

# **Sakila Sample Database**

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# Topics

- What is Sakila sample database?
- film inventory related tables
- customer related tables
- rental business related tables
- Views
- Stored routines
- Triggers
- Examples

# **What is Sakila Sample Database?**

# Sakila Sample Database

- Tables represent DVD rental store
- Types of tables
  - > film inventory related tables
  - > customer related tables
  - > rental business related tables
- Various MySQL features are used
  - > Views
  - > Triggers
  - > Stored routines

# Film Inventory Tables

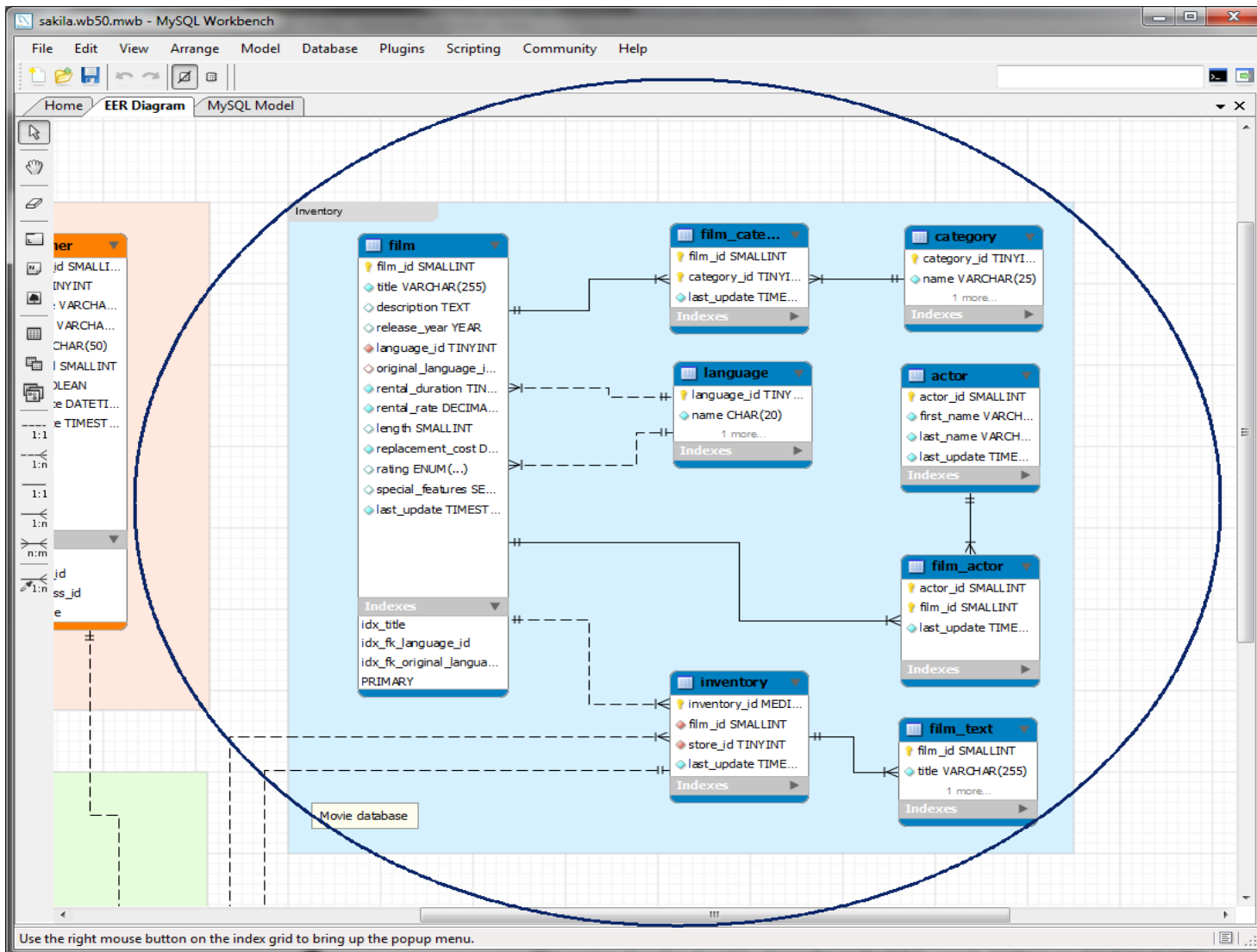
# Film Inventory Tables

- film
- category
- film\_category
  - > many-to-many join table between film and category
- actor
- film\_actor
  - > many-to-many join table between film and actor
- language

