Practical 09 Part 02

Aim: Write and execute triggers using PL/SQL.

### **1. BEFORE INSERT Trigger (Row Level)**

**Goal**: Print a message before inserting into Employee.

CREATE OR REPLACE TRIGGER trg\_before\_insert\_emp

BEFORE INSERT ON Employee

FOR EACH ROW

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Inserting employee: ' || :NEW.Name);

END;

/

**Test:**

INSERT INTO Employee VALUES (201, 'Ravi', 'Clerk');

### 

### **2. AFTER UPDATE Trigger (Row Level)**

**Goal**: Show old and new balances after update.

CREATE OR REPLACE TRIGGER trg\_after\_update\_account

AFTER UPDATE ON Account

FOR EACH ROW

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Account updated from ' || :OLD.Balance || ' to ' || :NEW.Balance);

END;

/

**Test:**

UPDATE Account SET Balance = 3000 WHERE AccountID = 1001;

### **3. BEFORE DELETE Trigger (Row Level)**

**Goal**: Prevent deleting accounts with balance > 0.

CREATE OR REPLACE TRIGGER trg\_block\_high\_bal\_delete

BEFORE DELETE ON Account

FOR EACH ROW

BEGIN

IF :OLD.Balance > 0 THEN

RAISE\_APPLICATION\_ERROR(-20001, 'Cannot delete account with positive balance');

END IF;

END;

/

**Test:**

DELETE FROM Account WHERE AccountID = 1001;

### **4. AFTER UPDATE (Statement-Level Trigger)**

**Goal**: Notify that an update has occurred.

CREATE OR REPLACE TRIGGER trg\_stmt\_update\_customer

AFTER UPDATE ON Customer

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Customer table has been updated.');

END;

/

**Test:**

UPDATE Customer SET Name = 'Ajay' WHERE CustomerID = 1;

### **5. INSTEAD OF Trigger on View**

-- Create view

CREATE OR REPLACE VIEW acc\_view AS

SELECT AccountID, Balance FROM Account;

-- Trigger to allow updates

CREATE OR REPLACE TRIGGER trg\_update\_acc\_view

INSTEAD OF UPDATE ON acc\_view

FOR EACH ROW

BEGIN

UPDATE Account

SET Balance = :NEW.Balance

WHERE AccountID = :OLD.AccountID;

END;

/

**Test:**

UPDATE acc\_view SET Balance = 6000 WHERE AccountID = 1001;

## 

## 

## 

## **Lab Tasks (SQL\*Plus Based)**

1. **Create** a BEFORE INSERT trigger to print employee department.
2. **Create** an AFTER UPDATE trigger to display old and new account balances.
3. **Write** a trigger to **prevent deletion** of customers if they have accounts.
4. **Create** a **statement-level trigger** to log updates on the Customer table.
5. **Write** an **INSTEAD OF trigger** on a view for updating balances.

## **Submit the following in PDF**

* Submit the .sql script with all trigger definitions.
* Provide screen output showing successful trigger execution.
* Comment on each trigger with its **type**, **purpose**, and **test query**.