SQL Joins

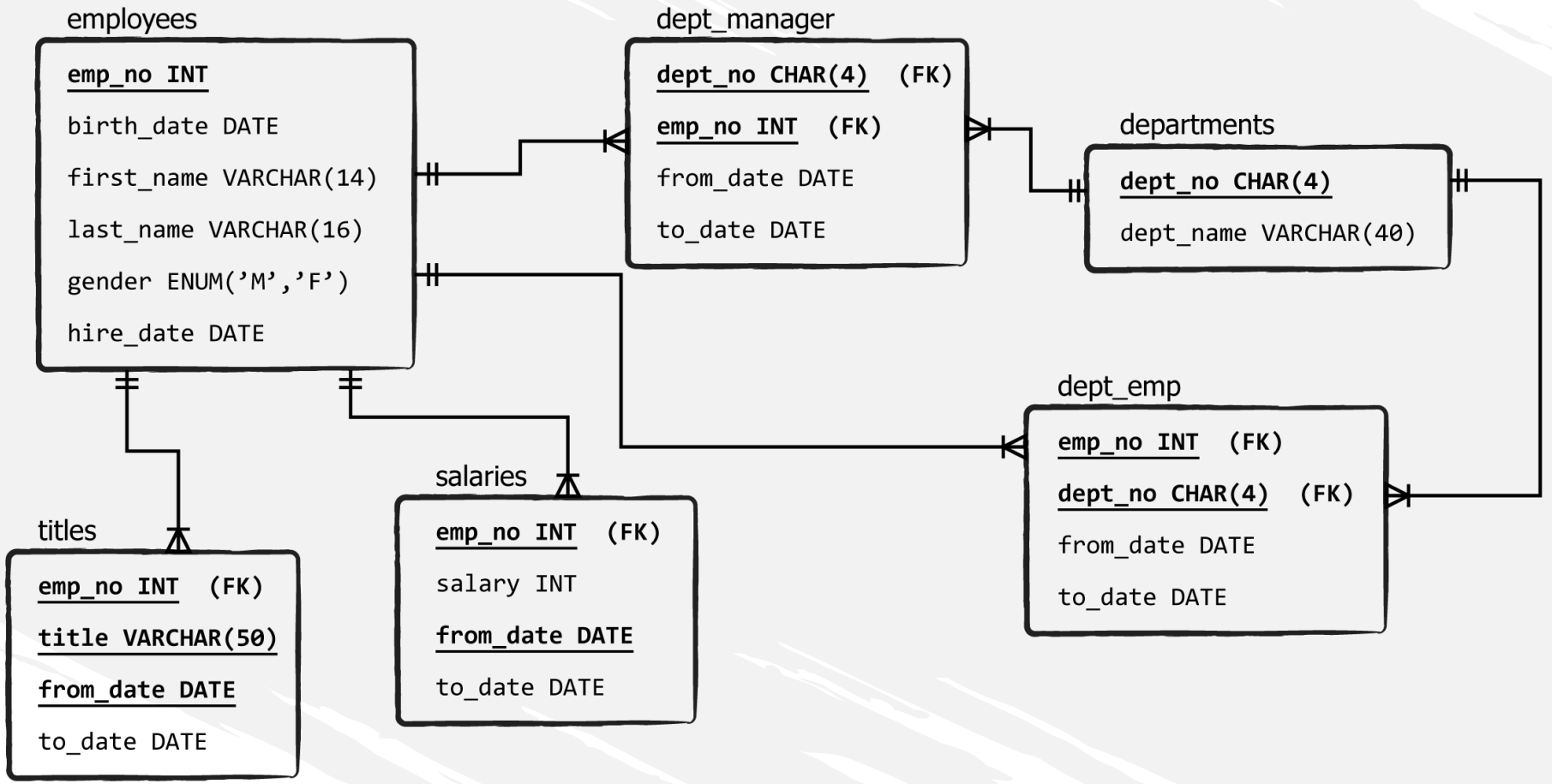
Introduction to Joins

Introduction to Joins

- **joins**

  the SQL tool that allow us to construct a relationship between objects

Introduction to Joins



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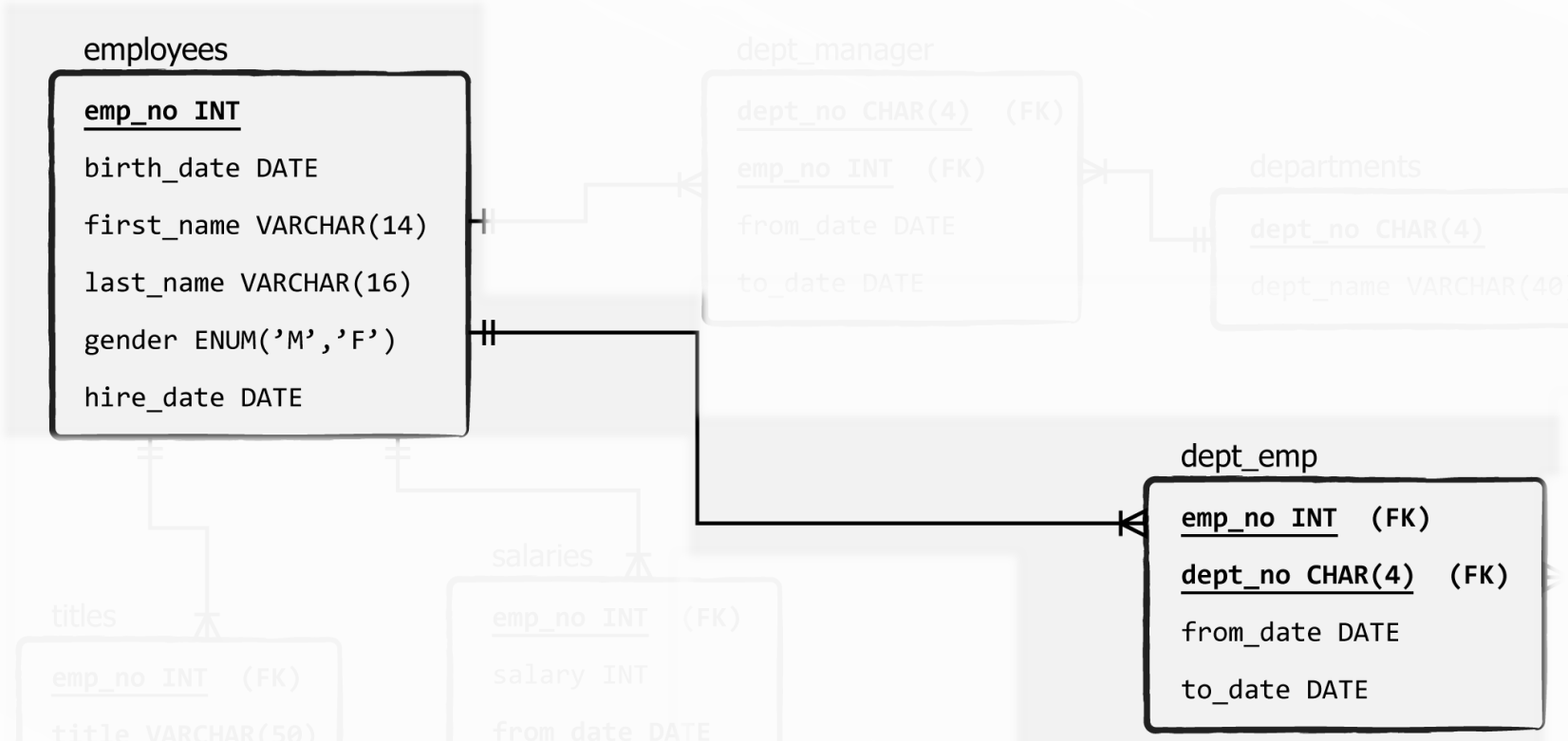

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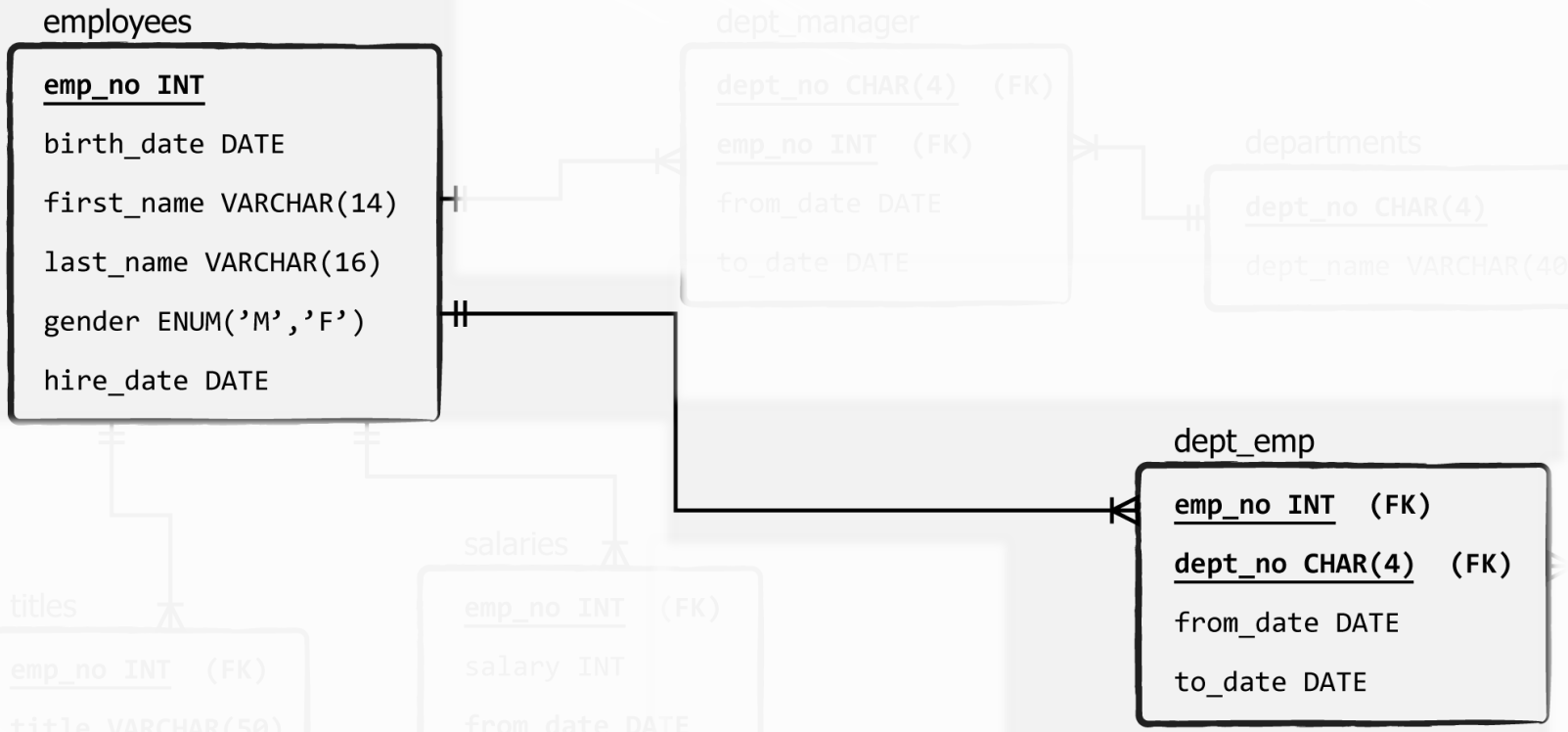

a join shows a *result set*, containing fields *derived from* two or more tables

Introduction to Joins

joins

- we must find a *related column* from the two tables that contains the same *type* of data

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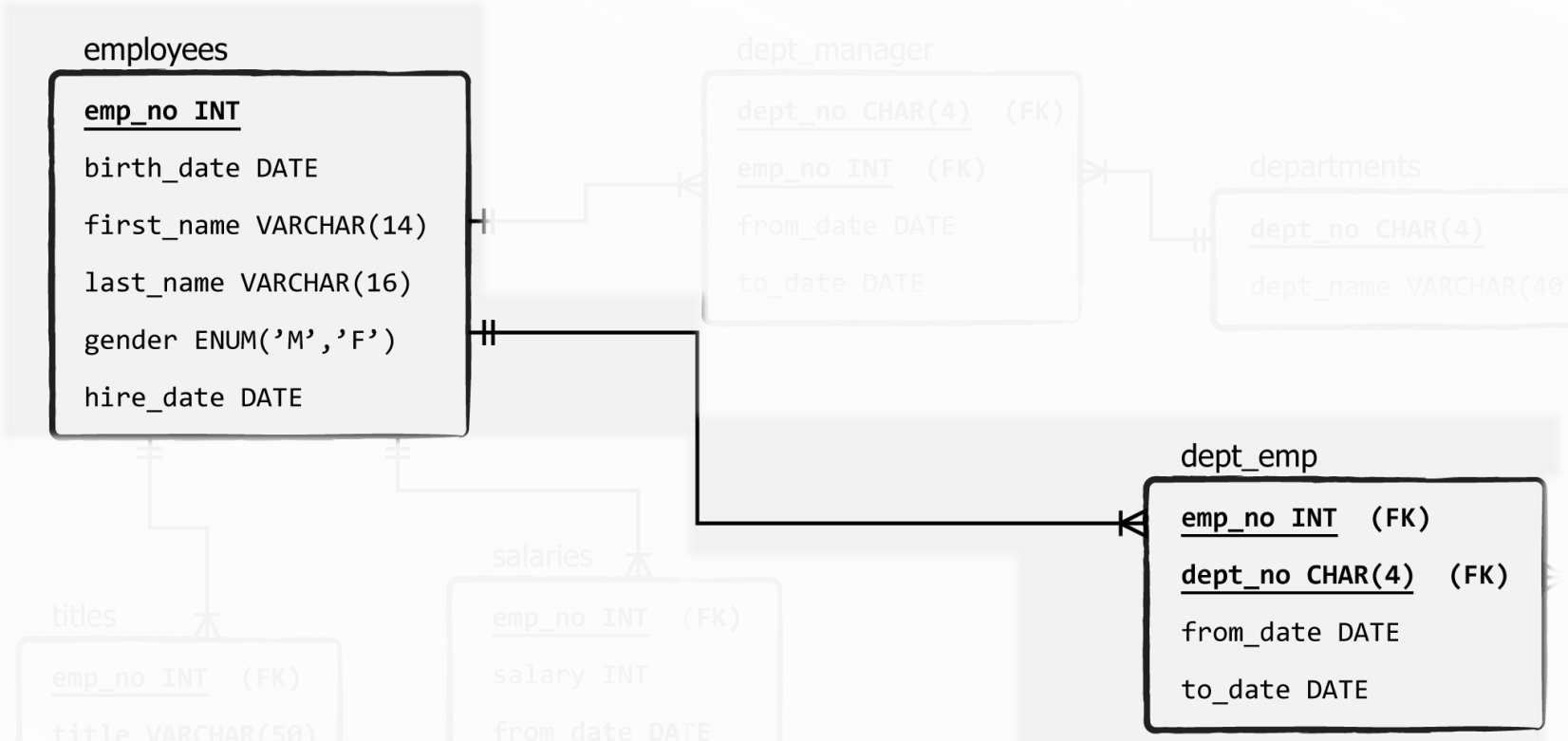

Introduction to Joins

joins

- we must find a *related column* from the two tables that contains the same *type* of data
- we will be free to add columns from these two tables to our output

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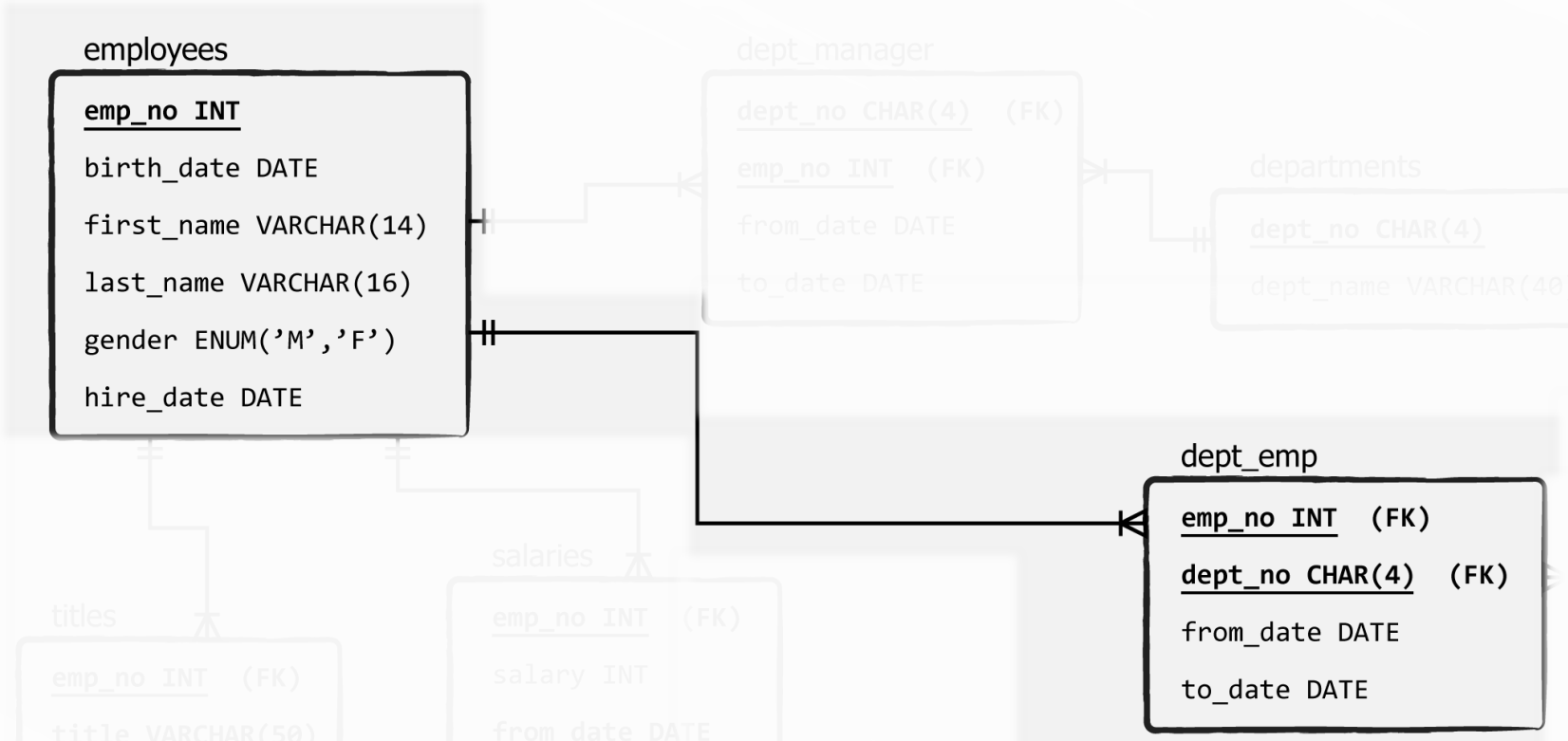

