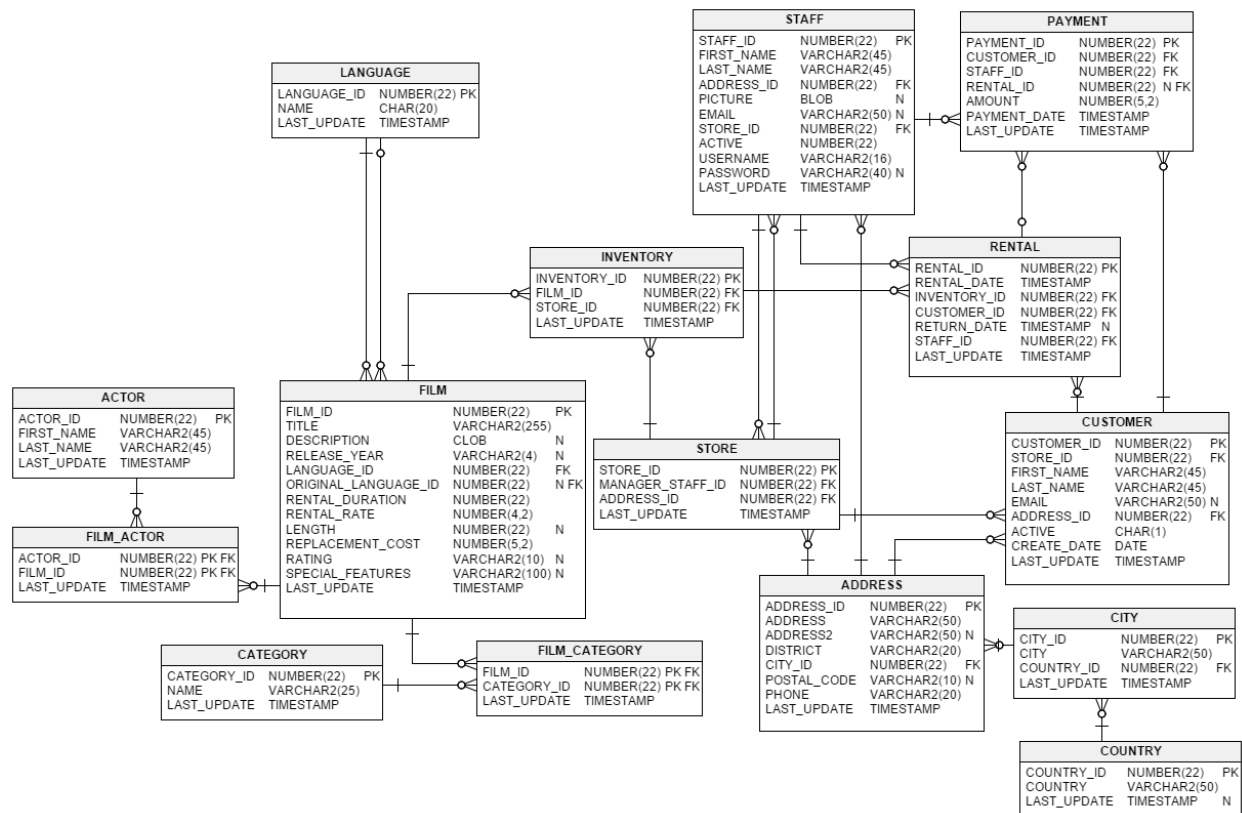


Introduction

The Sakila database is a nicely normalised schema modelling a DVD rental store, featuring things like films, actors, film-actor relationships, and a central inventory table that connects films, stores, and rentals.



Installation

Download from <https://downloads.mysql.com/docs/sakila-db.zip>

A downloadable archive is available in compressed **tar** file or Zip format. The archive contains three files: `sakila-schema.sql`, `sakila-data.sql`, and `sakila.mwb`.

The `sakila-schema.sql` file contains all the `CREATE` statements required to create the structure of the Sakila database including tables, views, stored procedures, and triggers.

