**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.

SET SERVEROUTPUT ON;

DECLARE

CURSOR customer\_cursor IS

SELECT CustomerID, TRUNC((SYSDATE - DOB) / 365.25) AS Age

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_age NUMBER;

v\_updated\_loans NUMBER := 0;

BEGIN

FOR customer\_rec IN customer\_cursor LOOP

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

v\_age := customer\_rec.Age;

IF v\_age > 60 THEN

UPDATE Loans

SET InterestRate = InterestRate \* 0.99

WHERE CustomerID = v\_customer\_id;

IF SQL%ROWCOUNT > 0 THEN

v\_updated\_loans := v\_updated\_loans + SQL%ROWCOUNT;

DBMS\_OUTPUT.PUT\_LINE('Updated Loan for Customer ID: ' || v\_customer\_id || ' with new interest rate.');

END IF;

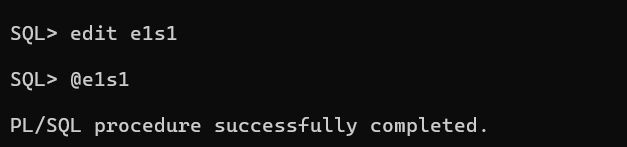
END IF;

END LOOP;

COMMIT;

END;

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**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 VARCHAR2(3));

SET SERVEROUTPUT ON;

DECLARE

CURSOR customer\_cursor IS

SELECT CustomerID, Balance

FROM Customers;

v\_customer\_id Customers.CustomerID%TYPE;

v\_balance Customers.Balance%TYPE;

BEGIN

FOR customer\_rec IN customer\_cursor LOOP

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

v\_balance := customer\_rec.Balance;

IF v\_balance > 10000 THEN

UPDATE Customers

SET IsVIP = 'YES'

WHERE CustomerID = v\_customer\_id;

IF SQL%ROWCOUNT > 0 THEN

DBMS\_OUTPUT.PUT\_LINE('Promoted Customer ID: ' || v\_customer\_id || ' to VIP status.');

END IF;

END IF;

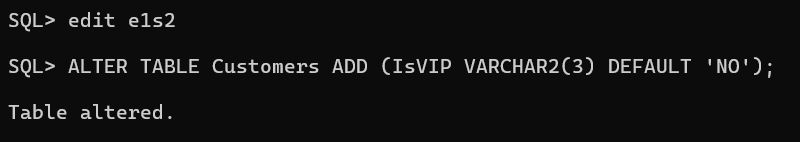
END LOOP;

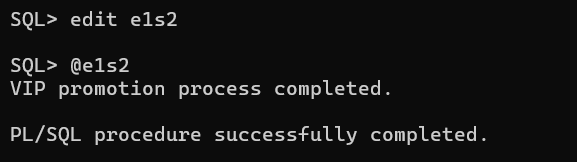
COMMIT;

DBMS\_OUTPUT.PUT\_LINE('VIP promotion process completed.');

END;

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**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.

SET SERVEROUTPUT ON;

DECLARE

CURSOR loan\_cursor 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;

v\_loan\_id Loans.LoanID%TYPE;

v\_customer\_id Loans.CustomerID%TYPE;

v\_customer\_name Customers.Name%TYPE;

v\_end\_date Loans.EndDate%TYPE;

BEGIN

FOR loan\_rec IN loan\_cursor LOOP

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

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

v\_customer\_name := loan\_rec.Name;

v\_end\_date := loan\_rec.EndDate;

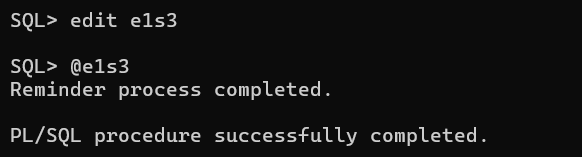
DBMS\_OUTPUT.PUT\_LINE('Reminder: Customer ' || v\_customer\_name || ' (ID: ' || v\_customer\_id || ') has a loan (ID: ' || v\_loan\_id || ') due on ' || v\_end\_date || '.');

END LOOP;

DBMS\_OUTPUT.PUT\_LINE('Reminder process completed.');

END;

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