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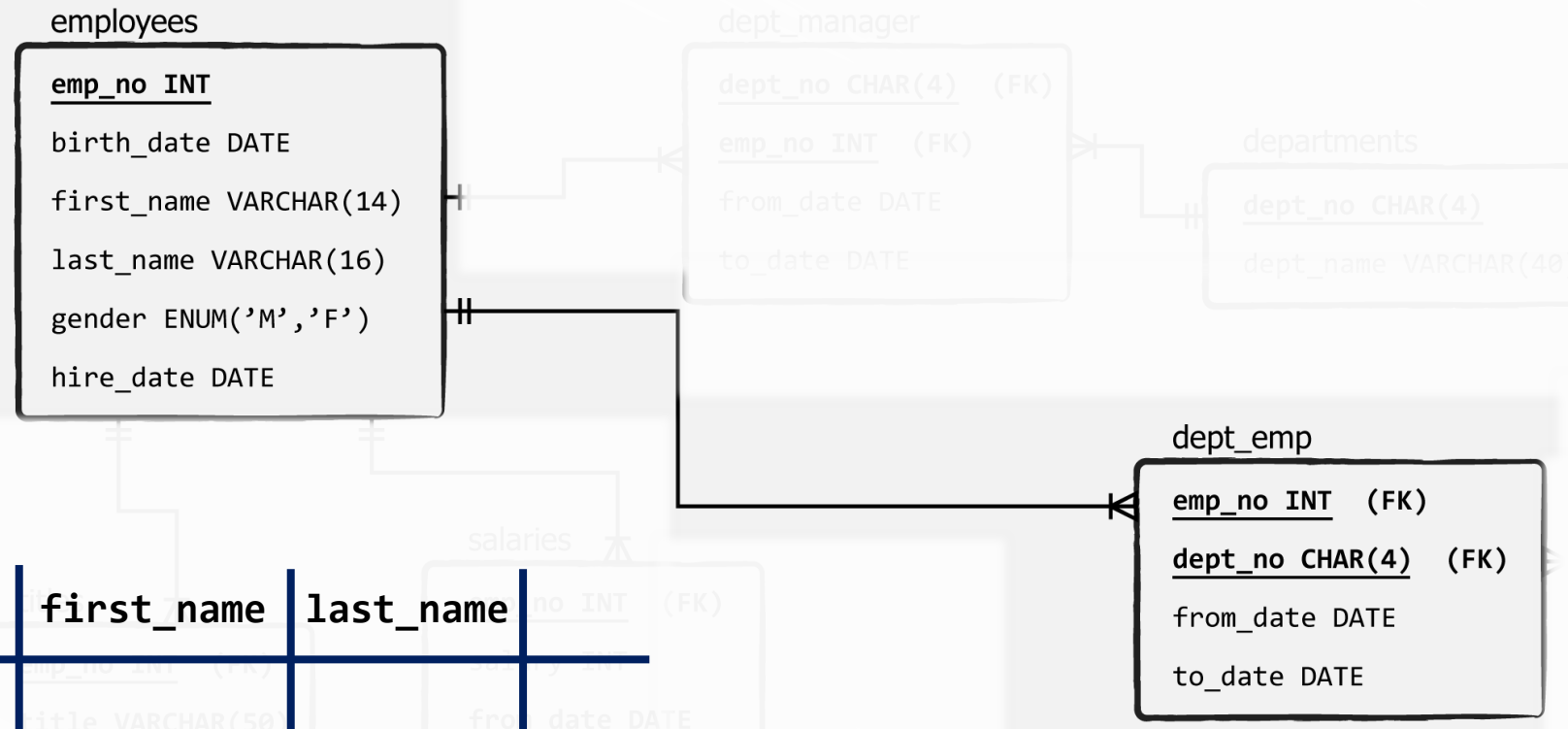
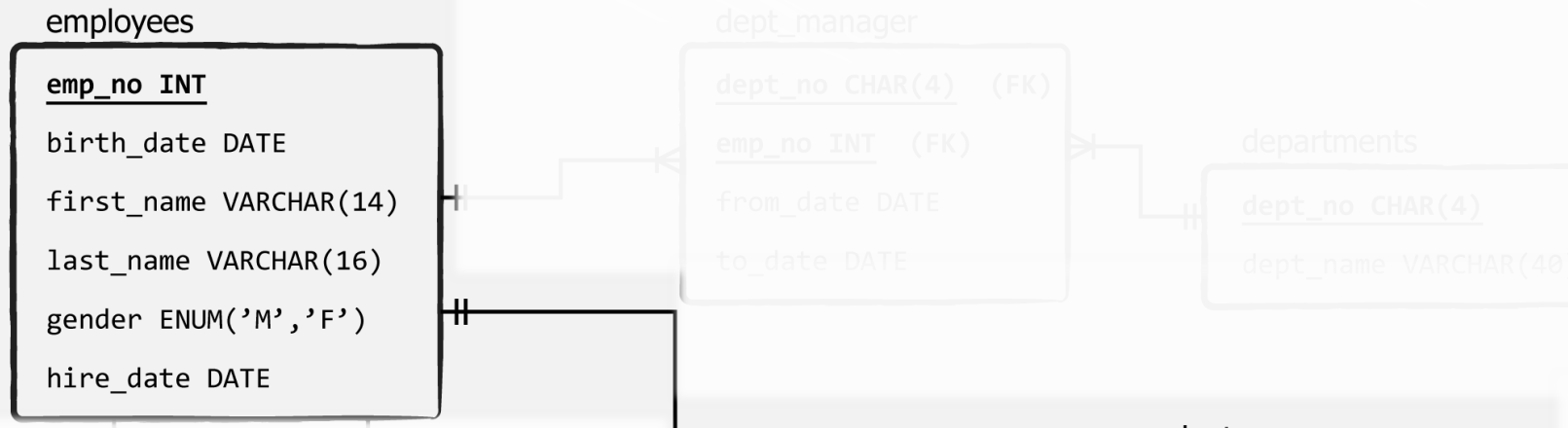


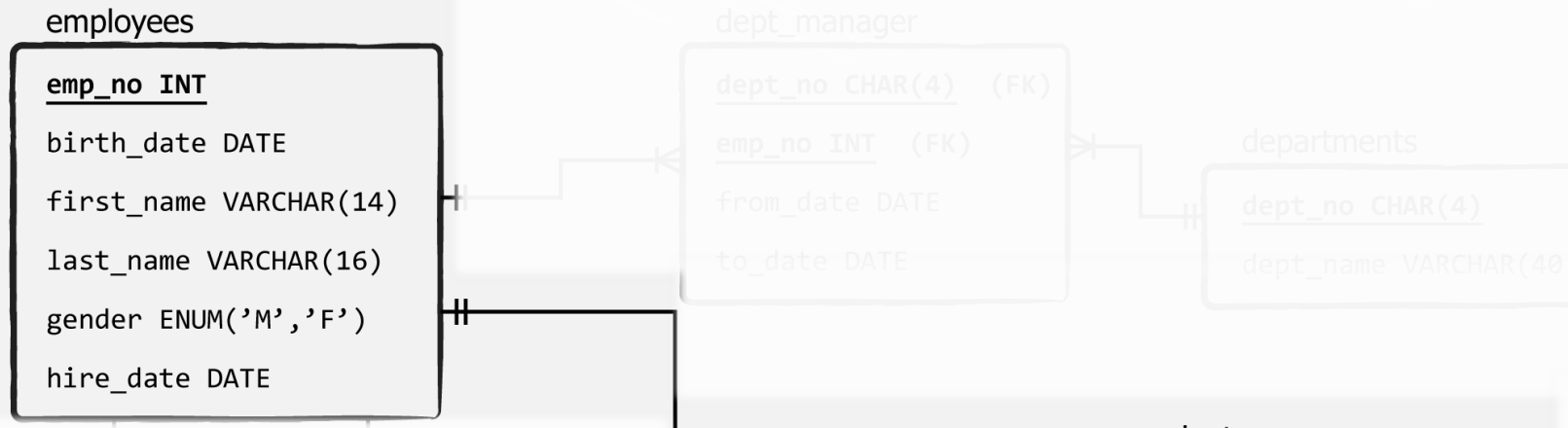
emp_no	first_name	last_name

Introduction to Joins



emp_no	first_name	last_name	dept_no	from_date

Introduction to Joins



emp_no	first_name	last_name	dept_no	from_date

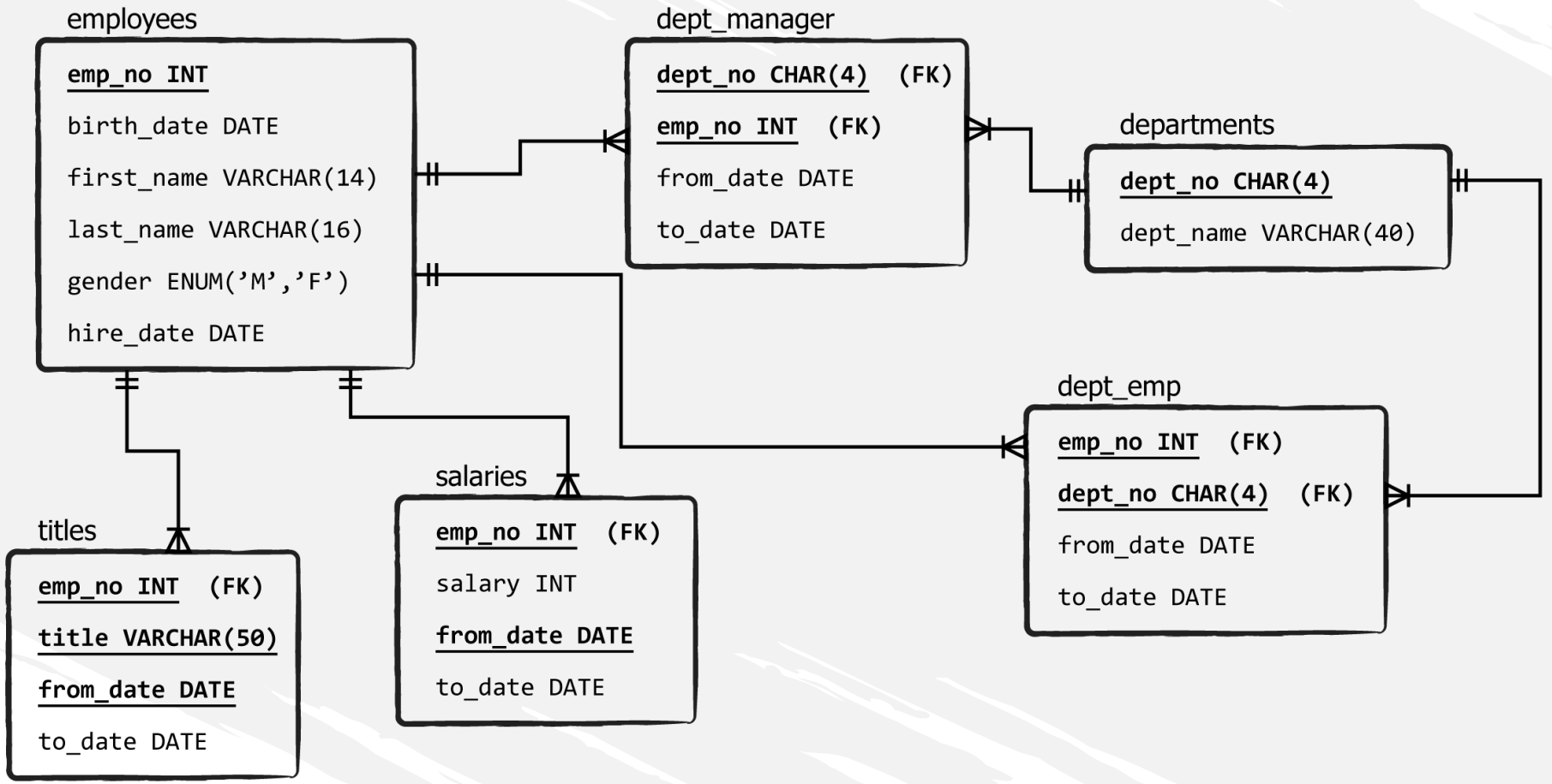
Introduction to Joins

joins

- the columns you use to relate tables must represent the same object, *such as id*

- the tables you are considering need not be logically adjacent

Introduction to Joins



Introduction to Joins

We will use two duplicate tables:

- ‘departments_dup’
- ‘dept_manager_dup’

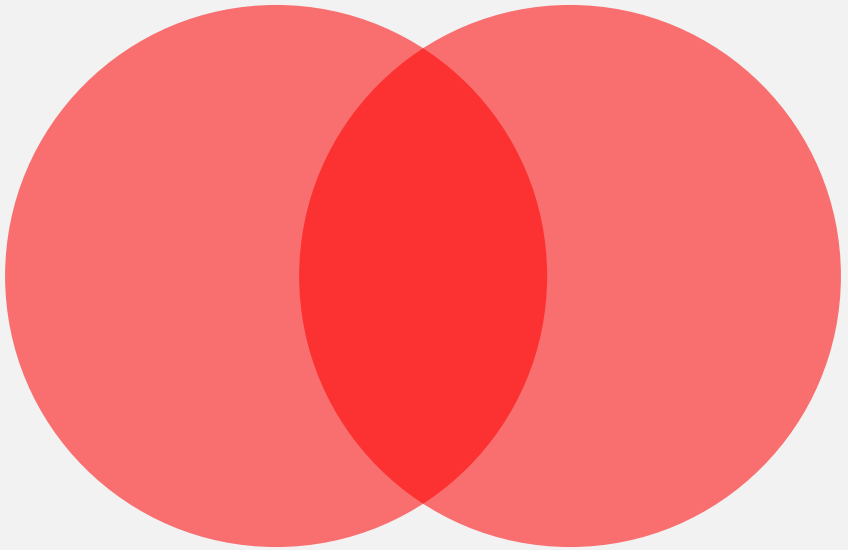

INNER JOIN

INNER JOIN

- INNER JOIN

INNER JOIN

INNER JOIN



INNER JOIN

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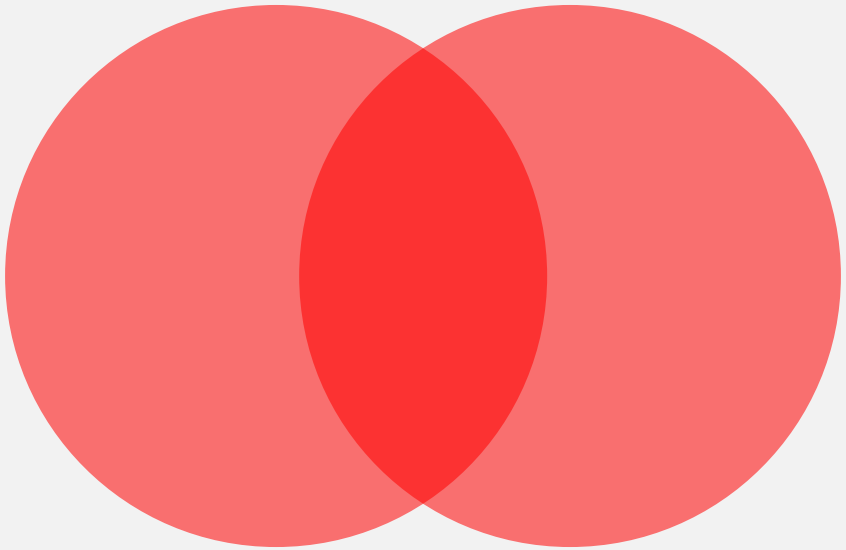
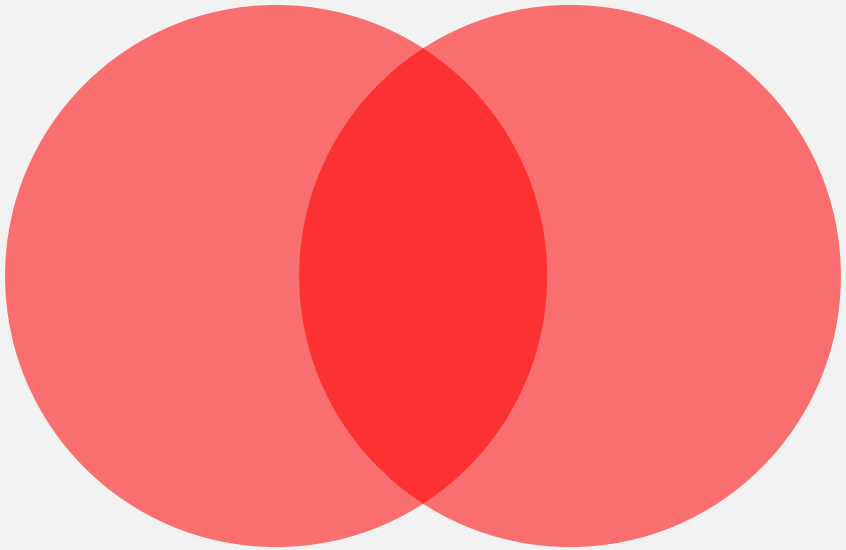


Venn diagram

INNER JOIN

INNER JOIN



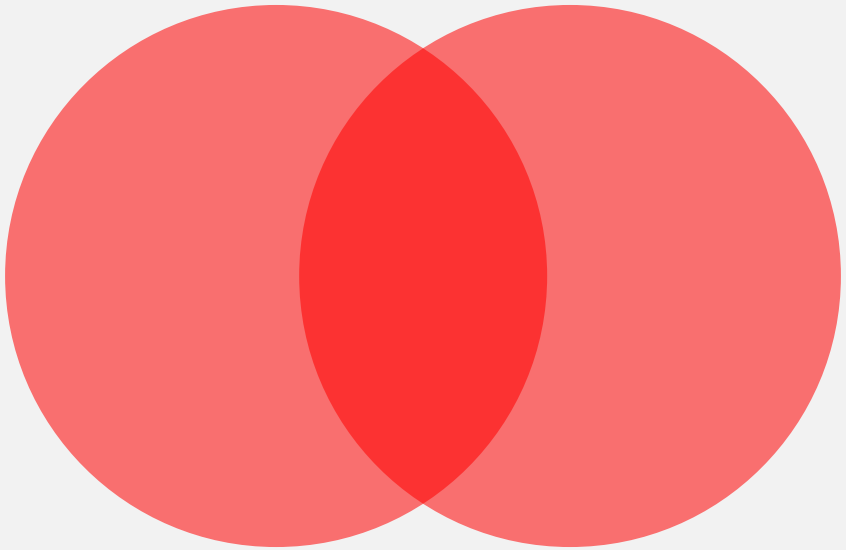
Venn diagram

a mathematical tool representing all possible logical relations between a finite collection of sets

INNER JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



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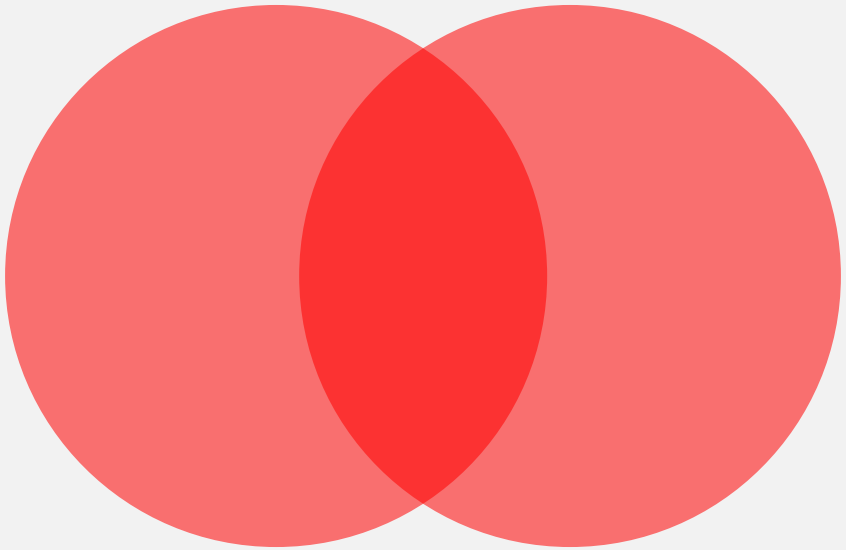

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

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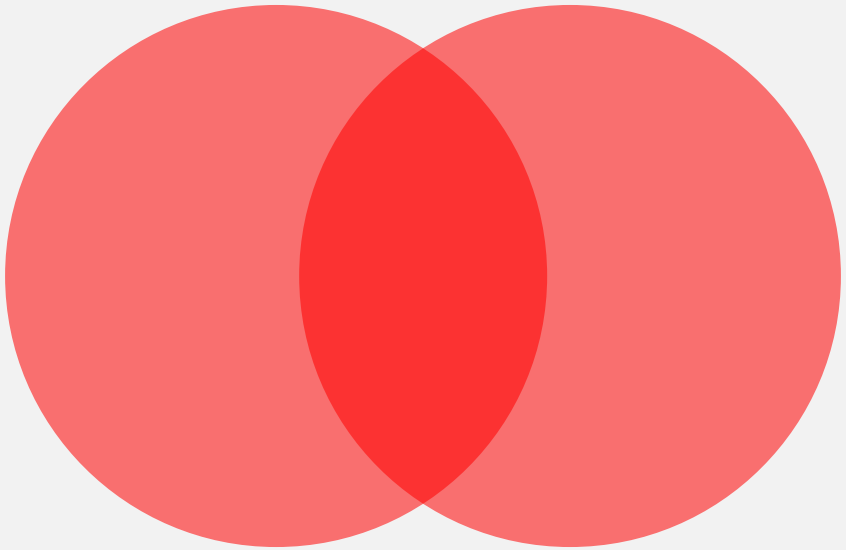


departments_dup

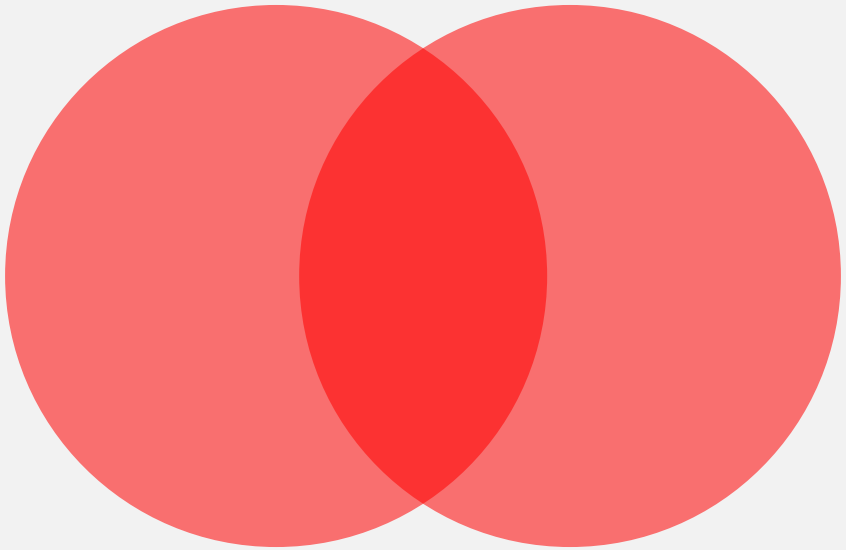
```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

Which will be the related column here?

INNER JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



departments_dup

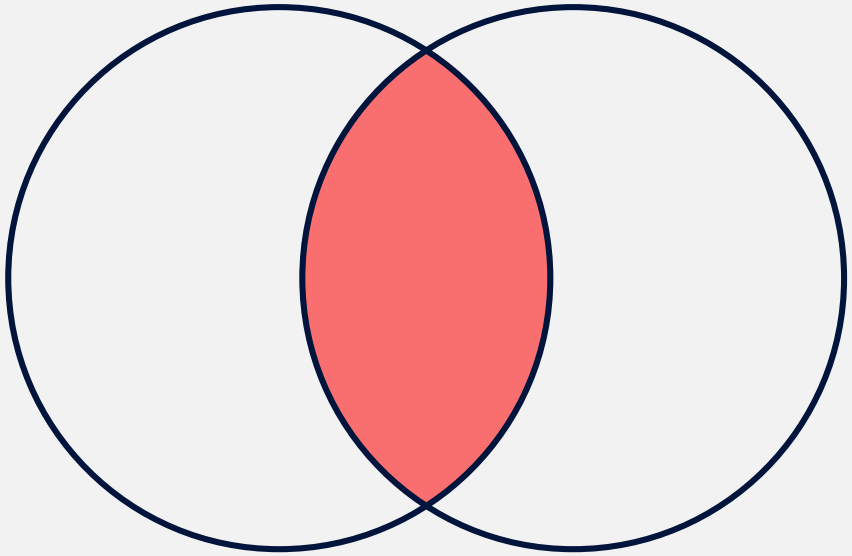
```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

