

1. Instale localmente en su computadora SQL o MariaD

```
sergiomath@sergiomath-Default-string: ~  
(base) sergiomath@sergiomath-Default-string:~$ sudo systemctl status mariadb  
[sudo] password for sergiomath:  
● mariadb.service - MariaDB 10.6.7 database server  
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor prese  
   Active: active (running) since Tue 2022-09-20 08:04:26 -05; 5min ago  
     Docs: man:mariadb(8)  
           https://mariadb.com/kb/en/library/systemd/  
   Process: 89179 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /va  
   Process: 89182 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_S  
   Process: 89186 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] &&  
   Process: 89233 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_  
   Process: 89236 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0  
   Main PID: 89216 (mariabdd)  
   Status: "Taking your SQL requests now..."  
     Tasks: 8 (limit: 28571)  
    Memory: 57.1M  
       CPU: 422ms  
    CGroup: /system.slice/mariadb.service  
            └─89216 /usr/sbin/mariabdd  
  
sep 20 08:04:26 sergiomath-Default-string mariabdd[89216]: 2022-09-20  8:04:26 >  
sep 20 08:04:26 sergiomath-Default-string mariabdd[89216]: Version: '10.6.7-Mar  
sep 20 08:04:26 sergiomath-Default-string systemd[1]: Started MariaDB 10.6.7 da  
sep 20 08:04:26 sergiomath-Default-string /etc/mysql/debian-start[89242]: Looki
```

2. Instale la base de datos salika. Ver enlace abajo y siga las instrucciones del cuaderno de Jupyter lab

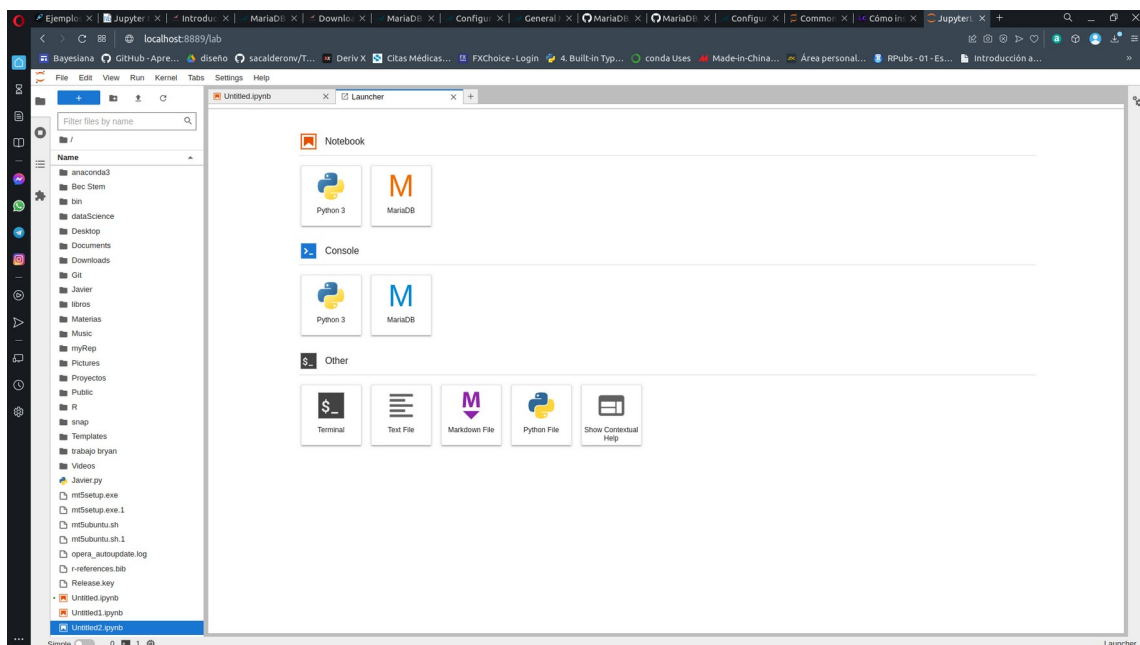
```
sergiomath@sergiomath-Default-string: ~  
Enter password:  
Welcome to the MariaDB monitor.  Commands end with ; or \g.  
Your MariaDB connection id is 33  
Server version: 10.6.7-MariaDB-2ubuntu1.1 Ubuntu 22.04  
  
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
MariaDB [(none)]> SHOW DATABASES  
-> ;  
+-----+  
| Database |  
+-----+  
| GRUPOS   |  
| information_schema |  
| mysql    |  
| performance_schema |  
| sakila   |  
| sys      |  
+-----+  
6 rows in set (0.003 sec)  
  
MariaDB [(none)]>
```

