Database Programming with PL/SQL

13-4: Creating DDL and Database Event Triggers

Practice Activities

Vocabulary

Identify the vocabulary word for each definition below.

DDL Triggers	are fired by DDL statements: CREATE, ALTER, or DROP
Mutating table	A table that is currently being modified by an UPDATE, DELETE, or INSERT statement, or a table that might need to be updated by the effects of a declarative DELETE CASCADE referential integrity action
CALL statement	enables you to call a stored procedure, rather than code the PL/SQL body in the trigger itself
Database Event triggers	are fired by non-SQL events in the database

Try It / Solve It

1. Explain the difference between ON SCHEMA and ON DATABASE triggers.

ON SCHEMA: El trigger solo se activara con el usuario que lo haya sido creado

ON DATABASE: El trigger se activara con todos los usuarios.

2. Imagine that the following audit table has been created in your schema:

```
CREATE TABLE audit_ddl   (action
        VARCHAR2(20),   who
        VARCHAR2(30) DEFAULT USER,    when
TIMESTAMP DEFAULT SYSTIMESTAMP); 2
```

3. State which events would fire each of the following triggers:

A. CREATE OR REPLACE TRIGGER new_tab_trig

```
  AFTER CREATE ON SCHEMA
BEGIN
  INSERT INTO audit_ddl(action)
        VALUES( 'New object');
END;
```

Al crear algún objeto dentro de tu sesión en la base de datos.

B. CREATE OR REPLACE TRIGGER drop_tab_trig

```
  AFTER DROP ON SCHEMA
BEGIN
  INSERT INTO audit_ddl(action)
        VALUES( 'Deleted object'); END;
```

Al eliminar algún objeto dentro de tu sesión en la base de datos.

C. CREATE OR REPLACE TRIGGER alter_tab_trig

```
  AFTER ALTER ON SCHEMA
BEGIN
  INSERT INTO audit_ddl(action)
        VALUES( 'Modified object'); END;
```

Al modificar una tabla, vista, etc. dentro de tu sesión en la base de datos.

4. How could you create a trigger that executes a stored procedure and does nothing else? How does this trigger code end differently from a normal trigger?

Utilizando la sentencia call dentro de un trigger.

Termina solo con la sentencia call y el nombre del procedimiento.

5. Create a row trigger that displays the maximum salary in the EMPLOYEES table and is fired immediately before an employee's salary is updated.

CREATE OR REPLACE TRIGGER T_MAX_EMP BEFORE UPDATE OF SALARY ON EMPLOYEES FOR EACH ROW

DECLARE

V_max_sal NUMBER;

BEGIN

SELECT MAX(SALARY) INTO V_MAX_SAL FROM EMPLOYEES;

DBMS_OUTPUT.PUT_LINE(v_max_sal);

END;

6. Test your trigger by attempting to update the salary of employee_id 100 to a new value of 25000. What happens and why?

Primero muestra el salario mas alto y despues modifica el salario.

Results	Explain	Describe	Saved SQL	History

25200

1 row(s) updated.

0.02 seconds

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