The `sakila-data.sql` file contains the `INSERT` statements required to populate the structure created by the `sakila-schema.sql` file, along with definitions for triggers that must be created after the initial data load.

The `sakila.mwb` file is a MySQL Workbench data model that you can open within MySQL Workbench to examine the database structure

To install the Sakila sample database, follow these steps:

1. Extract the installation archive to a temporary location such as `C:\temp\` or `/tmp/`. When you unpack the archive, it creates a directory named `sakila-db` that contains the `sakila-schema.sql` and `sakila-data.sql` files.
2. Connect to the MySQL server using the **mysql** command-line client with the following command:

```
$> mysql -u root -p
```

Enter your password when prompted.

3. Execute the `sakila-schema.sql` script to create the database structure, and execute the `sakila-data.sql` script to populate the database structure, by using the following commands:

```
mysql> SOURCE C:/temp/sakila-db/sakila-schema.sql;
```

```
mysql> SOURCE C:/temp/sakila-db/sakila-data.sql;
```

Replace the paths to the `sakila-schema.sql` and `sakila-data.sql` files with the actual paths on your system.

4. Confirm that the sample database is installed correctly. Execute the following statements. You should see output similar to that shown here.

```
mysql> USE sakila;  
Database changed
```

```
mysql> SHOW FULL TABLES;
```

Tables_in_sakila	Table_type
actor	BASE TABLE
actor_info	VIEW
address	BASE TABLE
category	BASE TABLE
city	BASE TABLE
country	BASE TABLE
customer	BASE TABLE
customer_list	VIEW
film	BASE TABLE
film_actor	BASE TABLE
film_category	BASE TABLE
film_list	VIEW
film_text	BASE TABLE
inventory	BASE TABLE
language	BASE TABLE
nicer_but_slower_film_list	VIEW
payment	BASE TABLE
rental	BASE TABLE
sales_by_film_category	VIEW
sales_by_store	VIEW
staff	BASE TABLE
staff_list	VIEW
store	BASE TABLE

```
23 rows in set (0.01 sec)
```

```
mysql> SELECT COUNT(*) FROM film;
+-----+
| COUNT(*) |
+-----+
|      1000 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT COUNT(*) FROM film_text;
+-----+
| COUNT(*) |
+-----+
|      1000 |
+-----+
1 row in set (0.00 sec)
```

Tables

<https://dev.mysql.com/doc/sakila/en/sakila-structure-tables.html>

Exercises

1. Display the first and last name of each actor in a single column in upper case letters in alphabetic order. Name the column Actor Name.

```
mysql> SELECT CONCAT(UPPER(first_name), ' ', UPPER(last_name)) AS `Actor Name`  
-> FROM actor  
-> ORDER BY `Actor Name`;
```

Actor Name
ADAM GRANT
ADAM HOPPER
AL GARLAND
ALAN DREYFUSS
ALBERT JOHANSSON
ALBERT NOLTE
ALEC WAYNE
ANGELA HUDSON
ANGELA WITHERSPOON
ANGELINA ASTAIRE
ANNE CRONYN
AUDREY BAILEY
AUDREY OLIVIER
BELA WALKEN
BEN HARRIS
BEN WILLIS
BETTE NICHOLSON
BOB FAWCETT
BURT DUKAKIS
BURT POSEY
BURT TEMPLE
CAMERON STREEP
CAMERON WRAY
CAMERON ZELLWEGER
CARMEN HUNT
CARY MCCONAUGHEY
CATE HARRIS
CATE MCQUEEN
CHARLIZE DENCH
CHRIS BRIDGES
CHRIS DEPP
CHRISTIAN AKROYD
CHRISTIAN GABLE
CHRISTIAN NEESON