Related column: dept_no

INNER JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

the area that belongs to both circles, which is filled with red, represents all records belonging to *both* the “Department Manager Duplicate” and the “Departments Duplicate” tables

INNER JOIN

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dept_no CHAR(4)
emp_no INT
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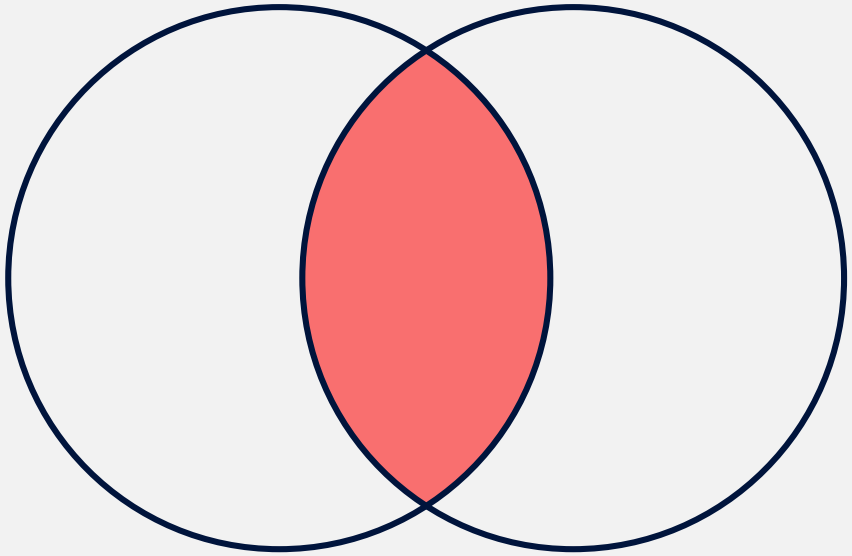

departments_dup

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result set

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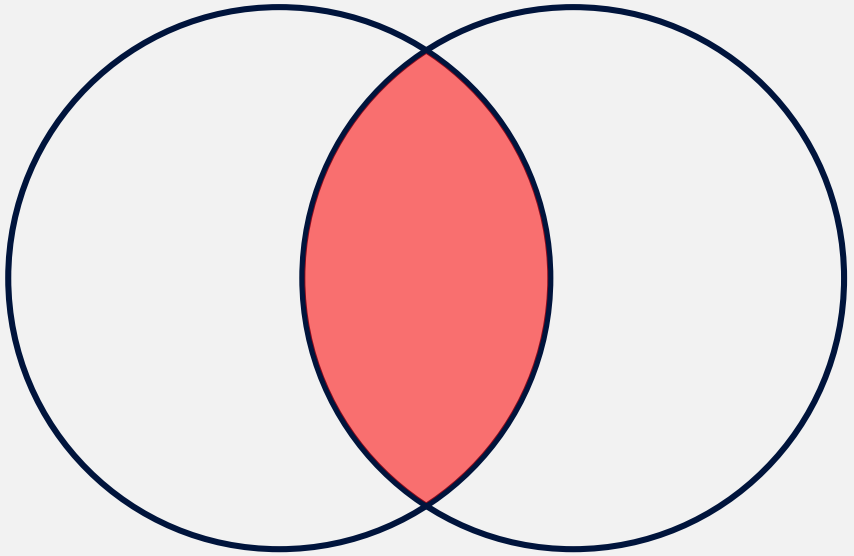
INNER JOIN

INNER JOIN

can help us extract this result set



result set

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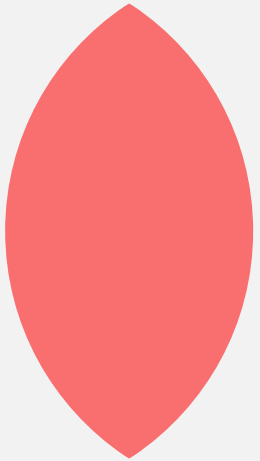

result set

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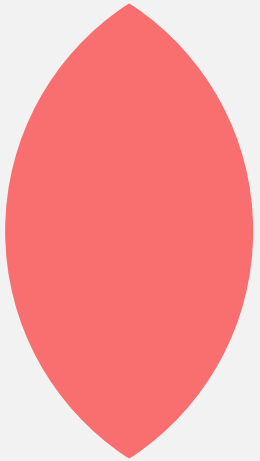

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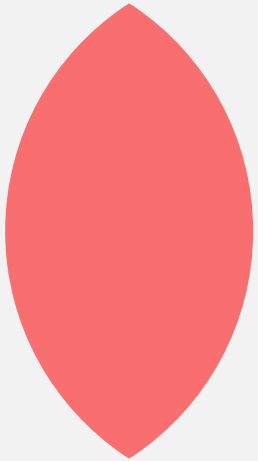

matching values = matching records

INNER JOIN

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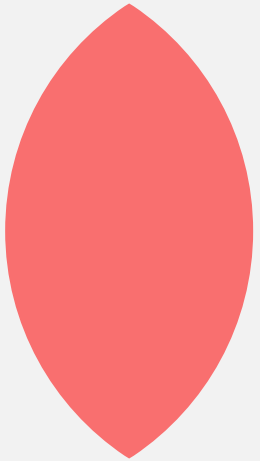
```

dept_no CHAR(4)



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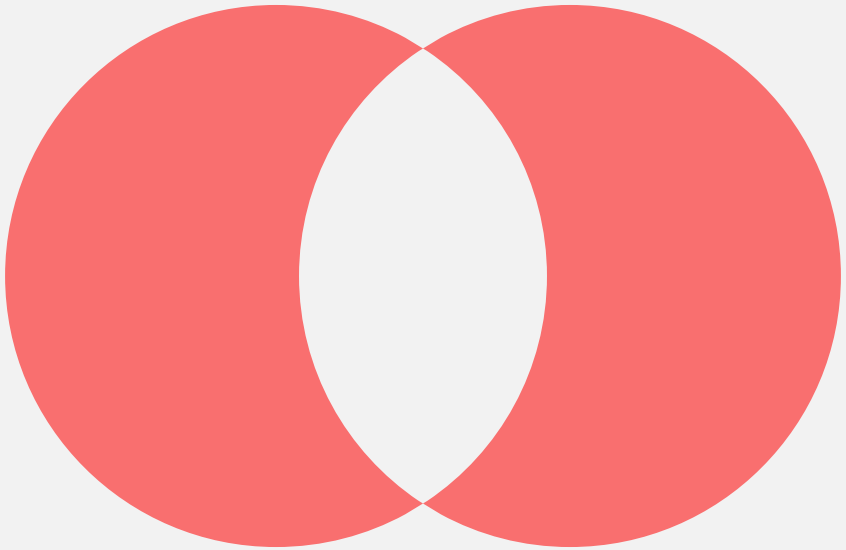

departments_dup

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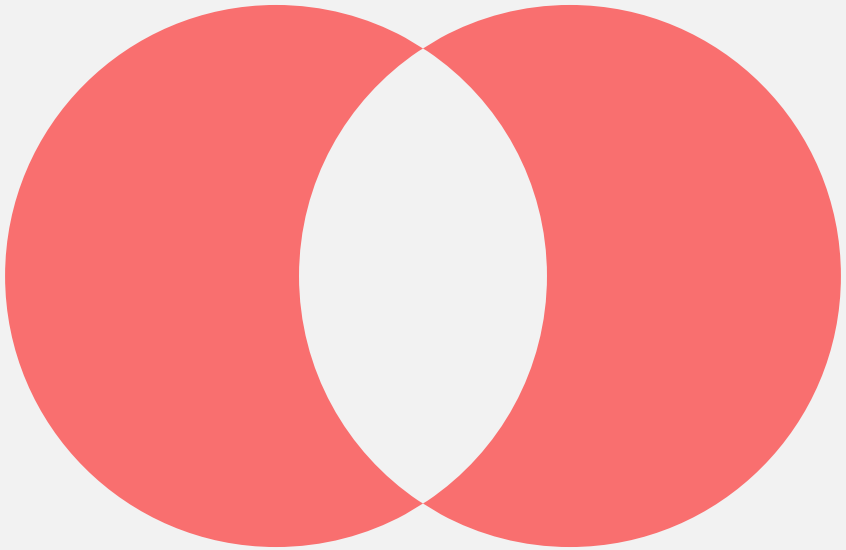
```

INNER JOIN



non-matching values = non-matching records

INNER JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
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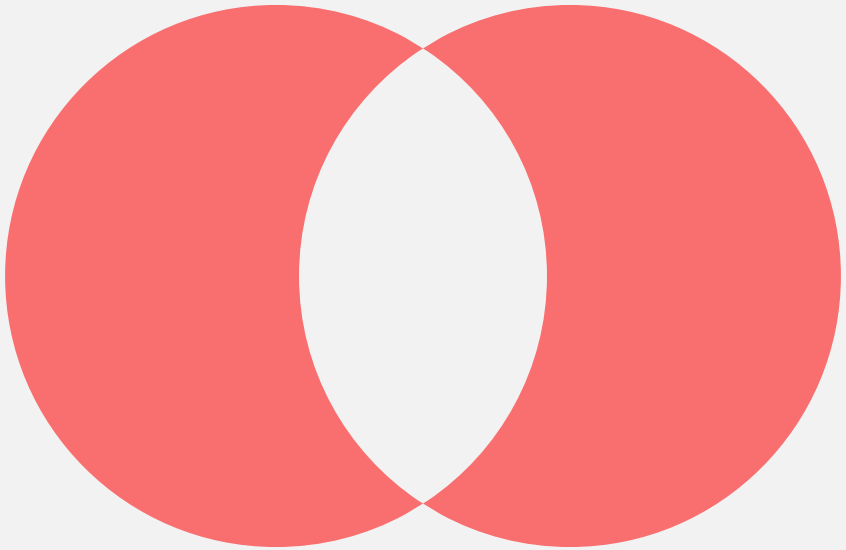
```



departments_dup

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dept_name VARCHAR(40)
```

non-matching values = non-matching records

INNER JOIN

INNER JOIN


```sql
SELECT
    table_1.column_name(s), table_2.column_name(s)
FROM
    table_1
JOIN
    table_2 ON table_1.column_name = table_2.column_name;
```

INNER JOIN

INNER JOIN

SQL

```
SELECT
    t1.column_name, t1.column_name, …, t2.column_name, …
FROM
    table_1 t1
JOIN
    table_2 t2 ON t1.column_name = t2.column_name;
```

INNER JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
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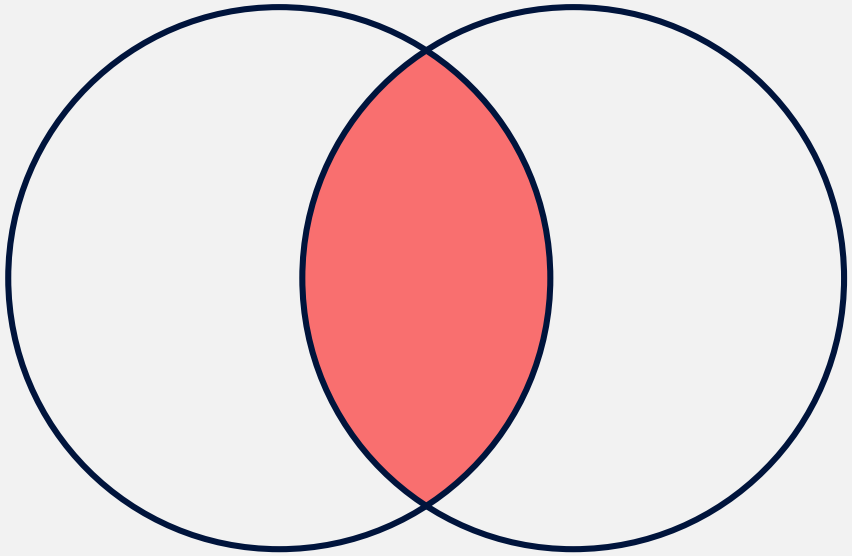
```



departments_dup

```
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```

INNER JOIN

M

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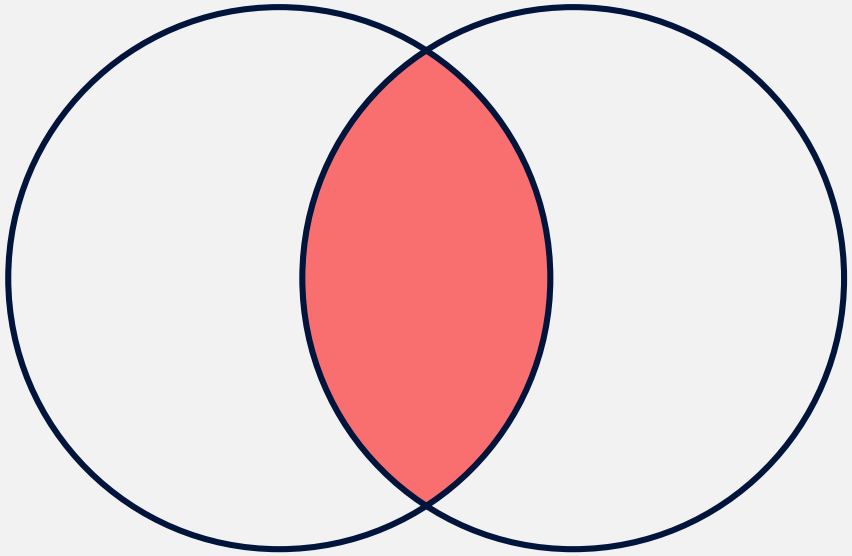

D

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

INNER JOIN

- inner joins extract only records in which the values in the related columns match. Null values, or values appearing in just one of the two tables and not appearing in the other, are not displayed

  - only non-null matching values are in play

INNER JOIN

- And what if such *matching values* did not exist?

INNER JOIN

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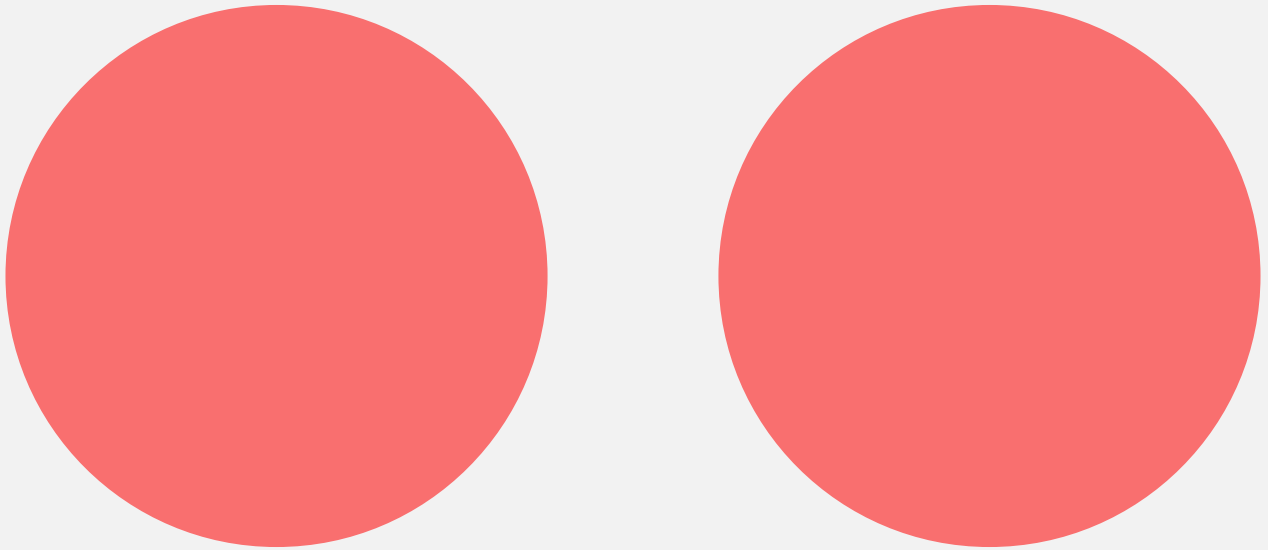
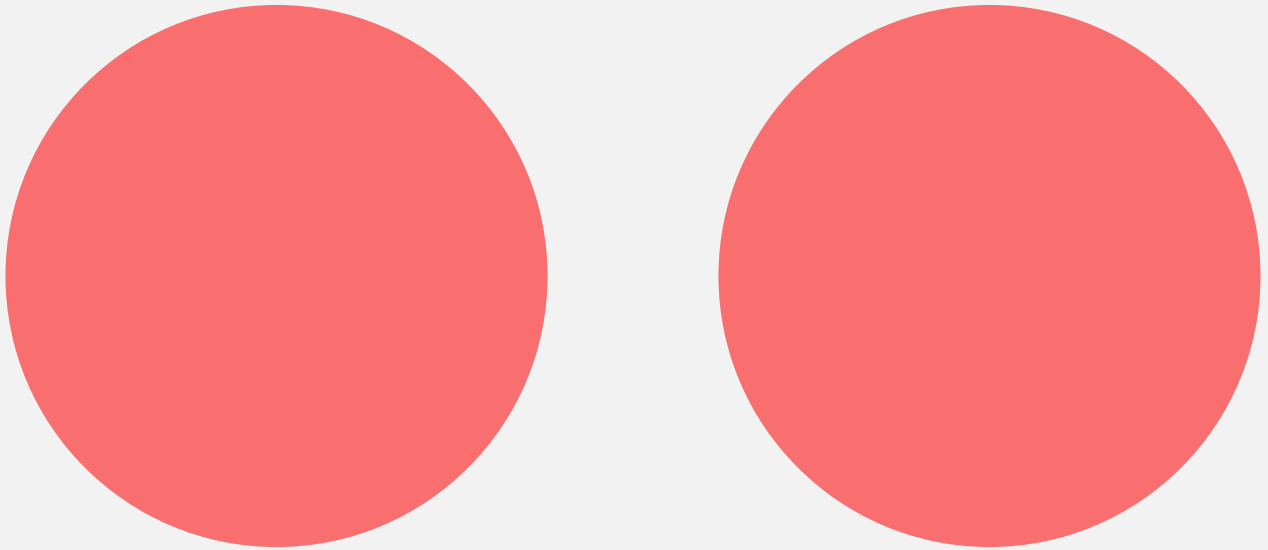


INNER JOIN

And what if such *matching values* did not exist?



Simply, the result set will be empty. There will be no link between the two tables.

