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.

DECLARE

  CURSOR txn\_cursor IS

    SELECT AccountID, Amount, TransactionDate, TransactionType

    FROM Transactions

    WHERE TRUNC(TransactionDate, 'MM') = TRUNC(SYSDATE, 'MM');

  v\_AccountID        NUMBER;

  v\_Amount           NUMBER;

  v\_TransactionDate  DATE;

  v\_TransactionType  VARCHAR2(10);

BEGIN

  DBMS\_OUTPUT.PUT\_LINE('--- Generating Monthly Statements ---');

  OPEN txn\_cursor;

  LOOP

    FETCH txn\_cursor INTO v\_AccountID, v\_Amount, v\_TransactionDate, v\_TransactionType;

    EXIT WHEN txn\_cursor%NOTFOUND;

    DBMS\_OUTPUT.PUT\_LINE('AccountID: ' || v\_AccountID ||

                         ', Amount: ' || v\_Amount ||

                         ', Date: ' || TO\_CHAR(v\_TransactionDate, 'DD-MON-YYYY') ||

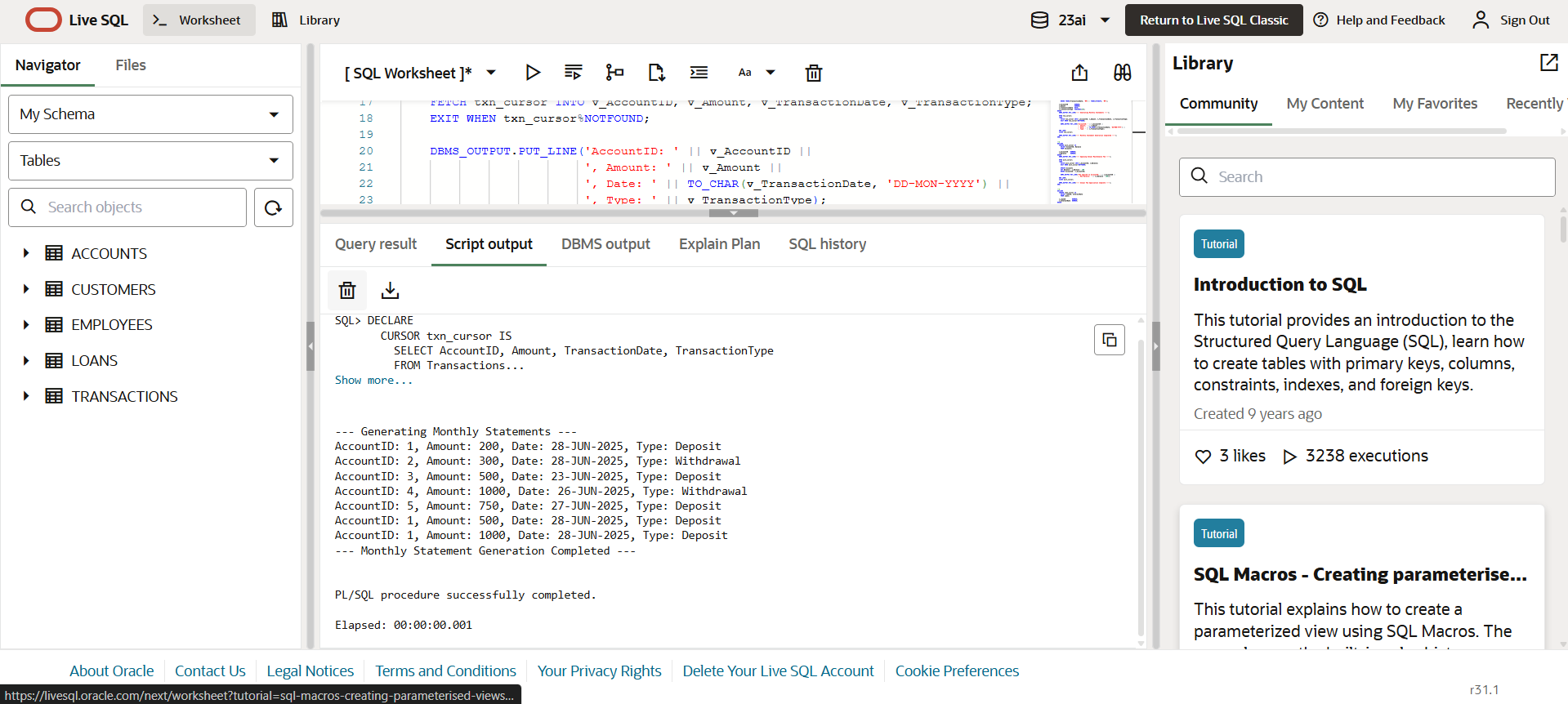
                         ', Type: ' || v\_TransactionType);

  END LOOP;

  CLOSE txn\_cursor;

  DBMS\_OUTPUT.PUT\_LINE('--- Monthly Statement Generation Completed ---');

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.

