**Exercise 6: Cursors**

**Scenario 1: Generate Monthly Statements for All Customers**

DECLARE

CURSOR transactions\_cursor IS

SELECT c.CustomerID, c.Name, t.TransactionDate, t.Amount, t.TransactionType

FROM Customers c

JOIN Accounts a ON c.CustomerID = a.CustomerID

JOIN Transactions t ON a.AccountID = t.AccountID

WHERE t.TransactionDate BETWEEN TRUNC(SYSDATE, 'MM') AND LAST\_DAY(SYSDATE);

v\_customer\_id Customers.CustomerID%TYPE;

v\_name Customers.Name%TYPE;

v\_transaction\_date Transactions.TransactionDate%TYPE;

v\_amount Transactions.Amount%TYPE;

v\_transaction\_type Transactions.TransactionType%TYPE;

BEGIN

OPEN transactions\_cursor;

LOOP

FETCH transactions\_cursor INTO v\_customer\_id, v\_name, v\_transaction\_date, v\_amount, v\_transaction\_type;

EXIT WHEN transactions\_cursor%NOTFOUND;

DBMS\_OUTPUT.PUT\_LINE('Customer ID: ' || v\_customer\_id || ' Name: ' || v\_name);

DBMS\_OUTPUT.PUT\_LINE('Transaction Date: ' || v\_transaction\_date || ' Amount: ' || v\_amount || ' Type: ' || v\_transaction\_type);

DBMS\_OUTPUT.PUT\_LINE('-----------------------------------------');

END LOOP;

CLOSE transactions\_cursor;

END;

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**Scenario 2: Apply Annual Fee to All Accounts**

DECLARE

CURSOR accounts\_cursor IS

SELECT AccountID, Balance

FROM Accounts;

v\_account\_id Accounts.AccountID%TYPE;

v\_balance Accounts.Balance%TYPE;

v\_annual\_fee CONSTANT NUMBER := 50; -- Example annual fee

BEGIN

OPEN accounts\_cursor;

LOOP

FETCH accounts\_cursor INTO v\_account\_id, v\_balance;

EXIT WHEN accounts\_cursor%NOTFOUND;

IF v\_balance >= v\_annual\_fee THEN

UPDATE Accounts

SET Balance = Balance - v\_annual\_fee,

LastModified = SYSDATE

WHERE AccountID = v\_account\_id;

DBMS\_OUTPUT.PUT\_LINE('Applied annual fee to Account ID: ' || v\_account\_id || ' New Balance: ' || (v\_balance - v\_annual\_fee));

ELSE

DBMS\_OUTPUT.PUT\_LINE('Insufficient funds to apply annual fee to Account ID: ' || v\_account\_id);

END IF;

END LOOP;

CLOSE accounts\_cursor;

COMMIT;

END;

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**Scenario 3: Update the Interest Rate for All Loans Based on a New Policy**

DECLARE

CURSOR loans\_cursor IS

SELECT LoanID, InterestRate

FROM Loans;

v\_loan\_id Loans.LoanID%TYPE;

v\_interest\_rate Loans.InterestRate%TYPE;

v\_new\_interest\_rate Loans.InterestRate%TYPE;

BEGIN

OPEN loans\_cursor;

LOOP

FETCH loans\_cursor INTO v\_loan\_id, v\_interest\_rate;

EXIT WHEN loans\_cursor%NOTFOUND;

-- Example policy: increase interest rate by 1%

v\_new\_interest\_rate := v\_interest\_rate + 1;

UPDATE Loans

SET InterestRate = v\_new\_interest\_rate,

LastModified = SYSDATE

WHERE LoanID = v\_loan\_id;

DBMS\_OUTPUT.PUT\_LINE('Updated Loan ID: ' || v\_loan\_id || ' New Interest Rate: ' || v\_new\_interest\_rate);

END LOOP;

CLOSE loans\_cursor;

COMMIT;

END;

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