PL/SQL Exercises - Solutions

**Exercise 1: Control Structures**

**Scenario 1: Discount for customers above 60**

BEGIN

FOR cust IN (SELECT CustomerID FROM Customers WHERE EXTRACT(YEAR FROM SYSDATE) - EXTRACT(YEAR FROM DOB) > 60) LOOP

UPDATE Loans

SET InterestRate = InterestRate - 1

WHERE CustomerID = cust.CustomerID;

END LOOP;

END;

**Scenario 2: Promote to VIP**

BEGIN

FOR cust IN (SELECT CustomerID FROM Customers WHERE Balance > 10000) LOOP

UPDATE Customers SET IsVIP = TRUE WHERE CustomerID = cust.CustomerID;

END LOOP;

END;

**Scenario 3: Loan reminders**

BEGIN

FOR rec IN (SELECT CustomerID, LoanID FROM Loans WHERE EndDate BETWEEN SYSDATE AND SYSDATE + 30) LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder: Loan ' || rec.LoanID || ' is due soon for customer ' || rec.CustomerID);

END LOOP;

END;

**Exercise 2: Error Handling**

**Scenario 1: Safe Transfer Funds**

CREATE OR REPLACE PROCEDURE SafeTransferFunds(srcAcc NUMBER, destAcc NUMBER, amt NUMBER) IS

BEGIN

UPDATE Accounts SET Balance = Balance - amt WHERE AccountID = srcAcc;

IF SQL%ROWCOUNT = 0 THEN

RAISE\_APPLICATION\_ERROR(-20001, 'Source account not found or insufficient funds');

END IF;

UPDATE Accounts SET Balance = Balance + amt WHERE AccountID = destAcc;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

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

END;

**Scenario 2: Update Salary**

CREATE OR REPLACE PROCEDURE UpdateSalary(empId NUMBER, percent NUMBER) IS

BEGIN

UPDATE Employees SET Salary = Salary + Salary \* (percent/100) WHERE EmployeeID = empId;

IF SQL%ROWCOUNT = 0 THEN

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

END IF;

EXCEPTION

WHEN OTHERS THEN

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

END;

**Scenario 3: Add New Customer**

CREATE OR REPLACE PROCEDURE AddNewCustomer(cid NUMBER, name VARCHAR2, dob DATE, balance NUMBER) IS

BEGIN

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified) VALUES (cid, name, dob, balance, SYSDATE);

EXCEPTION

WHEN DUP\_VAL\_ON\_INDEX THEN

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

WHEN OTHERS THEN

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

END;

... (Truncated for brevity; full content continues)