sakila instalada

3. Cree una ambiente de anaconda nuevo, instale Python y Jupyter lab. Agregue la extensión para MariaDB

```
sergiomath@sergiomath-Default-string: ~  
.5)  
Requirement already satisfied: pyzmq>=13 in ./anaconda3/envs/maria_env/lib/pytho  
n3.7/site-packages (from jupyter-client->ipykernel->mariaadb_kernel) (19.0.2)  
Requirement already satisfied: jupyter-core>=4.6.0 in ./anaconda3/envs/maria_env  
/lib/python3.7/site-packages (from jupyter-client->ipykernel->mariaadb_kernel) (4  
.11.1)  
Requirement already satisfied: nest-asyncio>=1.5 in ./anaconda3/envs/maria_env/l  
ib/python3.7/site-packages (from jupyter-client->ipykernel->mariaadb_kernel) (1.5  
.5)  
Requirement already satisfied: entrypoints in ./anaconda3/envs/maria_env/lib/pyt  
hon3.7/site-packages (from jupyter-client->ipykernel->mariaadb_kernel) (0.4)  
Requirement already satisfied: pycparser in ./anaconda3/envs/maria_env/lib/pytho  
n3.7/site-packages (from cffi>=1.12->cryptography==36.0.2->mycli->mariaadb_kern  
) (2.21)  
Requirement already satisfied: parso<0.9.0,>=0.8.0 in ./anaconda3/envs/maria_env  
/lib/python3.7/site-packages (from jedi>=0.16->ipython>=5.0.0->ipykernel->maria  
adb_kernel) (0.8.3)  
Requirement already satisfied: ptyprocess>=0.5 in ./anaconda3/envs/maria_env/lib  
/python3.7/site-packages (from pexpect>4.3->ipython>=5.0.0->ipykernel->mariaadb_k  
ernel) (0.7.0)  
(maria_env) sergiomath@sergiomath-Default-string:~$ python3 -m mariaadb_kernel.in  
stall  
Installing Jupyter kernel spec  
(maria_env) sergiomath@sergiomath-Default-string:~$
```

