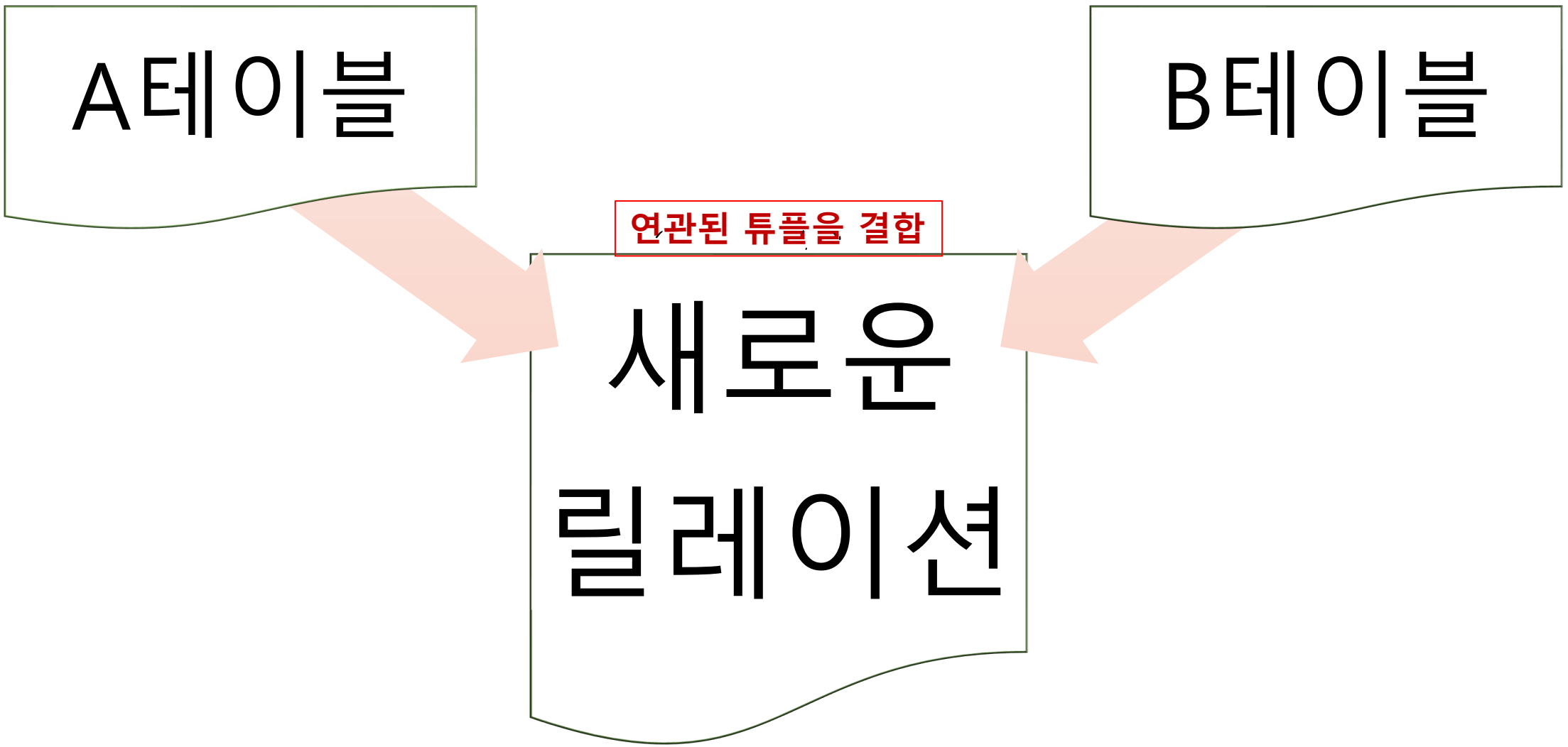
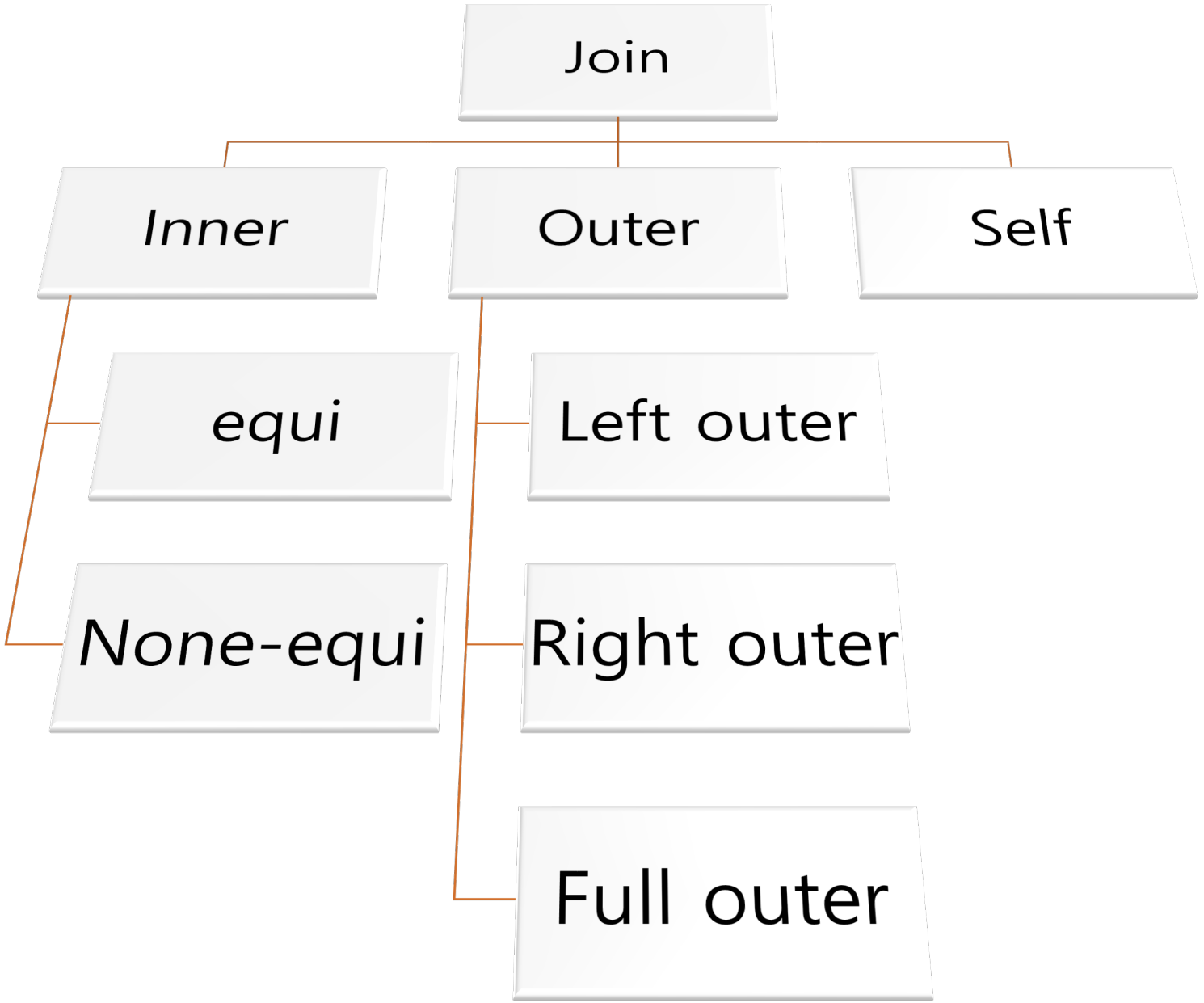
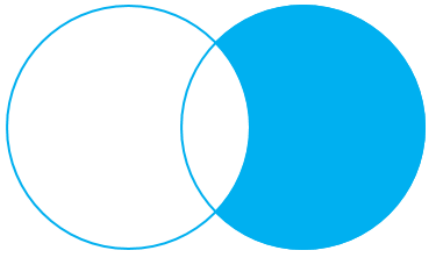
Join

