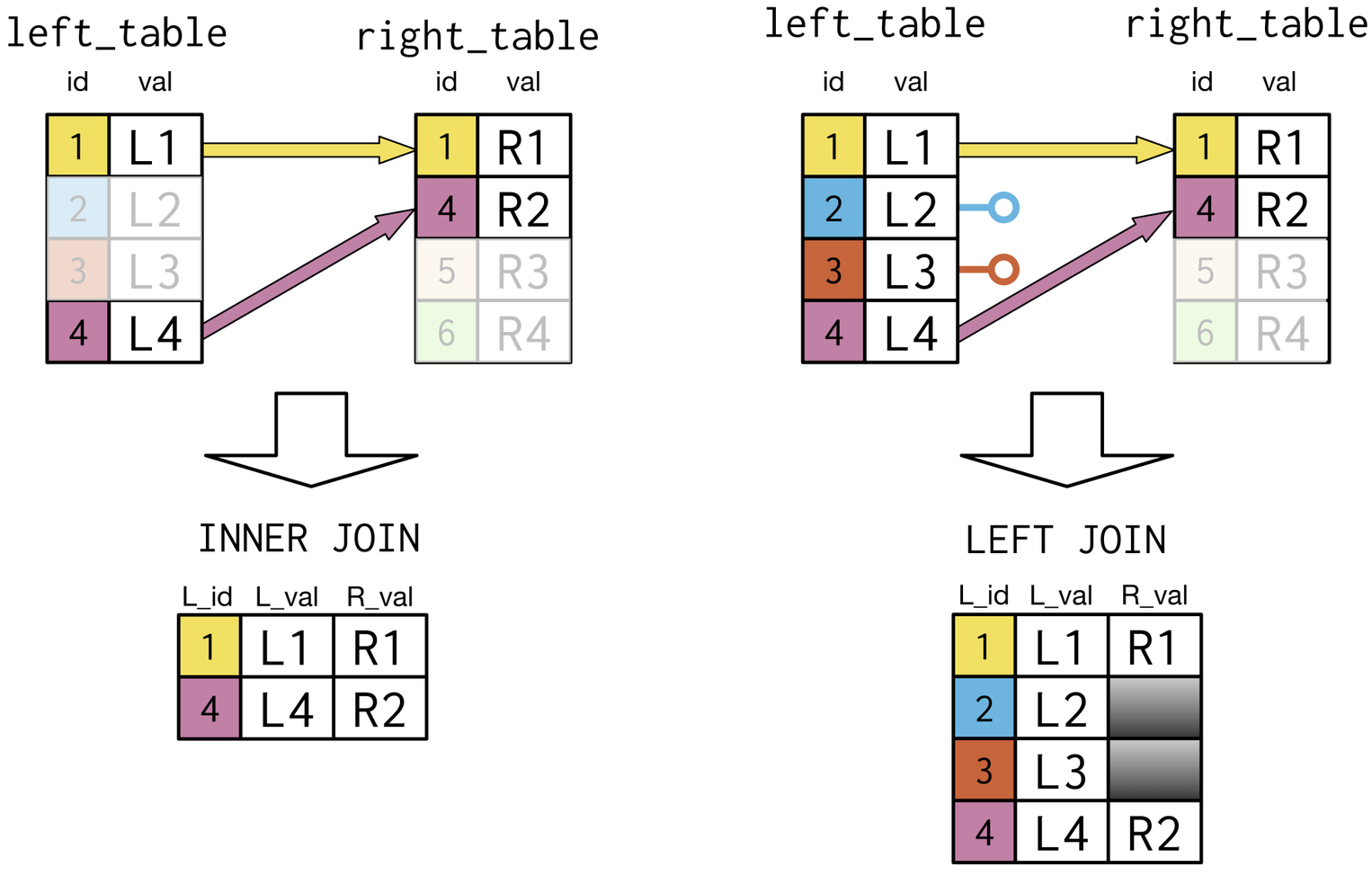
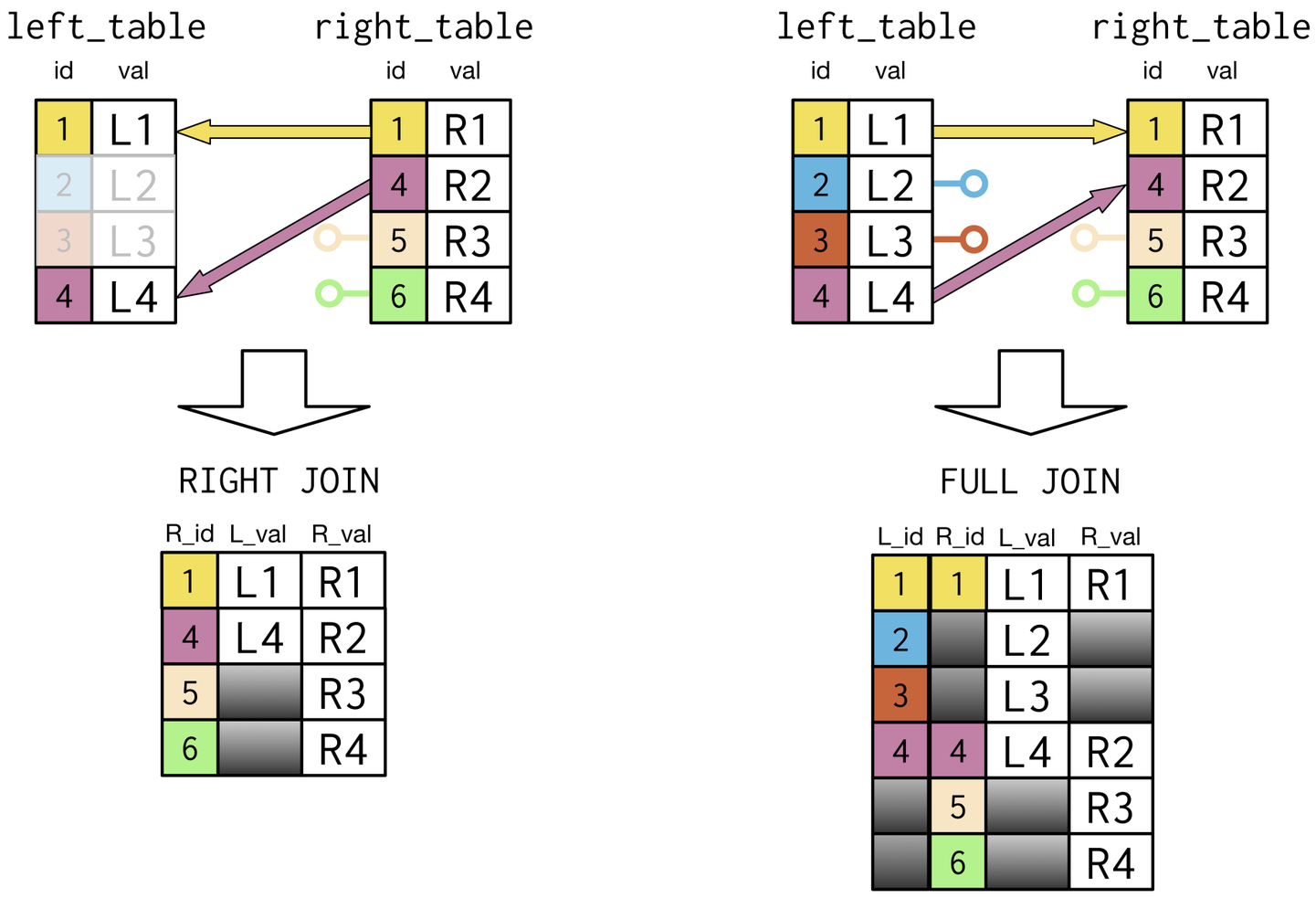
Types of joins

