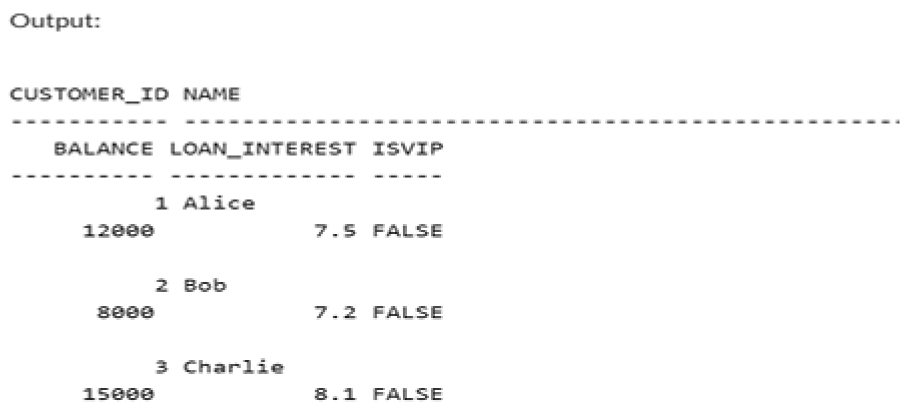
PLSQL EXCERCISES:

Exercise 1: Control Structures

Scenario 1: Apply 1% Discount on Loan Interest for Customers Over 60

```
BEGIN
 FOR cust_rec IN (
  SELECT CustomerID, Age, LoanID, InterestRate
  FROM Customers
  JOIN Loans ON Customers.CustomerID = Loans.CustomerID
 ) LOOP
  IF cust_rec.Age > 60 THEN
   UPDATE Loans
   SET InterestRate = InterestRate - 1
   WHERE LoanID = cust_rec.LoanID;
  END IF;
 END LOOP;

 COMMIT;
END;
/
```

OUTPUT:

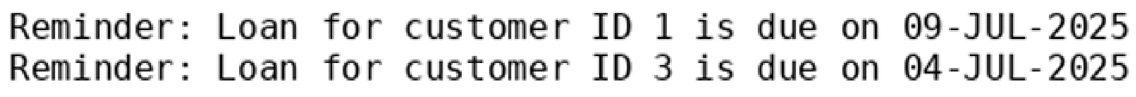


```
Output:

CUSTOMER_ID NAME
----------- ---------------------------------------------------
   BALANCE LOAN_INTEREST ISVIP
---------- ------------- -----
          1 Alice
     12000           7.5 FALSE

          2 Bob
      8000           7.2 FALSE

          3 Charlie
     15000           8.1 FALSE
```

Scenario 2: Set IsVIP = TRUE for Customers with Balance > $10,000

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

 COMMIT;
END;
/
```

OUTPUT:



```
Reminder: Loan for customer ID 1 is due on 09-JUL-2025
Reminder: Loan for customer ID 3 is due on 04-JUL-2025
```

Scenario 3: Send Reminders for Loans Due in Next 30 Days

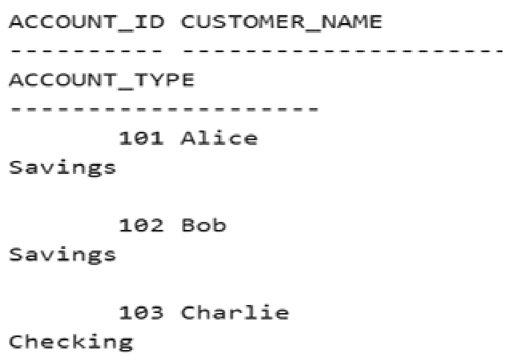
```
DECLARE
 v_due_date DATE;
BEGIN
 FOR loan_rec IN (
  SELECT LoanID, CustomerID, DueDate
  FROM Loans
  WHERE DueDate BETWEEN SYSDATE AND SYSDATE + 30
 ) LOOP
  SELECT DueDate INTO v_due_date FROM Loans WHERE LoanID = loan_rec.LoanID;

