MySQL - RDBMS

Trainer: Mr. Nilesh Ghule

MySQL Stored Functions

- Stored Functions are MySQL programs like stored procedures.
- Functions can be having one or more parameters. MySQL allows only IN params.
- Functions must return some value using RETURN statement.
- Function entire code is stored in system table.
- Like procedures, functions allows statements like local variable declarations, if-else, case, loops, etc. One function can invoke another function/procedure and vice-versa. The functions can also be recursive.
- There are two types of functions: DETERMINISTIC and NOT DETERMINISTIC.

CREATE FUNCTION

```
CREATE FUNCTION fn_name(p1 TYPE)
RETURNS TYPE
[NOT] DETERMINISTIC
BEGIN
   body;
   RETURN value;
END;
```

SHOW FUNCTION

```
SHOW FUNCTION STATUS LIKE 'fn_name';

SHOW CREATE FUNCTION fn_name;
```

DROP FUNCTION

```
DROP FUNCTION IF EXISTS fn_name;
```

MySQL Triggers

- Triggers are supported by all standard RDBMS like Oracle, MySQL, etc.
- Triggers are not supported by WEAK RDBMS like MS-Access.
- Triggers are not called by client's directly, so they don't have args & return value.
- Trigger execution is caused by DML operations on database.
  - BEFORE/AFTER INSERT, BEFORE/AFTER UPDATE, BEFORE/AFTER DELETE.
- Like SP/FN, Triggers may contain SQL statements with programming constructs. They may also call other SP or FN.
- However COMMIT/ROLLBACK is not allowed in triggers. They are executed in same transaction in which DML query is executed.

CREATE TRIGGER

```
CREATE TRIGGER trig_name
AFTER|BEFORE dml_op ON table
FOR EACH ROW
BEGIN
  body;
    -- use OLD & NEW keywords
    -- to access old/new rows.
    -- INSERT triggers - NEW rows.
    -- DELETE triggers - OLD rows.
END;
```

SHOW TRIGGERS

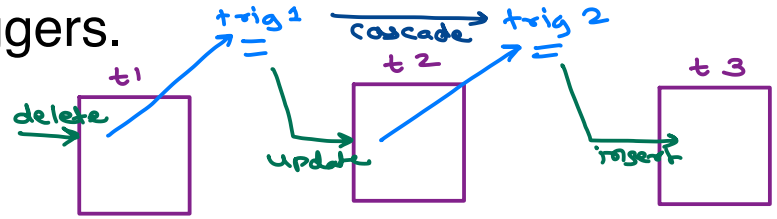
```
SHOW TRIGGERS FROM db_name;
```

DROP TRIGGER

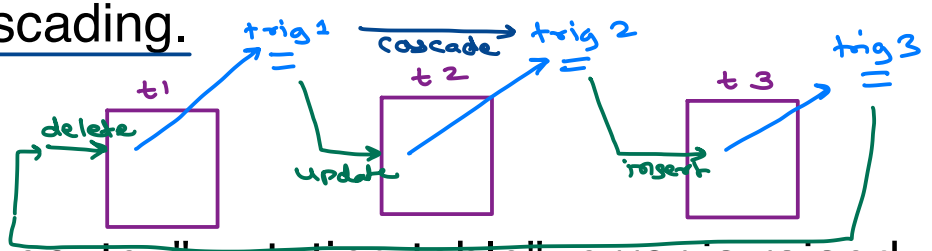
```
DROP TRIGGER trig_name;
```

MySQL Triggers

- Applications of triggers:
  - Maintain logs of DML operations (Audit Trails).
  - Data cleansing before insert or update data into table. (Modify NEW value).
  - Copying each record AFTER INSERT into another table to maintain "Shadow table".
  - Copying each record AFTER DELETE into another table to maintain "History table".
  - Auto operations of related tables using cascading triggers.



- Cascading triggers
  - One trigger causes execution of 2nd trigger, 2nd trigger causes execution of 3rd trigger and so on.
  - In MySQL, there is no upper limit on number of levels of cascading.
  - This is helpful in complicated business processes.



- Mutating table error
  - If cascading trigger causes one of the earlier trigger to re-execute, "mutating table" error is raised.
  - This prevents infinite loop and also rollback the current transaction.

Thank you!

Nilesh Ghule <nilesh@sunbeaminfo.com>