Exercise 2: Error Handling

**Scenario 1: Handle exceptions during fund transfers between accounts.**

**o Question: Write a stored procedure SafeTransferFunds that transfers funds between two accounts. Ensure that if any error occurs (e.g., insufficient funds), an appropriate error message is logged and the transaction is rolled back.**

CREATE OR REPLACE PROCEDURE SafeTransferFunds (

p\_from\_account IN NUMBER,

p\_to\_account IN NUMBER,

p\_amount IN NUMBER

) IS

v\_from\_balance NUMBER;

v\_to\_balance NUMBER;

BEGIN

SELECT Balance INTO v\_from\_balance

FROM Accounts

WHERE AccountID = p\_from\_account;

IF v\_from\_balance < p\_amount THEN

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

END IF;

UPDATE Accounts

SET Balance = Balance - p\_amount

WHERE AccountID = p\_from\_account;

UPDATE Accounts

SET Balance = Balance + p\_amount

WHERE AccountID = p\_to\_account;

COMMIT;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

RAISE\_APPLICATION\_ERROR(-20002, 'One or both accounts do not exist');

WHEN OTHERS THEN

ROLLBACK;

RAISE\_APPLICATION\_ERROR(-20003, 'An unexpected error occurred: ' || SQLERRM);

END SafeTransferFunds;

**Scenario 2: Manage errors when updating employee salaries.**

**o Question: Write a stored procedure UpdateSalary that increases the salary of an employee by a given percentage. If the employee ID does not exist, handle the exception and log an error message.**

CREATE OR REPLACE PROCEDURE UpdateSalary (

p\_employee\_id IN NUMBER,

p\_percentage IN NUMBER

) IS

v\_current\_salary NUMBER;

BEGIN

SELECT Salary INTO v\_current\_salary

FROM Employees

WHERE EmployeeID = p\_employee\_id;

UPDATE Employees

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

WHERE EmployeeID = p\_employee\_id;

COMMIT;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

RAISE\_APPLICATION\_ERROR(-20004, 'Employee with ID ' || p\_employee\_id || ' does not exist');

WHEN OTHERS THEN

ROLLBACK;

RAISE\_APPLICATION\_ERROR(-20005, 'An unexpected error occurred: ' || SQLERRM);

END UpdateSalary;

**Scenario 3: Ensure data integrity when adding a new customer.**

**o Question: Write a stored procedure AddNewCustomer that inserts a new customer into the Customers table. If a customer with the same ID already exists, handle the exception by logging an error and preventing the insertion.**

CREATE OR REPLACE PROCEDURE AddNewCustomer (

p\_customer\_id 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\_customer\_id, p\_name, p\_dob, p\_balance, SYSDATE);

COMMIT;

EXCEPTION

WHEN DUP\_VAL\_ON\_INDEX THEN

ROLLBACK;

RAISE\_APPLICATION\_ERROR(-20006, 'Customer with ID ' || p\_customer\_id || ' already exists');

WHEN OTHERS THEN

ROLLBACK;

RAISE\_APPLICATION\_ERROR(-20007, 'An unexpected error occurred: ' || SQLERRM);

END AddNewCustomer;