**Exercise 1: Control Structures**

**Scenario 1:** The bank wants to apply a discount to loan interest rates for customers above 60 years old.

* + **Question:** Write a PL/SQL block that loops through all customers, checks their age, and if they are above 60, apply a 1% discount to their current loan interest rates.

ALTER TABLE Loans ADD UpdatedInterestRate NUMBER;

DECLARE

CURSOR customer\_cursor IS

SELECT CustomerID, DOB FROM Customers;

v\_customer\_age NUMBER;

v\_loan\_id Loans.LoanID%TYPE;

v\_interest\_rate Loans.InterestRate%TYPE;

BEGIN

FOR customer\_rec IN customer\_cursor LOOP

v\_customer\_age := FLOOR(MONTHS\_BETWEEN(SYSDATE, customer\_rec.DOB) / 12);

IF v\_customer\_age > 60 THEN

FOR loan\_rec IN (SELECT LoanID, InterestRate FROM Loans WHERE CustomerID = customer\_rec.CustomerID) LOOP

v\_loan\_id := loan\_rec.LoanID;

v\_interest\_rate := loan\_rec.InterestRate - (loan\_rec.InterestRate \* 0.01);

UPDATE Loans

SET UpdatedInterestRate = v\_interest\_rate

WHERE LoanID = v\_loan\_id;

END LOOP;

END IF;

END LOOP;

COMMIT;

END;

/

**Scenario 2:** A customer can be promoted to VIP status based on their balance.

* + **Question:** Write a PL/SQL block that iterates through all customers and sets a flag IsVIP to TRUE for those with a balance over $10,000.

ALTER TABLE Customers ADD IsVIP CHAR(1);

BEGIN

FOR customer\_rec IN (SELECT CustomerID, Balance FROM Customers) LOOP

IF customer\_rec.Balance > 10000 THEN

UPDATE Customers

SET IsVIP = 'Y'

WHERE CustomerID = customer\_rec.CustomerID;

ELSE

UPDATE Customers

SET IsVIP = 'N'

WHERE CustomerID = customer\_rec.CustomerID;

END IF;

END LOOP;

COMMIT;

END;

/

**Scenario 3:** The bank wants to send reminders to customers whose loans are due within the next 30 days.

* + **Question:** Write a PL/SQL block that fetches all loans due in the next 30 days and prints a reminder message for each customer.

DECLARE

CURSOR loan\_cursor IS

SELECT LoanID, CustomerID, EndDate

FROM Loans

WHERE EndDate BETWEEN SYSDATE AND SYSDATE + 30;

v\_customer\_name Customers.Name%TYPE;

BEGIN

FOR loan\_rec IN loan\_cursor LOOP

SELECT Name INTO v\_customer\_name

FROM Customers

WHERE CustomerID = loan\_rec.CustomerID;

DBMS\_OUTPUT.PUT\_LINE('Reminder: Dear ' || v\_customer\_name || ', your loan (ID: ' || loan\_rec.LoanID || ') is due on ' || TO\_CHAR(loan\_rec.EndDate, 'YYYY-MM-DD') || '.');

END LOOP;

END;

/