# Film Inventory Tables

- Inventory
  - > One row for each copy of a given film in a store
  - > Refers to film and store tables through foreign keys
- film\_text
  - > Only table that uses MyISAM storage engine
  - > Allows for fulltext searching of the titles and descriptions of the films in the film table
  - > Updated via triggers - whenever INSERT, UPDATE, DELETE events occur on film table, trigger update film\_text table

# Film Inventory Tables





# **Customer Related Tables**

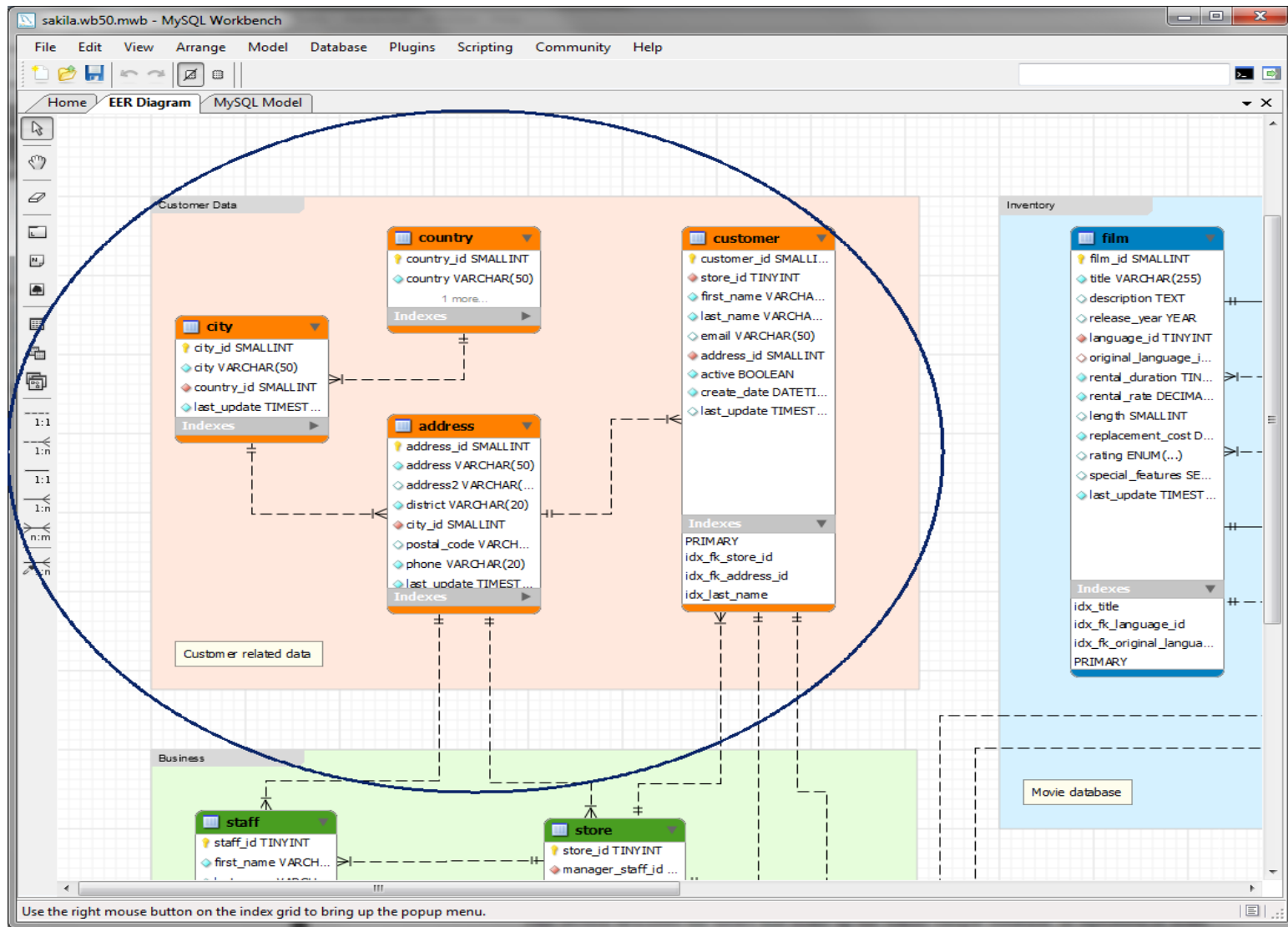
# Customer Related Tables

- customer
  - > List of all customers
  - > Referred to in the payment and rental tables
  - > Refers to address and store table via foreign keys
- city
  - > List of cities
  - > Referred to in the address table
  - > Refers to country table via foreign key