Ambiente creado



Extension mariaDB

4. Ejecute la guía del enlace, consultado la base directamente desde la consola de MariaDB.

```
sergiomath@sergiomath-Default-string: ~/jupyter
(base) sergiomath@sergiomath-Default-string:~/jupyter$ conda activate maria_env
(maria_env) sergiomath@sergiomath-Default-string:~/jupyter$ sudo mariadb
[sudo] password for sergiomath:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 42
Server version: 10.6.7-MariaDB-2ubuntu1.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> USE sakila
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [sakila]> 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 (0.001 sec)

MariaDB [sakila]> 
```

```
sergiomath@sergiomath-Default-string: ~/jupyter

| KENNETH PESCI | 20 |
| CHRIS DEPP | 20 |
| BETTE NICHOLSON | 20 |
| MATTHEW JOHANSSON | 20 |
| CAMERON WRAY | 19 |
| PENELOPE GUINNESS | 19 |
| RUSSELL CLOSE | 19 |
| SANDRA PECK | 19 |
| SISSY SOBIESKI | 18 |
| ADAM GRANT | 18 |
| JULIA ZELLWEGER | 16 |
+-----+
197 rows in set (0.005 sec)

MariaDB [sakila]> select CONCAT(f.title_utf8' ', f.description)
-> from film as f
-> limit 10;
+-----+
| CONCAT(f.title_utf8' ', f.description) |
+-----+
| ACADEMY DINOSAUR A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher in The Canadian Rockies |
| ACE GOLDFINGER A Astounding Epistle of a Database Administrator And a Explorer who must Find a Car in Ancient China |
| ADAPTATION HOLES A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberjack in A Balloon Factory |
| AFFAIR PREJUDICE A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monkey in A Shark Tank |
| AFRICAN EGG A Fast-Paced Documentary of a Pastry Chef And a Dentist who must Pursue a Forensic Psychologist in The Gulf of Mexico |
| AGENT TRUMAN A Intrepid Panorama of a Robot And a Boy who must Escape a Sumo Wrestler in Ancient China |
| AIRPLANE SIERRA A Touching Saga of a Hunter And a Butler who must Discover a Butler in A Jet Boat |
| AIRPORT POLLOCK A Epic Tale of a Moose And a Girl who must Confront a Monkey in Ancient India |
| ALABAMA DEVIL A Thoughtful Panorama of a Database Administrator And a Mad Scientist who must Outgun a Mad Scientist in A Jet Boat |
| ALADDIN CALENDAR A Action-Packed Tale of a Man And a Lumberjack who must Reach a Feminist in Ancient China |
+-----+
10 rows in set (0.001 sec)

MariaDB [sakila]> 
```

