

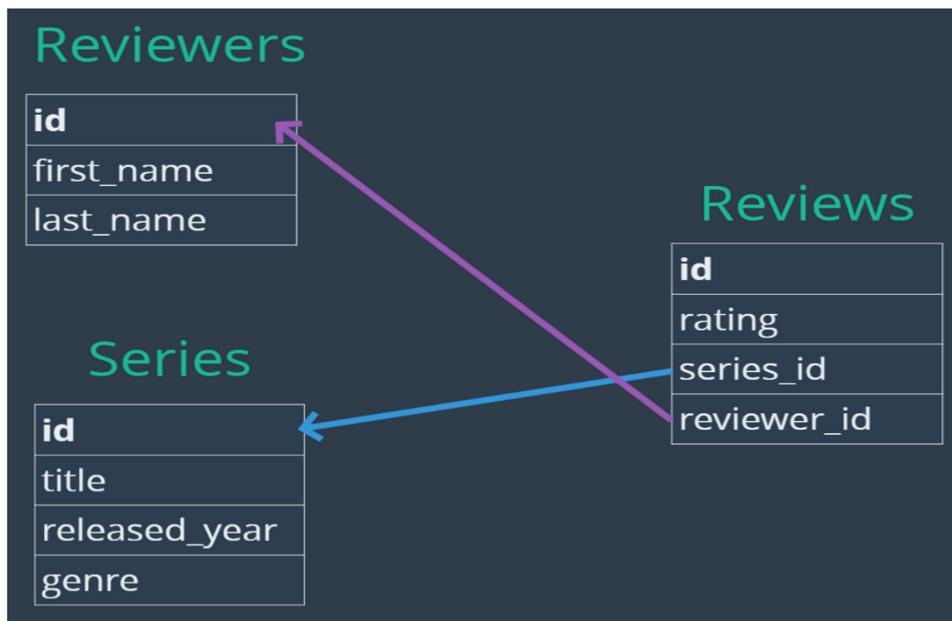
## MySQL - Relationships & Joins - M:M Relationship - Lecture 24

Many : Many Relationship.

Some Examples

Books <-> Authors  
Blog Post <-> Tags  
Students <-> Classes

### Tv show reviewing application



## Reviewers

<b>id</b>	<b>first_name</b>	<b>last_name</b>
1	Blue	Steele
2	Wyatt	Earp

## Series

<b>id</b>	<b>title</b>	<b>released_year</b>	<b>genre</b>
1	Archer	2009	Animation
2	Fargo	2014	Drama

## Reviews

<b>id</b>	<b>rating</b>	<b>reviewer_id</b>	<b>series_id</b>
1	8.9	1	2
2	9.5	2	2

```
mysql> CREATE DATABASE review_series;
Query OK, 1 row affected (0.02 sec)
```

```
mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| books_db
| employee
| employeedetail
| films
| ig_clone
| information
| information_schema
| mysql
| performance_schema
| review_series
| shirts_db
| testcricket
| university
+-----+
13 rows in set (0.00 sec)
```

```
mysql> USE review_series;
Database changed
mysql> SELECT DATABASE();
+-----+
| DATABASE() |
+-----+
| review_series |
+-----+
1 row in set (0.00 sec)
```

```
mysql> CREATE TABLE Reviewers(
    -> id int auto_increment,
    -> first_name varchar(50),
    -> last_name varchar(50),
    -> PRIMARY KEY(id)
    -> );
Query OK, 0 rows affected (0.09 sec)

mysql>
mysql> INSERT INTO reviewers (first_name, last_name) VALUES
    -> ('Thomas', 'Stoneman'),
    -> ('Wyatt', 'Skaggs'),
    -> ('Kimbra', 'Masters'),
    -> ('Domingo', 'Cortes'),
    -> ('Colt', 'Steele'),
    -> ('Pinkie', 'Petit'),
```

```

-->      ('Kimbra', 'Masters'),
-->      ('Domingo', 'Cortes'),
-->      ('Colt', 'Steele'),
-->      ('Pinkie', 'Petit'),
-->      ('Marlon', 'Crafford');
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0

```

```
mysql> SELECT * FROM Reviewers;
```

id	first_name	last_name
1	Thomas	Stoneman
2	Wyatt	Skaggs
3	Kimbra	Masters
4	Domingo	Cortes
5	Colt	Steele
6	Pinkie	Petit
7	Marlon	Crafford

7 rows in set (0.00 sec)

```

mysql> CREATE TABLE Series(
-->      id int auto_increment,
-->      title varchar(100),
-->      released_year Year(4),
-->      genre varchar(100),
-->      PRIMARY KEY(id)
--> );
Query OK, 0 rows affected, 1 warning (0.03 sec)