# Customer Related Tables

- country
  - > List of all countries
  - > Referred to in the city table
- address
  - > List of addresses of customers, staff, and stores
  - > Referred to in the customer, staff, and store tables

# Customer-related Tables



# **Rental Business Related Tables**

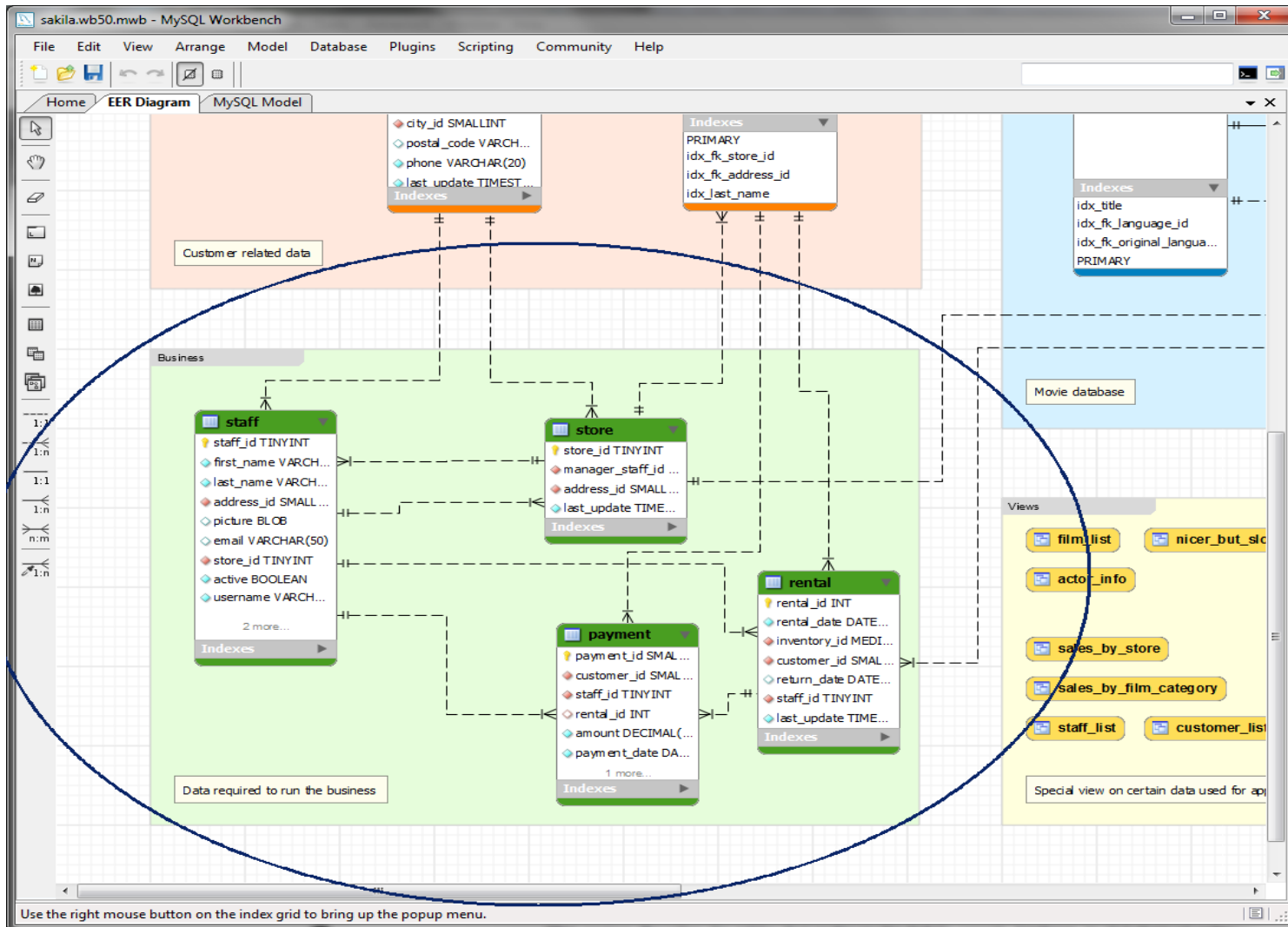
# Rental business related tables

- store
  - > List of all stores
  - > All inventory is assigned to a specific store
  - > Staff and customers are assigned to a “home” store
  - > Referred to in the staff, customer, and inventory tables
- staff
  - > List of all staff members
  - > Referred to in the rental, payment, and store tables
  - > Refers to store and address tables

