**Exercise 1: Control Structures**

**Scenario 1: Discount for customers above 60 years old.**

SQL

DECLARE

CURSOR c\_customers IS

SELECT CustomerID, DOB

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_dob Customers.DOB%TYPE;

v\_age NUMBER;

BEGIN

FOR customer\_rec IN c\_customers LOOP

v\_customer\_id := customer\_rec.CustomerID;

v\_dob := customer\_rec.DOB;

-- Calculate age in years

v\_age := TRUNC(MONTHS\_BETWEEN(SYSDATE, v\_dob) / 12);

IF v\_age > 60 THEN

UPDATE Loans

SET InterestRate = InterestRate \* 0.99

WHERE CustomerID = v\_customer\_id;

DBMS\_OUTPUT.PUT\_LINE('Applied 1% discount to loan interest for CustomerID: ' || v\_customer\_id || ' (Age: ' || v\_age || ')');

END IF;

END LOOP;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('An error occurred: ' || SQLERRM);

END;

**Scenario 2: Promote customer to VIP status based on balance.**

SQL

ALTER TABLE Customers ADD IsVIP VARCHAR2(5) DEFAULT 'FALSE';

SQL

DECLARE

CURSOR c\_customers IS

SELECT CustomerID, Balance

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_balance Customers.Balance%TYPE;

BEGIN

FOR customer\_rec IN c\_customers LOOP

v\_customer\_id := customer\_rec.CustomerID;

v\_balance := customer\_rec.Balance;

IF v\_balance > 10000 THEN

UPDATE Customers

SET IsVIP = 'TRUE'

WHERE CustomerID = v\_customer\_id;

DBMS\_OUTPUT.PUT\_LINE('CustomerID: ' || v\_customer\_id || ' promoted to VIP status.');

ELSE

UPDATE Customers

SET IsVIP = 'FALSE' -- Ensure non-VIPs are marked as 'FALSE'

WHERE CustomerID = v\_customer\_id;

END IF;

END LOOP;

COMMIT;

EXCEPTION

WHEN OTHERS THEN

ROLLBACK;

DBMS\_OUTPUT.PUT\_LINE('An error occurred: ' || SQLERRM);

END;

**Scenario 3: Send reminders to customers with loans due within the next 30 days.**

SQL

DECLARE

CURSOR c\_due\_loans IS

SELECT

c.Name AS CustomerName,

l.LoanID,

l.EndDate

FROM

Customers c

JOIN

Loans l ON c.CustomerID = l.CustomerID

WHERE

l.EndDate BETWEEN SYSDATE AND (SYSDATE + 30);

BEGIN

DBMS\_OUTPUT.PUT\_LINE('--- Loan Reminders (Due within 30 days) ---');

FOR loan\_rec IN c\_due\_loans LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder for ' || loan\_rec.CustomerName || ': Your Loan ID ' || loan\_rec.LoanID || ' is due on ' || TO\_CHAR(loan\_rec.EndDate, 'YYYY-MM-DD') || '.');

END LOOP;

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

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('No loans found due in the next 30 days.');

WHEN OTHERS THEN

DBMS\_OUTPUT.PUT\_LINE('An error occurred: ' || SQLERRM);

END;