**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.

**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.

**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.

**Scenario 1**

DECLARE

CURSOR c\_monthly\_transactions IS

SELECT t.TransactionID, t.AccountID, 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);

v\_customer\_id Accounts.CustomerID%TYPE;

v\_transaction\_id Transactions.TransactionID%TYPE;

v\_account\_id Transactions.AccountID%TYPE;

v\_transaction\_date Transactions.TransactionDate%TYPE;

v\_amount Transactions.Amount%TYPE;

v\_transaction\_type Transactions.TransactionType%TYPE;

BEGIN

OPEN c\_monthly\_transactions;

LOOP

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

EXIT WHEN c\_monthly\_transactions%NOTFOUND;

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

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

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

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

DBMS\_OUTPUT.PUT\_LINE('Amount: ' || v\_amount);

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

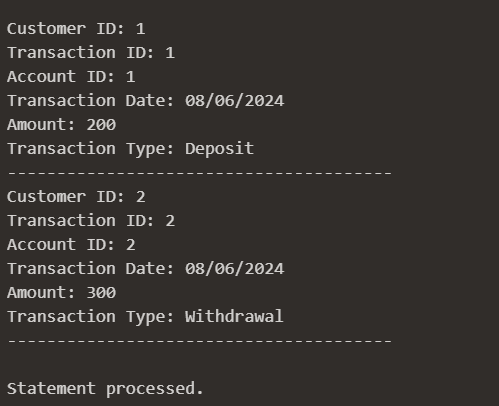
DBMS\_OUTPUT.PUT\_LINE('---------------------------------------');

END LOOP;

CLOSE c\_monthly\_transactions;

END;

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**Scenario 2**

DECLARE

CURSOR c\_accounts IS

SELECT AccountID, Balance

FROM Accounts;

v\_account\_id Accounts.AccountID%TYPE;

v\_balance Accounts.Balance%TYPE;

annual\_fee NUMBER := 100;

BEGIN

OPEN c\_accounts;

LOOP

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

EXIT WHEN c\_accounts%NOTFOUND;

UPDATE Accounts

SET Balance = v\_balance - annual\_fee

WHERE AccountID = v\_account\_id;

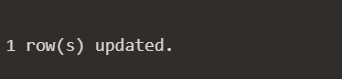
END LOOP;

CLOSE c\_accounts;

COMMIT;

END;

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**Scenario 3**

DECLARE

CURSOR c\_loans IS

SELECT LoanID, InterestRate

FROM Loans;

v\_loan\_id Loans.LoanID%TYPE;

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

new\_interest\_rate NUMBER;

BEGIN

OPEN c\_loans;

LOOP

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

EXIT WHEN c\_loans%NOTFOUND;

new\_interest\_rate := 6;

UPDATE Loans

SET InterestRate = new\_interest\_rate

WHERE LoanID = v\_loan\_id;

END LOOP;

CLOSE c\_loans;

COMMIT;

END;

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