**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.

**Code:**

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS

BEGIN

UPDATE accounts

SET balance = balance + (balance \* 0.01)

WHERE account\_type = 'SAVINGS';

DBMS\_OUTPUT.PUT\_LINE('Monthly interest applied to all savings accounts.');

END;

/

BEGIN

ProcessMonthlyInterest;

END;

/

select \* from accounts;

**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.

**Code:**

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus(

dept\_id IN NUMBER,

bonus\_percent IN NUMBER

) IS

BEGIN

UPDATE employees

SET salary = salary + (salary \* bonus\_percent / 100)

WHERE department\_id = dept\_id;

DBMS\_OUTPUT.PUT\_LINE('Bonus applied to department ID: ' || dept\_id);

END;

/

BEGIN

UpdateEmployeeBonus(101, 10);

END;

/

select \* from employees;

**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.

**Code:**

CREATE OR REPLACE PROCEDURE TransferFunds(

from\_account IN NUMBER,

to\_account IN NUMBER,

amount IN NUMBER

) IS

insufficient\_funds EXCEPTION;

current\_balance NUMBER;

BEGIN

SELECT balance INTO current\_balance

FROM accounts

WHERE account\_id = from\_account

FOR UPDATE;

IF current\_balance < amount THEN

RAISE insufficient\_funds;

END IF;

UPDATE accounts

SET balance = balance - amount

WHERE account\_id = from\_account;

UPDATE accounts

SET balance = balance + amount

WHERE account\_id = to\_account;

DBMS\_OUTPUT.PUT\_LINE('Transferred ' || amount || ' from account ' || from\_account || ' to ' || to\_account);

EXCEPTION

WHEN insufficient\_funds THEN

DBMS\_OUTPUT.PUT\_LINE('Transfer failed: Insufficient balance in account ' || from\_account);

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Transfer failed: One or both account IDs not found.');

WHEN OTHERS THEN

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

END;

/

BEGIN

TransferFunds(1001, 1002, 1000);

END;

/

SELECT \* FROM accounts WHERE account\_id IN (1001, 1002);