Duplicate Records

Duplicate Records

- duplicate records, also known as duplicate rows, are identical rows in an SQL table

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  - for a pair of duplicate records, the values in each column coincide

Duplicate Records

- duplicate rows are not always allowed in a database or a data table

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- duplicate rows are not always allowed in a database or a data table
  - they are sometimes encountered, especially in new, raw, or uncontrolled data

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here's how to handle duplicates:

***GROUP BY** the field that differs most among records!*

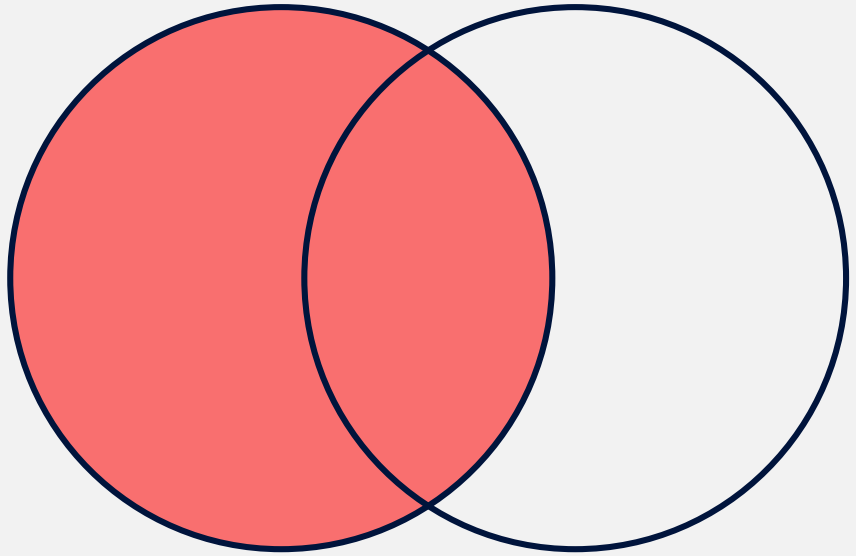

LEFT JOIN

LEFT JOIN

- LEFT JOIN

LEFT JOIN

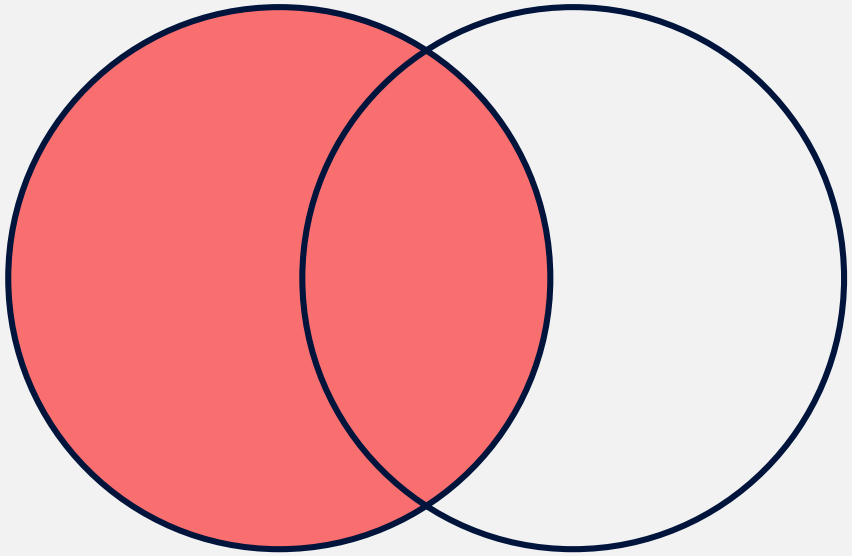
LEFT JOIN



LEFT JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



departments_dup

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dept_no CHAR(4)
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LEFT JOIN

dept_manager_dup

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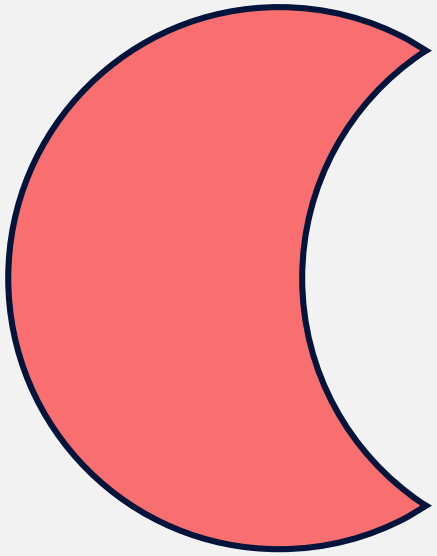

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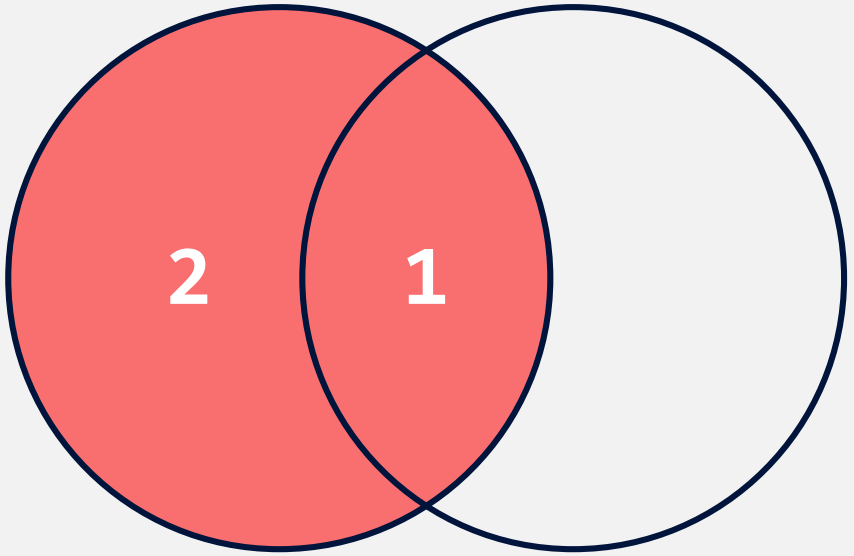

departments_dup

```
dept_no CHAR(4)
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```

1) all matching values of the two tables +
2) all values from the left table that match no values from the right table

LEFT JOIN

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emp_no INT
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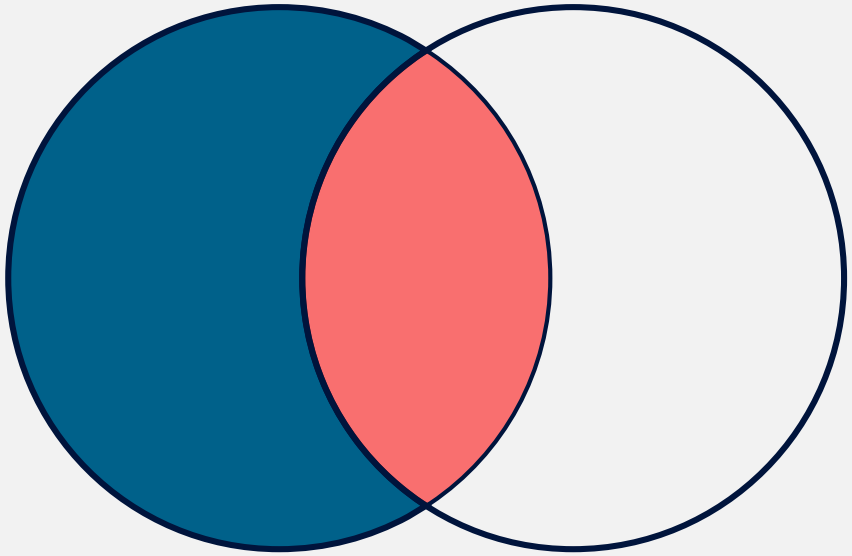

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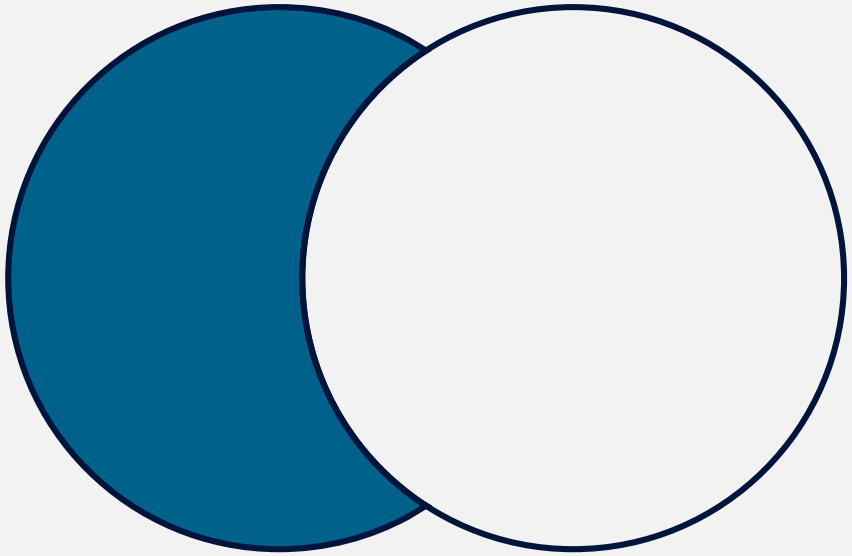

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

~~all matching values of the two tables~~ +

all values from the left table that match no values from the right table

LEFT JOIN

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
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dept_no CHAR(4)
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~~all matching values of the two tables~~ +

all values from the left table that match no values from the right table

LEFT JOIN

LEFT JOIN

when working with left joins, the order in which you join tables *matters*

LEFT JOIN

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dept_no CHAR(4)
emp_no INT
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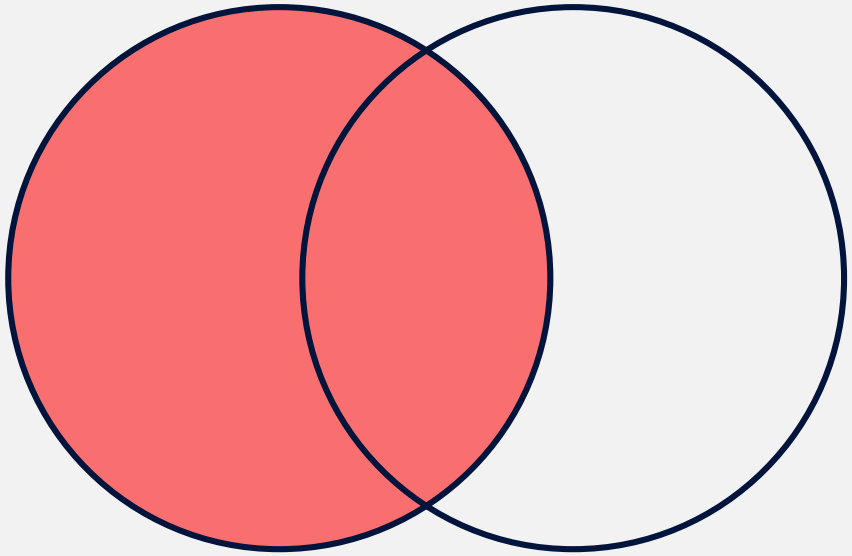
```



departments_dup

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dept_name VARCHAR(40)
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LEFT JOIN

departments_dup

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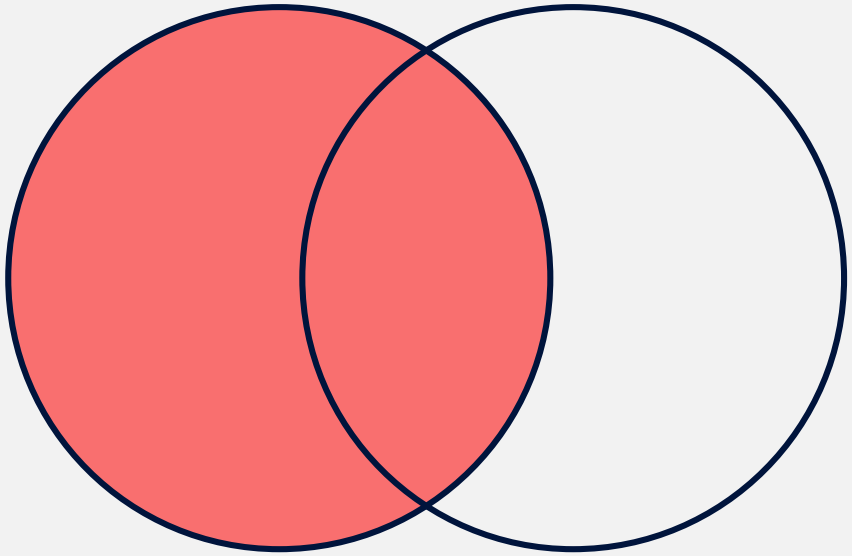


dept_manager_dup

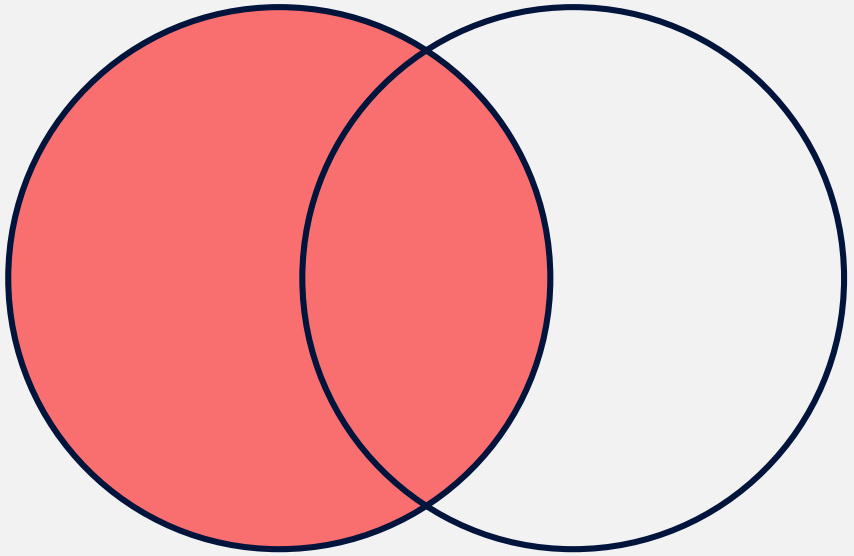
```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```

LEFT JOIN

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

dept_no	dept_name
NULL	Public Relations
d001	Marketing
d003	Human Resources
d004	Production
d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
d010	NULL
d011	NULL

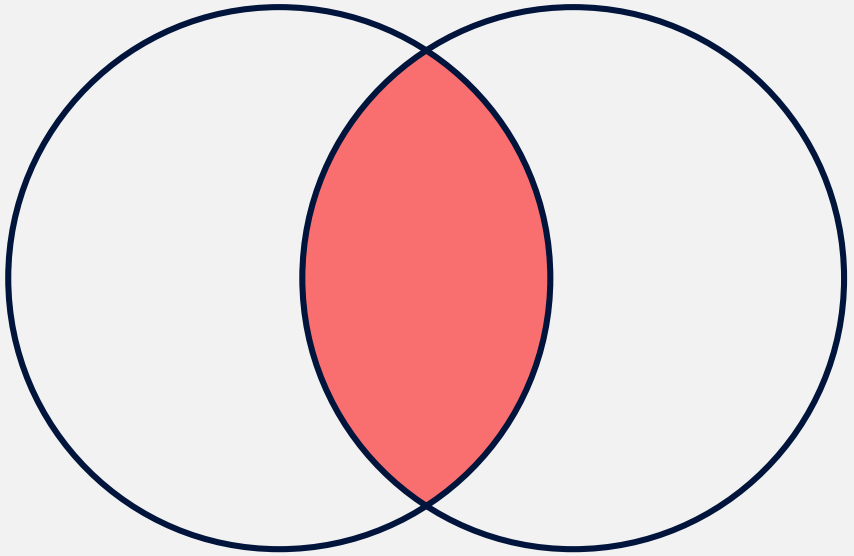


dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```

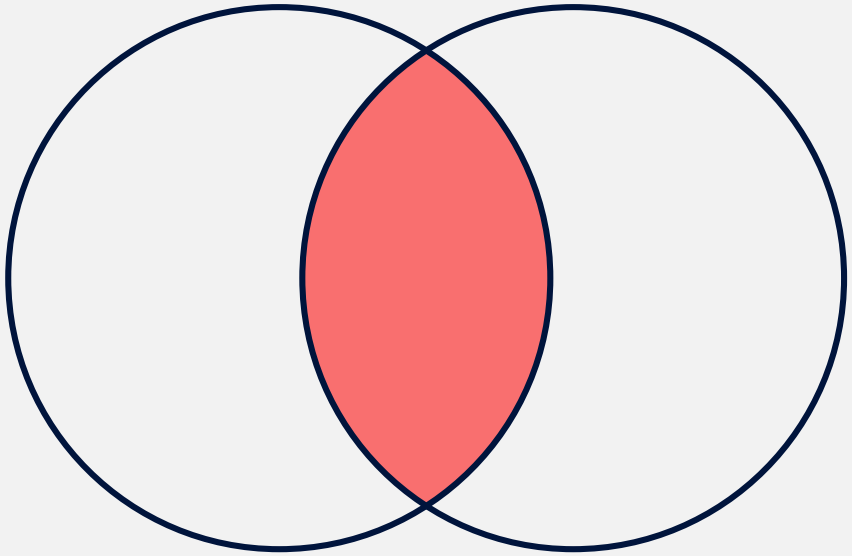
emp_no	dept_no	from_date	to_date
999904	NULL	2017-01-01	NULL
999905	NULL	2017-01-01	NULL
999906	NULL	2017-01-01	NULL
999907	NULL	2017-01-01	NULL
110085	d002	1985-01-01	1989-12-17
110114	d002	1989-12-17	9999-01-01
110183	d003	1985-01-01	1992-03-21
110228	d003	1992-03-21	9999-01-01
110303	d004	1985-01-01	1988-09-09
110344	d004	1988-09-09	1992-08-02
110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12
110800	d006	1991-09-12	1994-06-28
110854	d006	1994-06-28	9999-01-01
111035	d007	1985-01-01	1991-03-07
111133	d007	1991-03-07	9999-01-01
111400	d008	1985-01-01	1991-04-08
111534	d008	1991-04-08	9999-01-01
111692	d009	1985-01-01	1988-10-17
111784	d009	1988-10-17	1992-09-08
111877	d009	1992-09-08	1996-01-03
111939	d009	1996-01-03	

LEFT JOIN



INNER join

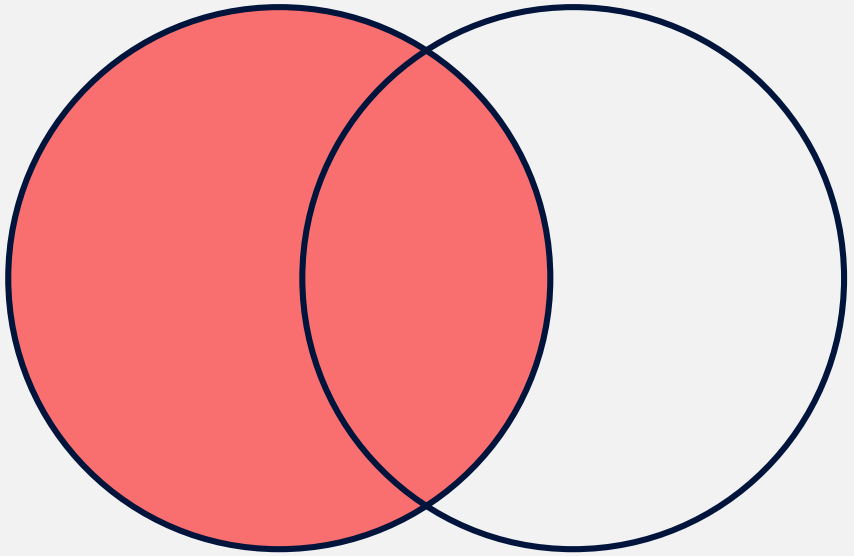
LEFT JOIN



INNER join

the result set is in the *inner* part of the Venn diagram

LEFT JOIN



LEFT join

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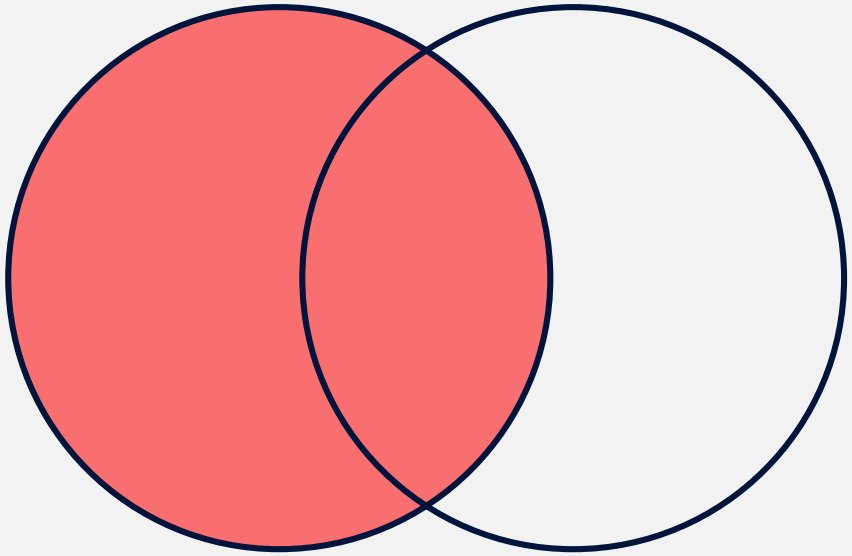
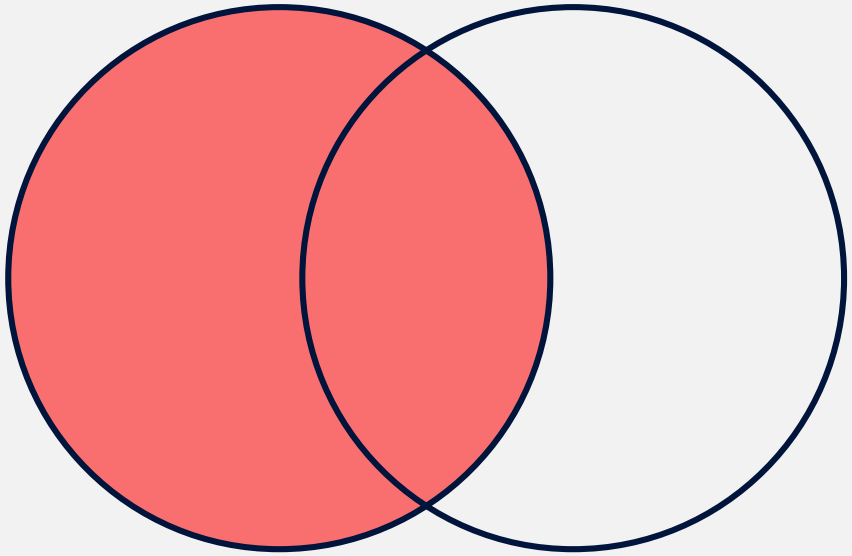


LEFT join

in the output obtained you have data from the *outer* part of the Venn diagram too

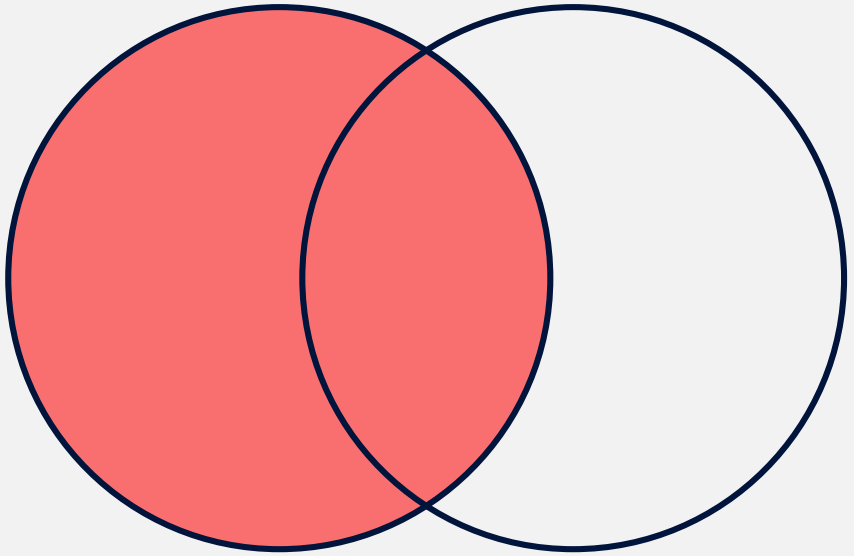
LEFT JOIN



LEFT join = LEFT OUTER join

in the output obtained you have data from the *outer* part of the Venn diagram too

LEFT JOIN



LEFT join = LEFT OUTER join

if you are using a left join, it will always be an OUTER type of join

LEFT JOIN

- left joins can deliver a list with all records from the left table that do not match any rows from the right table

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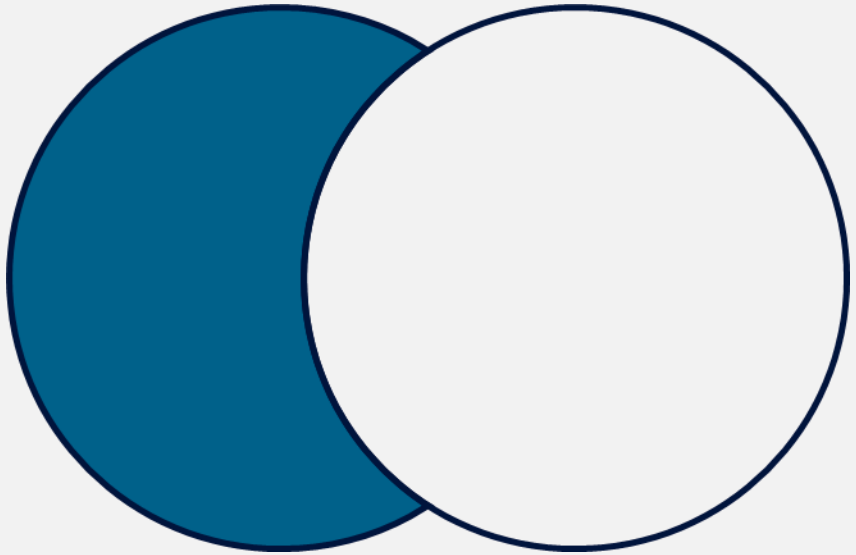
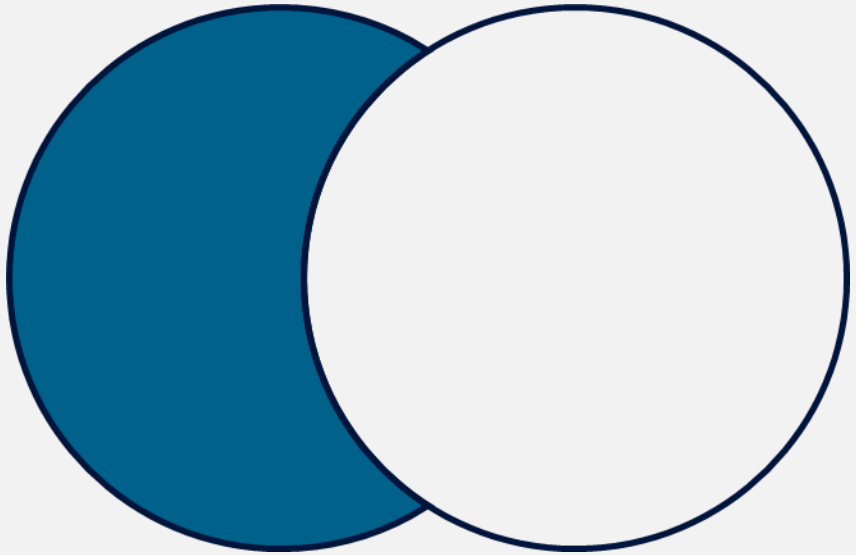


LEFT JOIN

left joins can deliver a list with all records from the left table that do not match any rows from the right table

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

LEFT JOIN

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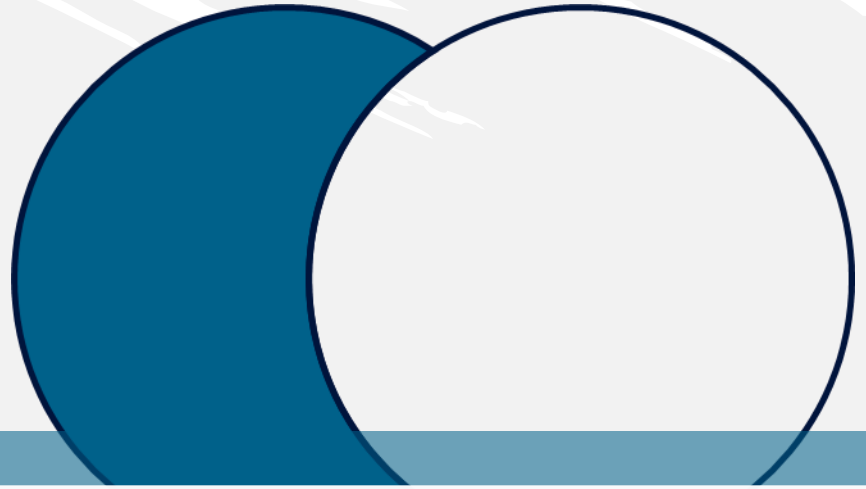

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

SQL