[https://www.oracletutorial.com] 참고.

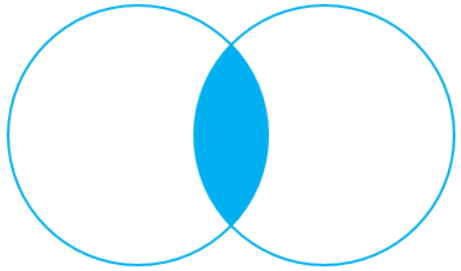

A테이블
B테이블
연관된 튜플을 결합
새로운
릴레이션


Join
Inner
Outer
Self
equi
None-equi
Left outer
Right outer
Full outer

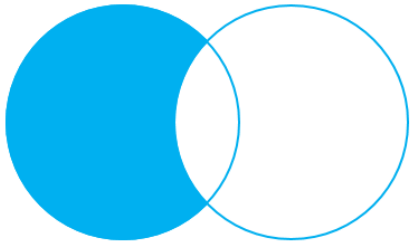
Oracle supports inner join, left join, right join, full outer join and cross join.
오라클은 내부조인, 왼쪽조인, 오른쪽조인, 전체조인, 크로스조인을 지원한다.



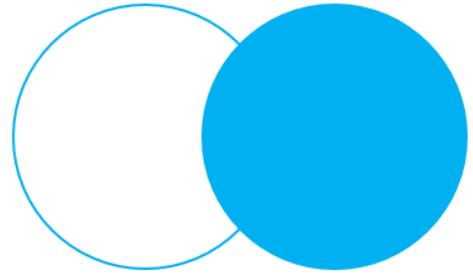
RIGHT OUTER JOIN – only
rows from the right table



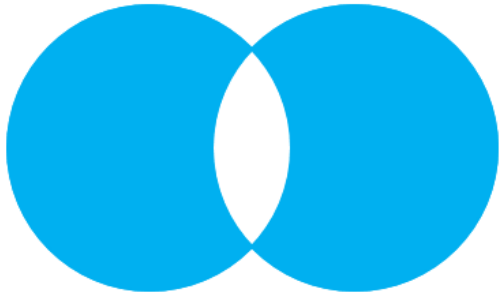
INNER JOIN



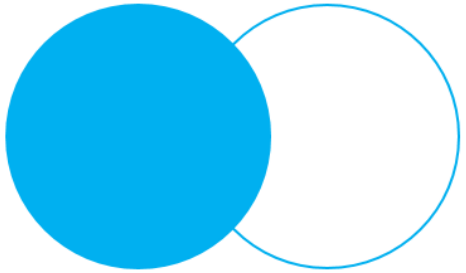
LEFT OUTER JOIN – only
rows from the left table



