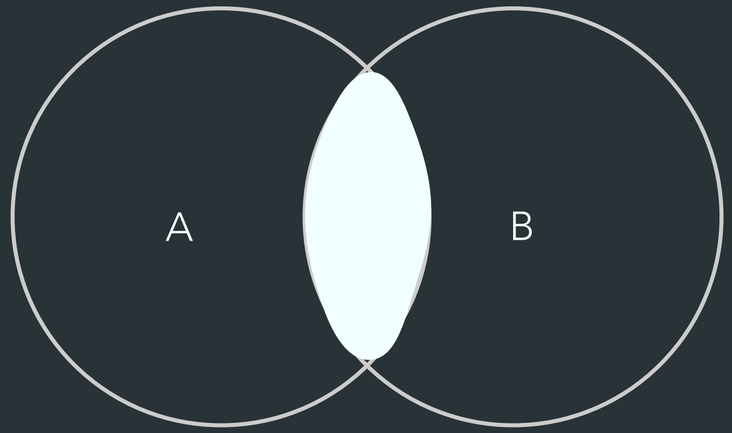
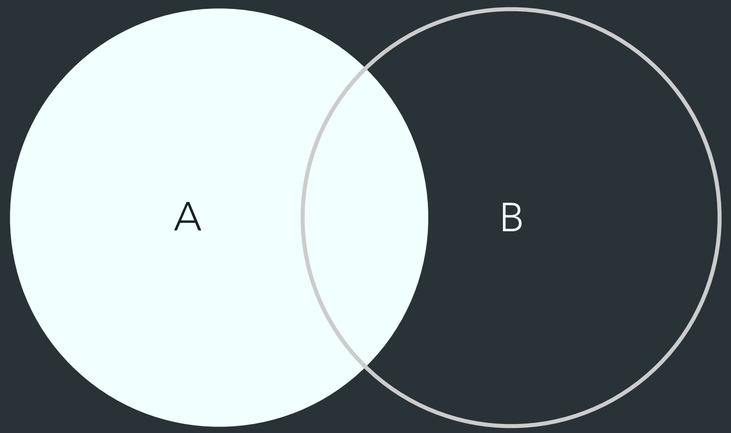
kokchun giang

working with **joins** in sql to combine columns from one or more tables into new table

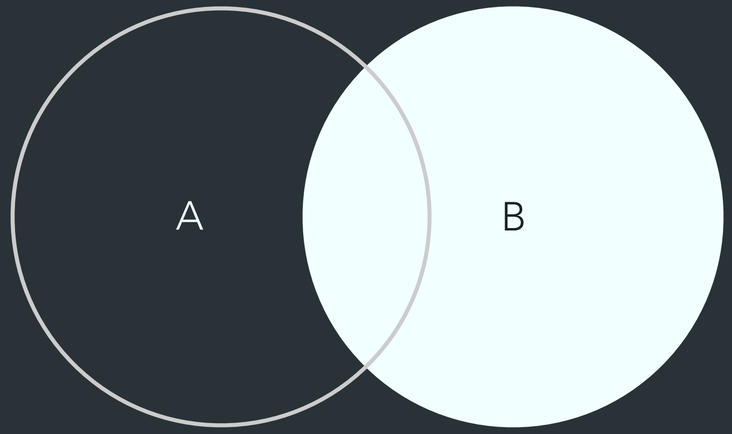
set theory explained with **venn diagrams**



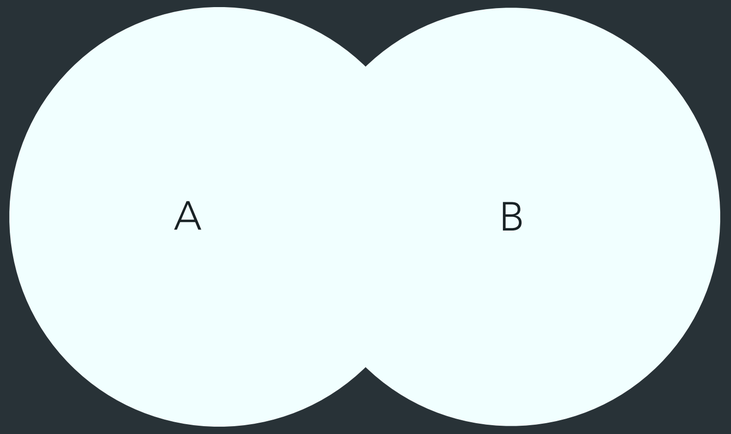
INNER JOIN



LEFT JOIN



RIGHT JOIN



FULL JOIN

here A and B are tables and it's the columns that are joined

combine two tables with **LEFT JOIN**

```sql
SELECT
    p.plant_id,
    p.plant_name,
    p.type,
    pc.water_schedule,
    pc.sunlight
FROM
    main.plants p
LEFT JOIN
    main.plant_care pc ON p.plant_id = pc.plant_id;
```