```
SELECT
     t1.column_name, t1.column_name, …, t2.column_name, …
FROM
     table_1 t1
JOIN
     table_2 t2 ON t1.column_name = t2.column_name
WHERE
     column_name … IS NULL;
```


RIGHT JOIN

RIGHT JOIN

- RIGHT JOIN

RIGHT JOIN

RIGHT JOIN

their functionality is identical to LEFT JOINs, with the only difference being that the direction of the operation is inverted

RIGHT JOIN

- RIGHT JOIN = RIGHT OUTER JOIN

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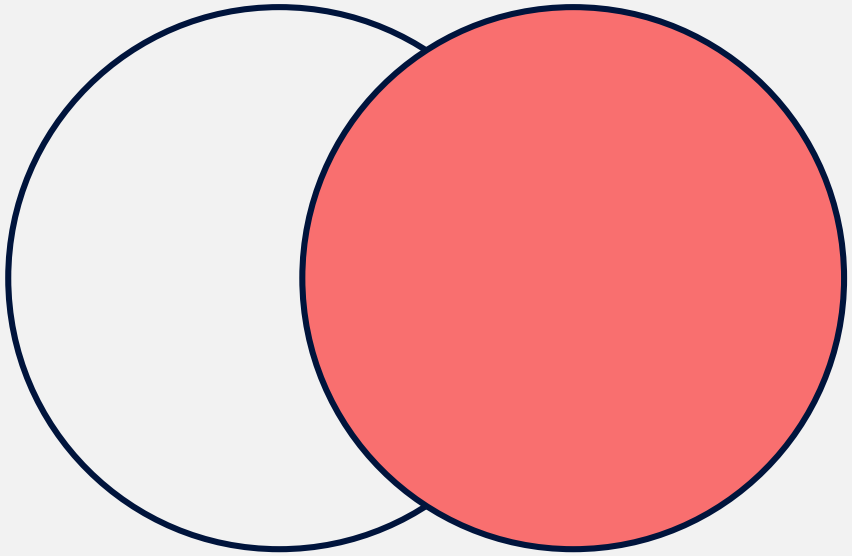

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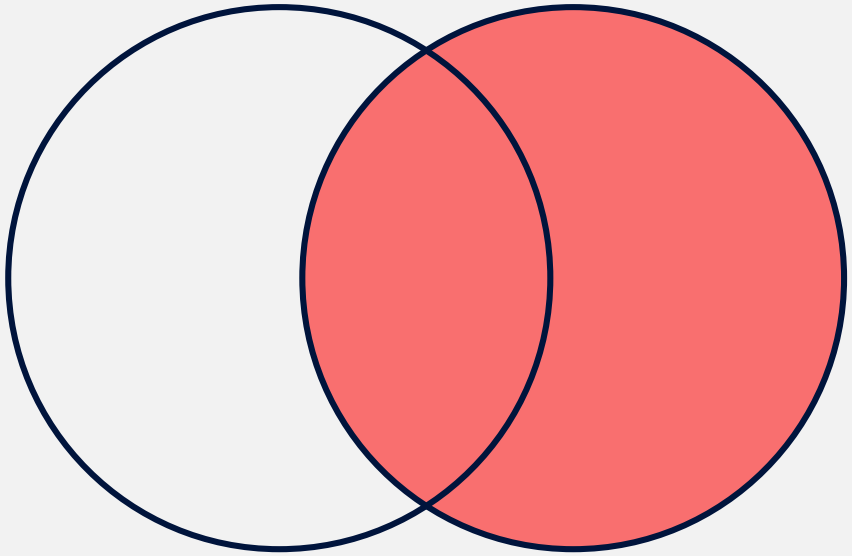

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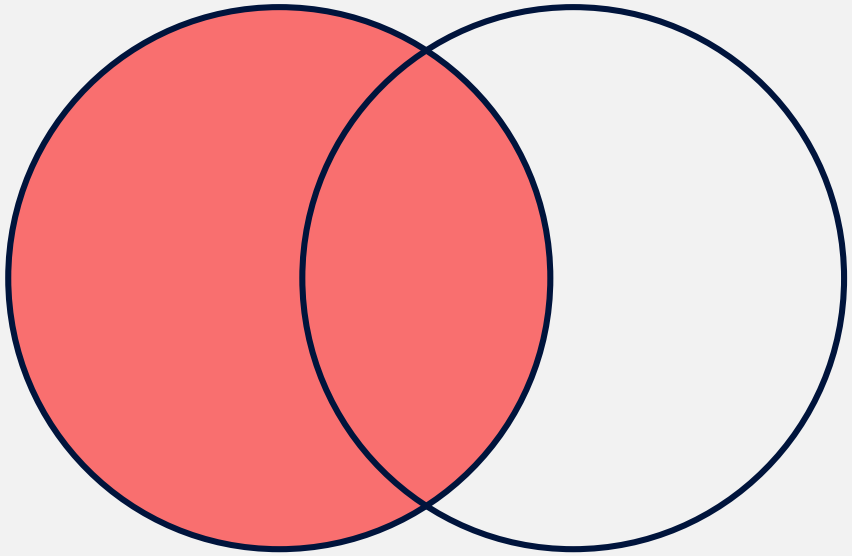

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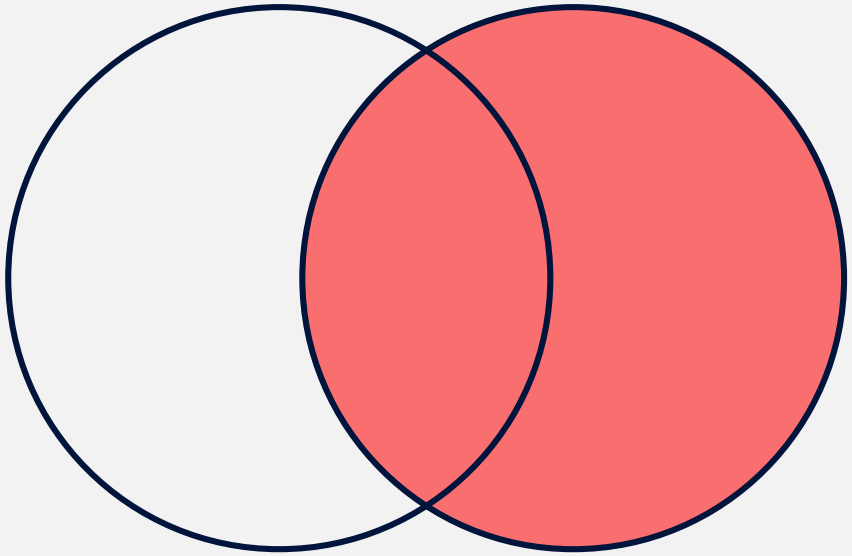

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110303	d004	1985-01-01	1988-09-09
110344	d004	1988-09-09	1992-08-02
110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
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111400	d008	1985-01-01	1991-04-08
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111692	d009	1985-01-01	1988-10-17
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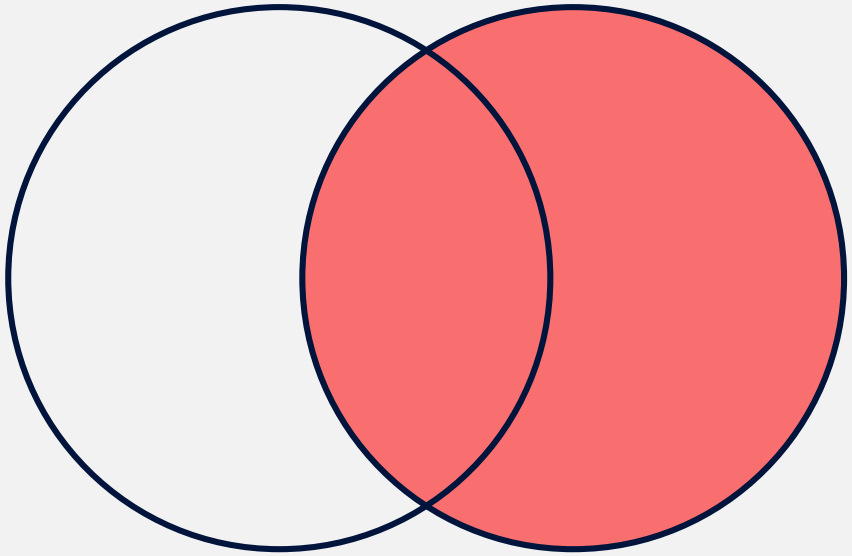
111877	d009	1992-09-08	1996-01-03
111939	d009	1996-01-03	9999-01-01



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dept_no	dept_name
NULL	Public Relations
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d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
d010	NULL
d011	NULL

RIGHT JOIN

- Whether we run a RIGHT JOIN or a LEFT JOIN with an *inverted* tables order, we will obtain the same output, right?

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Yes, we will!

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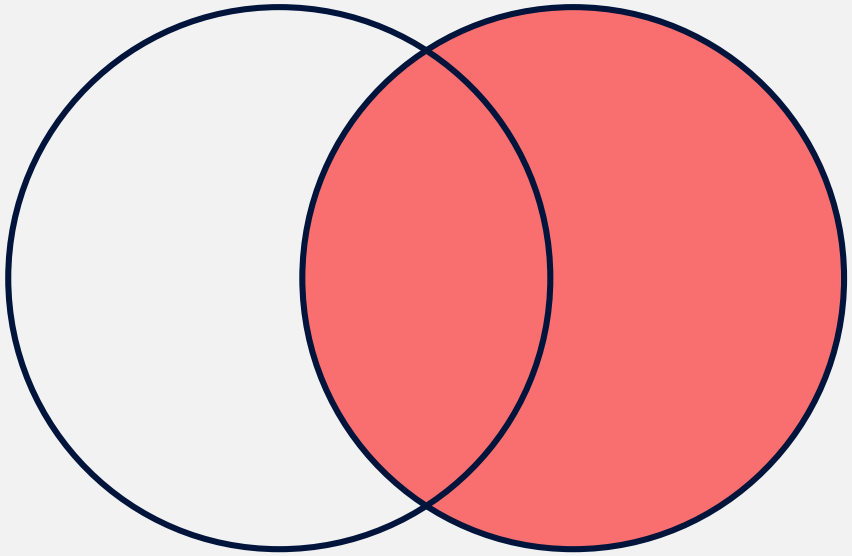

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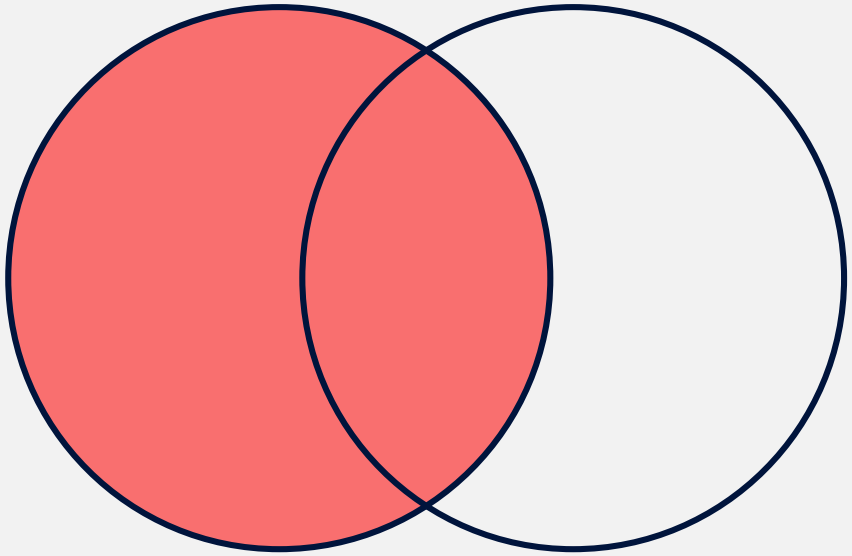

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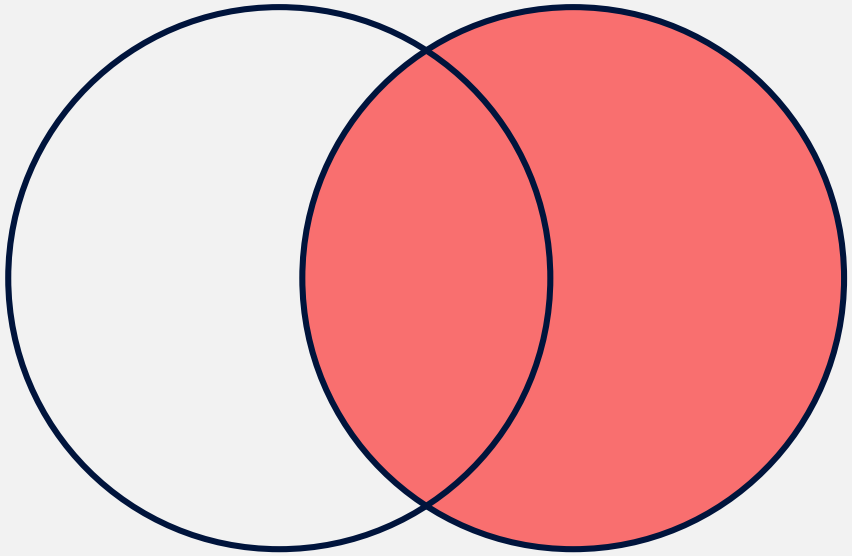

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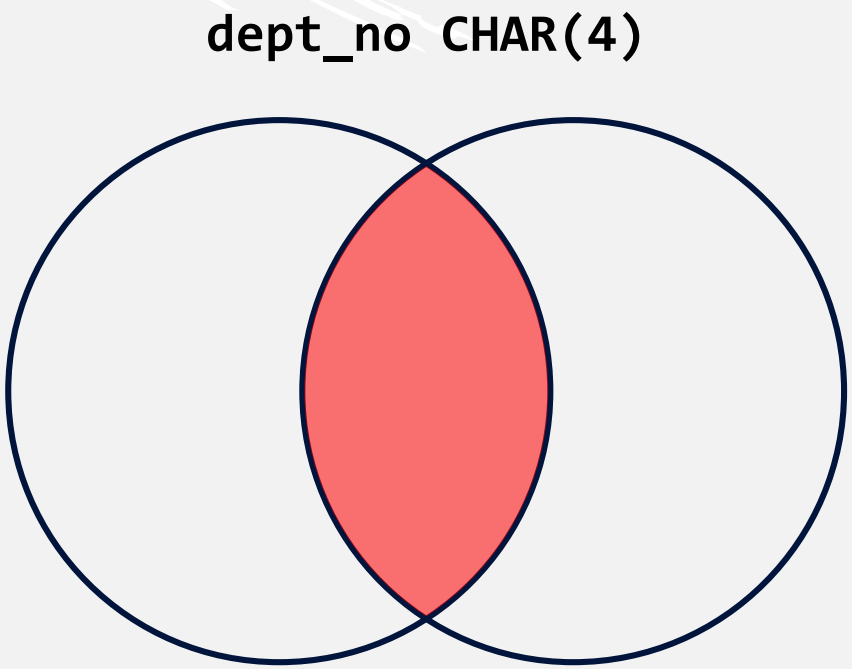

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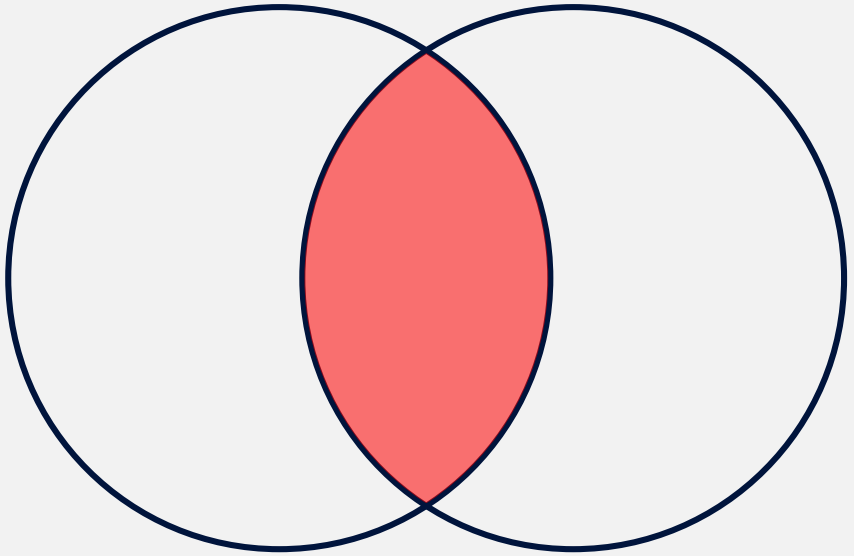
```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