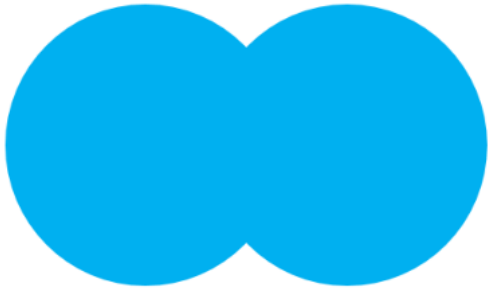
RIGHT OUTER JOIN



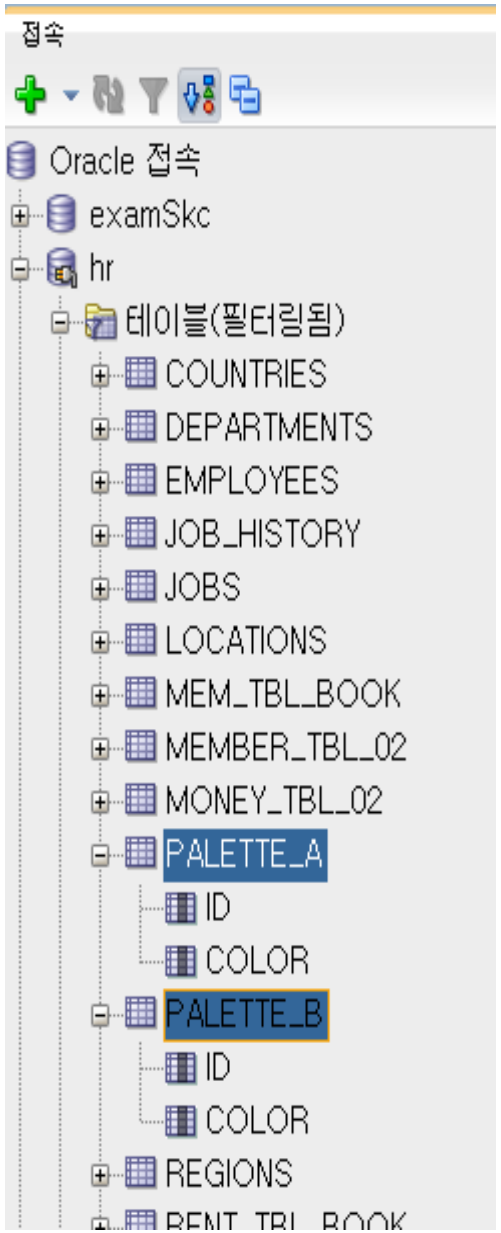
FULL OUTER JOIN – only



LEFT OUTER JOIN



FULL OUTER JOIN



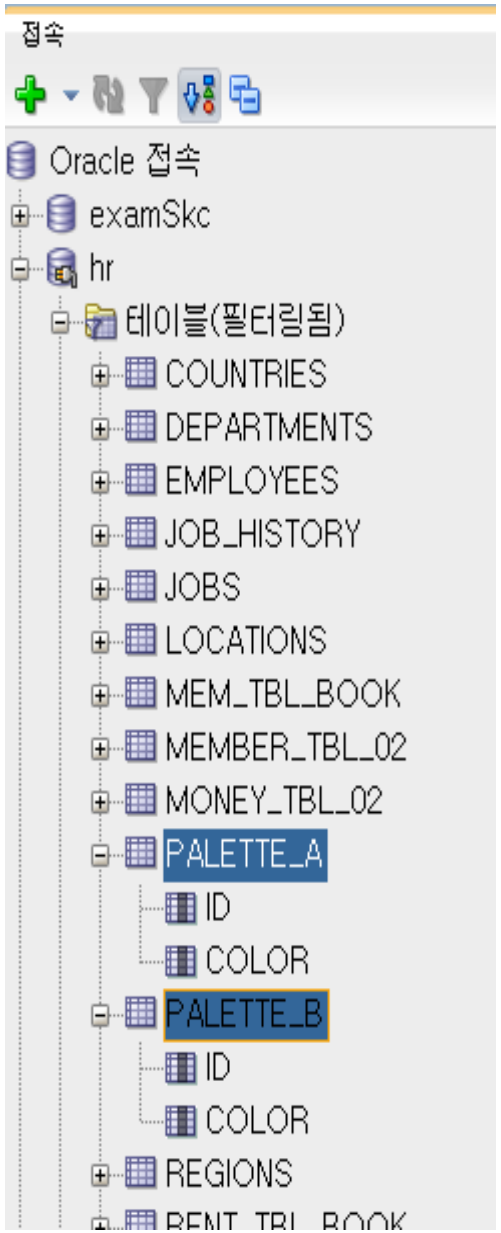

```sql
-- 팔레트테이블 palette_a, palette_b 생성
-- 테이블생성
CREATE TABLE palette_a (
    id INT PRIMARY KEY,
    color VARCHAR2 (100) NOT NULL
);
```

hrJoin.sql | PALETTE_A

열 | 데이터 | Model | 제약 조건 | 권한 부여 | 통계 | 트리거 | 플래시백 | 종속성 | 세부정보 | 분할 영역 | 인덱스 | SQL