2. Find all actors whose last name contain the letters GEN:

```
mysql> SELECT *
-> FROM actor
-> WHERE last_name LIKE '%GEN%';
```

actor_id	first_name	last_name	last_update
14	VIVIEN	BERGEN	2006-02-15 04:34:33
41	JODIE	DEGENERES	2006-02-15 04:34:33
107	GINA	DEGENERES	2006-02-15 04:34:33
166	NICK	DEGENERES	2006-02-15 04:34:33

```
4 rows in set (0.39 sec)
```

3. Using IN, display the country_id and country columns of the following countries:
Afghanistan, Bangladesh, and China:

```
mysql> SELECT country_id, country
-> FROM country
-> WHERE country IN ('Afghanistan', 'Bangladesh', 'China');
```

country_id	country
1	Afghanistan
12	Bangladesh
23	China

```
3 rows in set (0.31 sec)
```

4. List the last names of actors, as well as how many actors have that last name.

```
mysql> SELECT last_name, COUNT(*) AS actor_count  
-> FROM actor  
-> GROUP BY last_name  
-> ORDER BY last_name;
```

last_name	actor_count
AKROYD	3
ALLEN	3
ASTAIRE	1
BACALL	1
BAILEY	2
BALE	1
BALL	1
BARRYMORE	1
BASINGER	1
BENING	2
BERGEN	1
BERGMAN	1
BERRY	3
BIRCH	1
BLOOM	1
BOLGER	2
BRIDGES	1
BRODY	2
BULLOCK	1
CAGE	2
CARREY	1
CHAPLIN	1
CHASE	2
CLOSE	1
COSTNER	1
CRAWFORD	2
CRONYN	2
CROWE	1
CRUISE	1
CRUZ	1
DAMON	1
DAVIS	3

5. List last names of actors and the number of actors who have that last name, but only for names that are shared by at least two actors


```
mysql> SELECT last_name, COUNT(*) AS actor_count
-> FROM actor
-> GROUP BY last_name
-> HAVING COUNT(*) >= 2
-> ORDER BY last_name;
```

last_name	actor_count
AKROYD	3
ALLEN	3
BAILEY	2
BENING	2
BERRY	3
BOLGER	2
BRODY	2
CAGE	2
CHASE	2
CRAWFORD	2
CRONYN	2
DAVIS	3
DEAN	2
DEE	2
DEGENERES	3
DENCH	2
DEPP	2
DUKAKIS	2
FAWCETT	2
GARLAND	3
GOODING	2
GUINNESS	3
HACKMAN	2
HARRIS	3
HOFFMAN	3
HOPKINS	3
HOPPER	2
JACKMAN	2
JOHANSSON	3
KEITEL	3
KILMER	5
MCCONAUGHEY	2
MCKELLEN	2

6. The actor HARPO WILLIAMS was accidentally entered in the actor table as GROUCHO WILLIAMS. Write a query to fix the record.

```
mysql> use sakila;
Database changed
mysql> UPDATE actor
    -> SET first_name = 'HARPO'
    -> WHERE first_name = 'GROUCHO' AND last_name = 'WILLIAMS';
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0
```

7. Use JOIN to display the first and last names, as well as the address, of each staff member. Use the tables staff and address:

```
mysql> SELECT staff.first_name, staff.last_name, address.address
    -> FROM staff
    -> JOIN address ON staff.address_id = address.address_id;
+-----+-----+-----+
| first_name | last_name | address |
+-----+-----+-----+
| Mike      | Hillyer   | 23 Workhaven Lane |
| Jon       | Stephens  | 1411 Lillydale Drive |
+-----+-----+-----+
2 rows in set (0.17 sec)
```