```

```

mysql>
mysql> INSERT INTO series (title, released_year, genre) VALUES
-->      ('Archer', 2009, 'Animation'),
-->      ('Arrested Development', 2003, 'Comedy'),
-->      ("Bob's Burgers", 2011, 'Animation'),
-->      ('Bojack Horseman', 2014, 'Animation'),
-->      ("Breaking Bad", 2008, 'Drama'),
-->      ('Curb Your Enthusiasm', 2000, 'Comedy'),
-->      ('Fargo', 2014, 'Drama'),
-->      ('Freaks and Geeks', 1999, 'Comedy'),
-->      ('General Hospital', 1963, 'Drama'),
-->      ('Halt and Catch Fire', 2014, 'Drama'),
-->      ('Malcolm In The Middle', 2000, 'Comedy'),
-->      ('Pushing Daisies', 2007, 'Comedy'),
-->      ('Seinfeld', 1989, 'Comedy'),
-->      ('Stranger Things', 2016, 'Drama');
Query OK, 14 rows affected (0.01 sec)
Records: 14  Duplicates: 0  Warnings: 0

```

```
mysql> SELECT * FROM Series;
```

id	title	released_year	genre
1	Archer	2009	Animation
2	Arrested Development	2003	Comedy
3	Bob's Burgers	2011	Animation
4	Bojack Horseman	2014	Animation
5	Breaking Bad	2008	Drama
6	Curb Your Enthusiasm	2000	Comedy
7	Fargo	2014	Drama
8	Freaks and Geeks	1999	Comedy
9	General Hospital	1963	Drama
10	Halt and Catch Fire	2014	Drama
11	Malcolm In The Middle	2000	Comedy
12	Pushing Daisies	2007	Comedy
13	Seinfeld	1989	Comedy
14	Stranger Things	2016	Drama

14 rows in set (0.00 sec)

```

mysql> CREATE TABLE Reviews(
    -> id int auto_increment PRIMARY KEY,
    -> rating Decimal(2,1),
    -> series_id int,
    -> reviewer_id int,
    -> FOREIGN KEY(series_id) REFERENCES Series(id),
    -> FOREIGN KEY(reviewer_id) REFERENCES Reviewers(id)
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql>
mysql> INSERT INTO reviews(series_id, reviewer_id, rating) VALUES
    -> (1,1,8.0),(1,2,7.5),(1,3,8.5),(1,4,7.7),(1,5,8.9),
    -> (2,1,8.1),(2,4,6.0),(2,3,8.0),(2,6,8.4),(2,5,9.9),
    -> (3,1,7.0),(3,6,7.5),(3,4,8.0),(3,3,7.1),(3,5,8.0),
    -> (4,1,7.5),(4,3,7.8),(4,4,8.3),(4,2,7.6),(4,5,8.5),
    -> (5,1,9.5),(5,3,9.0),(5,4,9.1),(5,2,9.3),(5,5,9.9),
    -> (6,2,6.5),(6,3,7.8),(6,4,8.8),(6,2,8.4),(6,5,9.1),
    -> (7,2,9.1),(7,5,9.7),
    -> (8,4,8.5),(8,2,7.8),(8,6,8.8),(8,5,9.3),
    -> (9,2,5.5),(9,3,6.8),(9,4,5.8),(9,6,4.3),(9,5,4.5),
    -> (10,5,9.9),
    -> (13,3,8.0),(13,4,7.2),
    -> (14,2,8.5),(14,3,8.9),(14,4,8.9);
Query OK, 47 rows affected (0.01 sec)
Records: 47  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Reviews;
+---+-----+-----+-----+
| id | rating | series_id | reviewer_id |
+---+-----+-----+-----+
| 1 | 8.0 | 1 | 1 |
| 2 | 7.5 | 1 | 2 |
| 3 | 8.5 | 1 | 3 |
| 4 | 7.7 | 1 | 4 |
| 5 | 8.9 | 1 | 5 |

```

<https://codeshare.io/0gyl8m>

```

CREATE TABLE Reviewers(
    id int auto_increment,
    first_name varchar(50),
    last_name varchar(50),
    PRIMARY KEY(id)
);

INSERT INTO reviewers (first_name, last_name) VALUES
('Thomas', 'Stoneman'),
('Wyatt', 'Skaggs'),
('Kimbra', 'Masters'),
('Domingo', 'Cortes'),
('Colt', 'Steele'),
('Pinkie', 'Petit'),
('Marlon', 'Crafford');