DECLARE

  CURSOR acct\_cursor IS

    SELECT AccountID, Balance

    FROM Accounts;

  v\_AccountID   NUMBER;

  v\_Balance     NUMBER;

BEGIN

  DBMS\_OUTPUT.PUT\_LINE('--- Applying Annual Maintenance Fee ---');

  OPEN acct\_cursor;

  LOOP

    FETCH acct\_cursor INTO v\_AccountID, v\_Balance;

    EXIT WHEN acct\_cursor%NOTFOUND;

    UPDATE Accounts

    SET Balance = v\_Balance - 100

    WHERE AccountID = v\_AccountID;

    DBMS\_OUTPUT.PUT\_LINE('Fee applied to AccountID: ' || v\_AccountID ||

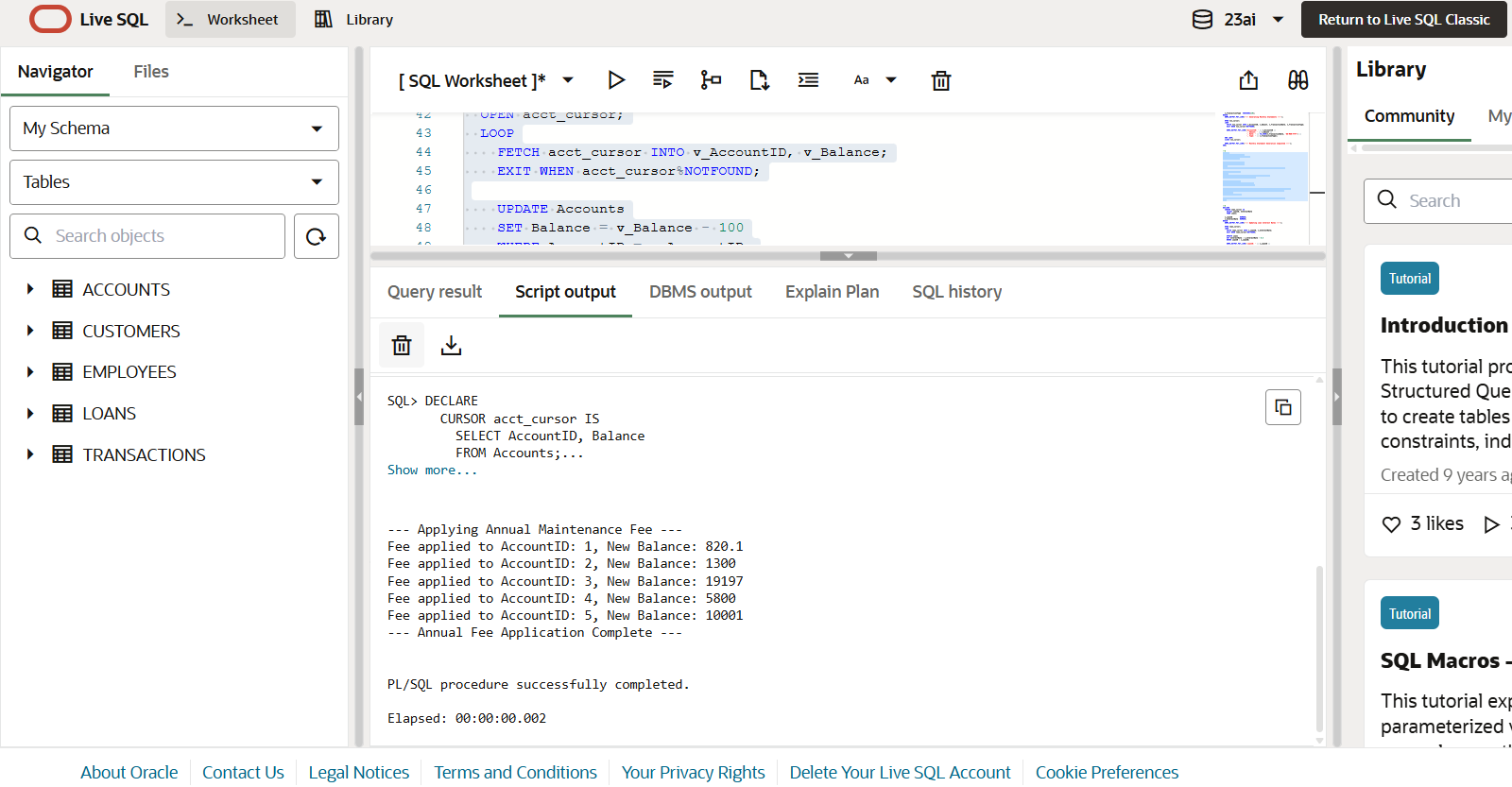
                         ', New Balance: ' || (v\_Balance - 100));

  END LOOP;

  CLOSE acct\_cursor;

  DBMS\_OUTPUT.PUT\_LINE('--- Annual Fee Application Complete ---');

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.

DECLARE

  CURSOR loan\_cursor IS

    SELECT LoanID, InterestRate

    FROM Loans;

v\_LoanID        NUMBER;

  v\_InterestRate  NUMBER;

BEGIN

  DBMS\_OUTPUT.PUT\_LINE('--- Updating Loan Interest Rates ---');

  OPEN loan\_cursor;

  LOOP

    FETCH loan\_cursor INTO v\_LoanID, v\_InterestRate;

    EXIT WHEN loan\_cursor%NOTFOUND;

    UPDATE Loans

    SET InterestRate = v\_InterestRate + 0.5

    WHERE LoanID = v\_LoanID;

    DBMS\_OUTPUT.PUT\_LINE('LoanID: ' || v\_LoanID ||

                         ', Updated Interest Rate: ' || (v\_InterestRate + 0.5));

  END LOOP;

  CLOSE loan\_cursor;

  DBMS\_OUTPUT.PUT\_LINE('--- Interest Rate Update Completed ---');

END;

