**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.
  + **Solution:**

DECLARE

v\_customer\_age NUMBER;

v\_new\_interest\_rate NUMBER;

CURSOR c\_customers IS

SELECT CustomerID,

TRUNC((SYSDATE - DOB) / 365.25) AS Age

FROM Customers;

BEGIN

FOR r\_customer IN c\_customers LOOP

v\_customer\_age := r\_customer.Age;

IF v\_customer\_age > 60 THEN

-- Apply 1% discount to the current interest rates

FOR r\_loan IN (SELECT LoanID, InterestRate

FROM Loans

WHERE CustomerID = r\_customer.CustomerID) LOOP

v\_new\_interest\_rate := r\_loan.InterestRate - 1;

UPDATE Loans

SET InterestRate = v\_new\_interest\_rate

WHERE LoanID = r\_loan.LoanID;

END LOOP;

END IF;

END LOOP;

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.
  + **Solution:**

ALTER TABLE Customers ADD IsVIP VARCHAR2(3);

DECLARE

CURSOR c\_customers IS

SELECT CustomerID, Balance

FROM Customers;

BEGIN

FOR r\_customer IN c\_customers LOOP

IF r\_customer.Balance > 10000 THEN

UPDATE Customers

SET IsVIP = 'YES'

WHERE CustomerID = r\_customer.CustomerID;

ELSE

UPDATE Customers

SET IsVIP = 'NO'

WHERE CustomerID = r\_customer.CustomerID;

END IF;

END LOOP;

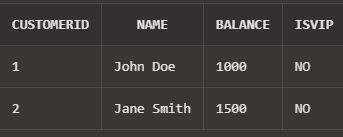
END;

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-- Query

SELECT CustomerID, Name, Balance, IsVIP

FROM Customers;



**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.
  + **Solution:**

**--Sample data**

INSERT INTO Loans (LoanID, CustomerID, LoanAmount, InterestRate, StartDate, EndDate)

VALUES (2, 2, 3000, 7, SYSDATE, SYSDATE + 20);

DECLARE

CURSOR c\_due\_loans IS

SELECT l.LoanID, l.CustomerID, c.Name, l.EndDate

FROM Loans l

JOIN Customers c ON l.CustomerID = c.CustomerID

WHERE l.EndDate BETWEEN SYSDATE AND SYSDATE + 30;

BEGIN

FOR r\_loan IN c\_due\_loans LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder: Customer ' || r\_loan.Name ||

' (ID: ' || r\_loan.CustomerID ||

') has a loan (ID: ' || r\_loan.LoanID ||

') due on ' || TO\_CHAR(r\_loan.EndDate, 'YYYY-MM-DD'));

END LOOP;

END;