8. List each film and the number of actors who are listed for that film. Use tables film_actor and film. Use inner join.

```
mysql> SELECT f.film_id, f.title AS film_title, COUNT(fa.actor_id) AS actor_count
-> FROM film f
-> INNER JOIN film_actor fa ON f.film_id = fa.film_id
-> GROUP BY f.film_id, f.title
-> ORDER BY f.title;
```

film_id	film_title	actor_count
1	ACADEMY DINOSAUR	10
2	ACE GOLDFINGER	4
3	ADAPTATION HOLES	5
4	AFFAIR PREJUDICE	5
5	AFRICAN EGG	5
6	AGENT TRUMAN	7
7	AIRPLANE SIERRA	5
8	AIRPORT POLLOCK	4
9	ALABAMA DEVIL	9
10	ALADDIN CALENDAR	8
11	ALAMO VIDEOTAPE	4
12	ALASKA PHANTOM	7
13	ALI FOREVER	5
14	ALICE FANTASIA	4
15	ALIEN CENTER	6
16	ALLEY EVOLUTION	5
17	ALONE TRIP	8
18	ALTER VICTORY	4
19	AMADEUS HOLY	6
20	AMELIE HELLFIGHTERS	6
21	AMERICAN CIRCUS	5
22	AMISTAD MIDSUMMER	4
23	ANACONDA CONFESSIONS	5
24	ANALYZE HOOSIERS	5
25	ANGELS LIFE	9
26	ANNIE IDENTITY	3
27	ANONYMOUS HUMAN	9
28	ANTHEM LUKE	2
29	ANTITRUST TOMATOES	7
30	ANYTHING SAVANNAH	3
31	APACHE DIVINE	4
32	APOCALYPSE FLAMINGOS	5
33	APOLLO TEEN	8
34	ARABIA DOGMA	12
35	ARACHNOPHOBIA ROLLERCOASTER	8
36	ARGONAUTS TOWN	5
37	ARIZONA BANG	4
38	ARK RIDGEMONT	3

9. How many copies of the film Hunchback Impossible exist in the inventory system?

```
mysql> SELECT COUNT(*) AS copies_count
-> FROM inventory inv
-> JOIN film f ON inv.film_id = f.film_id
-> WHERE f.title = 'Hunchback Impossible';

+-----+
| copies_count |
+-----+
|          6 |
+-----+
1 row in set (0.33 sec)
```

10. Using the tables payment and customer and the JOIN command, list the total paid by each customer. List the customers alphabetically by last name

```
mysql> SELECT c.customer_id, c.last_name, c.first_name, SUM(p.amount) AS total_paid
-> FROM customer c
-> JOIN payment p ON c.customer_id = p.customer_id
-> GROUP BY c.customer_id, c.last_name, c.first_name
-> ORDER BY c.last_name, c.first_name;
```

customer_id	last_name	first_name	total_paid
505	ABNEY	RAFAEL	97.79
504	ADAM	NATHANIEL	133.72
36	ADAMS	KATHLEEN	92.73
96	ALEXANDER	DIANA	105.73
470	ALLARD	GORDON	160.68
27	ALLEN	SHIRLEY	126.69
220	ALVAREZ	CHARLENE	114.73
11	ANDERSON	LISA	106.76
326	ANDREW	JOSE	96.75
183	ANDREWS	IDA	76.77
449	AQUINO	OSCAR	99.80
368	ARCE	HARRY	157.65
560	ARCHULETA	JORDAN	132.70
188	ARMSTRONG	MELANIE	92.75
170	ARNOLD	BEATRICE	119.74
591	ARSENAULT	KENT	134.73
345	ARTIS	CARL	106.77
530	ASHCRAFT	DARRYL	76.77
540	ASHER	TYRONE	112.76
196	AUSTIN	ALMA	151.65

11. The music of Queen and Kris Kristofferson have seen an unlikely resurgence. As an unintended consequence, films starting with the letters **K** and **Q** have also soared in popularity. Use subqueries to display the titles of movies starting with

the letters **K** and **Q** whose language is English.

```
mysql> SELECT title
-> FROM film
-> WHERE LEFT(title, 1) IN ('K', 'Q')
-> AND language_id = (
->     SELECT language_id
->     FROM language
->     WHERE name = 'English'
-> );
```

title
KANE EXORCIST
KARATE MOON
KENTUCKIAN GIANT
KICK SAVANNAH
KILL BROTHERHOOD
KILLER INNOCENT
KING EVOLUTION
KISS GLORY
KISSING DOLLS
KNOCK WARLOCK
KRAMER CHOCOLATE
KWAI HOMEWARD
QUEEN LUKE
QUEST MUSSOLINI
QUILLS BULL