```

```

CREATE TABLE Series(
    id int auto_increment,
    title varchar(100),
    released_year Year(4),
    genre varchar(100),
    PRIMARY KEY(id)
);

INSERT INTO series (title, released_year, genre) VALUES
('Archer', 2009, 'Animation'),
('Arrested Development', 2003, 'Comedy'),
("Bob's Burgers", 2011, 'Animation'),
('Bojack Horseman', 2014, 'Animation'),
("Breaking Bad", 2008, 'Drama'),
('Curb Your Enthusiasm', 2000, 'Comedy'),
("Fargo", 2014, 'Drama'),
('Freaks and Geeks', 1999, 'Comedy'),
('General Hospital', 1963, 'Drama'),
('Halt and Catch Fire', 2014, 'Drama'),
('Malcolm In The Middle', 2000, 'Comedy'),
('Pushing Daisies', 2007, 'Comedy'),
('Seinfeld', 1989, 'Comedy'),
('Stranger Things', 2016, 'Drama');

```

```

CREATE TABLE Reviews(
    id int auto_increment PRIMARY KEY,
    rating Decimal(2,1),
    series_id int,
    reviewer_id int,
    FOREIGN KEY(series_id) REFERENCES Series(id),
    FOREIGN KEY(reviewer_id) REFERENCES Reviewers(id)
);

INSERT INTO reviews(series_id, reviewer_id, rating) VALUES
(1,1,8.0),(1,2,7.5),(1,3,8.5),(1,4,7.7),(1,5,8.9),
(2,1,8.1),(2,4,6.0),(2,3,8.0),(2,6,8.4),(2,5,9.9),
(3,1,7.0),(3,6,7.5),(3,4,8.0),(3,3,7.1),(3,5,8.0),
(4,1,7.5),(4,3,7.8),(4,4,8.3),(4,2,7.6),(4,5,8.5),
(5,1,9.5),(5,3,9.0),(5,4,9.1),(5,2,9.3),(5,5,9.9),
(6,2,6.5),(6,3,7.8),(6,4,8.8),(6,2,8.4),(6,5,9.1),
(7,2,9.1),(7,5,9.7),
(8,4,8.5),(8,2,7.8),(8,6,8.8),(8,5,9.3),
(9,2,5.5),(9,3,6.8),(9,4,5.8),(9,6,4.3),(9,5,4.5),
(10,5,9.9),
(13,3,8.0),(13,4,7.2),
(14,2,8.5),(14,3,8.9),(14,4,8.9);

```

## # TV Series Challenge 1

title	rating
Archer	8.0
Archer	7.5
Archer	8.5
Archer	7.7
Archer	8.9
Arrested Development	8.1
Arrested Development	6.0
Arrested Development	8.0
Arrested Development	8.4
Arrested Development	9.9
Bob's Burgers	7.0
Bob's Burgers	7.5
Bob's Burgers	8.0
Bob's Burgers	7.1
Bob's Burgers	8.0

Title	Rating
Archer	8.0
Archer	7.5
Archer	8.5
Archer	7.7
Archer	8.9
Arrested Development	8.1
Arrested Development	6.0
Arrested Development	8.0
Arrested Development	8.4
Arrested Development	9.9
Bob's Burgers	7.0
Bob's Burgers	7.5
Bob's Burgers	8.0
Bob's Burgers	7.1
Bob's Burgers	8.0
Bojack Horseman	7.5
Bojack Horseman	7.8
Bojack Horseman	8.3

## # TV Series Challenge 2

title	avg_rating
General Hospital	5.38000
Bob's Burgers	7.52000
Seinfeld	7.60000
Bojack Horseman	7.94000
Arrested Development	8.08000
Curb Your Enthusiasm	8.12000
Archer	8.12000
Freaks and Geeks	8.60000
Stranger Things	8.76667
Breaking Bad	9.36000
Fargo	9.40000
Halt and Catch Fire	9.90000

Title	avg_rating
General Hospital	5.38000
Bob's Burgers	7.52000
Seinfeld	7.60000
Bojack Horseman	7.94000
Arrested Development	8.08000
Archer	8.12000
Curb Your Enthusiasm	8.12000
Freaks and Geeks	8.60000
Stranger Things	8.76667
Breaking Bad	9.36000
Fargo	9.40000
Halt and Catch Fire	9.90000

12 rows in set (0.01 sec)