- INNER JOIN
  - Self-joins
- OUTER JOIN
  - LEFT JOIN
  - RIGHT JOIN
  - FULL JOIN
- CROSS JOIN
- Semi-join / Anti-join

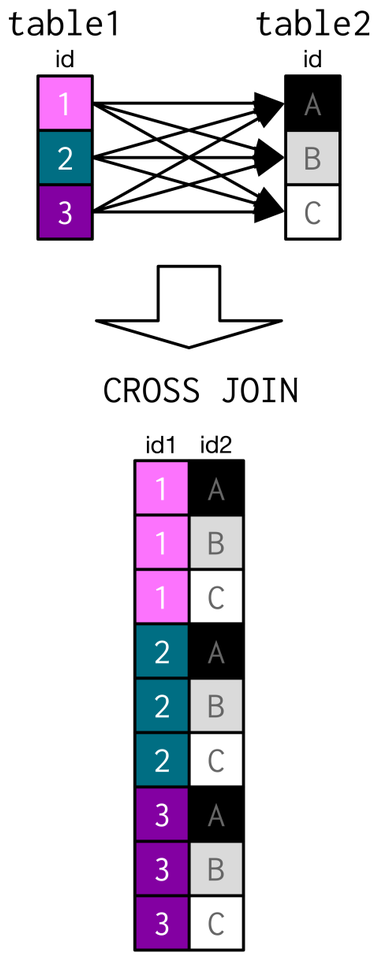
INNER JOIN vs LEFT JOIN



RIGHT JOIN vs FULL JOIN

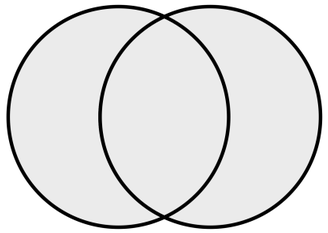


CROSS JOIN with code

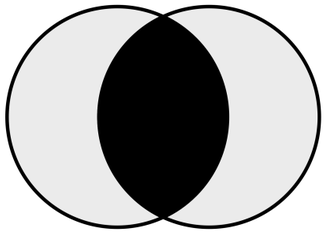



```
SELECT table1.id AS id1,
       table2.id AS id2
FROM table1
CROSS JOIN table2;
```

