Week 2

PL/SQL Programming _HandsOn

Control Structures

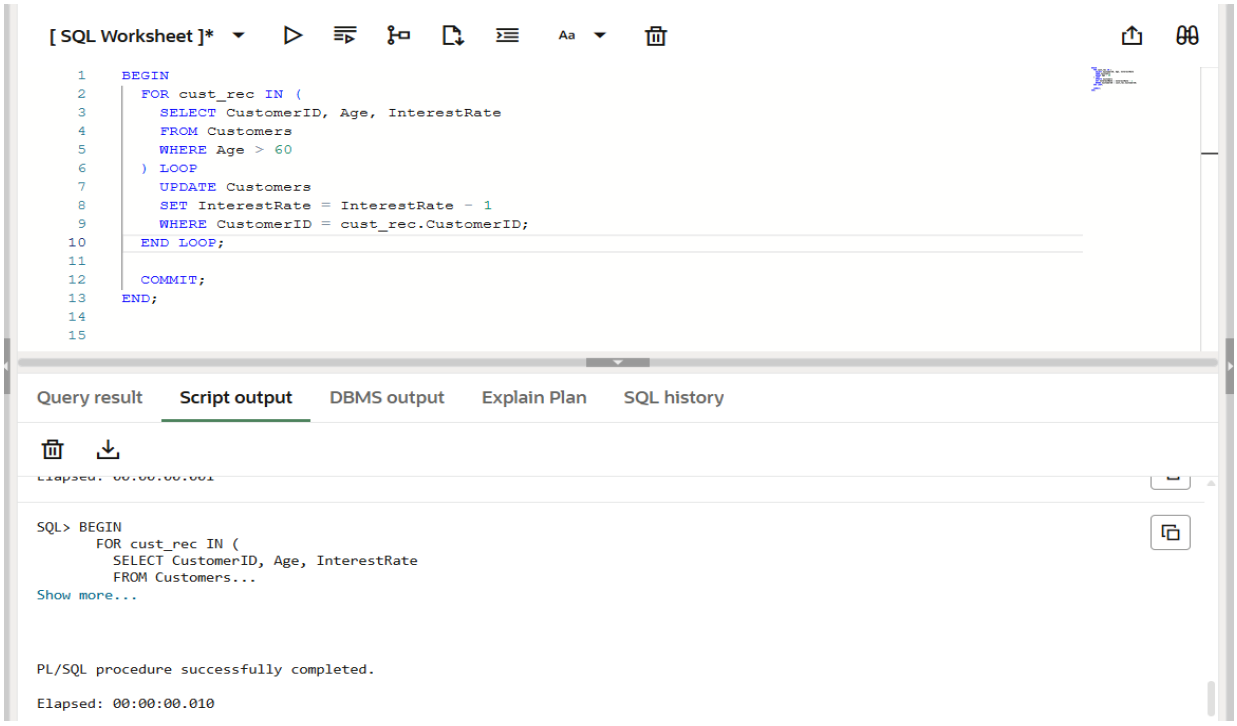
Scenario 1: The bank wants to apply a discount to loan interest rates for customers above 60 years old.

Question: Write a PL/SQL block that loops through all customers, checks their age, and if they are above 60, apply a 1% discount to their current loan interest rates.

CODE:

```
BEGIN
  FOR cust_rec IN (
    SELECT CustomerID, Age, InterestRate
    FROM Customers
    WHERE Age > 60
  ) LOOP
    UPDATE Customers
    SET InterestRate = InterestRate - 1
    WHERE CustomerID = cust_rec.CustomerID;
  END LOOP;
  COMMIT;
END;
```

OUTPUT :



Scenario 2: A customer can be promoted to VIP status based on their balance.

