Exercise 3: Stored Procedures

**Scenario 1: The bank needs to process monthly interest for all savings accounts.**

**Question:** Write a stored procedure ProcessMonthlyInterest that calculates and updates the balance of all savings accounts by applying an interest rate of 1% to the current balance.

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS

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

v\_balance accounts.balance%TYPE;

v\_interest\_rate CONSTANT NUMBER := 0.01; -- 1% interest rate

BEGIN

FOR rec IN (SELECT account\_id, balance

FROM accounts

WHERE account\_type = 'Savings')

LOOP

v\_account\_id := rec.account\_id;

v\_balance := rec.balance;

-- Calculate and update the new balance with interest

UPDATE accounts

SET balance = v\_balance + (v\_balance \* v\_interest\_rate)

WHERE account\_id = v\_account\_id;

END LOOP;

COMMIT;

END ProcessMonthlyInterest;

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**Scenario 2: The bank wants to implement a bonus scheme for employees based on their performance.**

**Question:** Write a stored procedure UpdateEmployeeBonus that updates the salary of employees in a given department by adding a bonus percentage passed as a parameter.

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

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

p\_bonus\_percentage IN NUMBER

) IS

BEGIN

-- Update the salary with the bonus percentage

UPDATE employees

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

WHERE department\_id = p\_department\_id;

COMMIT;

END UpdateEmployeeBonus;

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**Scenario 3: Customers should be able to transfer funds between their accounts.**

**Question:** Write a stored procedure TransferFunds that transfers a specified amount from one account to another, checking that the source account has sufficient balance before making the transfer

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

v\_balance accounts.balance%TYPE;

BEGIN

-- Check the balance of the source account

SELECT balance INTO v\_balance

FROM accounts

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

IF v\_balance < p\_amount THEN

RAISE\_APPLICATION\_ERROR(-20001, 'Insufficient funds in source account.');

ELSE

-- Deduct the amount from the source account

UPDATE accounts

SET balance = balance - p\_amount

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

-- Add the amount to the destination account

UPDATE accounts

SET balance = balance + p\_amount

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

COMMIT;

END IF;

EXCEPTION

WHEN OTHERS THEN

-- Handle any errors and rollback the transaction

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: ' || SQLERRM);

END TransferFunds;

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