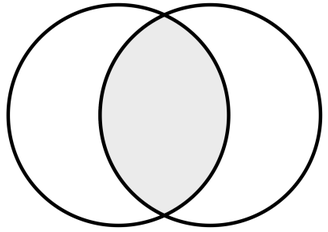
Set Theory Clauses



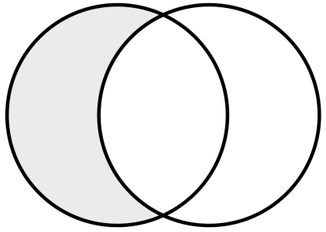
UNION



UNION ALL

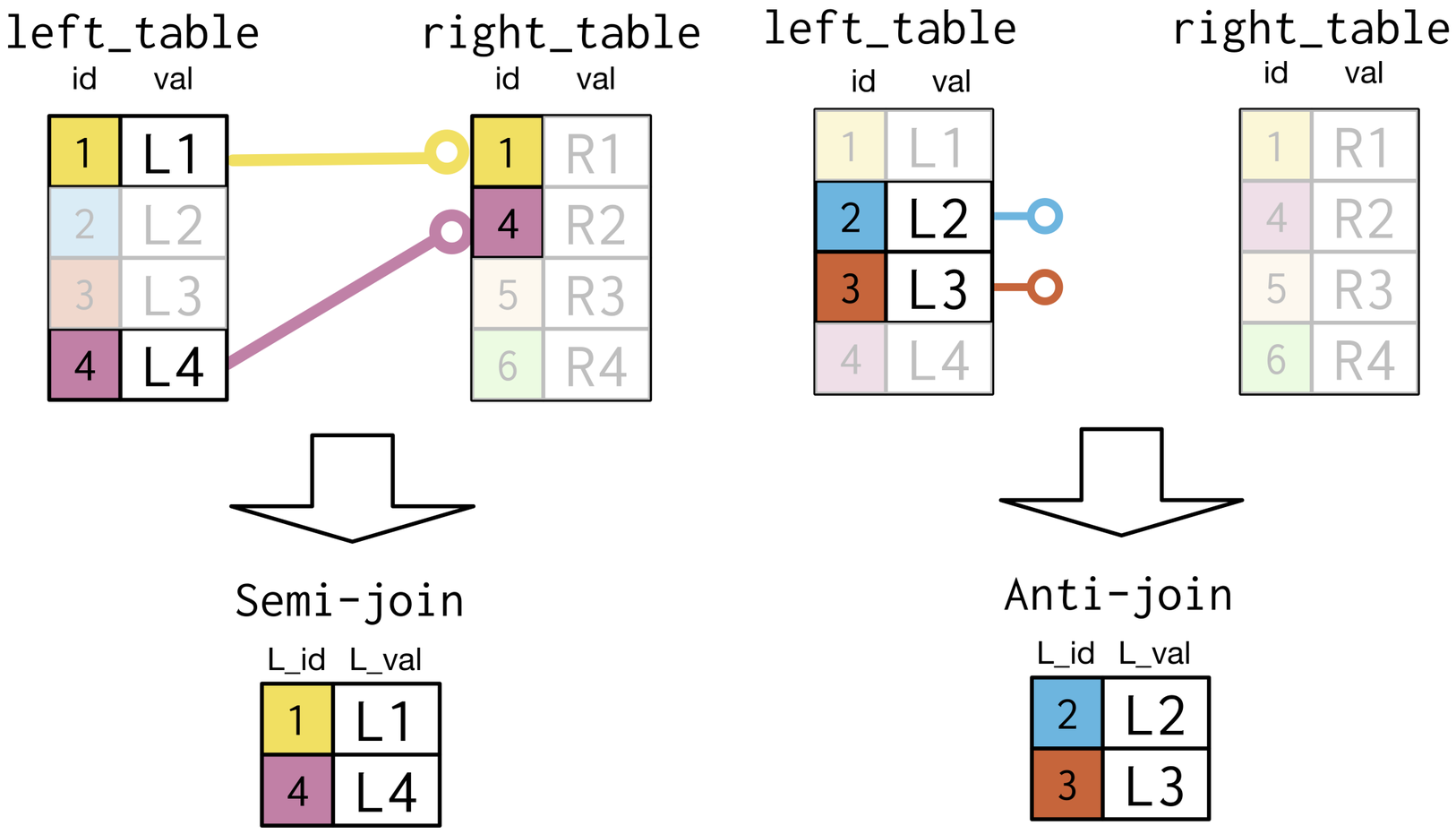


INTERSECT



EXCEPT

Semi-joins and Anti-joins



Types of basic subqueries

- Subqueries inside WHERE clauses
- Subqueries inside SELECT clauses
- Subqueries inside FROM clauses

Own the challenge problems! You got this!

JOINING DATA IN SQL