1. What operations do the following functions perform?

* film\_in\_stock(film\_id, store\_id)- Returns the number of inventory items for a specific film at a specific store that are currently available for rental (i.e., not rented out or reserved).
* film\_not\_in\_stock(film\_id, store\_id)- Returns the number of inventory items for a specific film at a store that are currently not available, meaning they are rented out or reserved.
* inventory\_in\_stock(inventory\_id)- Returns true or false depending on whether the specific inventory item is currently in stock (available to be rented).
* get\_customer\_balance(p\_customer\_id, p\_effective\_date)- Calculates the total amount owed by a customer as of a given date. It includes late fees and rental charges not yet covered by payments. However, this function does not fully implement the business logic (see below for improved version).
* inventory\_held\_by\_customer(p\_customer\_id) - Returns a list of inventory items currently rented by a customer that have not yet been returned.
* rewards\_report(min\_monthly\_purchases, min\_dollar\_amount\_purchased, start\_date, end\_date)-Intended to return customers eligible for a rewards program based on number of rentals and amount spent within a time frame. However, it currently returns 0 rows due to flawed logic.
* last\_day(p\_date)- Returns the last day of the month for the given date input.

2. Why does rewards\_report return 0 rows?

* The default date range (2005-01-01 to 2006-01-01) may not match current test data.
* The HAVING clause doesn't match the parameter logic properly.
* The use of dynamic SQL (tmpSQL with EXECUTE) makes it harder to debug and unnecessary in this case.

3. Is there a function that could be removed from the codebase?

* Potentially removable: \_group\_concat (if it's unused).
* Why? It's an internal helper for group\_concat, and if only group\_concat is referenced in views/functions, the internal one may be redundant.
* Also potentially removable: inventory\_held\_by\_customer if it’s not being used and its logic is duplicated elsewhere (e.g., in a report or view).

4. get\_customer\_balance Function – Incomplete Logic

The function does not accurately calculate late fees, rental returns, and payment offsets as described in comments.

5. What are group\_concat and \_group\_concat?

* group\_concat: Aggregates multiple row values into a single string (like array\_agg but returns a string).
* \_group\_concat: Likely a custom aggregate implementation used internally to support group\_concat.

Example use case: Listing all category names of a film in a single string:

6. What does last\_updated do?

* Likely a simple function that returns the current timestamp or the last\_update value of a given row.
* Usage: In triggers or audit systems to automatically timestamp changes to a row.

7. What is tmpSQL in rewards\_report? Can we avoid EXECUTE?

* tmpSQL: A TEXT variable holding dynamically assembled SQL code.
* EXECUTE: Used to run tmpSQL dynamically.

Why avoid?

* It's unnecessary unless table names or columns are dynamic.
* Makes the function harder to test and more prone to SQL injection.