**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.

**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.

**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.

**Scenario 1**

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest AS

BEGIN

UPDATE Accounts

SET Balance = Balance \* 1.01

WHERE AccountType = 'Savings';

COMMIT;

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

END ProcessMonthlyInterest;

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**Scenario 2**

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

p\_department IN VARCHAR2,

p\_bonus\_percentage IN NUMBER

) AS

BEGIN

UPDATE Employees

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

WHERE Department = p\_department;

COMMIT;

DBMS\_OUTPUT.PUT\_LINE('Salaries updated with a bonus of ' || p\_bonus\_percentage || '% for department ' || p\_department);

END UpdateEmployeeBonus;

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**Scenario 3**

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;

BEGIN

SELECT Balance INTO v\_from\_balance

FROM Accounts

WHERE AccountID = p\_from\_account\_id;

IF v\_from\_balance < p\_amount THEN

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

END IF;

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;

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

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Error: One or both of the account IDs do not exist.');

ROLLBACK;

WHEN OTHERS THEN

DBMS\_OUTPUT.PUT\_LINE('An unexpected error occurred: ' || SQLERRM);

ROLLBACK;

END TransferFunds;

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