**Exercise 2: Error Handling**

**Scenario 1: SafeTransferFunds procedure.**

CREATE OR REPLACE PROCEDURE SafeTransferFunds(p\_fromAccountID NUMBER, p\_toAccountID NUMBER, p\_amount NUMBER) IS

insufficient\_funds EXCEPTION;

v\_balance NUMBER;

BEGIN

SELECT Balance INTO v\_balance FROM Accounts WHERE AccountID = p\_fromAccountID FOR UPDATE;

IF v\_balance < p\_amount THEN

RAISE insufficient\_funds;

END IF;

UPDATE Accounts SET Balance = Balance - p\_amount WHERE AccountID = p\_fromAccountID;

UPDATE Accounts SET Balance = Balance + p\_amount WHERE AccountID = p\_toAccountID;

COMMIT;

EXCEPTION

WHEN insufficient\_funds THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('Error: Insufficient funds.');

WHEN OTHERS THEN

ROLLBACK;

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

END;

**Scenario 2: UpdateSalary procedure.**

CREATE OR REPLACE PROCEDURE UpdateSalary(p\_employeeID NUMBER, p\_percentage NUMBER) IS

v\_salary NUMBER;

employee\_not\_found EXCEPTION;

BEGIN

BEGIN

SELECT Salary INTO v\_salary FROM Employees WHERE EmployeeID = p\_employeeID FOR UPDATE;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

RAISE employee\_not\_found;

END;

UPDATE Employees SET Salary = Salary \* (1 + p\_percentage / 100) WHERE EmployeeID = p\_employeeID;

COMMIT;

EXCEPTION

WHEN employee\_not\_found THEN

DBMS\_OUTPUT.PUT\_LINE('Error: Employee not found.');

WHEN OTHERS THEN

ROLLBACK;

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

END;

**Scenario 3: AddNewCustomer procedure.**

CREATE OR REPLACE PROCEDURE AddNewCustomer(p\_CustomerID NUMBER, p\_Name VARCHAR2, p\_DOB DATE, p\_Balance NUMBER) IS

customer\_exists EXCEPTION;

BEGIN

BEGIN

SELECT 1 INTO v\_dummy FROM Customers WHERE CustomerID = p\_CustomerID;

RAISE customer\_exists;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified) VALUES (p\_CustomerID, p\_Name, p\_DOB, p\_Balance, SYSDATE);

COMMIT;

END;

EXCEPTION

WHEN customer\_exists THEN

DBMS\_OUTPUT.PUT\_LINE('Error: Customer already exists.');

WHEN OTHERS THEN

ROLLBACK;

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

END;