작업...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	ID	NUMBER(38,0)	No	(null)	1	(null)
2	COLOR	VARCHAR2(100 BYTE)	No	(null)	2	(null)




```sql
-- 팔레트테이블 palette_a, palette_b 생성
-- 테이블생성
CREATE TABLE palette_a (...

CREATE TABLE palette_b (
    id INT PRIMARY KEY,
    color VARCHAR2 (100) NOT NULL
);
```

hrJoin.sql | PALETTE_B

열 | 데이터 | Model | 제약 조건 | 권한 부여 | 통계 | 트리거 | 플래시백 | 종속성 | 세부정보 | 분할 영역 | 인덱스 | SQL

작업...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	ID	NUMBER(38,0)	No	(null)	1	(null)
2	COLOR	VARCHAR2(100 BYTE)	No	(null)	2	(null)

```sql
-- palette_a테이블insert data
INSERT INTO palette_a (id, color)
VALUES (1, 'Red');

INSERT INTO palette_a (id, color)
VALUES (2, 'Green');

INSERT INTO palette_a (id, color)
VALUES (3, 'Blue');

INSERT INTO palette_a (id, color)
VALUES (4, 'Purple');
```

```sql
-- palette_b테이블insert data
INSERT INTO palette_b (id, color)
VALUES (1, 'Green');

INSERT INTO palette_b (id, color)
VALUES (2, 'Red');

INSERT INTO palette_b (id, color)
VALUES (3, 'Cyan');

INSERT INTO palette_b (id, color)
VALUES (4, 'Brown');
```

hrJoin.sql | PALETTE_A

열 | 데이터 | Model | 제약 조건 | 권한 부여 | 통

정렬... | 필터:

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

hrJoin.sql | PALETTE_B

열 | 데이터 | Model | 제약 조건 | 권한 부여 | 통계

정렬... | 필터:

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown

```sql
-- 1. InnerJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
INNER JOIN palette_b b ON a.color = b.color;
```

질의 결과 | SQL | 인출된 모든 행: 2(0.003초)

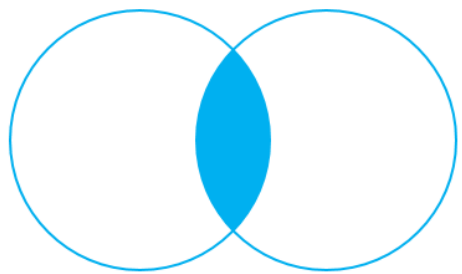
	ID_A	COLOR_A	ID_B	COLOR_B
1	2	Green	1	Green
2	1	Red	2	Red

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



INNER JOIN

```sql
-- 2. leftOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
LEFT JOIN palette_b b ON a.color = b.color;
```

질의 결과 | SQL | 인출된 모든 행: 4(0.004초)

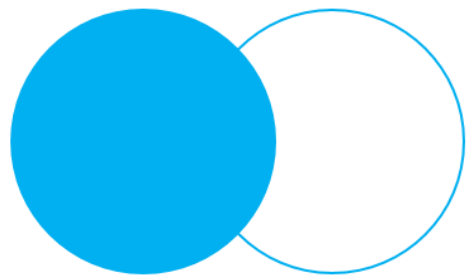
	ID_A	COLOR_A	ID_B	COLOR_B
1	2	Green	1	Green
2	1	Red	2	Red
3	3	Blue	(null)	(null)
4	4	Purple	(null)	(null)

