In databases, triggers are the statements/code which gets executed whenever an event occurred. Once you create a trigger to a particular event on a table, the code specified in the trigger gets executed each time the event occurs. You can create multiple triggers on a single table.

This chapter teaches you how to create and drop triggers using Apache Derby.

Creating a trigger

You can create a trigger in Derby using the CREATE TRIGGER statement.

Syntax

Following is the syntax of the CREATE TRIGGER query.

CREATE TRIGGER trigger\_name

{ NO CASCADE BEFORE | AFTER }

{INSERT [OR] | UPDATE [OR] | DELETE}[OF col\_name]

ON table\_name

[REFERENCING OLD AS o NEW AS n]

[FOR EACH ROW]

Statement

Example

Suppose, we have created a table named Emp in Derby as shown below.

CREATE TABLE Emp (

Id INT NOT NULL,

Name VARCHAR(255),

Salary INT NOT NULL,

Location VARCHAR(255) );

And inserted 5 rows in it.

INSERT INTO Emp(Id, Name, Salary, Location) VALUES

(1, 'Amit', 30000, 'Hyderabad'), (2, 'Kalyan', 40000, 'Vishakhapatnam'),

(3,'Renuka', 50000, 'Delhi'), (4, 'Archana', 15000, 'Mumbai'), (5, 'Trupthi',

45000, 'Kochin');

If we have another table named BackUp and our intention is to store deleted rows from Emp table in this.

CREATE TABLE BackUp (

Id INT NOT NULL,

Name VARCHAR(255),

Salary INT NOT NULL,

Location VARCHAR(255)

);

The following query creates a trigger on the DELETE query table named **Emp**. It stores the deleted rows of **Emp** to the table Backup.

ij> CREATE TRIGGER my\_trigger

AFTER DELETE ON Emp

REFERENCING OLD AS oldRow

FOR EACH ROW MODE DB2SQL

INSERT INTO BackUp

VALUES (oldRow.Id, oldRow.Name, oldRow.Salary, oldRow.Location);

Now, delete a row from Emp table as −

ij> Delete From Emp where Name = 'Kalyan';

1 row inserted/updated/deleted

ij> Delete From Emp where Name = 'Amit';

1 row inserted/updated/deleted

If you verify the BackUp table, you can observe the deleted rows in it.

ij> select \* from BackUp;

ID |NAME |SALARY |LOCATION

-------------------------------------------------------------------------

2 |Kalyan |40000 |Vishakhapatnam

1 |Amit |30000 |Hyderabad

2 rows selected

Deleting a trigger

You can delete a trigger in Derby using the DROP TRIGGER statement.

Syntax

Following is the syntax of the DROP TRIGGER query −

ij> Drop trigger tigger\_name;

Example

Following example deletes the trigger my\_trigger created above −

ij> Drop trigger my\_trigger;

0 rows inserted/updated/deleted

JDBC example

Following JDBC program creates and deletes triggers in Derby.

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Triggers\_Example {

public static void main(String args[]) throws SQLException, ClassNotFoundException {

//Registering the driver

Class.forName("org.apache.derby.jdbc.EmbeddedDriver");

//Getting the Connection object

String URL = "jdbc:derby:TestDataBase;create=true";

Connection conn = DriverManager.getConnection(URL);

//Creating the Statement object

Statement stmt = conn.createStatement();

//Creating the Emp table

stmt.execute("CREATE TABLE Emp ( "

+ "Id INT NOT NULL, "

+ "Name VARCHAR(255), "

+ "Salary INT NOT NULL, "

+ "Location VARCHAR(255))");

//Insert values in to the EMp table

String query = "INSERT INTO Emp(Id, Name, Salary, Location) VALUES \r\n"

+"(1, 'Amit', 30000, 'Hyderabad'), "

+ "(2, 'Kalyan', 40000, 'Vishakhapatnam'), "

+ "(3,'Renuka', 50000, 'Delhi'), "

+ "(4, 'Archana', 15000, 'Mumbai'), "

+ "(5, 'Trupthi', 45000, 'Kochin')";

stmt.execute(query);

//Creating the BackUp table

stmt.execute("CREATE TABLE BackUp ( "

+ "Id INT NOT NULL, "

+ "Name VARCHAR(255), "

+ "Salary INT NOT NULL, "

+ "Location VARCHAR(255))");

//Creating a trigger

String createTrigger = "CREATE TRIGGER my\_trigger "

+ "AFTER DELETE ON Emp "

+ "REFERENCING OLD AS oldRow "

+ "FOR EACH ROW MODE DB2SQL "

+ "INSERT INTO BackUp "

+ "VALUES (oldRow.Id, oldRow.Name, oldRow.Salary, oldRow.Location)";

stmt.execute(createTrigger);

System.out.println("Trigger created");

//Deleting records from Emp table

stmt.executeUpdate("Delete From Emp where Name = 'Kalyan'");

stmt.executeUpdate("Delete From Emp where Name = 'Amit'");

//Getting the contents of BackUp table

ResultSet rs = stmt.executeQuery("SELECT \* from BackUp");

while(rs.next()){

System.out.println(rs.getInt("Id"));

System.out.println(rs.getString("Name"));

System.out.println(rs.getString("Salary"));

System.out.println(rs.getString("Location"));

System.out.println(" ");

}

}

}

Output

On executing the above program, the following output is generated −

Trigger created

2

Kalyan

40000

Vishakhapatnam

1

Amit

30000

Hyderabad