**Exercise 3: Stored Procedures**

SET SERVEROUTPUT ON;

BEGIN

EXECUTE IMMEDIATE 'DROP TABLE savings\_accounts';

EXECUTE IMMEDIATE 'DROP TABLE employees';

EXECUTE IMMEDIATE 'DROP TABLE bank\_accounts';

EXCEPTION

WHEN OTHERS THEN NULL;

END;

/

-- Savings accounts for Scenario 1

CREATE TABLE savings\_accounts (

account\_id NUMBER PRIMARY KEY,

customer\_id NUMBER,

balance NUMBER

);

-- Employees for Scenario 2

CREATE TABLE employees (

emp\_id NUMBER PRIMARY KEY,

name VARCHAR2(100),

department VARCHAR2(50),

salary NUMBER

);

-- Bank accounts for Scenario 3

CREATE TABLE bank\_accounts (

account\_id NUMBER PRIMARY KEY,

customer\_id NUMBER,

balance NUMBER

);

INSERT INTO savings\_accounts VALUES (1, 101, 5000);

INSERT INTO savings\_accounts VALUES (2, 102, 10000);

INSERT INTO savings\_accounts VALUES (3, 103, 2000);

INSERT INTO employees VALUES (1, 'Alice', 'Sales', 50000);

INSERT INTO employees VALUES (2, 'Bob', 'HR', 45000);

INSERT INTO employees VALUES (3, 'Charlie', 'Sales', 55000);

INSERT INTO employees VALUES (4, 'David', 'IT', 60000);

INSERT INTO bank\_accounts VALUES (101, 201, 10000);

INSERT INTO bank\_accounts VALUES (102, 202, 5000);

INSERT INTO bank\_accounts VALUES (103, 203, 15000);

COMMIT;

-- STORED PROCEDURE: ProcessMonthlyInterest

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest

IS

CURSOR c\_acc IS SELECT account\_id, balance FROM savings\_accounts;

BEGIN

UPDATE savings\_accounts

SET balance = balance + (balance \* 0.01);

COMMIT;

DBMS\_OUTPUT.PUT\_LINE(' Scenario 1: Process Monthly Interest-> ');

FOR rec IN c\_acc LOOP

SELECT balance INTO rec.balance FROM savings\_accounts WHERE account\_id = rec.account\_id;

DBMS\_OUTPUT.PUT\_LINE('Account ' || rec.account\_id || ' new balance: ' || rec.balance);

END LOOP;

DBMS\_OUTPUT.PUT\_LINE('--------------------------------------------');

END;

/

-- STORED PROCEDURE: UpdateEmployeeBonus

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (

p\_department IN VARCHAR2,

p\_bonus\_pct IN NUMBER

)

IS

CURSOR c\_emp IS SELECT emp\_id, name, salary FROM employees WHERE department = p\_department;

BEGIN

UPDATE employees

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

WHERE department = p\_department;

COMMIT;

DBMS\_OUTPUT.PUT\_LINE(' Scenario 2: Update Employee Bonus ->');

FOR rec IN c\_emp LOOP

SELECT salary INTO rec.salary FROM employees WHERE emp\_id = rec.emp\_id;

DBMS\_OUTPUT.PUT\_LINE('Employee ' || rec.name || ' new salary: ' || rec.salary);

END LOOP;

DBMS\_OUTPUT.PUT\_LINE('-----------------------------------------');

END;

/

-- STORED PROCEDURE: TransferFunds

CREATE OR REPLACE PROCEDURE TransferFunds (

p\_from\_account IN NUMBER,

p\_to\_account IN NUMBER,

p\_amount IN NUMBER

)

IS

v\_balance NUMBER;

v\_new\_from\_balance NUMBER;

v\_new\_to\_balance NUMBER;

BEGIN

SELECT balance INTO v\_balance

FROM bank\_accounts

WHERE account\_id = p\_from\_account;

IF v\_balance < p\_amount THEN

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

END IF;

UPDATE bank\_accounts

SET balance = balance - p\_amount

WHERE account\_id = p\_from\_account;

UPDATE bank\_accounts

SET balance = balance + p\_amount

WHERE account\_id = p\_to\_account;

SELECT balance INTO v\_new\_from\_balance FROM bank\_accounts WHERE account\_id = p\_from\_account;

SELECT balance INTO v\_new\_to\_balance FROM bank\_accounts WHERE account\_id = p\_to\_account;

COMMIT;

DBMS\_OUTPUT.PUT\_LINE(' Scenario 3: Transfer Funds ->');

DBMS\_OUTPUT.PUT\_LINE('Transferred ' || p\_amount || ' from Account ' || p\_from\_account || ' to Account ' || p\_to\_account);

DBMS\_OUTPUT.PUT\_LINE('Source Account New Balance: ' || v\_new\_from\_balance);

DBMS\_OUTPUT.PUT\_LINE('Destination Account New Balance: ' || v\_new\_to\_balance);

END;

/

BEGIN

ProcessMonthlyInterest;

UpdateEmployeeBonus('Sales', 10);

TransferFunds(101, 102, 3000);

END;

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**Output:**

Scenario 1: Process Monthly Interest->

Account 1 new balance: 5050

Account 2 new balance: 10100

Account 3 new balance: 2020

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Scenario 2: Update Employee Bonus ->

Employee Alice new salary: 55000

Employee Charlie new salary: 60500

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Scenario 3: Transfer Funds ->

Transferred 3000 from Account 101 to Account 102

Source Account New Balance: 7000

Destination Account New Balance: 8000