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



LEFT OUTER JOIN

```sql
-- 3. NULL표현 leftOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
LEFT JOIN palette_b b ON a.color = b.color
WHERE b.id IS NULL;
```

질의 결과

SQL | 인출된 모든 행: 2(0.003초)

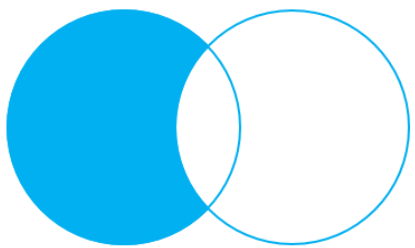
	ID_A	COLOR_A	ID_B	COLOR_B
1	3	Blue	(null)	(null)
2	4	Purple	(null)	(null)

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



LEFT OUTER JOIN – only rows from the left table

```sql
-- 4. rightOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
RIGHT JOIN palette_b b ON a.color = b.color;
```

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

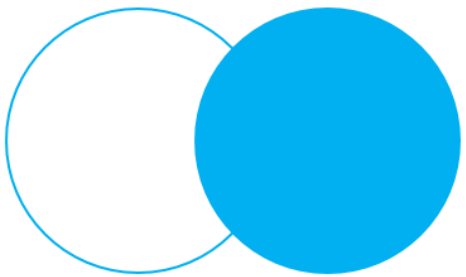
PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown

질의 결과

SQL | 인출된 모든 행: 4(0.005초)

	ID_A	COLOR_A	ID_B	COLOR_B
1	1	Red	2	Red
2	2	Green	1	Green
3	(null)	(null)	4	Brown
4	(null)	(null)	3	Cyan



RIGHT OUTER JOIN

```sql
-- 5. NULL표현 rightOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
RIGHT JOIN palette_b b ON a.color = b.color
WHERE a.id IS NULL;

```

질의 결과

SQL | 인출된 모든 행: 2(0.002초)

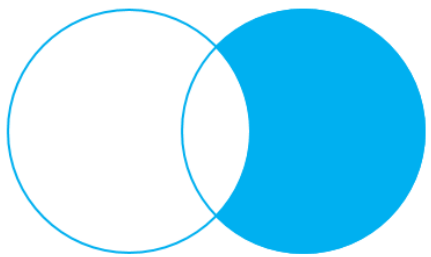
	ID_A	COLOR_A	ID_B	COLOR_B
1	(null)	(null)	4	Brown
2	(null)	(null)	3	Cyan

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



RIGHT OUTER JOIN – only rows from the right table

```sql
-- 6. fullOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
FULL OUTER JOIN palette_b b ON a.color = b.color;

```

질의 결과 ×

SQL | 인출된 모든 행: 6(0.004초)

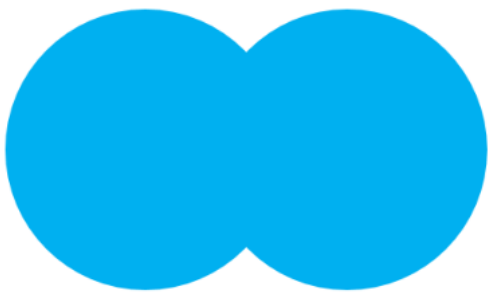
	ID_A	COLOR_A	ID_B	COLOR_B
1	2	Green	1	Green
2	1	Red	2	Red
3	(null)	(null)	3	Cyan
4	(null)	(null)	4	Brown
5	3	Blue	(null)	(null)
6	4	Purple	(null)	(null)

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



FULL OUTER JOIN

```sql
-- 7. NULL표현 fullOuterJoin
SELECT
    a.id id_a,
    a.color color_a,
    b.id id_b,
    b.color color_b
FROM
    palette_a a
FULL JOIN palette_b b ON a.color = b.color
WHERE a.id IS NULL OR b.id IS NULL;

```

질의 결과

SQL | 인출된 모든 행: 4(0.004초)