# Rental business related tables

- rental
  - > One row for each rental of each inventory item with information about who rented what item, when it was rented, and when it was returned
  - > Referred to in the payment table
  - > Refers to inventory, customer, and staff tables
- payment
  - > One row for each payment made by a customer, with information such as amount, and the rental being paid for
  - > Refers to customer, rental, and staff tables

# Business-related Tables

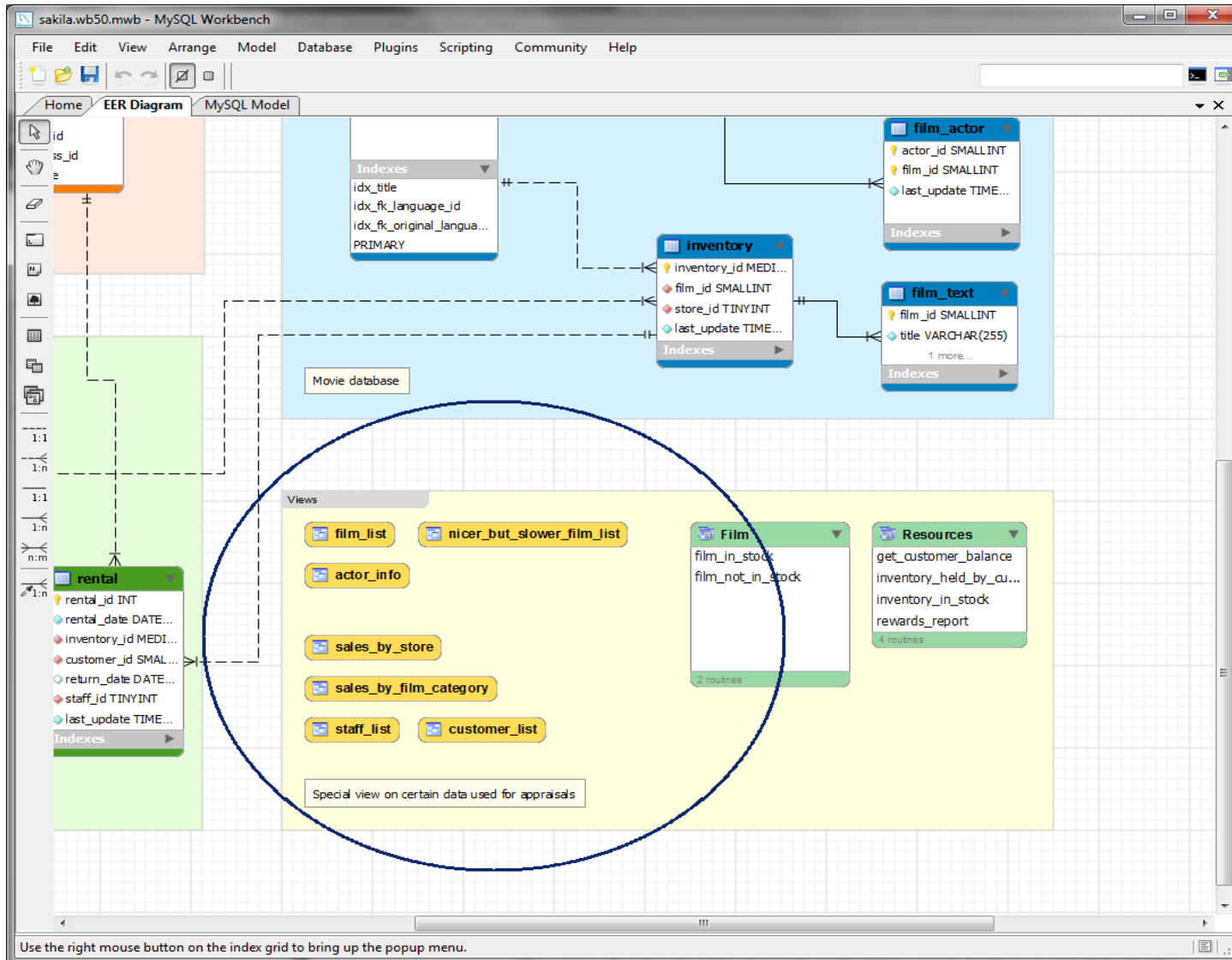




The background is a solid orange color with a repeating pattern of vertical, wavy lines. On the right side, there is a large, white, curved shape that resembles a stylized letter 'S' or a partial circle, creating a negative space effect.

