**Exercise 3: Stored Procedures**

**Scenario 1: Process Monthly Interest for All Savings Accounts**

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS

CURSOR savings\_cursor IS

SELECT account\_id, balance

FROM accounts

WHERE account\_type = 'SAVINGS';

v\_account\_id accounts.account\_id%TYPE;

v\_balance accounts.balance%TYPE;

BEGIN

FOR savings\_rec IN savings\_cursor LOOP

v\_balance := savings\_rec.balance \* 1.01; -- Apply 1% interest

UPDATE accounts

SET balance = v\_balance

WHERE account\_id = savings\_rec.account\_id;

END LOOP;

COMMIT;

END ProcessMonthlyInterest;

/

**Scenario 2: Update Employee Bonus Based on Performance**

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

p\_department\_id IN employees.department\_id%TYPE,

p\_bonus\_percentage IN NUMBER

) IS

BEGIN

UPDATE employees

SET salary = salary \* (1 + p\_bonus\_percentage / 100)

WHERE department\_id = p\_department\_id;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

INSERT INTO error\_log (error\_message, error\_date)

VALUES (SQLERRM, SYSDATE);

END UpdateEmployeeBonus;

/

**Scenario 3: Transfer Funds Between Customer Accounts**

CREATE OR REPLACE PROCEDURE TransferFunds (

p\_from\_account\_id IN accounts.account\_id%TYPE,

p\_to\_account\_id IN accounts.account\_id%TYPE,

p\_amount IN NUMBER

) IS

insufficient\_funds EXCEPTION;

v\_balance\_from accounts.balance%TYPE;

BEGIN

-- Check if the from account has sufficient funds

SELECT balance INTO v\_balance\_from FROM accounts WHERE account\_id = p\_from\_account\_id;

IF v\_balance\_from < p\_amount THEN

RAISE insufficient\_funds;

END IF;

-- Perform the transfer

UPDATE accounts

SET balance = balance - p\_amount

WHERE account\_id = p\_from\_account\_id;

UPDATE accounts

SET balance = balance + p\_amount

WHERE account\_id = p\_to\_account\_id;

COMMIT;

EXCEPTION

WHEN insufficient\_funds THEN

ROLLBACK;

INSERT INTO error\_log (error\_message, error\_date)

VALUES ('Insufficient funds for account ' || p\_from\_account\_id, SYSDATE);

WHEN OTHERS THEN

ROLLBACK;

INSERT INTO error\_log (error\_message, error\_date)

VALUES (SQLERRM, SYSDATE);

END TransferFunds;

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