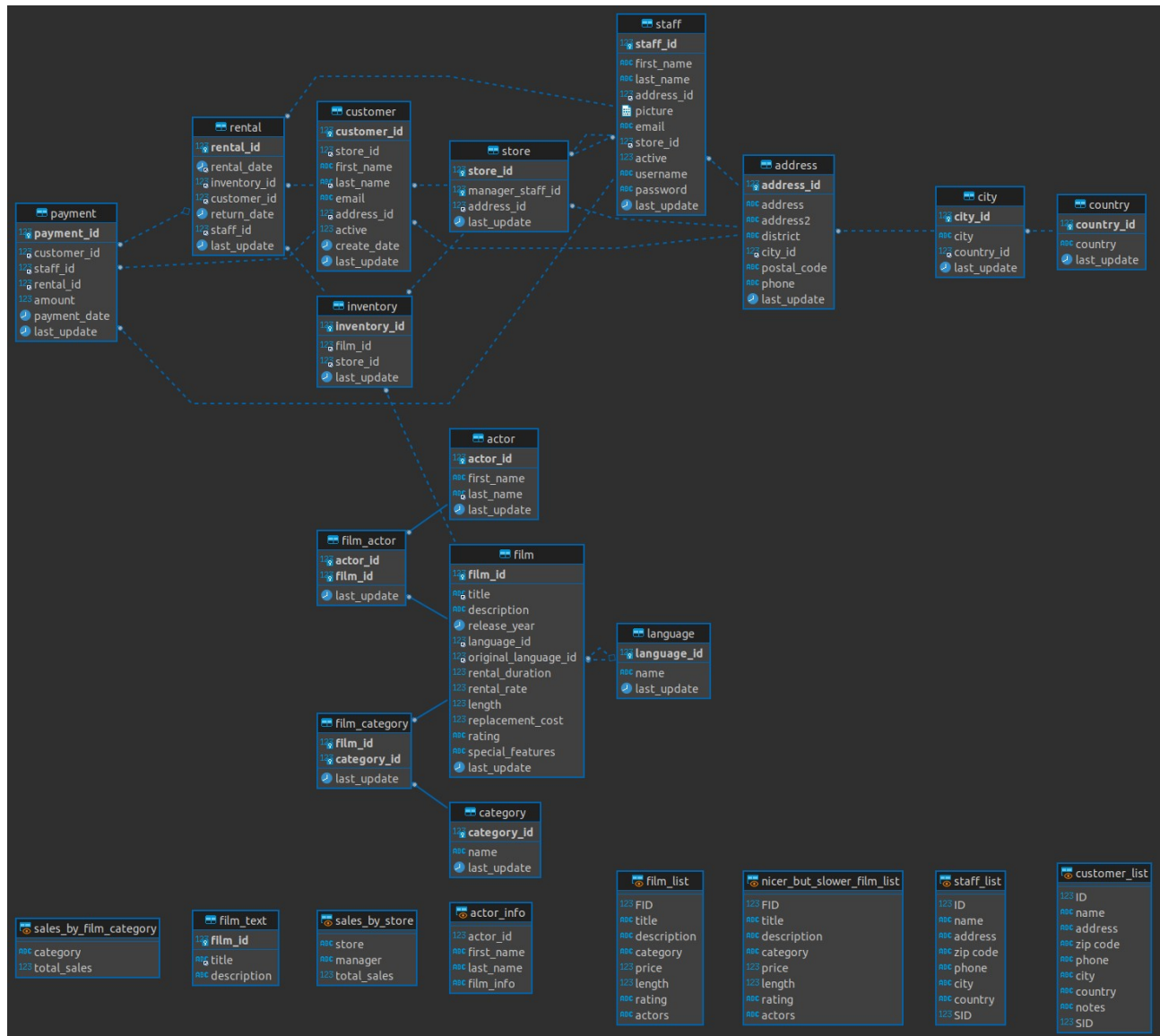
```
sergiomath@sergiomath-Default-string: ~/jupyter

MariaDB [sakila]> SELECT d.address as tienda,
->      CONCAT(a.first_name, _utf8' ', a.last_name) AS actor_estrella,
->      MAX(p.amount) as valor
-> FROM actor AS a
-> JOIN film_actor AS fa ON a.actor_id = fa.actor_id
-> JOIN film AS f ON fa.film_id = f.film_id
-> JOIN inventory AS i ON f.film_id = i.film_id
-> JOIN rental AS r ON i.inventory_id = r.inventory_id
-> JOIN payment AS p ON r.rental_id = p.rental_id
-> JOIN store AS s ON i.store_id = s.store_id
-> JOIN address AS d ON s.address_id = d.address_id
-> GROUP BY tienda;
+-----+-----+-----+
| tienda          | actor_estrella | valor |
+-----+-----+-----+
| 28 MySQL Boulevard | PENELOPE GUINESS | 11.99 |
| 47 MySakila Drive | PENELOPE GUINESS | 11.99 |
+-----+-----+-----+
2 rows in set (0.573 sec)

MariaDB [sakila]> select d.address as tienda,
->      SUM(p.amount) as valor
-> from address as d
-> join store as s on s.address_id = d.address_id
-> join inventory as i on i.store_id = s.store_id
-> join rental as r on r.inventory_id = i.inventory_id
-> join payment as p on p.rental_id = r.rental_id
-> group by tienda;
+-----+-----+
| tienda          | valor |
+-----+-----+
| 28 MySQL Boulevard | 33726.77 |
| 47 MySakila Drive | 33679.79 |
+-----+-----+
2 rows in set (0.094 sec)

MariaDB [sakila]> select CONCAT(a.first_name, _utf8' ', a.last_name) as actor,
->      count(a.actor_id) as numero_actuaciones
-> from actor as a
-> join film_actor as fa on a.actor_id = fa.actor_id
-> group by (a.actor_id)
-> having numero_actuaciones>15
-> order by numero_actuaciones desc
-> ;
+-----+-----+
| actor          | numero_actuaciones |
+-----+-----+
| CTMA DECEMESES | 42 |
```

