**Exercise 6: Cursors**

**Scenario 1:** Generate monthly statements for all customers.

* + **Question:** Write a PL/SQL block using an explicit cursor **GenerateMonthlyStatements** that retrieves all transactions for the current month and prints a statement for each customer.
  + **Solution:**

DECLARE

CURSOR customer\_cursor IS

SELECT DISTINCT c.CustomerID, c.Name

FROM Customers c

JOIN Transactions t ON c.CustomerID = t.AccountID

WHERE EXTRACT(MONTH FROM t.TransactionDate) = EXTRACT(MONTH FROM SYSDATE)

AND EXTRACT(YEAR FROM t.TransactionDate) = EXTRACT(YEAR FROM SYSDATE);

v\_transaction\_date DATE;

v\_amount NUMBER;

v\_transaction\_type VARCHAR2(10);

BEGIN

FOR customer IN customer\_cursor LOOP

DBMS\_OUTPUT.PUT\_LINE('Monthly Statement for Customer: ' || customer.Name);

FOR transaction IN (SELECT TransactionDate, Amount, TransactionType

FROM Transactions

WHERE AccountID IN (SELECT AccountID FROM Accounts WHERE CustomerID = customer.CustomerID)

AND EXTRACT(MONTH FROM TransactionDate) = EXTRACT(MONTH FROM SYSDATE)

AND EXTRACT(YEAR FROM TransactionDate) = EXTRACT(YEAR FROM SYSDATE)) LOOP

DBMS\_OUTPUT.PUT\_LINE('Date: ' || transaction.TransactionDate || ', Amount: ' || transaction.Amount || ', Type: ' || transaction.TransactionType);

END LOOP;

END LOOP;

END;

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**Scenario 2:** Apply annual fee to all accounts.

* + **Question:** Write a PL/SQL block using an explicit cursor **ApplyAnnualFee** that deducts an annual maintenance fee from the balance of all accounts.
  + **Solution:**

DECLARE

CURSOR account\_cursor IS

SELECT AccountID, Balance FROM Accounts;

BEGIN

FOR account IN account\_cursor LOOP

UPDATE Accounts SET Balance = Balance - 50 WHERE AccountID = account.AccountID; -- Assuming a fee of $50

END LOOP;

COMMIT;

END;

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**Scenario 3:** Update the interest rate for all loans based on a new policy.

* + **Question:** Write a PL/SQL block using an explicit cursor **UpdateLoanInterestRates** that fetches all loans and updates their interest rates based on the new policy.
  + **Solution:**

DECLARE

CURSOR loan\_cursor IS

SELECT LoanID, InterestRate FROM Loans;

BEGIN

FOR loan IN loan\_cursor LOOP

UPDATE Loans SET InterestRate = loan.InterestRate + 0.5 WHERE LoanID = loan.LoanID; -- Assuming an increase of 0.5%

END LOOP;

COMMIT;

END;

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