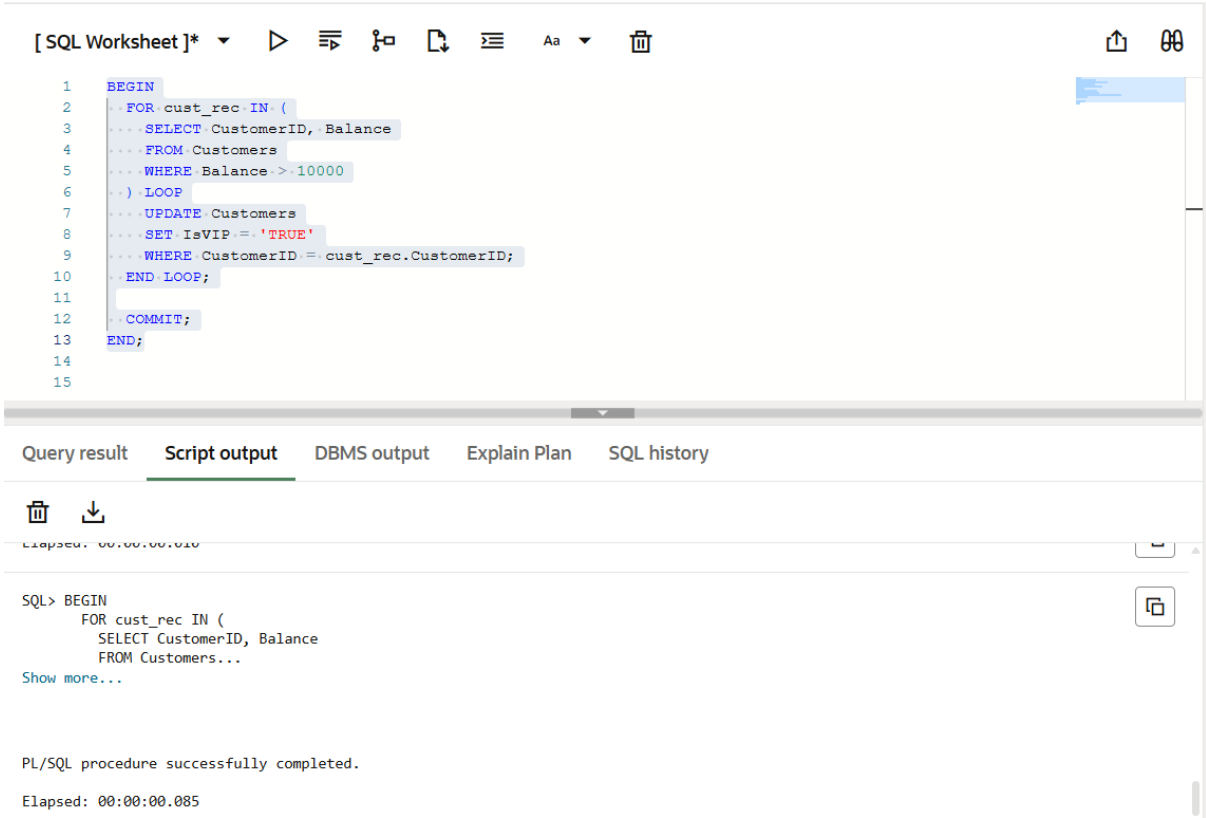
Question: Write a PL/SQL block that iterates through all customers and sets a flag IsVIP to TRUE for those with a balance over $10,000.

CODE :

```
BEGIN
  FOR cust_rec IN (
    SELECT CustomerID, Balance
    FROM Customers
    WHERE Balance > 10000
  ) LOOP
    UPDATE Customers
    SET IsVIP = 'TRUE'
```

```
  WHERE CustomerID = cust_rec.CustomerID;
 END LOOP;
 COMMIT;
END;
```

OUTPUT :



Scenario 3: The bank wants to send reminders to customers whose loans are due within the next 30 days.

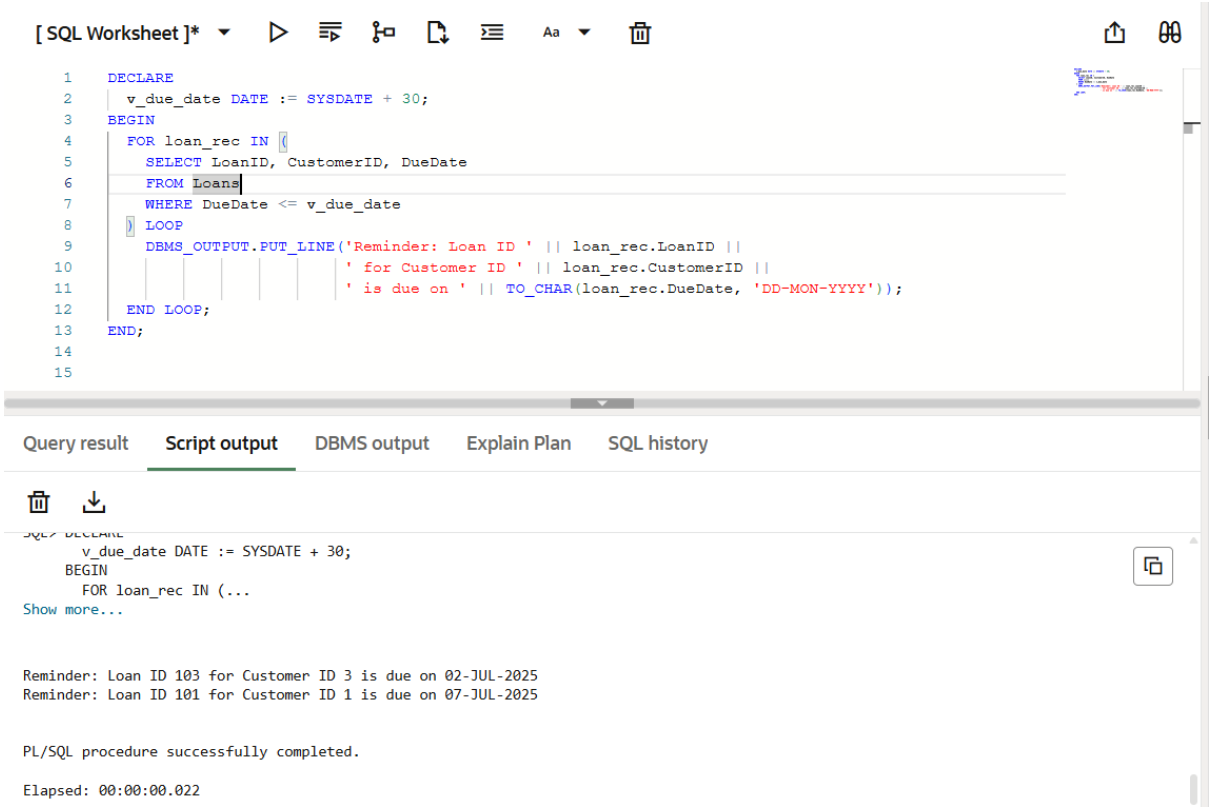
- **Question: Write a PL/SQL block that fetches all loans due in the next 30 days and prints a reminder message for each customer.**

