**Exercise 6: Cursors**

**Scenario 1:**

DECLARE

CURSOR c\_monthly\_transactions IS

SELECT t.TransactionID, t.TransactionDate, t.Amount, t.TransactionType, a.CustomerID

FROM Transactions t

JOIN Accounts a ON t.AccountID = a.AccountID

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

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

ORDER BY a.CustomerID;

v\_transaction\_id Transactions.TransactionID%TYPE;

v\_transaction\_date Transactions.TransactionDate%TYPE;

v\_amount Transactions.Amount%TYPE;

v\_transaction\_type Transactions.TransactionType%TYPE;

v\_customer\_id Accounts.CustomerID%TYPE;

v\_current\_customer\_id Accounts.CustomerID%TYPE := 0;

BEGIN

OPEN c\_monthly\_transactions;

LOOP

FETCH c\_monthly\_transactions INTO v\_transaction\_id, v\_transaction\_date, v\_amount, v\_transaction\_type, v\_customer\_id;

EXIT WHEN c\_monthly\_transactions%NOTFOUND;

IF v\_customer\_id != v\_current\_customer\_id THEN

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

v\_current\_customer\_id := v\_customer\_id;

END IF;

DBMS\_OUTPUT.PUT\_LINE('Transaction ID: ' || v\_transaction\_id ||

' | Date: ' || TO\_CHAR(v\_transaction\_date, 'YYYY-MM-DD') ||

' | Amount: ' || v\_amount ||

' | Type: ' || v\_transaction\_type);

END LOOP;

END;

**Scenario 2:**

DECLARE

v\_annual\_fee NUMBER := 50;

CURSOR c\_all\_accounts IS

SELECT AccountID, Balance

FROM Accounts

FOR UPDATE;

v\_account\_id Accounts.AccountID%TYPE;

v\_balance Accounts.Balance%TYPE;

BEGIN

OPEN c\_all\_accounts;

LOOP

FETCH c\_all\_accounts INTO v\_account\_id, v\_balance;

EXIT WHEN c\_all\_accounts%NOTFOUND;

UPDATE Accounts

SET Balance = Balance - v\_annual\_fee

WHERE AccountID = v\_account\_id;

DBMS\_OUTPUT.PUT\_LINE('Account ID: ' || v\_account\_id ||

' | Balance updated. New Balance: ' || (v\_balance - v\_annual\_fee));

END LOOP;

CLOSE c\_all\_accounts;

END;

**Scenario 3:**

DECLARE

v\_interest\_rate\_adjustment NUMBER := 0.005;

CURSOR c\_all\_loans IS

SELECT LoanID, InterestRate

FROM Loans

FOR UPDATE;

v\_loan\_id Loans.LoanID%TYPE;

v\_current\_rate Loans.InterestRate%TYPE;

v\_new\_rate Loans.InterestRate%TYPE;

BEGIN

OPEN c\_all\_loans;

LOOP

FETCH c\_all\_loans INTO v\_loan\_id, v\_current\_rate;

EXIT WHEN c\_all\_loans%NOTFOUND;

v\_new\_rate := v\_current\_rate + (v\_current\_rate \* v\_interest\_rate\_adjustment);

UPDATE Loans

SET InterestRate = v\_new\_rate

WHERE LoanID = v\_loan\_id;

DBMS\_OUTPUT.PUT\_LINE('Loan ID: ' || v\_loan\_id || ' | Interest Rate updated from ' || v\_current\_rate || ' to ' || v\_new\_rate);

END LOOP;

END;