## # TV Series Challenge 3

first_name	last_name	rating
Thomas	Stoneman	8.0
Thomas	Stoneman	8.1
Thomas	Stoneman	7.0
Thomas	Stoneman	7.5
Thomas	Stoneman	9.5
Wyatt	Skaggs	7.5
Wyatt	Skaggs	7.6
Wyatt	Skaggs	9.3
Wyatt	Skaggs	6.5
Wyatt	Skaggs	8.4
Wyatt	Skaggs	9.1
Wyatt	Skaggs	7.8
Wyatt	Skaggs	5.5
Wyatt	Skaggs	8.5
Kimbra	Masters	8.5
Kimbra	Masters	8.0
Kimbra	Masters	7.1
Kimbra	Masters	7.8
Kimbra	Masters	9.0
Kimbra	Masters	7.8

first_name	last_name	rating
Thomas	Stoneman	8.0
Thomas	Stoneman	8.1
Thomas	Stoneman	7.0
Thomas	Stoneman	7.5
Thomas	Stoneman	9.5
Wyatt	Skaggs	7.5
Wyatt	Skaggs	7.6
Wyatt	Skaggs	9.3
Wyatt	Skaggs	6.5
Wyatt	Skaggs	8.4
Wyatt	Skaggs	9.1
Wyatt	Skaggs	7.8
Wyatt	Skaggs	5.5
Wyatt	Skaggs	8.5
Kimbra	Masters	8.5
Kimbra	Masters	8.0
Kimbra	Masters	7.1
Kimbra	Masters	7.8
Kimbra	Masters	9.0
Kimbra	Masters	7.8

## # TV Series Challenge 4

unreviewed_series
Malcolm In The Middle
Pushing Daisies

Where rating "is null".

```
mysql> SELECT Title,Rating  
-> FROM Series LEFT JOIN  
-> Reviews ON Series.id = Reviews.series_id;
```

Series	Rating
General Hospital	4.5
General Hospital	4.5
Halt and Catch Fire	9.9
Malcolm In The Middle	NULL
Pushing Daisies	NULL
Seinfeld	8.0

```

mysql> SELECT Title,Rating
-> FROM Series LEFT JOIN
-> Reviews ON Series.id = Reviews.series_id
-> WHERE Rating is null;
+-----+-----+
| Title | Rating |
+-----+-----+
| Malcolm In The Middle |    NULL |
| Pushing Daisies |    NULL |
+-----+-----+
2 rows in set (0.00 sec)

```

```

mysql> SELECT Title AS unreviewed_series
-> FROM Series LEFT JOIN
-> Reviews ON Series.id = Reviews.series_id
-> WHERE Rating is null;
+-----+
| unreviewed_series |
+-----+
| Malcolm In The Middle |
| Pushing Daisies |
+-----+
2 rows in set (0.00 sec)

```

## # TV Series Challenge 5

genre	avg_rating
Animation	7.86000
Comedy	8.16250
Drama	8.04375

```

mysql> SELECT genre , Avg(Rating) as avg_rating
-> FROM Series JOIN Reviews
-> ON Series.id = Reviews.series_id
-> GROUP BY 1;
+-----+-----+
| genre | avg_rating |
+-----+-----+
| Animation | 7.86000 |
| Comedy | 8.16250 |
| Drama | 8.04375 |
+-----+-----+
3 rows in set (0.00 sec)

```

## # TV Series Challenge 6

first_name	last_name	COUNT	MIN	MAX	AVG	STATUS
Thomas	Stoneman	5	7.0	9.5	8.02000	ACTIVE
Wyatt	Skaggs	9	5.5	9.3	7.80000	ACTIVE
Kimbra	Masters	9	6.8	9.0	7.98889	ACTIVE
Domingo	Cortes	10	5.8	9.1	7.83000	ACTIVE
Colt	Steele	10	4.5	9.9	8.77000	ACTIVE
Pinkie	Petit	4	4.3	8.8	7.25000	ACTIVE
Marlon	Crafford	0	0.0	0.0	0.00000	INACTIVE

```
mysql> SELECT first_name, last_name,
-> Count(rating) AS COUNT,
-> IFNULL(MIN(rating),0) AS MIN,
-> IFNULL(MAX(rating),0) AS MAX,
-> IFNULL(AVG(rating),0) AS AVG,
-> CASE
-> WHEN COUNT(rating) = 0 THEN "INACTIVE"
-> ELSE "ACTIVE"
-> END AS STATUS
-> FROM Reviewers LEFT JOIN Reviews
-> ON Reviewers.id = Reviews.reviewer_id
-> GROUP BY Reviewers.id;
```

first_name	last_name	COUNT	MIN	MAX	AVG	STATUS
Thomas	Stoneman	5	7.0	9.5	8.02000	ACTIVE
Wyatt	Skaggs	9	5.5	9.3	7.80000	ACTIVE
Kimbra	Masters	9	6.8	9.0	7.98889	ACTIVE
Domingo	Cortes	10	5.8	9.1	7.83000	ACTIVE
Colt	Steele	10	4.5	9.9	8.77000	ACTIVE
Pinkie	Petit	4	4.3	8.8	7.25000	ACTIVE
Marlon	Crafford	0	0.0	0.0	0.00000	INACTIVE