15 rows in set (0.20 sec)

12. Use subqueries to display all actors who appear in the film *Alone Trip*.

```
mysql> SELECT actor.first_name, actor.last_name
-> FROM actor
-> JOIN film_actor ON actor.actor_id = film_actor.actor_id
-> JOIN film ON film_actor.film_id = film.film_id
-> WHERE film.title = 'Alone Trip';
```

first_name	last_name
ED	CHASE
KARL	BERRY
UMA	WOOD
WOODY	JOLIE
SPENCER	DEPP
CHRIS	DEPP
LAURENCE	BULLOCK
RENEE	BALL

8 rows in set (0.00 sec)

13. You want to run an email marketing campaign in Canada, for which you will need the names and email addresses of all Canadian customers. Use joins to retrieve this information.

```
mysql> SELECT c.first_name, c.last_name, c.email
-> FROM customer c
-> JOIN address a ON c.address_id = a.address_id
-> JOIN city ci ON a.city_id = ci.city_id
-> JOIN country co ON ci.country_id = co.country_id
-> WHERE co.country = 'Canada';
```

first_name	last_name	email
DERRICK	BOURQUE	DERRICK.BOURQUE@sakilacustomer.org
DARRELL	POWER	DARRELL.POWER@sakilacustomer.org
LORETTA	CARPENTER	LORETTA.CARPENTER@sakilacustomer.org
CURTIS	IRBY	CURTIS.IRBY@sakilacustomer.org
TROY	QUIGLEY	TROY.QUIGLEY@sakilacustomer.org

5 rows in set (0.27 sec)

14. Sales have been lagging among young families, and you wish to target all family movies for a promotion. Identify all movies categorized as family films.

```
mysql> SELECT film.title
-> FROM film
-> JOIN film_category ON film.film_id = film_category.film_id
-> JOIN category ON film_category.category_id = category.category_id
-> WHERE category.name = 'Family';
```

title
AFRICAN EGG
APACHE DIVINE
ATLANTIS CAUSE
BAKED CLEOPATRA
BANG KWAI
BEDAZZLED MARRIED
BILKO ANONYMOUS
BLANKET BEVERLY
BLOOD ARGONAUTS
BLUES INSTINCT
BRAVEHEART HUMAN
CHASING FIGHT
CHISUM BEHAVIOR
CHOCOLAT HARRY
CONFUSED CANDLES
CONVERSATION DOWNHILL
DATE SPEED
DINOSAUR SECRETARY
DUMBO LUST
EARRING INSTINCT
EFFECT GLADIATOR
FEUD FROGMEN
FINDING ANACONDA
GABLES METROPOLIS
GANDHI KWAI
GLADIATOR WESTWARD

15. Create a Stored procedure to get the count of films in the input category (IN category_name, OUT count)

```
mysql> DELIMITER //
```

```
mysql>
```

```
mysql> CREATE PROCEDURE GetFilmCountInCategory(  
  ->   IN category_name VARCHAR(255),  
  ->   OUT count INT  
  -> )  
  -> BEGIN  
  ->   SELECT COUNT(*) INTO count  
  ->   FROM film  
  ->   JOIN film_category ON film.film_id = film_category.film_id  
  ->   JOIN category ON film_category.category_id = category.category_id  
  ->   WHERE category.name = category_name;  
  -> END //
```

```
Query OK, 0 rows affected (0.12 sec)
```

```
mysql>
```

```
mysql> DELIMITER ;
```

```
mysql> CALL GetFilmCountInCategory('Family', @film_count);
```

```
Query OK, 1 row affected (0.08 sec)
```

```
mysql> SELECT @film_count AS film_count;
```

