WEEK 2 - PL/SQL PROGRAMMING

EXERCISE 1:CONTROL STRUCTURES

TABLE CREATION:

CUSTOMERS

```
CREATE TABLE Customers (
   CustomerID NUMBER PRIMARY KEY,
   Name VARCHAR2(100),
   Age NUMBER,
   Balance NUMBER,
   IsVIP VARCHAR2(5)
);
```

LOANS

```
CREATE TABLE Loans (
   LoanID NUMBER PRIMARY KEY,
   CustomerID NUMBER,
   InterestRate NUMBER,
   DueDate DATE,
   FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)
);
```

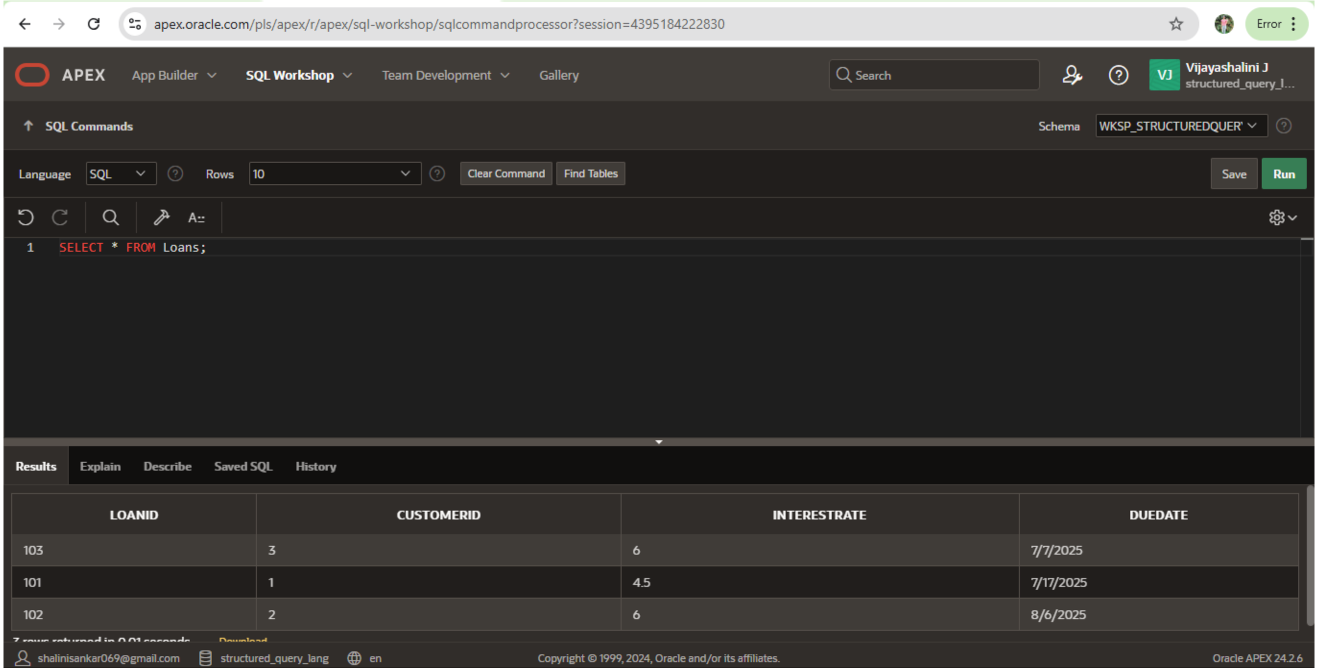
DATA INSERTION

CUSTOMER:

```
INSERT INTO Customers VALUES (1, 'Alice', 65, 12000, 'FALSE');
INSERT INTO Customers VALUES (2, 'Bob', 58, 8000, 'FALSE');
INSERT INTO Customers VALUES (3, 'Shalini', 70, 20000, 'FALSE');
```

LOANS:

```
INSERT INTO Loans VALUES (101, 1, 5.5, SYSDATE + 20);
INSERT INTO Loans VALUES (102, 2, 6.0, SYSDATE + 40);
INSERT INTO Loans VALUES (103, 3, 7.0, SYSDATE + 10);
```



