**Scenario 1:** Automatically update the last modified date when a customer's record is updated.

* + **Question:** Write a trigger **UpdateCustomerLastModified** that updates the LastModified column of the Customers table to the current date whenever a customer's record is updated.

->**Solution:**

CREATE OR REPLACE TRIGGER UpdateCustomerLastModified

BEFORE UPDATE ON Customers

FOR EACH ROW

BEGIN

:NEW.LastModified := SYSDATE;

END UpdateCustomerLastModified;

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**Scenario 2:** Maintain an audit log for all transactions.

* + **Question:** Write a trigger **LogTransaction** that inserts a record into an AuditLog table whenever a transaction is inserted into the Transactions table.

->**Solution:**

CREATE TABLE AuditLog (

AuditID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,

TransactionID NUMBER,

AccountID NUMBER,

TransactionDate DATE,

Amount NUMBER,

TransactionType VARCHAR2(10),

LogDate DATE

);

**Scenario 3:** Enforce business rules on deposits and withdrawals.

* + **Question:** Write a trigger **CheckTransactionRules** that ensures withdrawals do not exceed the balance and deposits are positive before inserting a record into the Transactions table.

->**Solution:**

CREATE OR REPLACE TRIGGER CheckTransactionRules

BEFORE INSERT ON Transactions

FOR EACH ROW

DECLARE

v\_Balance NUMBER;

BEGIN

-- Check if the amount is positive for deposits

IF :NEW.TransactionType = 'Deposit' AND :NEW.Amount <= 0 THEN

RAISE\_APPLICATION\_ERROR(-20001, 'Deposit amount must be positive.');

END IF;

-- Check if there are sufficient funds for withdrawals

IF :NEW.TransactionType = 'Withdrawal' THEN

SELECT Balance INTO v\_Balance

FROM Accounts

WHERE AccountID = :NEW.AccountID

FOR UPDATE;

IF :NEW.Amount > v\_Balance THEN

RAISE\_APPLICATION\_ERROR(-20002, 'Insufficient funds for withdrawal.');

END IF;

-- Update the account balance after successful withdrawal check

UPDATE Accounts

SET Balance = Balance - :NEW.Amount

WHERE AccountID = :NEW.AccountID;

END IF;

-- Update the account balance after successful deposit

IF :NEW.TransactionType = 'Deposit' THEN

UPDATE Accounts

SET Balance = Balance + :NEW.Amount

WHERE AccountID = :NEW.AccountID;

END IF;

END CheckTransactionRules;

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