Experiment 15

Date : October 26 2020

AIM

Creation of database Triggers and Cursors

THEORY

Triggers

In MySQL, a trigger is a stored program invoked automatically in response to an event such as insert, update, or delete that occurs in the associated table. For example, you can define a trigger that is invoked automatically before a new row is inserted into a table.

MySQL supports triggers that are invoked in response to the `INSERT`, `UPDATE` or `DELETE` event.

The SQL standard defines two types of triggers: row-level triggers and statement-level triggers.

> A row-level trigger is activated for each row that is inserted, updated, or deleted. For example, if a table has 100 rows inserted, updated, or deleted, the trigger is automatically invoked 100 times for the 100 rows affected.
> A statement-level trigger is executed once for each transaction regardless of how many rows are inserted, updated, or deleted.

MySQL supports only row-level triggers. It doesn't support statement-level triggers.

Cursors

To handle a result set inside a stored procedure, you use a cursor. A cursor allows you to iterate a set of rows returned by a query and process each row individually.

MySQL cursor is read-only, non-scrollable and asensitive.

1. **Read-only**: you cannot update data in the underlying table through the cursor.
2. **Non-scrollable**: you can only fetch rows in the order determined by the SELECT statement. You cannot fetch rows in the reversed order. In addition, you cannot skip rows or jump to a specific row in the result set.
3. **Asensitive**: there are two kinds of cursors: asensitive cursor and insensitive cursor. An asensitive cursor points to the actual data, whereas an insensitive cursor uses a temporary copy of the data. An asensitive cursor performs faster than an insensitive cursor because it does not have to make a temporary copy of data. However, any change that made to the data from other connections will affect the data that is being used by an asensitive cursor, therefore, it is safer if you do not update the data that is being used by an asensitive cursor. MySQL cursor is asensitive.

You can use MySQL cursors in stored procedures, stored functions, and triggers.

Execution steps:

1. Execute the batch script for the 15th Experiment (Exp15) using either of the following commands after using the database.
   a. `mysql> source Exp15.txt`
   b. `mysql> \. Exp15.txt`