Schema: WKSP_STRUCTUREDQUER

Language: SQL

Rows: 10

```
SELECT * FROM Loans;
```

LOANID	CUSTOMERID	INTERESTRATE	DUEDATE
103	3	6	7/7/2025
101	1	4.5	7/17/2025
102	2	6	8/6/2025

3 rows returned in 0.01 seconds

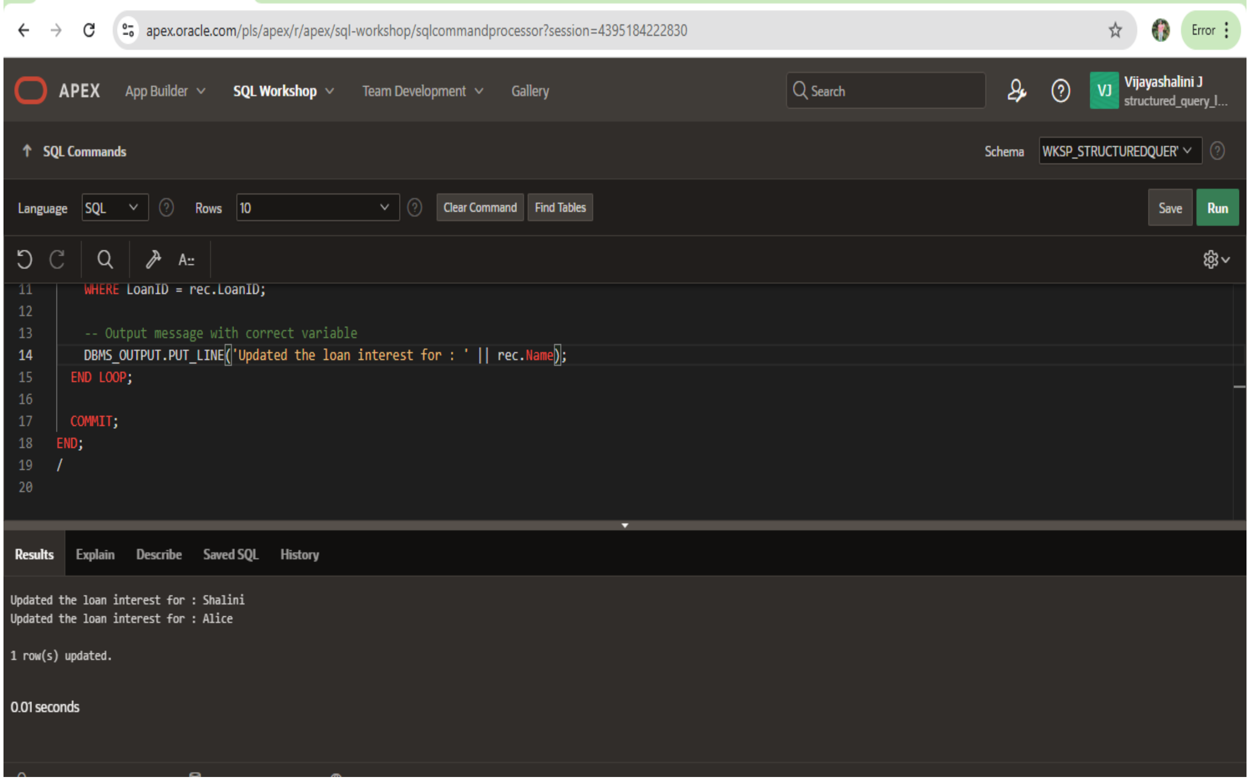
SCENARIO 1:

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

```
CustomerID

    WHERE c.Age > 60 BEGIN

  FOR rec IN (

    SELECT c.CustomerID, l.LoanID, l.InterestRate
    FROM Customers c
    JOIN Loans l ON c.CustomerID =
  )
  LOOP
    UPDATE Loans
    SET InterestRate = InterestRate - 1
    WHERE LoanID = rec.LoanID;
  END LOOP;


  COMMIT;
END;
```

OUTPUT:



```
    WHERE LoanID = rec.LoanID;

    -- Output message with correct variable
    DBMS_OUTPUT.PUT_LINE('Updated the loan interest for : ' || rec.Name);
  END LOOP;

  COMMIT;
END;
/
```

```
Updated the loan interest for : Shalini
Updated the loan interest for : Alice

1 row(s) updated.
```