5. Obtenga el diagrama entidad-relación usando algún designe como Workbench o DBeaver.



6. Escriba las consultas propuestas en el tutorial deirectamente en la consola y tomo fotos de evidencia del trabajo.

```
sergiomath@sergiomath-Default-string: ~/dataScience/MineriaDatos/taller Bases/test_db

mysql> SET NAMES 'utf8';
Query OK, 0 rows affected, 1 warning (0,00 sec)

mysql>
mysql> DROP DATABASE IF EXISTS `sakila`;
Query OK, 0 rows affected, 1 warning (0,01 sec)

mysql> -- Set the default charset to utf8 for internationalization, use case-insensitive (ci) collation
mysql> CREATE DATABASE IF NOT EXISTS `sakila` DEFAULT CHARACTER SET utf8 COLLATE utf8_unicode_ci;
Query OK, 1 row affected, 2 warnings (0,02 sec)

mysql> USE `sakila`;CREATE TABLE actor (
Database changed
-> actor_id      SMALLINT      UNSIGNED NOT NULL AUTO_INCREMENT,
->              -- 16-bit unsigned int in the range of [0, 65535]
-> first_name    VARCHAR(45)    NOT NULL,
-> last_name     VARCHAR(45)    NOT NULL,
-> last_update   TIMESTAMP      NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (actor_id),
-> KEY idx_actor_last_name (last_name) -- To build index (non-unique) on last_name
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,06 sec)

mysql> -- Use InnoDB Engine, which supports foreign key and transaction
mysql> -- Use Unicode 'utf8' character set for this table
mysql> CREATE TABLE language (
-> language_id   TINYINT        UNSIGNED NOT NULL AUTO_INCREMENT,
->              -- 8-bit unsigned int [0, 255]
-> name          CHAR(20)        NOT NULL,
-> last_update   TIMESTAMP      NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (language_id)
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,05 sec)

mysql> CREATE TABLE film (
-> filn_id       SMALLINT        UNSIGNED NOT NULL AUTO_INCREMENT,
-> title          VARCHAR(255)    NOT NULL,
-> description    TEXT            DEFAULT NULL, -- Up to 64KB
-> release_year   YEAR            DEFAULT NULL, -- 'yyyy'
-> language_id    TINYINT         UNSIGNED NOT NULL, -- 8-bit unsigned int [0, 255]
-> original_language_id TINYINT    UNSIGNED DEFAULT NULL,
-> rental_duration TINYINT        UNSIGNED NOT NULL DEFAULT 3,
-> rental_rate    DECIMAL(4,2)    NOT NULL DEFAULT 4.99,
->              -- DECIMAL is precise and ideal for currency [99.99]. UNSIGNED?
-> length         SMALLINT        UNSIGNED DEFAULT NULL, -- 16-bit unsigned int [0, 65535]
-> replacement_cost DECIMAL(5,2)  NOT NULL DEFAULT 19.99, -- [999.99], UNSIGNED??
-> rating         ENUM('G','PG','PG-13','R','NC-17') DEFAULT 'G',
-> special_features SET('Trailers','Commentaries','Deleted Scenes','Behind the Scenes') DEFAULT NULL,
->              -- Can take zero or more values from a SET
->              -- But only one value from ENUM
-> last_update    TIMESTAMP      NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (filn_id),
-> KEY idx_title (title),
-> KEY idx_fk_language_id (language_id),
-> KEY idx_fk_original_language_id (original_language_id),
```



```

sergiomath@sergiomath-Default-string: ~/dataScience/MineriaDatos/taller Bases/test_db
-> KEY idx_fk_original_language_id (original_language_id),
-> -- To build index on title, language_id, original_language_id and film_id (primary key)
-> CONSTRAINT fk_film_language FOREIGN KEY (language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> -- Cannot delete parent record if there is any matching child record
-> -- Update the matching child records if parent record is updated
-> CONSTRAINT fk_film_language_original FOREIGN KEY (original_language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,08 sec)

mysql> CREATE TABLE film (
-> film_id SMALLINT UNSIGNED NOT NULL AUTO_INCREMENT,
-> title VARCHAR(255) NOT NULL,
-> description TEXT DEFAULT NULL, -- Up to 64KB
-> release_year YEAR DEFAULT NULL, -- 'yyyy'
-> language_id TINYINT UNSIGNED NOT NULL, -- 8-bit unsigned int [0, 255]
-> original_language_id TINYINT UNSIGNED DEFAULT NULL,
-> rental_duration TINYINT UNSIGNED NOT NULL DEFAULT 3,
-> rental_rate DECIMAL(4,2) NOT NULL DEFAULT 4.99,
-> -- DECIMAL is precise and ideal for currency [99.99]. UNSIGNED?
-> length SMALLINT UNSIGNED DEFAULT NULL, -- 16-bit unsigned int [0, 65535]
-> replacement_cost DECIMAL(5,2) NOT NULL DEFAULT 19.99, -- [999.99], UNSIGNED??
-> rating ENUM('G','PG','PG-13','R','NC-17') DEFAULT 'G',
-> special_features SET('Trailers','Commentaries','Deleted Scenes','Behind the Scenes') DEFAULT NULL,
-> -- Can take zero or more values from a SET
-> -- But only one value from ENUM
-> last_update TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (film_id),
-> KEY idx_title (title),
-> KEY idx_fk_language_id (language_id),
-> KEY idx_fk_original_language_id (original_language_id),
-> -- To build index on title, language_id, original_language_id and film_id (primary key)
-> CONSTRAINT fk_film_language FOREIGN KEY (language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> -- Cannot delete parent record if there is any matching child record
-> -- Update the matching child records if parent record is updated
-> CONSTRAINT fk_film_language_original FOREIGN KEY (original_language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
ERROR 1050 (42S01): Table 'film' already exists
mysql> CREATE TABLE film_actor (
-> actor_id SMALLINT UNSIGNED NOT NULL,
-> film_id SMALLINT UNSIGNED NOT NULL,
-> last_update TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (actor_id, film_id),
-> KEY idx_fk_film_id ('film_id'),
-> CONSTRAINT fk_film_actor_actor FOREIGN KEY (actor_id) REFERENCES actor (actor_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> CONSTRAINT fk_film_actor_film FOREIGN KEY (film_id) REFERENCES film (film_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,06 sec)

mysql>