RIGHT JOIN

dept_manager_dup

dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE



departments_dup

dept_no CHAR(4)
dept_name VARCHAR(40)

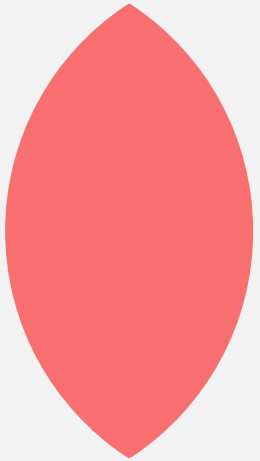
matching column = linking column

RIGHT JOIN

dept_manager_dup

dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE

dept_no CHAR(4)



departments_dup

dept_no CHAR(4)
dept_name VARCHAR(40)

matching column = linking column

RIGHT JOIN

- RIGHT JOIN

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when applying a RIGHT JOIN, all the records from the right table will be included in the result set

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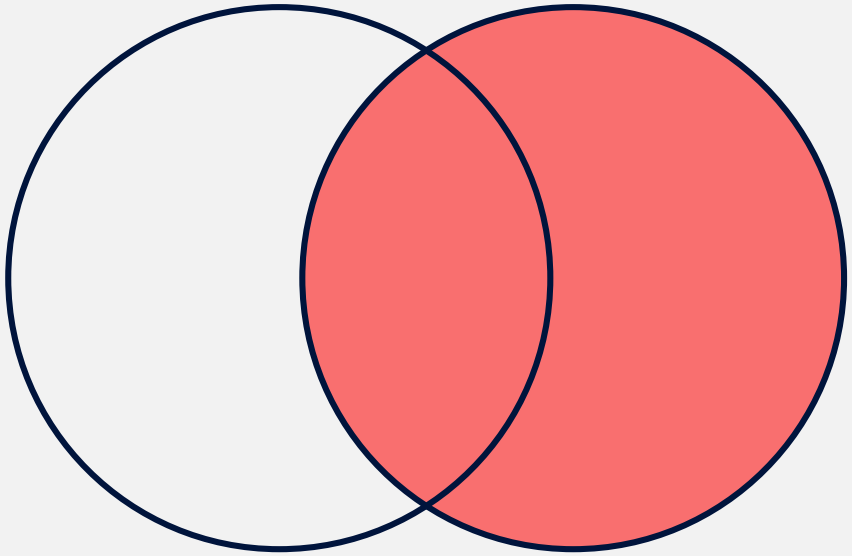
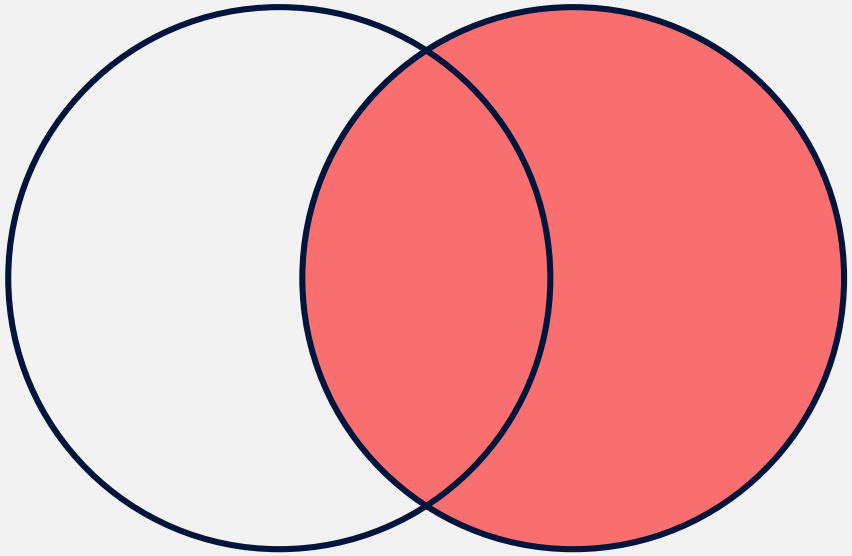


RIGHT JOIN

RIGHT JOIN

when applying a RIGHT JOIN, all the records from the right table will be included in the result set



values from the left table will be included only if their *linking column* contains a value coinciding, or *matching*, with a value from the *linking column* of the right table

RIGHT JOIN

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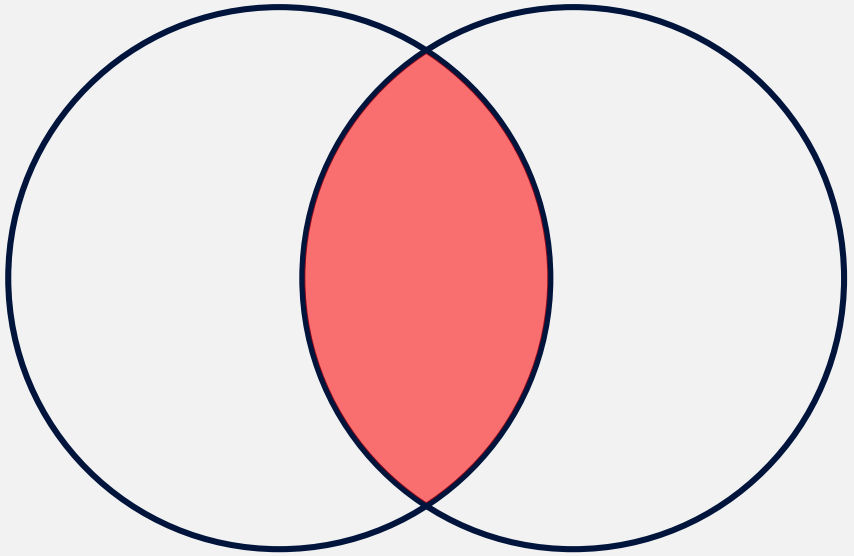
when applying a RIGHT JOIN, all the records from the right table will be included in the result set



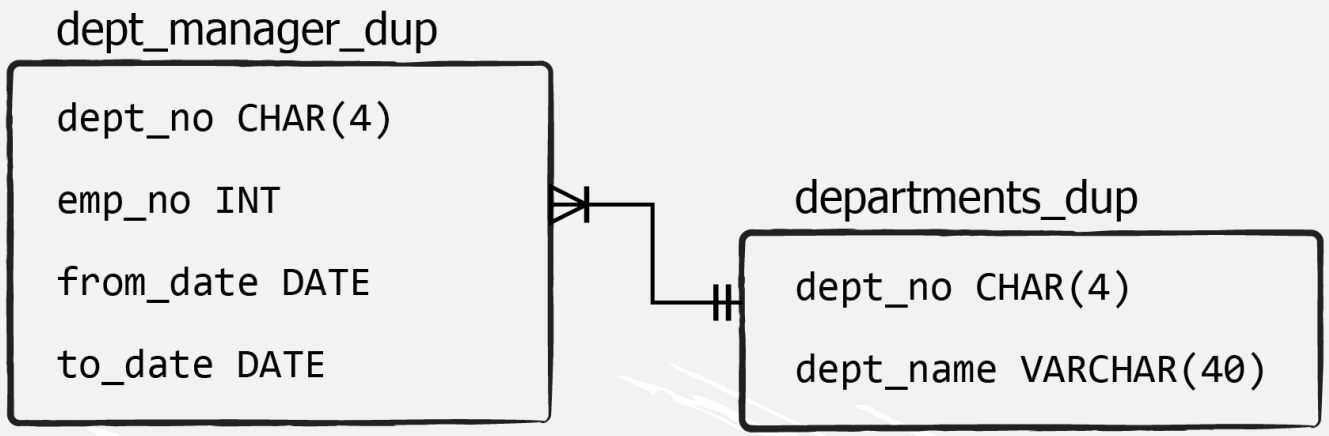
values from the left table will be included only if their *linking column* contains a value coinciding, or *matching*, with a value from the *linking column* of the right table

RIGHT JOIN

- LEFT and RIGHT joins are perfect examples of *one-to-many* relationships

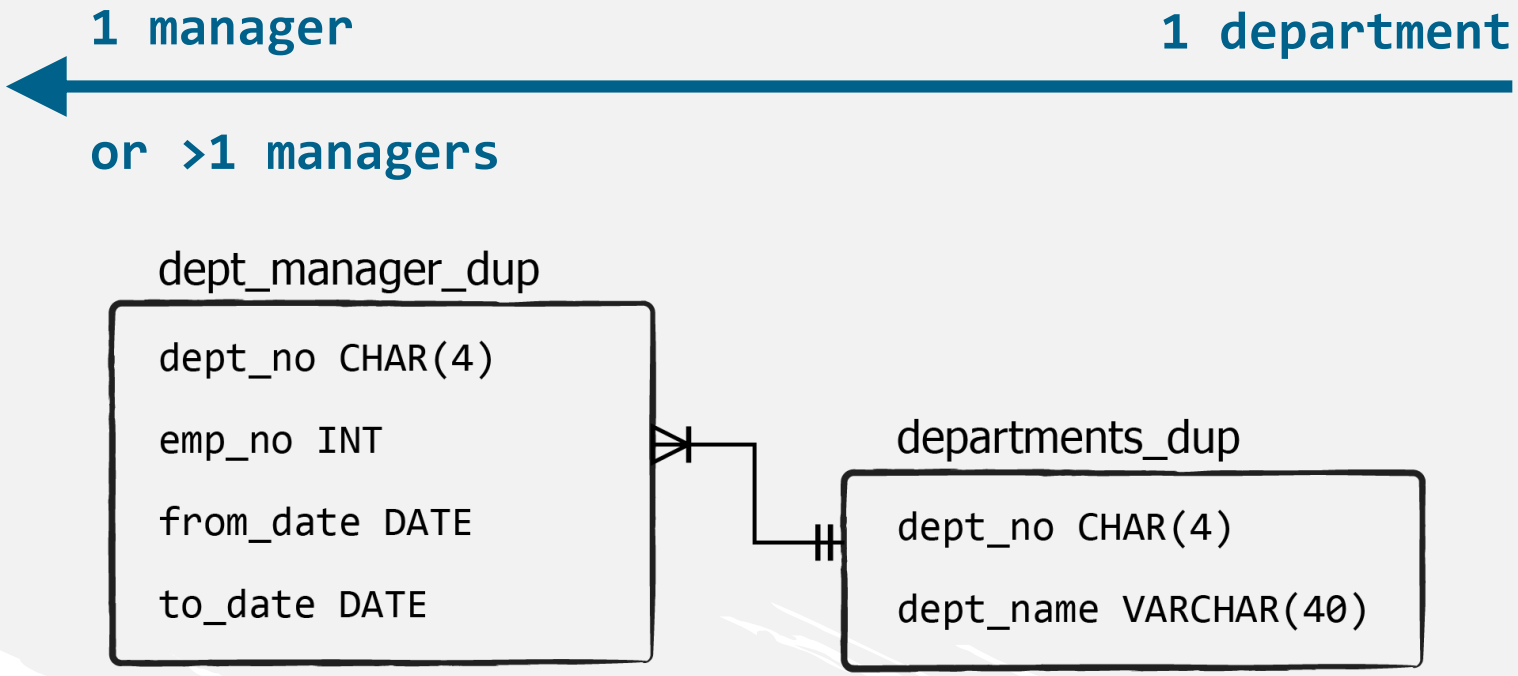
RIGHT JOIN

- **LEFT** and **RIGHT** joins are perfect examples of ***one-to-many*** relationships



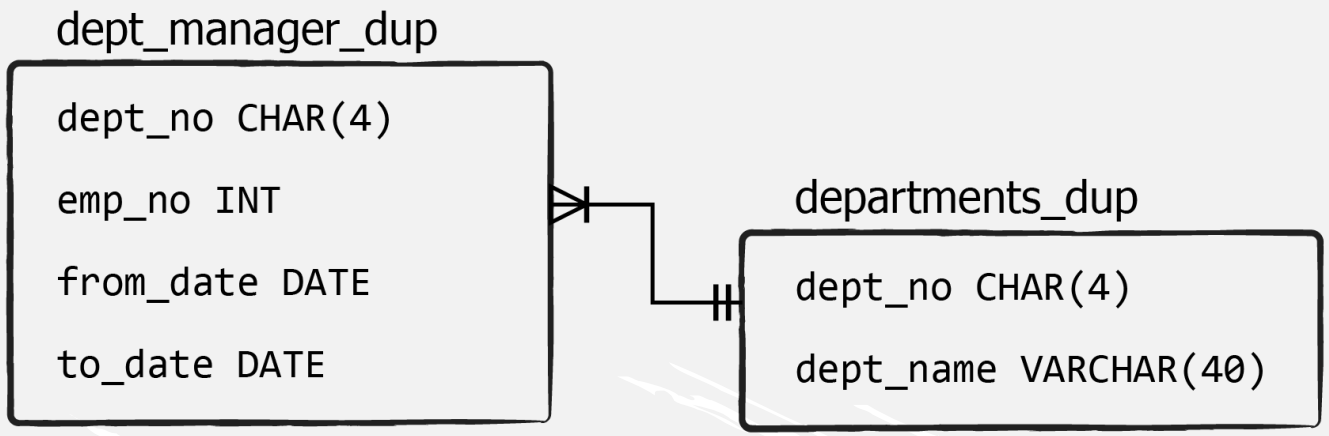
RIGHT JOIN

- LEFT and RIGHT joins are perfect examples of *one-to-many* relationships



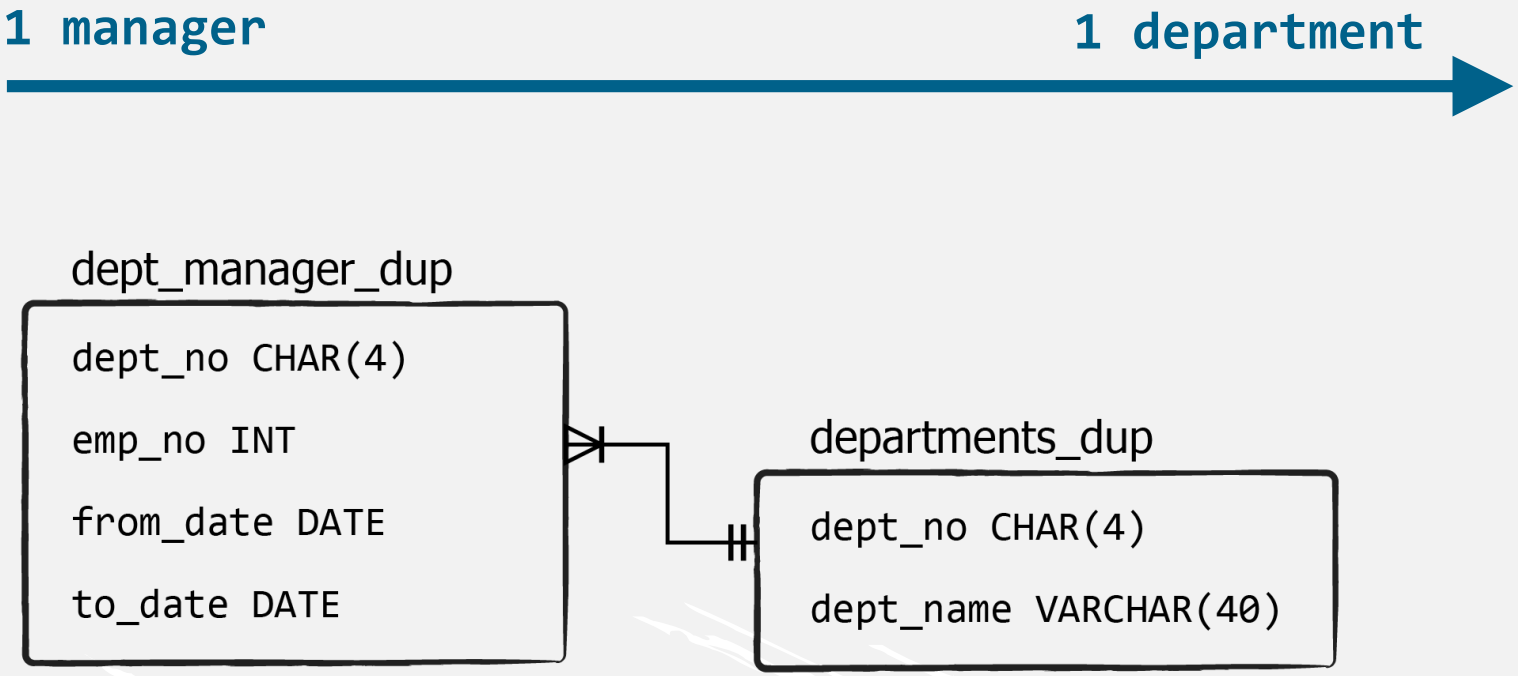
RIGHT JOIN

- **LEFT** and **RIGHT** joins are perfect examples of ***one-to-many*** relationships



RIGHT JOIN

- LEFT and RIGHT joins are perfect examples of *one-to-many* relationships



The New and the Old Join Syntax

The New and the Old Join Syntax

- Relational Database Essentials
- MySQL Constraints
- SELECT, INSERT, UPDATE, DELETE
- MySQL Aggregate Functions
- INNER JOIN, LEFT JOIN, RIGHT JOIN

The New and the Old Join Syntax

Next:

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- Relational Database Essentials
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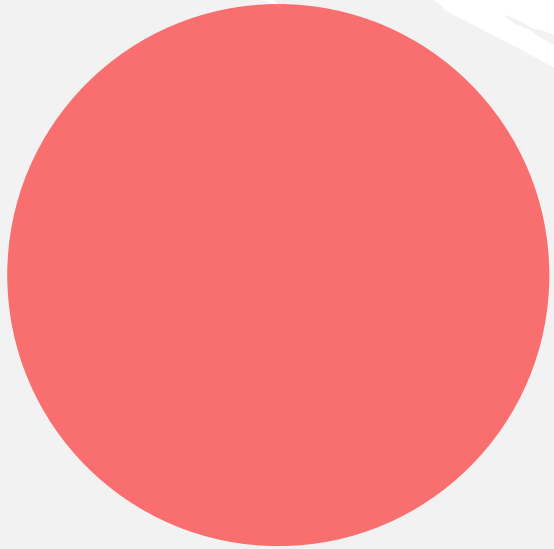
Next:

- Subqueries, Self-joins
- Stored Routines
- Advanced SQL Tools

The New and the Old Join Syntax

dept_manager_dup

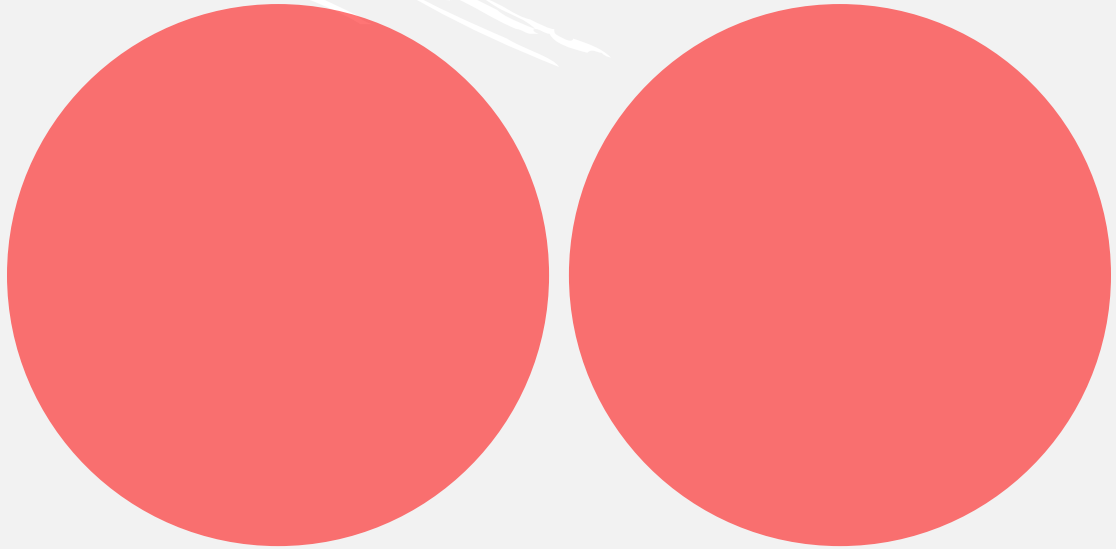
```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```



departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

The New and the Old Join Syntax



dept_manager_dup

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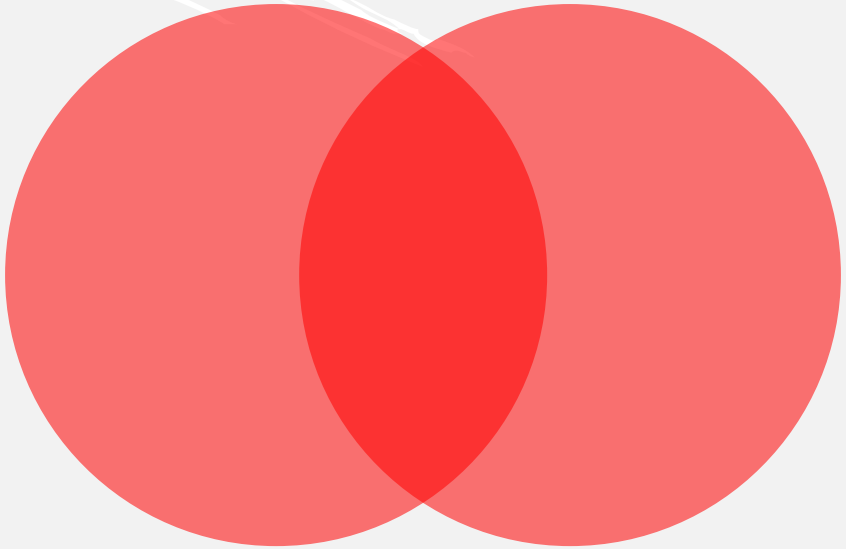
The New and the Old Join Syntax



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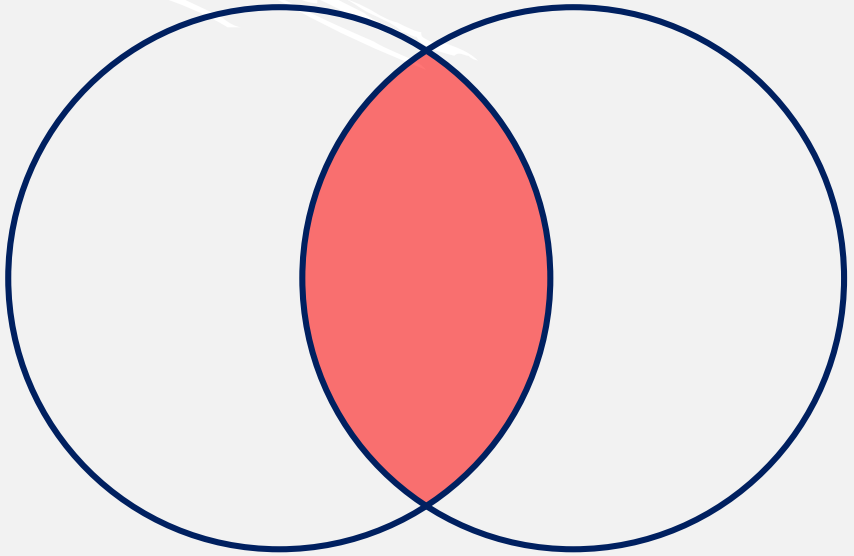

dept_manager_dup

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departments_dup

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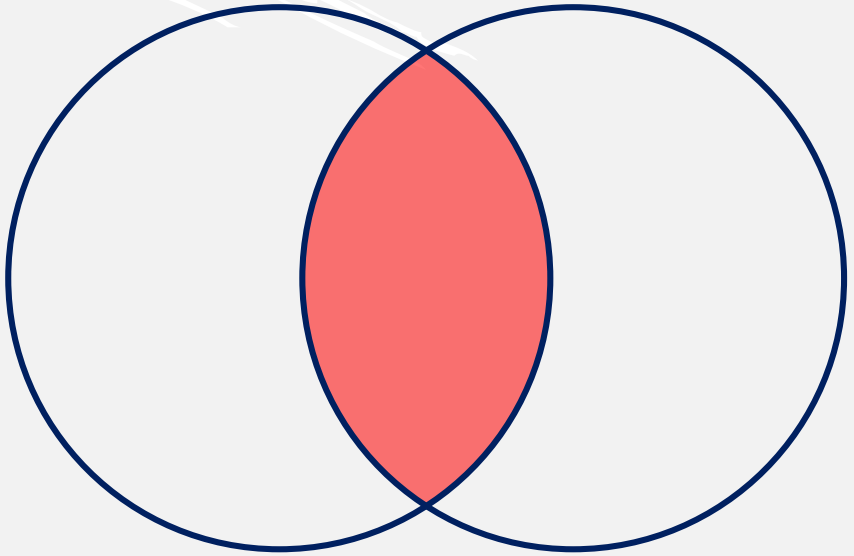
dept_name VARCHAR(40)
```

The New and the Old Join Syntax



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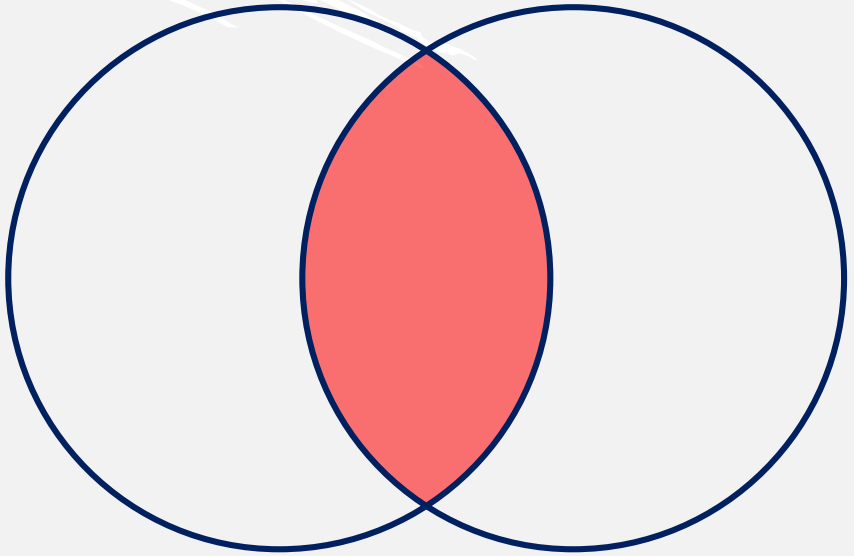
The New and the Old Join Syntax



dept_manager_dup

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dept_no CHAR(4)
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from_date DATE
to_date DATE
```

connection points

departments_dup

```
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dept_name VARCHAR(40)
```

The New and the Old Join Syntax

dept_manager_dup

```
dept_no CHAR(4)
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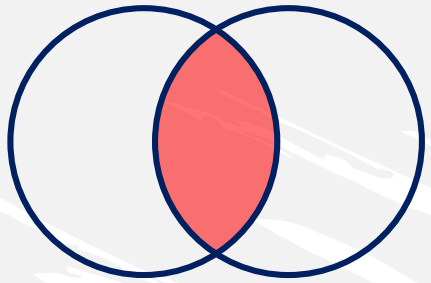
from_date DATE
to_date DATE
```



connection points

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

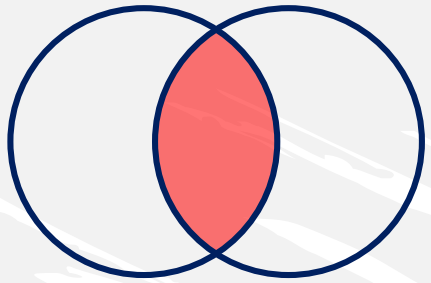
The New and the Old Join Syntax

emp_no	dept_no	from_date	to_date
999904	NULL	2017-01-01	NULL
999905	NULL	2017-01-01	NULL
999906	NULL	2017-01-01	NULL
999907	NULL	2017-01-01	
110085	d002	1985-01-01	1989-12-17
110114	d002	1989-12-17	9999-01-01
110183	d003	1985-01-01	1992-03-21
110228	d003	1992-03-21	9999-01-01
110303	d004	1985-01-01	1988-09-09
110344	d004	1988-09-09	1992-08-02
110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12
110800	d006	1991-09-12	1994-06-28
110854	d006	1994-06-28	9999-01-01
111035	d007	1985-01-01	1991-03-07
111133	d007	1991-03-07	9999-01-01
111400	d008	1985-01-01	1991-04-08
111534	d008	1991-04-08	9999-01-01
111692	d009	1985-01-01	1988-10-17
111784	d009	1988-10-17	1992-09-08
111877	d009	1992-09-08	1996-01-03
111939	d009	1996-01-03	9999-01-01

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```

dept_no	emp_no	dept_name
d003	110228	Human Resources
d003	110183	Human Resources
d004	110344	Production
d004	110420	Production
d004	110303	Production
d004	110386	Production
d005	110567	Development
d005	110511	Development
d006	110800	Quality Management
d006	110765	Quality Management
d006	110854	Quality Management
d006	110725	Quality Management
d007	111035	Sales
d007	111133	Sales
d008	111400	Research
d008	111534	Research
d009	111784	Customer Service
d009	111939	Customer Service
d009	111692	Customer Service
d009	111877	Customer Service



connection points

dept_no	dept_name
NULL	Public Relations
d001	Marketing
d003	Human Resources
d004	Production
d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
d010	NULL
d011	NULL

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

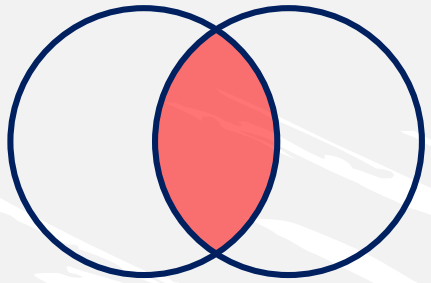
The New and the Old Join Syntax

emp_no	dept_no	from_date	to_date
999904	NULL	2017-01-01	NULL
999905	NULL	2017-01-01	NULL
999906	NULL	2017-01-01	NULL
999907	NULL	2017-01-01	NULL
110085	d002	1985-01-01	1989-12-17
110114	d002	1989-12-17	9999-01-01
110183	d003	1985-01-01	1992-03-21
110228	d003	1992-03-21	9999-01-01
110303	d004	1985-01-01	1988-09-09
110344	d004	1988-09-09	1992-08-02
110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12
110800	d006	1991-09-12	1994-06-28
110854	d006	1994-06-28	9999-01-01
111035	d007	1985-01-01	1991-03-07
111133	d007	1991-03-07	9999-01-01
111400	d008	1985-01-01	1991-04-08
111534	d008	1991-04-08	9999-01-01
111692	d009	1985-01-01	1988-10-17
111784	d009	1988-10-17	1992-09-08
111877	d009	1992-09-08	1996-01-03
111939	d009	1996-01-03	9999-01-01

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```

dept_no	emp_no	dept_name
d003	110228	Human Resources
d003	110183	Human Resources
d004	110344	Production
d004	110420	Production
d004	110303	Production
d004	110386	Production
d005	110567	Development
d005	110511	Development
d006	110800	Quality Management
d006	110765	Quality Management
d006	110854	Quality Management
d006	110725	Quality Management
d007	111035	Sales
d007	111133	Sales
d008	111400	Research
d008	111534	Research
d009	111784	Customer Service
d009	111939	Customer Service
d009	111692	Customer Service
d009	111877	Customer Service



connection points

dept_no	dept_name
NULL	Public Relations
d001	Marketing
d003	Human Resources
d004	Production
d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
d010	NULL
d011	NULL

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

The New and the Old Join Syntax

emp_no	dept_no	from_date	to_date
999904	NULL	2017-01-01	NULL
999905	NULL	2017-01-01	NULL
999906	NULL	2017-01-01	NULL
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110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12
110800	d006	1991-09-12	1994-06-28
110854	d006	1994-06-28	9999-01-01
111035	d007	1985-01-01	1991-03-07
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111400	d008	1985-01-01	1991-04-08
111534	d008	1991-04-08	9999-01-01
111692	d009	1985-01-01	1988-10-17
111784	d009	1988-10-17	1992-09-08
111877	d009	1992-09-08	1996-01-03
111939	d009	1996-01-03	9999-01-01

dept_manager_dup

```
dept_no CHAR(4)
emp_no INT
from_date DATE
to_date DATE
```

dept_no	emp_no	dept_name
d003	110228	Human Resources
d003	110183	Human Resources
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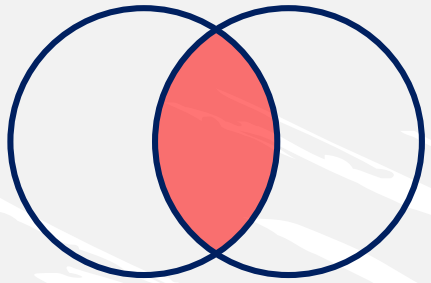
d004	110303	Production
d004	110386	Production
d005	110567	Development
d005	110511	Development
d006	110800	Quality Management
d006	110765	Quality Management
d006	110854	Quality Management
d006	110725	Quality Management
d007	111035	Sales
d007	111133	Sales
d008	111400	Research
d008	111534	Research
d009	111784	Customer Service
d009	111939	Customer Service
d009	111692	Customer Service
d009	111877	Customer Service



connection points

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d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
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departments_dup

```
dept_no CHAR(4)
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```

The New and the Old Join Syntax

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110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12
110800	d006	1991-09-12	1994-06-28
110854	d006	1994-06-28	9999-01-01
111035	d007	1985-01-01	1991-03-07
111133	d007	1991-03-07	9999-01-01
111400	d008	1985-01-01	1991-04-08
111534	d008	1991-04-08	9999-01-01
111692	d009	1985-01-01	1988-10-17
111784	d009	1988-10-17	1992-09-08
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111939	d009	1996-01-03	9999-01-01

dept_manager_dup

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dept_no CHAR(4)
emp_no INT
from_date DATE
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dept_no	emp_no	dept_name
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d004	110420	Production
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d004	110386	Production
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d005	110511	Development
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d006	110765	Quality Management
d006	110854	Quality Management
d006	110725	Quality Management
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d007	111133	Sales
d008	111400	Research
d008	111534	Research
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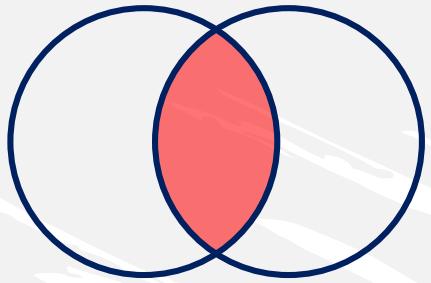

connection points

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d001	Marketing
d003	Human Resources
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d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
d010	NULL
d011	NULL

departments_dup

```
dept_no CHAR(4)
dept_name VARCHAR(40)
```

365 DataScience

The New and the Old Join Syntax

WHERE *(the Old Join Syntax)*


```
SELECT
    t1.column_name, t1.column_name, …, t2.column_name, …
FROM
    table_1 t1,
    table_2 t2
WHERE
    t1.column_name = t2.column_name;
```

The New and the Old Join Syntax

- JOIN or WHERE?

The New and the Old Join Syntax

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The New and the Old Join Syntax

JOIN or WHERE?

- the retrieved output is *identical*

- using WHERE is more *time-consuming*

- the WHERE syntax is perceived as *morally old* and is rarely employed by professionals

- the JOIN syntax allows you to modify the connection between tables easily

The New and the Old Join Syntax

JOIN *(the New Join Syntax)* vs WHERE *(the Old Join Syntax)*

JOIN and WHERE Used Together

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- JOIN + WHERE

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JOIN:

- used for connecting the “employees” and “salaries” tables

JOIN and WHERE Used Together

JOIN + WHERE

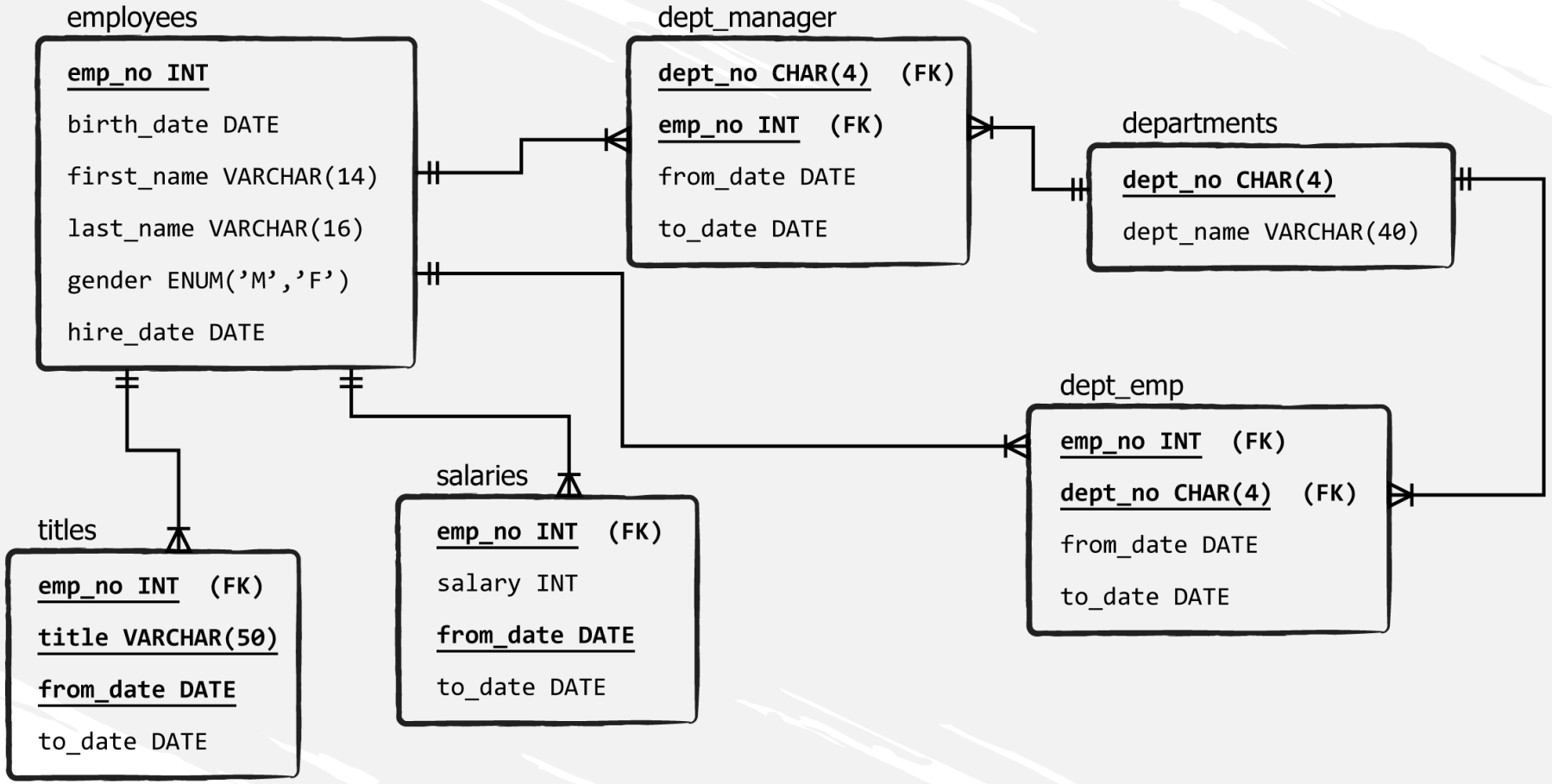
JOIN:

- used for connecting the “employees” and “salaries” tables

WHERE:

- used to define the condition or conditions that will determine which will be the connecting points between the two tables

JOIN and WHERE Used Together




CROSS JOIN

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  - typically connects *only the matching values*

- CROSS JOIN
  - connects *all the values*, not just those that match
  - the Cartesian product of the values of two or more sets
  - particularly useful when the tables in a database are not well connected

FRAGILE

HANDLE WITH CARE

JOIN More Than Two Tables in SQL

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JOIN More Than Two Tables in SQL

- when creating a query that joins multiple tables, you must back it with *strong intuition* and a *crystal-clear idea* of how you would like the tables to be connected