CODE :

```
DECLARE
 v_due_date DATE := SYSDATE + 30;
BEGIN
```

```
  FOR loan_rec IN (
    SELECT LoanID, CustomerID, DueDate
    FROM Loans
    WHERE DueDate <= v_due_date
  ) LOOP
    DBMS_OUTPUT.PUT_LINE('Reminder: Loan ID ' || loan_rec.LoanID ||
                         ' for Customer ID ' || loan_rec.CustomerID ||
                         ' is due on ' || TO_CHAR(loan_rec.DueDate, 'DD-MON-
YYYY'));
  END LOOP;
END;
```

OUTPUT:



Stored Procedures :

Scenario 1: The bank needs to process monthly interest for all savings accounts.

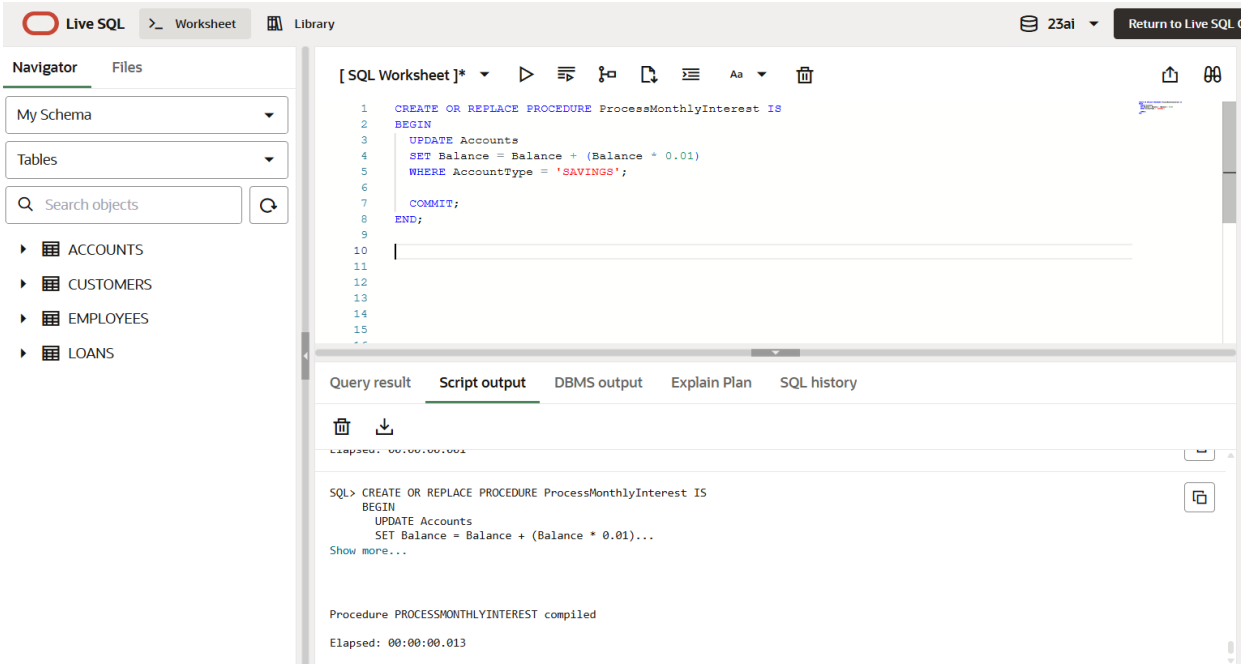
- **Question: Write a stored procedure ProcessMonthlyInterest that calculates and updates the balance of all savings accounts by applying an interest rate of 1% to the current balance.**