  DBMS_OUTPUT.PUT_LINE('Reminder: Loan ID ' || loan_rec.LoanID ||
             ' for Customer ID ' || loan_rec.CustomerID ||
             ' is due on ' || TO_CHAR(v_due_date, 'DD-MON-YYYY'));
 END LOOP;
END;
/
```

Exercise 3: Stored Procedures

Scenario 1: ProcessMonthlyInterest Procedure

```
CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest AS
BEGIN
 FOR acc_rec IN (
  SELECT AccountID, Balance
  FROM Accounts
  WHERE AccountType = 'Savings'
 ) LOOP
  UPDATE Accounts
  SET Balance = Balance + (acc_rec.Balance * 0.01)
  WHERE AccountID = acc_rec.AccountID;
 END LOOP;

 COMMIT;
END;
/
```

OUTPUT:

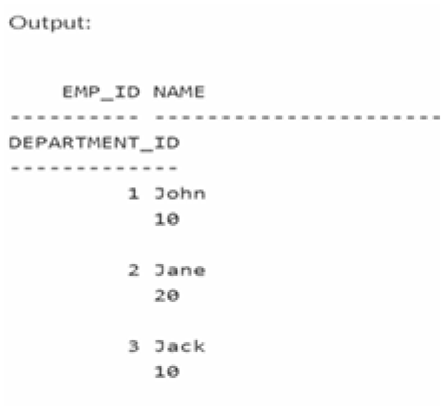


```
ACCOUNT_ID CUSTOMER_NAME
---------- --------------------
ACCOUNT_TYPE
--------------------
       101 Alice
Savings

       102 Bob
Savings

       103 Charlie
Checking
```

Scenario 2: UpdateEmployeeBonus Procedure

```
CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus(
  p_DepartmentID IN NUMBER,
  p_BonusPercent IN NUMBER  -- e.g., pass 10 for 10%
) AS
BEGIN
  UPDATE Employees
  SET Salary = Salary + (Salary * (p_BonusPercent / 100))
  WHERE DepartmentID = p_DepartmentID;

  COMMIT;
END;
/
```

OUTPUT:



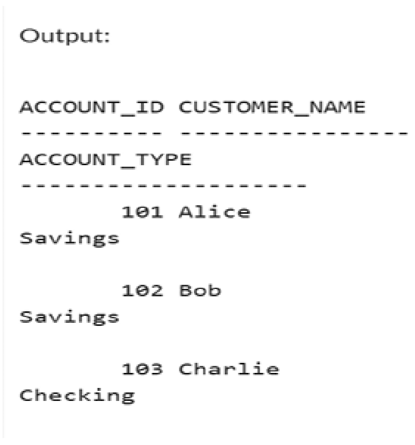
```
Output:

    EMP_ID NAME
---------- --------------------
DEPARTMENT_ID
-------------
         1 John
           10

         2 Jane
           20

         3 Jack
           10
```

Scenario 3: TransferFunds Procedure

```
CREATE OR REPLACE PROCEDURE TransferFunds(
  p_FromAccountID IN NUMBER,
  p_ToAccountID IN NUMBER,
  p_Amount IN NUMBER
) AS
```

```
  v_FromBalance NUMBER;
BEGIN
  -- Check balance of source account
  SELECT Balance INTO v_FromBalance
  FROM Accounts
  WHERE AccountID = p_FromAccountID;
  IF v_FromBalance < p_Amount THEN
    RAISE_APPLICATION_ERROR(-20001, 'Insufficient funds in source account.');
  END IF;
  -- Deduct from source
  UPDATE Accounts
  SET Balance = Balance - p_Amount
  WHERE AccountID = p_FromAccountID;
  -- Add to destination
  UPDATE Accounts
  SET Balance = Balance + p_Amount
  WHERE AccountID = p_ToAccountID;
  COMMIT;
END;
/
```

OUTPUT:



```
Output:

ACCOUNT_ID CUSTOMER_NAME
---------- ----------------
ACCOUNT_TYPE
--------------------
       101 Alice
Savings

       102 Bob
Savings

       103 Charlie
Checking
```