matching column

returns all records from left table and match with right table, giving NULLs in right columns if there is no match

plant_id int32	plant_name varchar	type varchar
1	Rose	Flower
2	Oak	Tree
3	Tulip	Flower
4	Cactus	Succulent
5	Sunflower	Flower

plants

LEFT JOIN

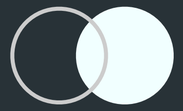
plant_id int32	plant_name varchar	type varchar	water_schedule varchar	sunlight varchar
1	Rose	Flower	Daily	Full Sun
3	Tulip	Flower	Weekly	Partial Sun
4	Cactus	Succulent	Biweekly	Full Sun
2	Oak	Tree		
5	Sunflower	Flower		

NULLs

id int32	plant_id int32	water_schedule varchar	sunlight varchar
1	1	Daily	Full Sun
2	3	Weekly	Partial Sun
3	4	Biweekly	Full Sun
4	6	Daily	Shade

plant_care

combine two tables with **RIGHT JOIN**



```sql
SELECT
    p.plant_id,
    p.plant_name,
    p.type,
    pc.water_schedule,
    pc.sunlight
FROM
    main.plants p
RIGHT JOIN
    main.plant_care pc ON p.plant_id = pc.plant_id;
```

matching column

returns all records from right table and match with left table, giving NULLs in left columns if there is no match

plant_id int32	plant_name varchar	type varchar
1	Rose	Flower
2	Oak	Tree
3	Tulip	Flower
4	Cactus	Succulent
5	Sunflower	Flower

plants

id int32	plant_id int32	water_schedule varchar	sunlight varchar
1	1	Daily	Full Sun
2	3	Weekly	Partial Sun
3	4	Biweekly	Full Sun
4	6	Daily	Shade

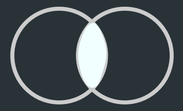
plant_care

RIGHT JOIN

plant_id int32	plant_name varchar	type varchar	water_schedule varchar	sunlight varchar
1	Rose	Flower	Daily	Full Sun
3	Tulip	Flower	Weekly	Partial Sun
4	Cactus	Succulent	Biweekly	Full Sun
			Daily	Shade

NULLs

combine two tables with **INNER JOIN**



```sql
SELECT
    p.plant_id,
    p.plant_name,
    p.type,
    pc.water_schedule,
    pc.sunlight
FROM
    main.plants p
INNER JOIN
    main.plant_care pc ON p.plant_id = pc.plant_id;
```

matching column

returns all records where there is a match in both tables , hence no NULLs

plant_id int32	plant_name varchar	type varchar
1	Rose	Flower
2	Oak	Tree
3	Tulip	Flower
4	Cactus	Succulent
5	Sunflower	Flower

plants

id int32	plant_id int32	water_schedule varchar	sunlight varchar
1	1	Daily	Full Sun
2	3	Weekly	Partial Sun
3	4	Biweekly	Full Sun
4	6	Daily	Shade

plant_care

INNER JOIN

plant_id int32	plant_name varchar	type varchar	water_schedule varchar	sunlight varchar
1	Rose	Flower	Daily	Full Sun
3	Tulip	Flower	Weekly	Partial Sun
4	Cactus	Succulent	Biweekly	Full Sun

combine two tables with **FULL JOIN**

```sql
SELECT
    p.plant_id,
    p.plant_name,
    p.type,
    pc.water_schedule,
    pc.sunlight
FROM
    main.plants p
FULL JOIN
    main.plant_care pc ON p.plant_id = pc.plant_id;
```

matching column

returns all records from both tables,
if there's no match, NULLs are used
on non-matching table

plant_id int32	plant_name varchar	type varchar
1	Rose	Flower
2	Oak	Tree
3	Tulip	Flower
4	Cactus	Succulent
5	Sunflower	Flower

plants

id int32	plant_id int32	water_schedule varchar	sunlight varchar
1	1	Daily	Full Sun
2	3	Weekly	Partial Sun
3	4	Biweekly	Full Sun
4	6	Daily	Shade

plant_care

FULL JOIN

plant_id int32	plant_name varchar	type varchar	water_schedule varchar	sunlight varchar
1	Rose	Flower	Daily	Full Sun
3	Tulip	Flower	Weekly	Partial Sun
4	Cactus	Succulent	Biweekly	Full Sun
2	Oak	Tree		
5	Sunflower	Flower		
			Daily	Shade

NULLs

NULLs