# 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.

# Answer;

## DECLARE

CURSOR c\_transactions 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 EXTRACT(MONTH FROM t.TransactionDate) = EXTRACT(MONTH FROM SYSDATE)

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

v\_customer\_name Customers.Name%TYPE; v\_transaction\_date Transactions.TransactionDate%TYPE; v\_amount Transactions.Amount%TYPE; v\_transaction\_type Transactions.TransactionType%TYPE;

## BEGIN

*FOR* rec IN c\_transactions *LOOP*

v\_customer\_name := rec.Name;

v\_transaction\_date := rec.TransactionDate; v\_amount := rec.Amount; v\_transaction\_type := rec.TransactionType;

*-- Print statement for each customer*

DBMS\_OUTPUT.PUT\_LINE('Customer: ' || v\_customer\_name); DBMS\_OUTPUT.PUT\_LINE('Date: ' || TO\_CHAR(v\_transaction\_date, 'YYYY-MM-DD')); DBMS\_OUTPUT.PUT\_LINE('Amount: ' || v\_amount); DBMS\_OUTPUT.PUT\_LINE('Transaction Type: ' || v\_transaction\_type); DBMS\_OUTPUT.PUT\_LINE(' ');

*END LOOP*; END;

/

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.

# Answer:

## DECLARE

CURSOR c\_accounts IS

SELECT AccountID, Balance FROM Accounts;

v\_fee NUMBER := 50; *-- Example annual fee amount*

v\_balance Accounts.Balance%TYPE; BEGIN

*FOR* rec IN c\_accounts *LOOP*

v\_balance := rec.Balance;

*-- Deduct the annual fee*

UPDATE Accounts

SET Balance = v\_balance - v\_fee WHERE AccountID = rec.AccountID;

DBMS\_OUTPUT.PUT\_LINE('Account ID: ' || rec.AccountID); DBMS\_OUTPUT.PUT\_LINE('Balance after fee: ' || (v\_balance - v\_fee));

*END LOOP*;

*-- Commit the transaction*

## COMMIT; END;

/

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.

# Answer:

## DECLARE

CURSOR c\_loans IS

SELECT LoanID, InterestRate FROM Loans;

v\_new\_interest\_rate NUMBER := 6; *-- Example new interest rate (e.g., 6%)*

## BEGIN

*FOR* rec IN c\_loans *LOOP*

*-- Update the interest rate for each loan*

UPDATE Loans

SET InterestRate = v\_new\_interest\_rate WHERE LoanID = rec.LoanID;

DBMS\_OUTPUT.PUT\_LINE('Loan ID: ' || rec.LoanID);

DBMS\_OUTPUT.PUT\_LINE('New Interest Rate: ' || v\_new\_interest\_rate);

*END LOOP*;

*-- Commit the transaction*

## COMMIT; END;

/