**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.

**CODE**

DECLARE

CURSOR cust\_cursor IS

SELECT c.CUSTOMER\_ID, c.DATE\_OF\_BIRTH, l.LOAN\_ID, l.INTEREST\_RATE

FROM CUSTOMERS c

JOIN LOANS l ON c.CUSTOMER\_ID = l.CUSTOMER\_ID;

v\_customer\_id CUSTOMERS.CUSTOMER\_ID%TYPE;

v\_date\_of\_birth CUSTOMERS.DATE\_OF\_BIRTH%TYPE;

v\_loan\_id LOANS.LOAN\_ID%TYPE;

v\_interest\_rate LOANS.INTEREST\_RATE%TYPE;

v\_new\_interest\_rate LOANS.INTEREST\_RATE%TYPE;

v\_age NUMBER;

BEGIN

FOR cust\_rec IN cust\_cursor LOOP

-- Calculate age

v\_age := TRUNC((SYSDATE - cust\_rec.DATE\_OF\_BIRTH) / 365.25);

IF v\_age > 60 THEN

-- Apply a 1% discount to the current interest rate

v\_new\_interest\_rate := cust\_rec.INTEREST\_RATE \* 0.99;

-- Update the loan's interest rate

UPDATE LOANS

SET INTEREST\_RATE = v\_new\_interest\_rate

WHERE LOAN\_ID = cust\_rec.LOAN\_ID;

END IF;

END LOOP;

-- Commit the changes

COMMIT;

EXCEPTION

WHEN OTHERS THEN

-- Rollback in case of an error

ROLLBACK;

RAISE;

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.

**CODE :**

DECLARE

CURSOR cust\_cursor IS

SELECT CUSTOMER\_ID, BALANCE

FROM CUSTOMERS;

v\_customer\_id CUSTOMERS.CUSTOMER\_ID%TYPE;

v\_balance CUSTOMERS.BALANCE%TYPE;

BEGIN

FOR cust\_rec IN cust\_cursor LOOP

IF cust\_rec.BALANCE > 10000 THEN

-- Set IsVIP flag to TRUE

UPDATE CUSTOMERS

SET IsVIP = 'TRUE'

WHERE CUSTOMER\_ID = cust\_rec.CUSTOMER\_ID;

END IF;

END LOOP;

-- Commit the changes

COMMIT;

EXCEPTION

WHEN OTHERS THEN

-- Rollback in case of an error

ROLLBACK;

RAISE;

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.

**CODE :**

DECLARE

CURSOR due\_loans\_cursor IS

SELECT l.CUSTOMER\_ID, l.LOAN\_ID, l.DUE\_DATE, c.CUSTOMER\_NAME

FROM LOANS l

JOIN CUSTOMERS c ON l.CUSTOMER\_ID = c.CUSTOMER\_ID

WHERE l.DUE\_DATE BETWEEN SYSDATE AND SYSDATE + 30;

v\_customer\_id LOANS.CUSTOMER\_ID%TYPE;

v\_loan\_id LOANS.LOAN\_ID%TYPE;

v\_due\_date LOANS.DUE\_DATE%TYPE;

v\_customer\_name CUSTOMERS.CUSTOMER\_NAME%TYPE;

BEGIN

FOR due\_loan\_rec IN due\_loans\_cursor LOOP

v\_customer\_id := due\_loan\_rec.CUSTOMER\_ID;

v\_loan\_id := due\_loan\_rec.LOAN\_ID;

v\_due\_date := due\_loan\_rec.DUE\_DATE;

v\_customer\_name := due\_loan\_rec.CUSTOMER\_NAME;

-- Print reminder message

DBMS\_OUTPUT.PUT\_LINE('Reminder: Dear ' || v\_customer\_name || ', your loan with ID ' || v\_loan\_id || ' is due on ' || TO\_CHAR(v\_due\_date, 'DD-MON-YYYY') || '.');

END LOOP;

END;