**Exercise 2: Error Handling**

**Scenario 1:**

CREATE OR REPLACE PROCEDURE SafeTransferFunds(

p\_fromAccountID IN NUMBER,

p\_toAccountID IN NUMBER,

p\_amount IN NUMBER

) IS

v\_balance NUMBER;

BEGIN

-- Check balance of sender

SELECT Balance INTO v\_balance

FROM Accounts

WHERE AccountID = p\_fromAccountID

FOR UPDATE;

IF v\_balance < p\_amount THEN

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

END IF;

-- Deduct from sender

UPDATE Accounts

SET Balance = Balance - p\_amount,

LastModified = SYSDATE

WHERE AccountID = p\_fromAccountID;

-- Add to receiver

UPDATE Accounts

SET Balance = Balance + p\_amount,

LastModified = SYSDATE

WHERE AccountID = p\_toAccountID;

COMMIT;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Account not found.');

ROLLBACK;

WHEN OTHERS THEN

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

ROLLBACK;

END;

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**Scenario 2:**

CREATE OR REPLACE PROCEDURE UpdateSalary(

p\_empID IN NUMBER,

p\_percent IN NUMBER

) IS

v\_oldSalary NUMBER;

BEGIN

-- Get old salary

SELECT Salary INTO v\_oldSalary

FROM Employees

WHERE EmployeeID = p\_empID

FOR UPDATE;

-- Update salary

UPDATE Employees

SET Salary = Salary + (Salary \* p\_percent / 100)

WHERE EmployeeID = p\_empID;

COMMIT;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Employee with ID ' || p\_empID || ' not found.');

WHEN OTHERS THEN

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

ROLLBACK;

END;

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**Scenario 3:**

CREATE OR REPLACE PROCEDURE AddNewCustomer(

p\_custID IN NUMBER,

p\_name IN VARCHAR2,

p\_dob IN DATE,

p\_balance IN NUMBER

) IS

BEGIN

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified)

VALUES (p\_custID, p\_name, p\_dob, p\_balance, SYSDATE);

COMMIT;

EXCEPTION

WHEN DUP\_VAL\_ON\_INDEX THEN

DBMS\_OUTPUT.PUT\_LINE('Customer with ID ' || p\_custID || ' already exists.');

WHEN OTHERS THEN

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

ROLLBACK;

END;

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