# **Views**

# Views



# Views

- actor\_info
- staff\_list
- customer\_list
- film\_list
- nicer\_but\_slower\_film\_list
- sales\_by\_film\_category
- sales\_by\_store

# Stored Routines

# Stored Procedures

- film\_in\_stock
  - > Used to determine if there are any copies of a given film in stock at a given store
- film\_not\_in\_stock
  - > Used to determine if there are any copies of a given film not in stock at a given store
- rewards\_report
  - > Used to generate a customizable list of the top customers for the previous month

# Stored Functions

- `get_customer_balance`
  - > Returns the current amount owing on a specified customer's account
- `inventory_held_by_customer`
  - > Returns the `customer_id` of the customer who has rented out the specified inventory items
- `inventory_in_stock`
  - > Returns a boolean value indicating whether the inventory item specified is in stock

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# Triggers

# Triggers

- `customer_create_date`
  - > Sets the `create_date` column of the customer table to the current time and date as rows are inserted
- `payment_date`
  - > Sets the `payment_date` column of the payment table to the current time and date as rows are inserted
- `rental_date`
  - > Sets the `rental_date` column of the rental table to the current time and date as rows are inserted



# Triggers

- ins\_film
  - > Duplicates all INSERT operations on the film table to the film\_text table
- upd\_film
  - > Duplicates all UPDATE operations on the film table to the film\_text table
- del\_film
  - > Duplicates all DELETE operations on the film table to the film\_text table

# Examples

# Example 1: Rent a DVD

- Assumption
  - > 'inventory\_id' of the DVD to be rented is known
  - > 'customer\_id' of the customer is known
  - > 'staff\_id' of the staff is known
- Tasks to be done
  - > Confirm that the given inventory item is in stock, then insert a row into the rental table.
  - > After the rental is created, insert a row into the payment table.
  - > Depending on business rules, you may also need to check if the customer has an outstanding balance before processing the rental.

# Example 1: Rent a Video

```
mysql> SELECT INVENTORY_IN_STOCK(10);
```

```
+-----+  
| INVENTORY_IN_STOCK(10) |  
+-----+  
|           1 |
```

```
+-----+  
1 row in set (0.14 sec)
```

```
mysql> INSERT INTO rental(rental_date, inventory_id, customer_id, staff_id)  
-> VALUES(NOW(), 10, 3, 1);  
Query OK, 1 row affected (0.04 sec)
```

```
mysql> SELECT @balance := get_customer_balance(3, NOW());
```

```
+-----+  
| @balance := get_customer_balance(3, NOW()) |  
+-----+  
|           4.99 |
```

```
+-----+  
1 row in set (0.09 sec)
```

```
mysql> INSERT INTO payment (customer_id, staff_id, rental_id, amount, payment_date)  
-> VALUES(3,1, LAST_INSERT_ID(), @balance, NOW());  
Query OK, 1 row affected (0.05 sec)
```

## Example 2: Return a DVD

- Assumption
  - > Each returned DVD should have 'inventory\_id'
- Tasks to be performed -Update the rental table and set the return date. To do this, we first need to
  - > Identify the rental\_id to update based on the inventory\_id of the item being returned
  - > Depending on the situation we may then need to check the customer balance and perhaps process a payment for overdue fees by inserting a row into the payment table.

## Example 2: Return a Video

```
mysql> SELECT rental_id  
-> FROM rental  
-> WHERE inventory_id = 10  
-> AND customer_id = 3  
-> AND return_date IS NULL;
```

```
+-----+  
| rental_id |  
+-----+  
|    16050 |  
+-----+
```

1 row in set (0.00 sec)

```
mysql> UPDATE rental  
-> SET return_date = NOW()  
-> WHERE rental_id = @rentID;  
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> SELECT get_customer_balance(3, NOW());
```

```
+-----+  
| get_customer_balance(3, NOW()) |  
+-----+  
|                0.00 |  
+-----+
```

1 row in set (0.00 sec)

**Thank you!**

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