CODE :

```
CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS
BEGIN
  UPDATE Accounts
  SET Balance = Balance + (Balance * 0.01)
  WHERE AccountType = 'SAVINGS';

  COMMIT;
END;
```

OUTPUT :



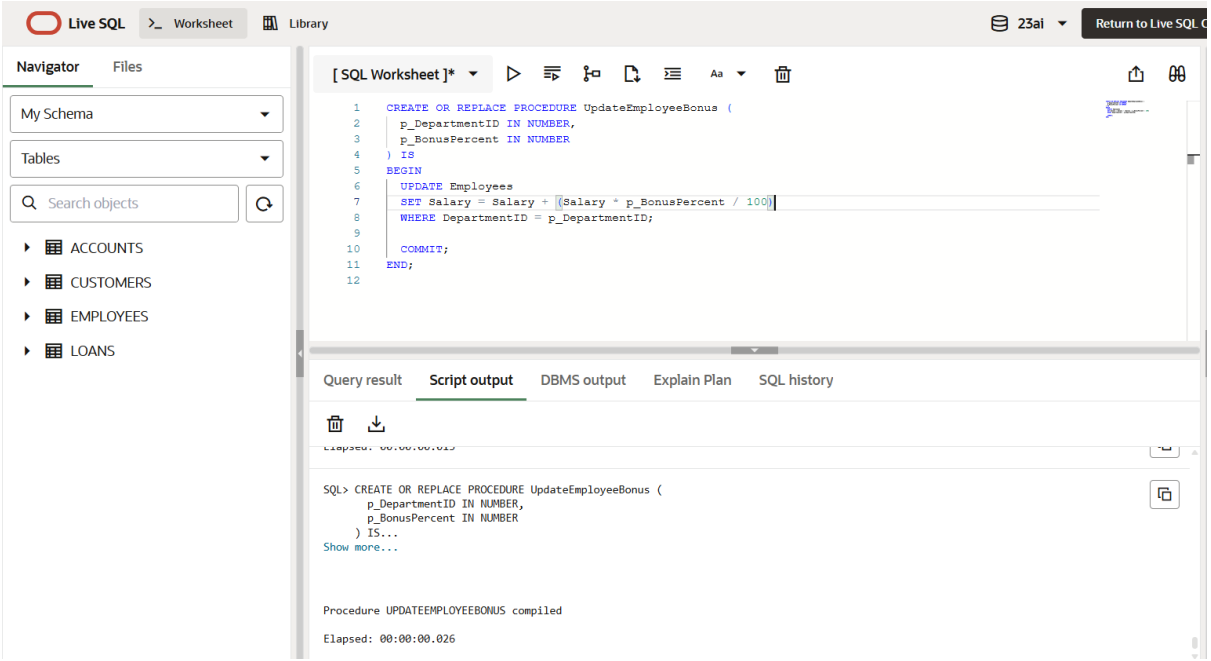
Scenario 2: The bank wants to implement a bonus scheme for employees based on their performance.

- **Question: Write a stored procedure UpdateEmployeeBonus that updates the salary of employees in a given department by adding a bonus percentage passed as a parameter.**

CODE :

```
CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus (
  p_DepartmentID IN NUMBER,
  p_BonusPercent IN NUMBER
) IS
BEGIN
  UPDATE Employees
  SET Salary = Salary + (Salary * p_BonusPercent / 100)
  WHERE DepartmentID = p_DepartmentID;
  COMMIT;
END;
```

OUTPUT :



Scenario 3: Customers should be able to transfer funds between their accounts.

- **Question: Write a stored procedure TransferFunds that transfers a specified amount from one account to another, checking that the source account has sufficient balance before making the transfer.**

CODE :

```
CREATE OR REPLACE PROCEDURE TransferFunds (
  p_FromAccountID IN NUMBER,
  p_ToAccountID   IN NUMBER,
  p_Amount        IN NUMBER
) IS
  v_FromBalance NUMBER;
BEGIN
  -- Check balance of source account
  SELECT Balance INTO v_FromBalance
  FROM Accounts
  WHERE AccountID = p_FromAccountID
  FOR UPDATE;

  IF v_FromBalance < p_Amount THEN
    RAISE_APPLICATION_ERROR(-20001, 'Insufficient funds in source
account.');
  END IF;

  -- Deduct from source account
  UPDATE Accounts
```

```
  SET Balance = Balance - p_Amount
  WHERE AccountID = p_FromAccountID;

  -- Add to destination account
  UPDATE Accounts
  SET Balance = Balance + p_Amount
  WHERE AccountID = p_ToAccountID;
  COMMIT;
END;
```

OUTPUT :