film_count
69

```
1 row in set (0.13 sec)
```


16. Display the most frequently rented movies in descending order.

```
mysql> SELECT film.title, COUNT(rental.rental_id) AS rental_count
-> FROM film
-> JOIN inventory ON film.film_id = inventory.film_id
-> JOIN rental ON inventory.inventory_id = rental.inventory_id
-> GROUP BY film.title
-> ORDER BY rental_count DESC;
```

title	rental_count
BUCKET BROTHERHOOD	34
ROCKETEER MOTHER	33
FORWARD TEMPLE	32
GRIT CLOCKWORK	32
JUGGLER HARDLY	32
RIDGEMONT SUBMARINE	32
SCALAWAG DUCK	32
APACHE DIVINE	31
GOODFELLAS SALUTE	31
HOBBIT ALIEN	31
NETWORK PEAK	31
ROBBERS JOON	31
RUSH GOODFELLAS	31
TIMBERLAND SKY	31
WIFE TURN	31
ZORRO ARK	31
BUTTERFLY CHOCOLAT	30

17. Write a query to display for each store its store ID, city, and country.

```
mysql> SELECT s.store_id, ci.city, co.country
-> FROM store s
-> JOIN address a ON s.address_id = a.address_id
-> JOIN city ci ON a.city_id = ci.city_id
-> JOIN country co ON ci.country_id = co.country_id;
```

store_id	city	country
1	Lethbridge	Canada
2	Woodridge	Australia

2 rows in set (0.09 sec)

18. List the genres and its gross revenue.

```
mysql> SELECT category.name AS genre, SUM(payment.amount) AS gross_revenue  
-> FROM payment  
-> JOIN rental ON payment.rental_id = rental.rental_id  
-> JOIN inventory ON rental.inventory_id = inventory.inventory_id  
-> JOIN film ON inventory.film_id = film.film_id  
-> JOIN film_category ON film.film_id = film_category.film_id  
-> JOIN category ON film_category.category_id = category.category_id  
-> GROUP BY category.name  
-> ORDER BY gross_revenue DESC;
```

genre	gross_revenue
Sports	5314.21
Sci-Fi	4756.98
Animation	4656.30
Drama	4587.39
Comedy	4383.58
Action	4375.85
New	4351.62
Games	4281.33
Foreign	4270.67
Family	4226.07
Documentary	4217.52
Horror	3722.54
Children	3655.55
Classics	3639.59
Travel	3549.64
Music	3417.72

16 rows in set (0.23 sec)

19. Create a View for the above query(18)

```
mysql> CREATE VIEW genre_gross_revenue_view AS
-> SELECT category.name AS genre, SUM(payment.amount) AS gross_revenue
-> FROM payment
-> JOIN rental ON payment.rental_id = rental.rental_id
-> JOIN inventory ON rental.inventory_id = inventory.inventory_id
-> JOIN film ON inventory.film_id = film.film_id
-> JOIN film_category ON film.film_id = film_category.film_id
-> JOIN category ON film_category.category_id = category.category_id
-> GROUP BY category.name;
Query OK, 0 rows affected (0.22 sec)
```

```
mysql> SELECT * FROM genre_gross_revenue_view;
```

genre	gross_revenue
Action	4375.85
Animation	4656.30
Children	3655.55
Classics	3639.59
Comedy	4383.58
Documentary	4217.52
Drama	4587.39
Family	4226.07
Foreign	4270.67
Games	4281.33
Horror	3722.54
Music	3417.72
New	4351.62
Sci-Fi	4756.98
Sports	5314.21
Travel	3549.64

```
16 rows in set (0.22 sec)
```

20. Select top 5 genres in gross revenue view.

```
mysql> SELECT genre, gross_revenue  
-> FROM genre_gross_revenue_view  
-> ORDER BY gross_revenue DESC  
-> LIMIT 5;
```

genre	gross_revenue
Sports	5314.21
Sci-Fi	4756.98
Animation	4656.30
Drama	4587.39
Comedy	4383.58

5 rows in set (0.32 sec)