JOIN More Than Two Tables in SQL

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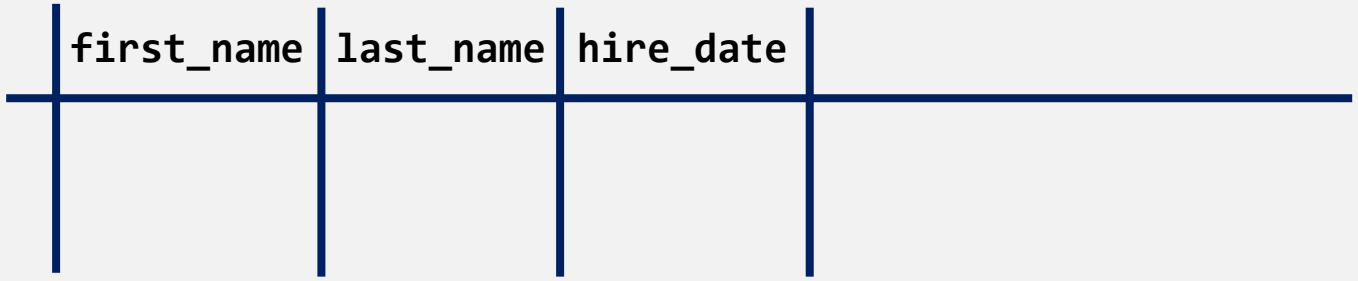
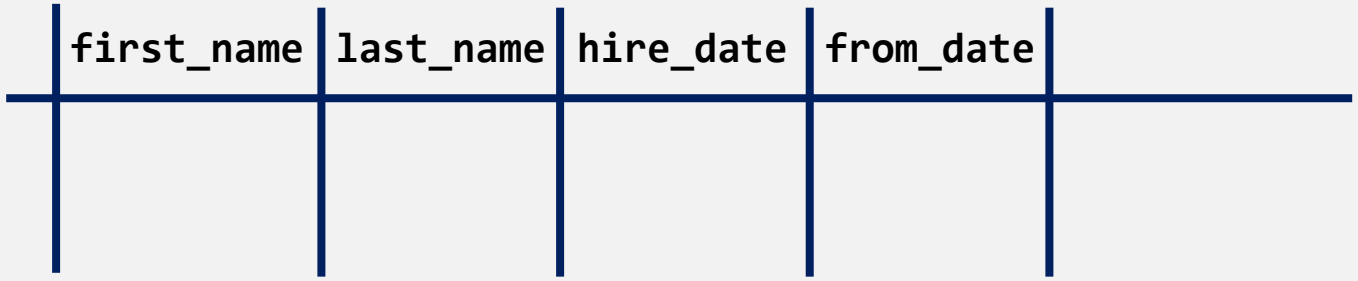
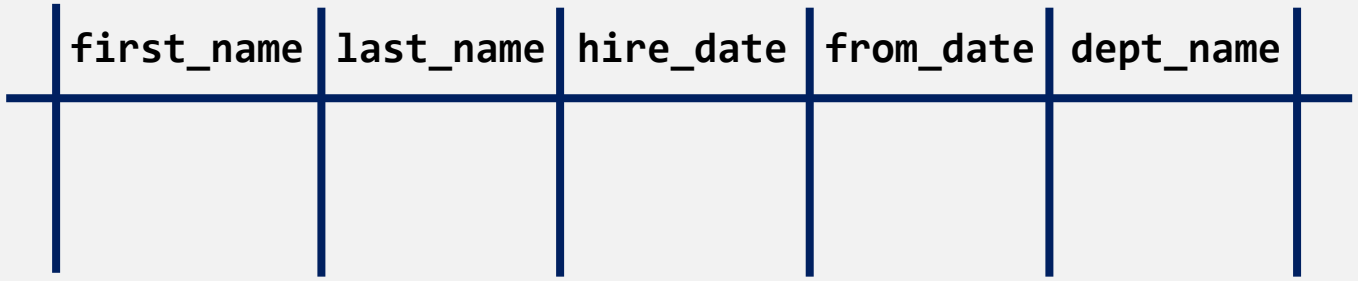


JOIN More Than Two Tables in SQL



JOIN More Than Two Tables in SQL



JOIN More Than Two Tables in SQL

first_name	last_name	hire_date	from_date	dept_name


Tips and Tricks for Joins
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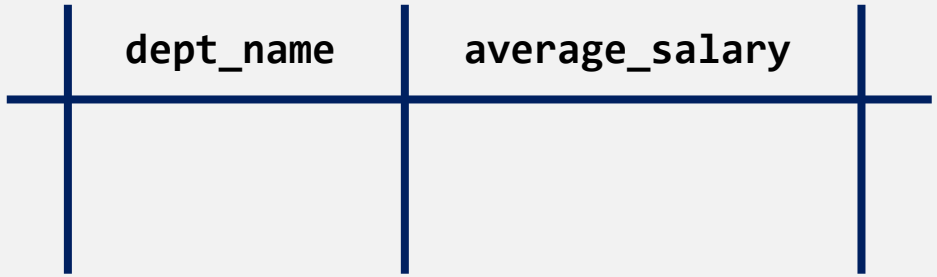
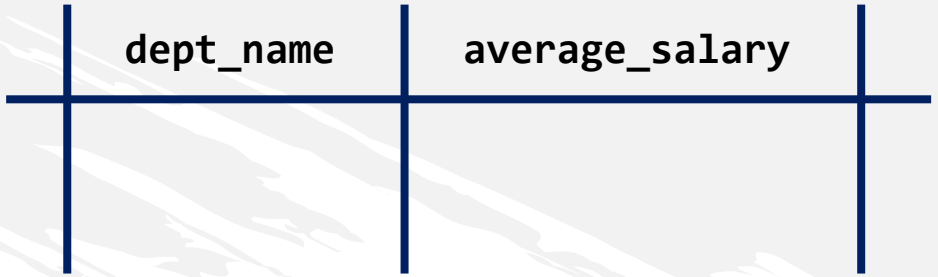
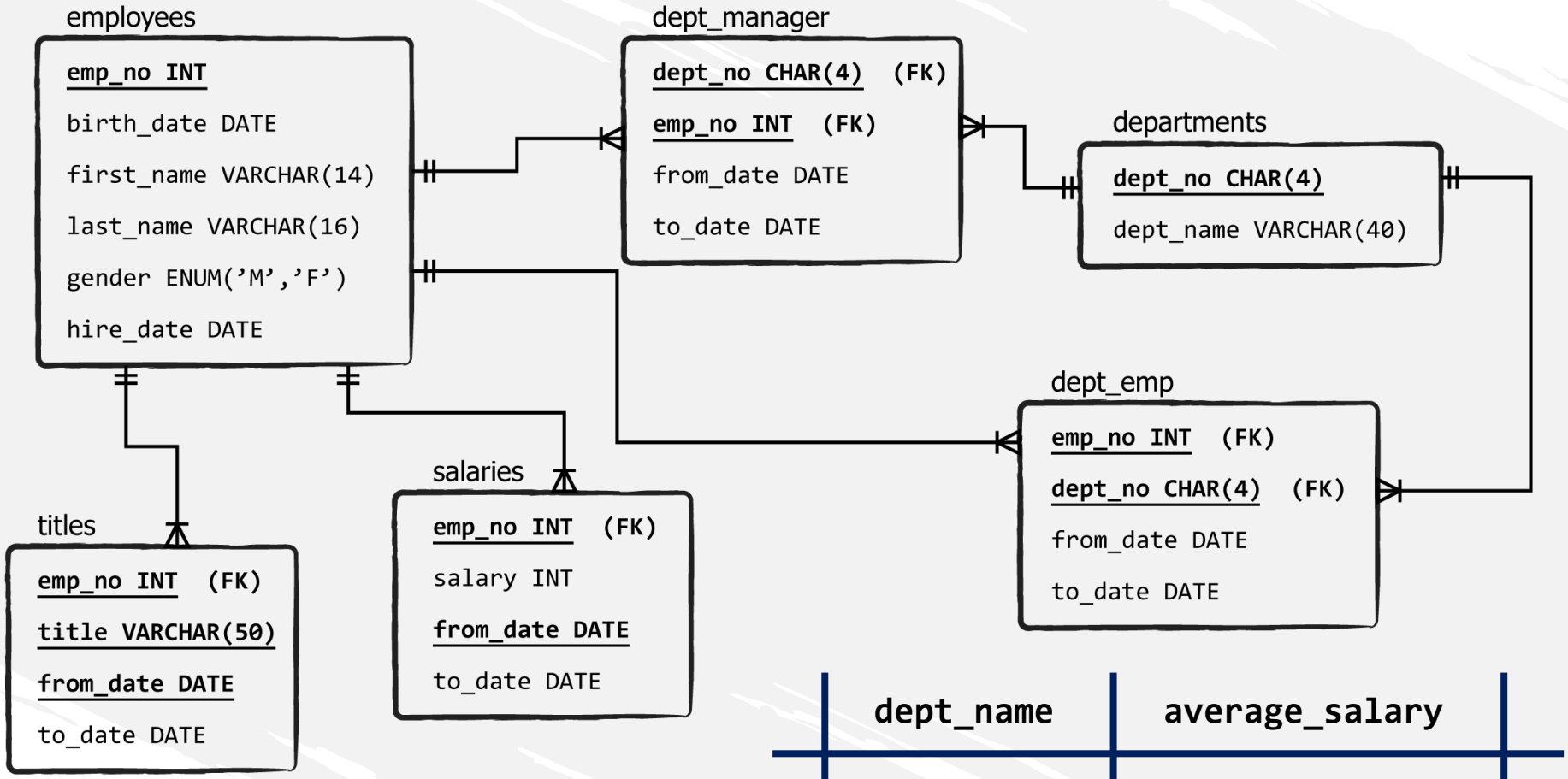
Tips and Tricks for Joins



Tips and Tricks for Joins



Tips and Tricks for Joins



dept_name	average_salary

Tips and Tricks for Joins

- JOINs

Tips and Tricks for Joins

JOINs

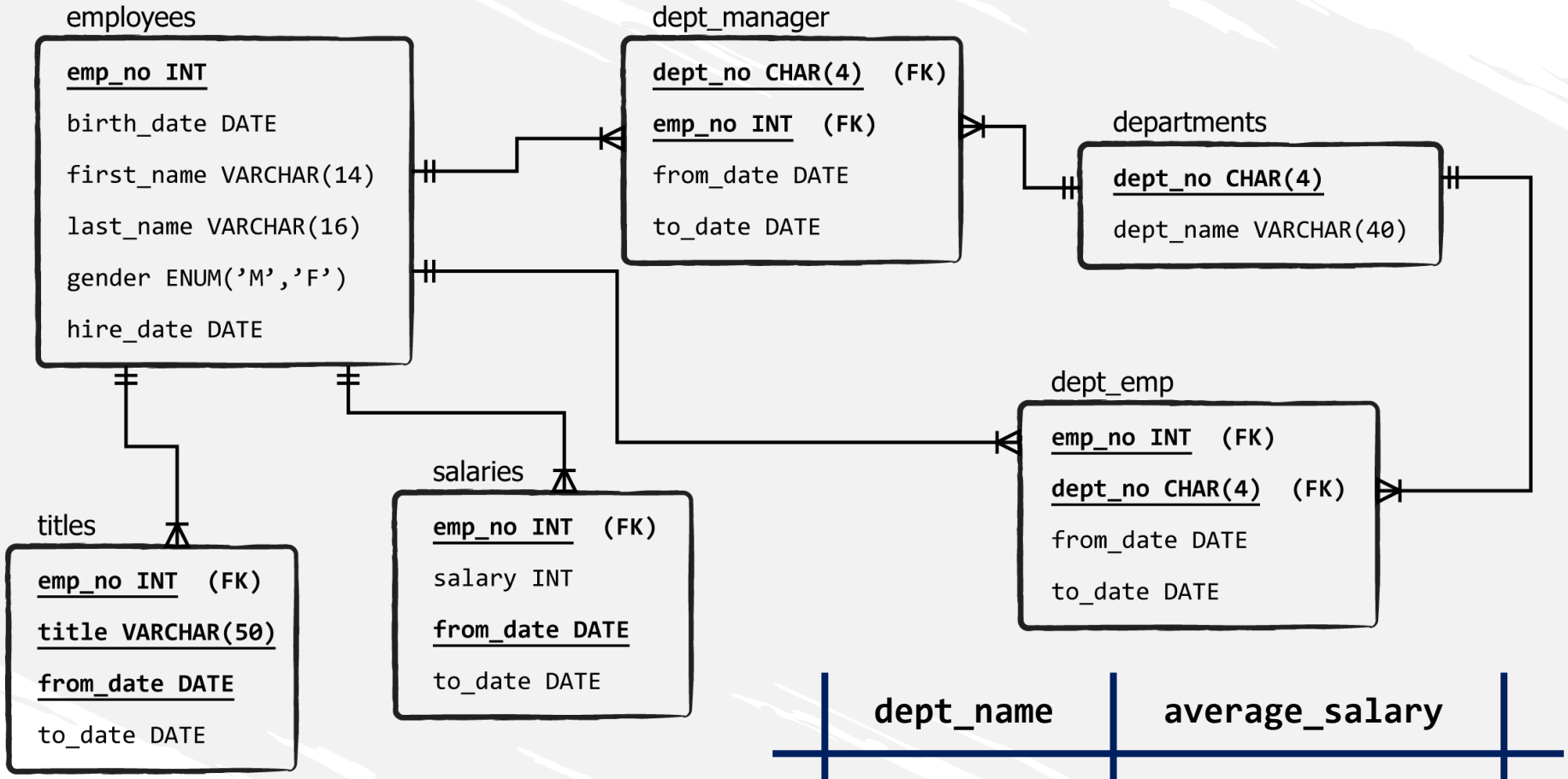
- one should look for key columns, which are common between *the tables involved in the analysis* and are necessary to solve the task at hand

Tips and Tricks for Joins

JOINs

- one should look for key columns, which are common between *the tables involved in the analysis* and are necessary to solve the task at hand
- these columns do not need to be foreign or private keys

Tips and Tricks for Joins



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UNION vs UNION ALL
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UNION vs UNION ALL

- UNION ALL

UNION vs UNION ALL

UNION ALL

used to combine a few SELECT statements in a single output

UNION vs UNION ALL

UNION ALL

used to combine a few SELECT statements in a single output

- you can think of it as a tool that allows you to *unify tables*

UNION vs UNION ALL

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used to combine a few SELECT statements in a single output


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SELECT
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FROM
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UNION ALL SELECT
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FROM
     table_2;
```

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We have to select the same number of columns from each table.

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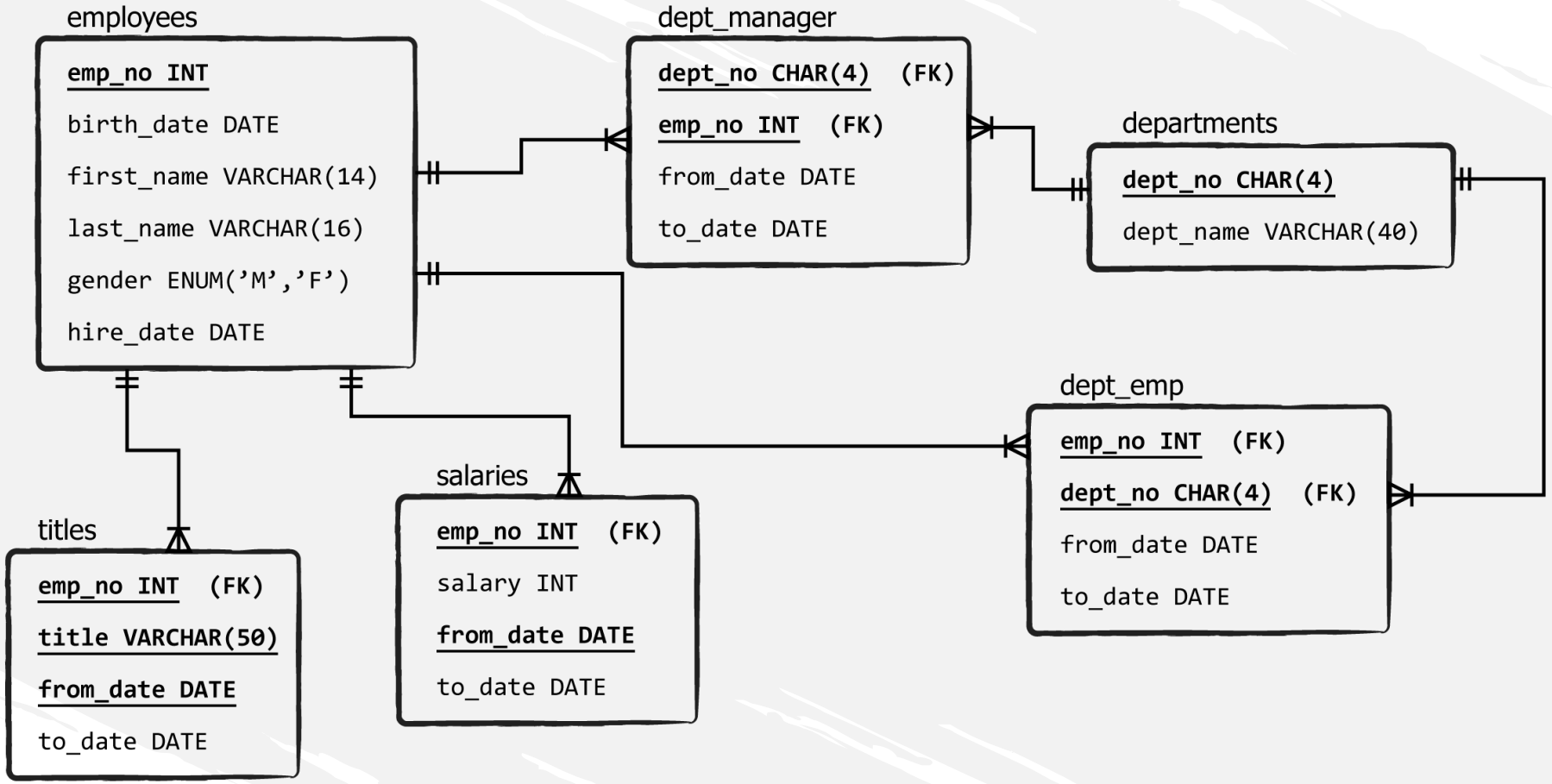
These columns should have the same name, should be in the same order, and should contain related data types.

UNION vs UNION ALL



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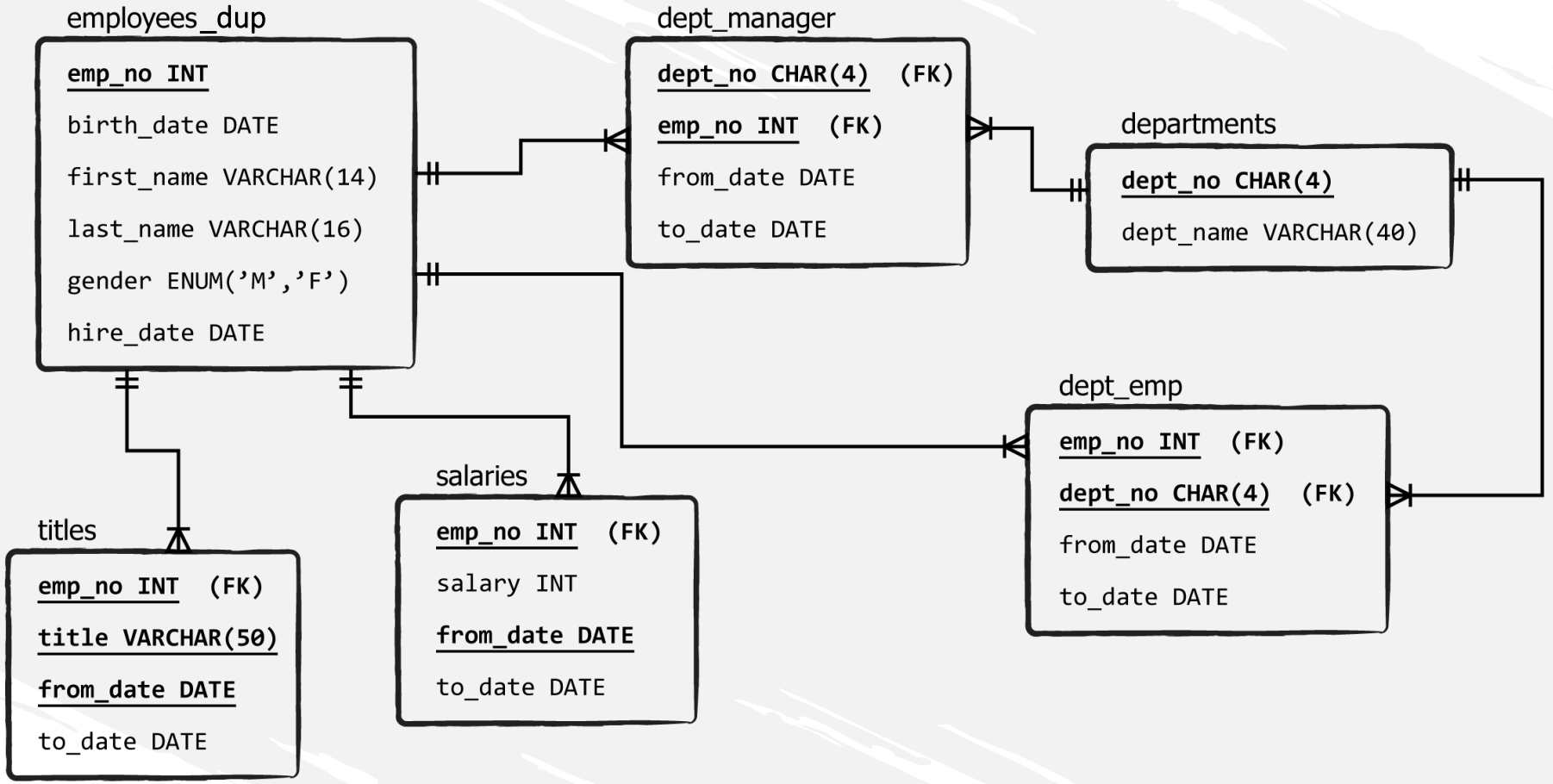

UNION vs UNION ALL

UNION

SQL

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UNION vs UNION ALL

- when uniting two identically organized tables

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- UNION displays only distinct values in the output

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- UNION displays only distinct values in the output
  - UNION uses more MySQL resources

- UNION ALL retrieves the duplicates as well

UNION vs UNION ALL

when uniting two identically organized tables

- UNION displays only distinct values in the output
  - UNION uses more MySQL resources (computational power and storage space)

- UNION ALL retrieves the duplicates as well

UNION vs UNION ALL

- Looking for better results?

UNION vs UNION ALL

- Looking for better results?

  - use UNION

UNION vs UNION ALL

- Looking for better results?

  - use UNION

- Seeking to optimize performance?

UNION vs UNION ALL

- Looking for better results?

  - use UNION

- Seeking to optimize performance?

  - opt for UNION ALL