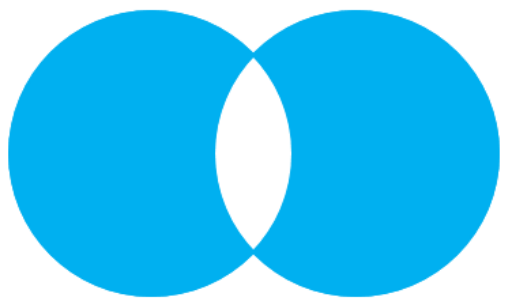
	ID_A	COLOR_A	ID_B	COLOR_B
1	(null)	(null)	3	Cyan
2	(null)	(null)	4	Brown
3	3	Blue	(null)	(null)
4	4	Purple	(null)	(null)

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown



FULL OUTER JOIN – only

```sql
-- 8. crossJoin
-- 많은행(행*행)을 만들어 테스트목적으로 사용한다.
SELECT
    a.id, a.color, b.id, b.color
FROM
    palette_a a
CROSS JOIN palette_b b;

```

질의 결과 | SQL | 인출된 모든 행: 16(0.005초)

	ID	COLOR	ID_1	COLOR_1
1	1	Red	1	Green
2	1	Red	2	Red
3	1	Red	3	Cyan
4	1	Red	4	Brown
5	2	Green	1	Green
6	2	Green	2	Red
7	2	Green	3	Cyan
8	2	Green	4	Brown
9	3	Blue	1	Green
10	3	Blue	2	Red
11	3	Blue	3	Cyan
12	3	Blue	4	Brown
13	4	Purple	1	Green
14	4	Purple	2	Red
15	4	Purple	3	Cyan
16	4	Purple	4	Brown

PALETTE_A

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown

```sql
-- 9. selfJoin_ 하나의 테이블내에서 행을 비교, 분석할때 사용.
-- 입사일이 같은 사원들이 있는지? 검색.
SELECT
    e1.hire_date,
   e1.employee_id,
   (e1.first_name || ' ' || e1.last_name) employee1,
   e2.employee_id,
   (e2.first_name || ' ' || e2.last_name) employee2
FROM
     employees e1
INNER JOIN employees e2 ON
     e1.employee_id > e2.employee_id
     AND e1.hire_date = e2.hire_date
ORDER BY
    e1.hire_date DESC, employee1, employee2;
```

질의 결과 ×

SQL | 인출된 모든 행: 12(0.006초)

	HIRE_DATE	EMPLOYEE_ID	EMPLOYEE1	EMPLOYEE_ID_1	EMPLOYEE2
1	08/04/21	173	Sundita Kumar	167	Amit Banda
2	07/06/21	198	Donald OConnell	182	Martha Sullivan
3	07/02/07	187	Anthony Cabrio	107	Diana Lorentz
4	06/01/24	180	Winston Taylor	170	Tayler Fox
5	05/08/20	152	Peter Hall	129	Laura Bissot
6	05/03/10	159	Lindsey Smith	147	Alberto Errazuriz
7	02/06/07	204	Hermann Baer	203	Susan Mavris
8	02/06/07	205	Shelley Higgins	204	Hermann Baer
9	02/06/07	205	Shelley Higgins	203	Susan Mavris
10	02/06/07	206	William Gietz	204	Hermann Baer
11	02/06/07	206	William Gietz	205	Shelley Higgins
12	02/06/07	206	William Gietz	203	Susan Mavris

PALETTE_A

열 | 데이터 | Model | 제약

	ID	COLOR
1	1	Red
2	2	Green
3	3	Blue
4	4	Purple

PALETTE_B

열 | 데이터 | Model | 제약

	ID	COLOR
1	1	Green
2	2	Red
3	3	Cyan
4	4	Brown

A테이블

B테이블

A와 B테이블을 연결하여, 필드에서 데이터를 가져오기 위함이다.