```



```

sergiomath@sergiomath-Default-string: ~/dataScience/MineriaDatos/taller Bases/test_db
-> KEY idx_fk_language_id (language_id),
-> KEY idx_fk_original_language_id (original_language_id),
-> -- To build index on title, language_id, original_language_id and film_id (primary key)
-> CONSTRAINT fk_film_language FOREIGN KEY (language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> -- Cannot delete parent record if there is any matching child record
-> -- Update the matching child records if parent record is updated
-> CONSTRAINT fk_film_language_original FOREIGN KEY (original_language_id) REFERENCES language (language_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
ERROR 1050 (42S01): Table 'film' already exists
mysql> CREATE TABLE film_actor (
-> actor_id SMALLINT UNSIGNED NOT NULL,
-> film_id SMALLINT UNSIGNED NOT NULL,
-> last_update TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (actor_id, film_id),
-> KEY idx_fk_film_id (film_id),
-> CONSTRAINT fk_film_actor_actor FOREIGN KEY (actor_id) REFERENCES actor (actor_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> CONSTRAINT fk_film_actor_film FOREIGN KEY (film_id) REFERENCES film (film_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,06 sec)

mysql> CREATE TABLE category (
-> category_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
-> name VARCHAR(25) NOT NULL,
-> last_update TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (category_id)
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,04 sec)

mysql> CREATE TABLE film_category (
-> film_id SMALLINT UNSIGNED NOT NULL,
-> category_id TINYINT UNSIGNED NOT NULL,
-> last_update TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,
-> PRIMARY KEY (film_id, category_id),
-> CONSTRAINT fk_film_category_film FOREIGN KEY (film_id) REFERENCES film (film_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE,
-> CONSTRAINT fk_film_category_category FOREIGN KEY (category_id) REFERENCES category (category_id)
-> ON DELETE RESTRICT ON UPDATE CASCADE
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,07 sec)

mysql> CREATE TABLE film_text (
-> film_id SMALLINT NOT NULL,
-> title VARCHAR(255) NOT NULL,
-> description TEXT,
-> PRIMARY KEY (film_id),
-> FULLTEXT KEY idx_title_description (title, description)
-> -- To build index on FULLTEXT to facilitate text search
-> -- FULLTEXT is supported in MyISAM engine, NOT in InnoDB engine
-> ) ENGINE=MyISAM DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0,02 sec)

```