Week-2

PL SQL programming

**Exercise 1: Control Structures**

**BEGIN**

**EXECUTE IMMEDIATE 'DROP TABLE Loans';**

**EXCEPTION**

**WHEN OTHERS THEN**

**IF SQLCODE != -942 THEN**

**RAISE;**

**END IF;**

**END;**

**/**

**BEGIN**

**EXECUTE IMMEDIATE 'DROP TABLE Customers';**

**EXCEPTION**

**WHEN OTHERS THEN**

**IF SQLCODE != -942 THEN**

**RAISE;**

**END IF;**

**END;**

**/**

**CREATE TABLE Customers (**

**CustomerID NUMBER PRIMARY KEY,**

**Name VARCHAR2(100),**

**DOB DATE,**

**Balance NUMBER,**

**LastModified DATE,**

**IsVIP CHAR(1) DEFAULT 'N'**

**);**

**CREATE TABLE Loans (**

**LoanID NUMBER PRIMARY KEY,**

**CustomerID NUMBER,**

**LoanAmount NUMBER,**

**InterestRate NUMBER,**

**StartDate DATE,**

**EndDate DATE,**

**FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)**

**);**

**INSERT INTO Customers VALUES (1, 'John Doe', TO\_DATE('1950-05-15', 'YYYY-MM-DD'), 8000, SYSDATE, 'N');**

**INSERT INTO Customers VALUES (2, 'Jane Smith', TO\_DATE('1990-07-20', 'YYYY-MM-DD'), 15000, SYSDATE, 'N');**

**INSERT INTO Customers VALUES (3, 'Sam Wilson', TO\_DATE('1960-01-10', 'YYYY-MM-DD'), 12000, SYSDATE, 'N');**

**INSERT INTO Loans VALUES (1, 1, 5000, 5, SYSDATE, ADD\_MONTHS(SYSDATE, 5));**

**INSERT INTO Loans VALUES (2, 2, 7000, 6, SYSDATE, SYSDATE + 10);**

**INSERT INTO Loans VALUES (3, 3, 4000, 7, SYSDATE, SYSDATE + 25);**

**COMMIT;**

**-----------------------------------------**

**-- Step 4: Business PL/SQL Block**

**-----------------------------------------**

**SET SERVEROUTPUT ON SIZE 1000000;**

**BEGIN**

**-- Scenario 1: Apply 1% discount to loan interest rates for customers above 60**

**FOR cust IN (SELECT CustomerID, DOB FROM Customers) LOOP**

**IF MONTHS\_BETWEEN(SYSDATE, cust.DOB)/12 > 60 THEN**

**UPDATE Loans**

**SET InterestRate = InterestRate - 1**

**WHERE CustomerID = cust.CustomerID;**

**END IF;**

**END LOOP;**

**-- Scenario 2: Promote customers to VIP if balance > 10,000**

**FOR cust IN (SELECT CustomerID, Balance FROM Customers) LOOP**

**IF cust.Balance > 10000 THEN**

**UPDATE Customers SET IsVIP = 'Y' WHERE CustomerID = cust.CustomerID;**

**END IF;**

**END LOOP;**

**-- Scenario 3: Send reminders for loans due in the next 30 days**

**FOR loan IN (**

**SELECT LoanID, CustomerID, EndDate**

**FROM Loans**

**WHERE EndDate BETWEEN SYSDATE AND SYSDATE + 30**

**) LOOP**

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

**END LOOP;**

**DBMS\_OUTPUT.PUT\_LINE('--- Updated Customers ---');**

**FOR c IN (SELECT CustomerID, Name, Balance, IsVIP FROM Customers) LOOP**

**DBMS\_OUTPUT.PUT\_LINE('CustomerID: '||c.CustomerID||', Name: '||c.Name||', Balance: '||c.Balance||', IsVIP: '||c.IsVIP);**

**END LOOP;**

**-- Print updated loans info**

**DBMS\_OUTPUT.PUT\_LINE('--- Updated Loans ---');**

**FOR l IN (SELECT LoanID, CustomerID, InterestRate FROM Loans) LOOP**

**DBMS\_OUTPUT.PUT\_LINE('LoanID: '||l.LoanID||', CustomerID: '||l.CustomerID||', InterestRate: '||l.InterestRate);**

**END LOOP;**

**END;**

**/**

