

JOIN Queries and NULL Values

PDBM 7.3.1.5–7.3.1.6

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pgAdmin

Management Tools for PostgreSQL

Starting pgAdmin4 server...

More than one relation

```
SELECT *  
FROM movie, movie_info  
WHERE movie.id = movie_info.movie_id  
LIMIT 10;
```

- ▶ Is this a cross product or a join?

```
SELECT *  
FROM movie AS m, movie_info AS i  
WHERE m.id = i.movie_id  
LIMIT 10;
```

- ▶ How did we disambiguate attributes?

SQL join expressions

```
SELECT *  
FROM movie, movie_info; -- implicit product
```

```
SELECT *  
FROM movie  
    CROSS JOIN movie_info; -- explicit product
```

```
SELECT *  
FROM movie AS m -- theta join (a.k.a. inner join)  
    JOIN movie_info AS i ON m.id = i.movie_id
```

SQL Exercises: imdb

For each “Frozen” what kind of movie was it?

What is the plot of the movie Frozen (2013)?

Hint: plot is info_id = 98 in movie_info



Outer joins in SQL

```
-- return all movies, with optional plots
```

```
SELECT *  
FROM movie AS m  
  LEFT JOIN movie_info AS i  
    ON m.id = i.movie_id AND i.info_id = 98
```

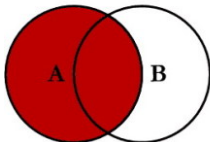
```
-- return all plots, with optional movies
```

```
SELECT *  
FROM movie AS m  
  RIGHT JOIN movie_info AS i  
    ON m.id = i.movie_id AND i.info_id = 98
```

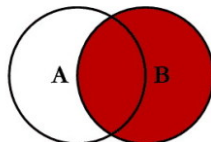
```
-- return all movies and plots (side by side)
```

```
SELECT *  
FROM movie AS m  
  FULL JOIN movie_info AS i  
    ON m.id = i.movie_id AND i.info_id = 98
```

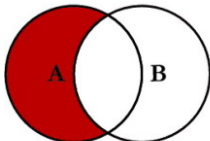
SQL JOINS



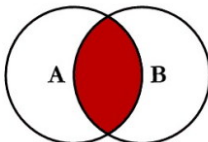
```
SELECT <select_list>  
FROM TableA A  
LEFT JOIN TableB B  
ON A.Key = B.Key
```



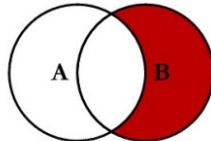
```
SELECT <select_list>  
FROM TableA A  
RIGHT JOIN TableB B  
ON A.Key = B.Key
```



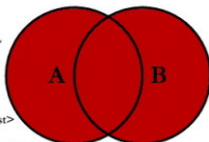
```
SELECT <select_list>  
FROM TableA A  
LEFT JOIN TableB B  
ON A.Key = B.Key  
WHERE B.Key IS NULL
```



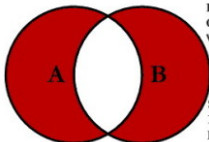
```
SELECT <select_list>  
FROM TableA A  
INNER JOIN TableB B  
ON A.Key = B.Key
```



```
SELECT <select_list>  
FROM TableA A  
RIGHT JOIN TableB B  
ON A.Key = B.Key  
WHERE A.Key IS NULL
```



```
SELECT <select_list>  
FROM TableA A  
FULL OUTER JOIN TableB B  
ON A.Key = B.Key
```



```
SELECT <select_list>  
FROM TableA A  
FULL OUTER JOIN TableB B  
ON A.Key = B.Key  
WHERE A.Key IS NULL  
OR B.Key IS NULL
```

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NULL and UNKNOWN

In SQL, attribute values may be `NULL`

- ▶ integer may be -2147483648 to $+2147483647$ or `NULL`
- ▶ text may be `'Hello'` or `''` or `NULL`

Rules for NULL

1. Any *operation* on `NULL` is `NULL`
2. Any *comparison* with `NULL` is `UNKNOWN`

What is the value of:

- ▶ `SELECT 5 + NULL`
- ▶ `WHERE title = NULL` `-- incorrect`
- ▶ `WHERE title IS NULL` `-- correct`

SQL Exercises: imdb

What is the budget of each movie? (if known)

What is the runtime of each movie? (if known)

Hint: in `movie_info`, budget is 105, runtime is 1

