**Exercise 3: Stored Procedures**

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

**PL/SQL block:**

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest AS

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

BEGIN

-- Start a transaction

BEGIN

-- Update the balance of all savings accounts

UPDATE Accounts

SET Balance = Balance + (Balance \* v\_interest\_rate)

WHERE AccountType = 'Savings';

-- Commit the transaction

COMMIT;

DBMS\_OUTPUT.PUT\_LINE('Monthly interest processed for all savings accounts.');

EXCEPTION

WHEN OTHERS THEN

-- Rollback in case of any error

ROLLBACK;

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

END;

END;

/

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

**PL/SQL block:**

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

p\_department IN VARCHAR2,

p\_bonus\_percentage IN NUMBER

) AS

BEGIN

-- Start a transaction

BEGIN

-- Update the salary of employees in the given department

UPDATE Employees

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

WHERE Department = p\_department;

-- Commit the transaction

COMMIT;

DBMS\_OUTPUT.PUT\_LINE('Bonus updated for employees in department: ' || p\_department);

EXCEPTION

WHEN OTHERS THEN

-- Rollback in case of any error

ROLLBACK;

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

END;

END;

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

**PL/SQL block:**

CREATE OR REPLACE PROCEDURE TransferFunds (

p\_from\_account\_id IN NUMBER,

p\_to\_account\_id IN NUMBER,

p\_amount IN NUMBER

) AS

v\_from\_balance NUMBER;

v\_to\_balance NUMBER;

BEGIN

-- Start a transaction

BEGIN

-- Retrieve balances

SELECT Balance INTO v\_from\_balance FROM Accounts WHERE AccountID = p\_from\_account\_id FOR UPDATE;

SELECT Balance INTO v\_to\_balance FROM Accounts WHERE AccountID = p\_to\_account\_id FOR UPDATE;

-- Check for sufficient funds

IF v\_from\_balance < p\_amount THEN

RAISE\_APPLICATION\_ERROR(-20001, 'Insufficient funds in account ' || p\_from\_account\_id);

END IF;

-- Perform the transfer

UPDATE Accounts SET Balance = Balance - p\_amount WHERE AccountID = p\_from\_account\_id;

UPDATE Accounts SET Balance = Balance + p\_amount WHERE AccountID = p\_to\_account\_id;

-- Commit the transaction

COMMIT;

DBMS\_OUTPUT.PUT\_LINE('Transfer of ' || p\_amount || ' completed from account ' || p\_from\_account\_id || ' to account ' || p\_to\_account\_id);

EXCEPTION

WHEN OTHERS THEN

-- Rollback in case of any error

ROLLBACK;

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

END;

END;

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