7 rows in set (0.03 sec)

## # TV Series Challenge 7

title	rating	reviewer
Archer	8.0	Thomas Stoneman
Archer	7.7	Domingo Cortes
Archer	8.5	Kimbra Masters
Archer	7.5	Wyatt Skaggs
Archer	8.9	Colt Steele
Arrested Development	8.4	Pinkie Petit
Arrested Development	9.9	Colt Steele
Arrested Development	8.1	Thomas Stoneman
Arrested Development	6.0	Domingo Cortes
Arrested Development	8.0	Kimbra Masters
Bob's Burgers	7.0	Thomas Stoneman
Bob's Burgers	8.0	Domingo Cortes
Bob's Burgers	7.1	Kimbra Masters
Bob's Burgers	7.5	Pinkie Petit
Bob's Burgers	8.0	Colt Steele

```

mysql> SELECT Title, Rating,
-> CONCAT(first_name, " ", last_name) AS reviewer
-> FROM Series JOIN Reviews
-> ON Series.id = Reviews.series_id
-> JOIN Reviewers ON Reviewers.id = Reviews.reviewer_id;
+-----+-----+-----+
| Title      | Rating | reviewer |
+-----+-----+-----+
| Archer     | 8.0    | Thomas Stoneman |
| Arrested Development | 8.1    | Thomas Stoneman |
| Bob's Burgers | 7.0    | Thomas Stoneman |
| Bojack Horseman | 7.5    | Thomas Stoneman |
| Breaking Bad | 9.5    | Thomas Stoneman |
| Archer     | 7.5    | Wyatt Skaggs   |
| Bojack Horseman | 7.6    | Wyatt Skaggs   |
| Breaking Bad | 9.3    | Wyatt Skaggs   |
| Curb Your Enthusiasm | 6.5    | Wyatt Skaggs   |
| Curb Your Enthusiasm | 8.4    | Wyatt Skaggs   |
| Fargo      | 9.1    | Wyatt Skaggs   |
| Freaks and Geeks | 7.8    | Wyatt Skaggs   |
| General Hospital | 5.5    | Wyatt Skaggs   |
| Stranger Things | 8.5    | Wyatt Skaggs   |
| Archer     | 8.5    | Kimbra Masters |
| Arrested Development | 8.0    | Kimbra Masters |

```

```

mysql> SELECT Title, Rating,
-> CONCAT(first_name, " ", last_name) AS reviewer
-> FROM Series JOIN Reviews
-> ON Series.id = Reviews.series_id
-> JOIN Reviewers ON Reviewers.id = Reviews.reviewer_id
-> ORDER BY 1;
+-----+-----+-----+
| Title      | Rating | reviewer |
+-----+-----+-----+
| Archer     | 8.0    | Thomas Stoneman |
| Archer     | 7.5    | Wyatt Skaggs   |
| Archer     | 8.5    | Kimbra Masters |
| Archer     | 7.7    | Domingo Cortes |
| Archer     | 8.9    | Colt Steele    |
| Arrested Development | 8.1    | Thomas Stoneman |
| Arrested Development | 6.0    | Domingo Cortes |
| Arrested Development | 8.4    | Pinkie Petit   |
| Arrested Development | 9.9    | Colt Steele    |
| Arrested Development | 8.0    | Kimbra Masters |
| Bob's Burgers | 7.0    | Thomas Stoneman |
| Bob's Burgers | 8.0    | Domingo Cortes |
| Bob's Burgers | 7.5    | Pinkie Petit   |
| Bob's Burgers | 8.0    | Colt Steele    |
| Bob's Burgers | 7.1    | Kimbra Masters |
| Bojack Horseman | 7.5    | Thomas Stoneman |
| Bojack Horseman | 8.3    | Domingo Cortes |
| Bojack Horseman | 7.6    | Wyatt Skaggs   |
| Bojack Horseman | 8.5    | Colt Steele    |
| Bojack Horseman | 7.8    | Kimbra Masters |
| Breaking Bad | 9.5    | Thomas Stoneman |
| Breaking Bad | 9.3    | Wyatt Skaggs   |
| Breaking Bad | 9.9    | Colt Steele    |
| Breaking Bad | 9.0    | Kimbra Masters |
| Breaking Bad | 9.1    | Domingo Cortes |

```