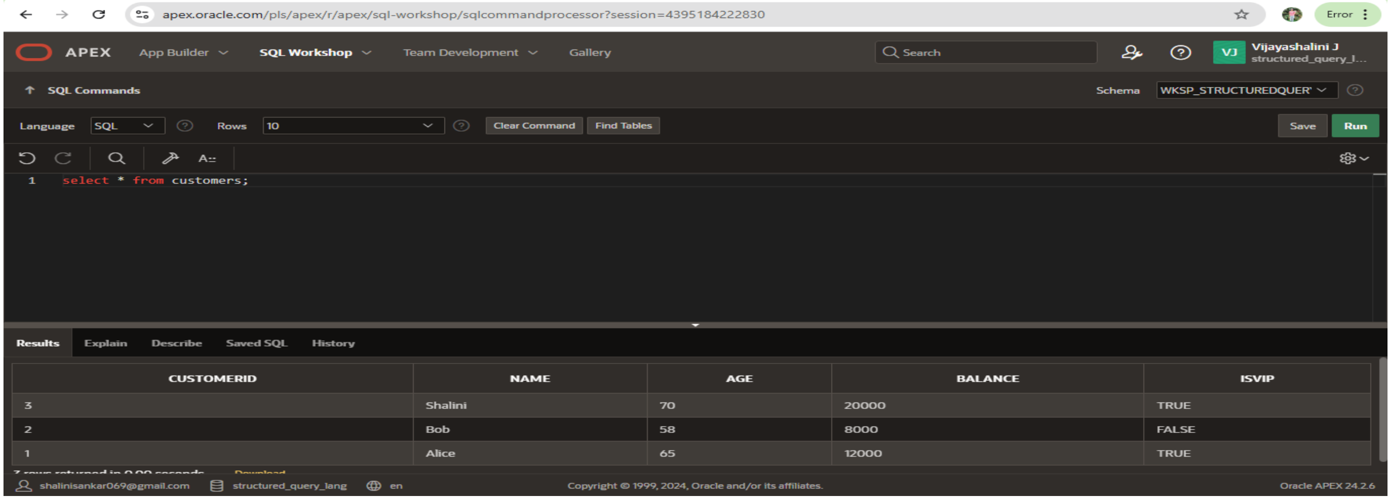
0.01 seconds

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.

```
BEGIN
  FOR rec IN (SELECT CustomerID FROM Customers WHERE Balance > 10000)
  LOOP
    UPDATE Customers
    SET IsVIP = 'TRUE' -- if it's a VARCHAR2 column; if BOOLEAN, use TRUE
    WHERE CustomerID = rec.CustomerID;
  END LOOP;


  COMMIT;
END;
```

OUTPUT:



Language SQL Rows 10

```
select * from customers;
```

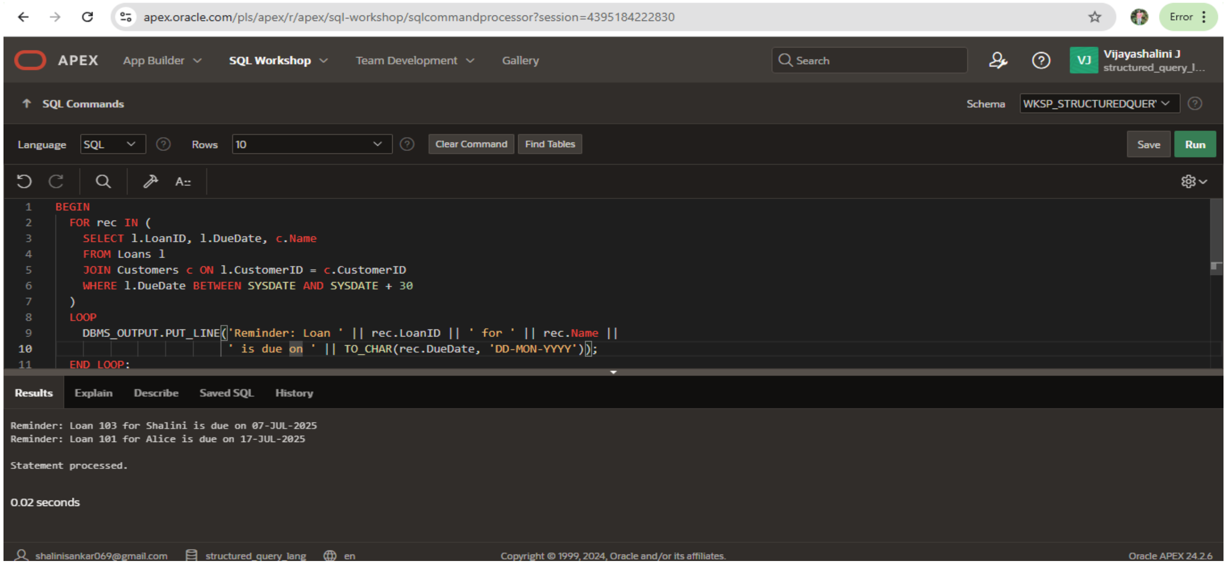
CUSTOMERID	NAME	AGE	BALANCE	ISVIP
3	Shalini	70	20000	TRUE
2	Bob	58	8000	FALSE
1	Alice	65	12000	TRUE

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.

```
BEGIN
  FOR rec IN (
    SELECT l.LoanID, l.DueDate, c.Name
    FROM Loans l
    JOIN Customers c ON l.CustomerID = c.CustomerID
    WHERE l.DueDate BETWEEN SYSDATE AND SYSDATE + 30
  )
  LOOP
    DBMS_OUTPUT.PUT_LINE('Reminder : Loan ' || rec.LoanID || ' for ' || rec.Name ||
                         ' is due on ' || TO_CHAR(rec.DueDate, 'DD-MON-YYYY'));
  END LOOP;
END;
```

OUTPUT



```
BEGIN
  FOR rec IN (
    SELECT l.LoanID, l.DueDate, c.Name
    FROM Loans l
    JOIN Customers c ON l.CustomerID = c.CustomerID
    WHERE l.DueDate BETWEEN SYSDATE AND SYSDATE + 30
  )
  LOOP
    DBMS_OUTPUT.PUT_LINE('Reminder: Loan ' || rec.LoanID || ' for ' || rec.Name ||
                         ' is due on ' || TO_CHAR(rec.DueDate, 'DD-MON-YYYY'));
  END LOOP;
```

```
Reminder: Loan 103 for Shalini is due on 07-JUL-2025
Reminder: Loan 101 for Alice is due on 17-JUL-2025

Statement processed.
```

0.02 seconds