# Exercise 1: 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.

**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 Is VIP to TRUE for those with a balance over $10,000.

**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.

## Step1: Create the CUSTOMERS table:

CREATE TABLE CUSTOMERS\_FINAL ( CustID NUMBER,

Name VARCHAR2(50), Age NUMBER,

Balance NUMBER, IsVIP VARCHAR2(5),

InterestRate NUMBER

);

## Step 2: Create Loan Table:

Create new LOAN table

CREATE TABLE LOANS\_FINAL ( LoanID NUMBER,

CustID NUMBER,

DueDate DATE

);

## Step3: Insert sample data:

INSERT INTO CUSTOMERS\_FINAL VALUES (1, 'Deepika', 20, 20000, 'FALSE', 10);

INSERT INTO CUSTOMERS\_FINAL VALUES (2, 'Nandini', 22, 8000, 'FALSE', 12);

INSERT INTO CUSTOMERS\_FINAL VALUES (3, 'Suvarna', 65, 20000, 'FALSE', 9);

INSERT INTO CUSTOMERS\_FINAL VALUES (4, 'Ravi', 70, 15000, 'FALSE', 11);

INSERT INTO LOANS\_FINAL VALUES (101, 1, SYSDATE + 15);

INSERT INTO LOANS\_FINAL VALUES (102, 2, SYSDATE + 40);

INSERT INTO LOANS\_FINAL VALUES (103, 3, SYSDATE + 5);

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

BEGIN

FOR rec IN (SELECT CustID FROM CUSTOMERS\_FINAL WHERE Age > 60) LOOP UPDATE CUSTOMERS\_FINAL

SET InterestRate = InterestRate - 1 WHERE CustID = rec.CustID;

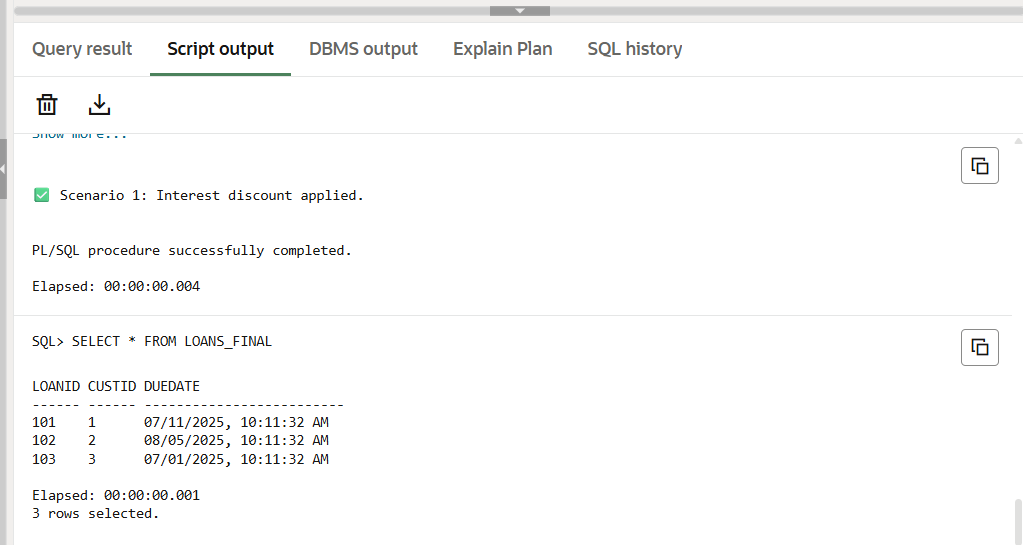
END LOOP;

DBMS\_OUTPUT.PUT\_LINE('Scenario 1: Interest discount applied.'); END;

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SELECT \* FROM LOANS\_FINAL;

**Output for Scenario 1:**

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

BEGIN

FOR rec IN (SELECT CustID FROM CUSTOMERS\_FINAL WHERE Balance > 10000) LOOP

UPDATE CUSTOMERS\_FINAL SET IsVIP = 'TRUE'

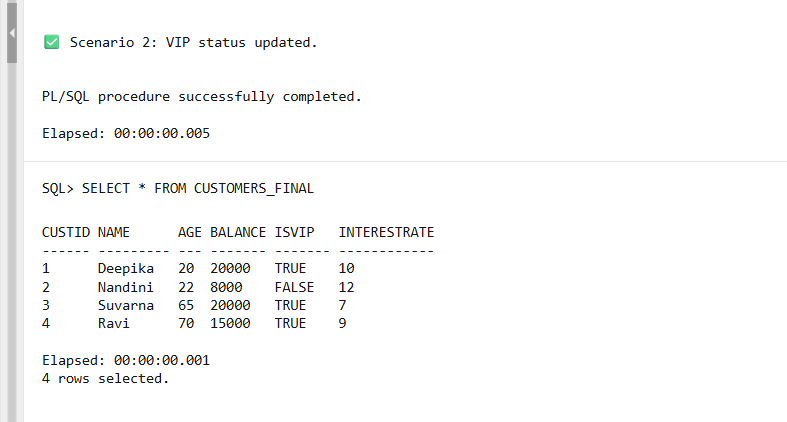
WHERE CustID = rec.CustID; END LOOP;

DBMS\_OUTPUT.PUT\_LINE('✅ Scenario 2: VIP status updated.'); END;

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SELECT \* FROM CUSTOMERS\_FINAL;

## Output for Scenario2:

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

BEGIN

FOR rec IN (

SELECT L.LoanID, C.Name, L.DueDate FROM LOANS\_FINAL L

JOIN CUSTOMERS\_FINAL C ON C.CustID = L.CustID WHERE L.DueDate <= SYSDATE + 30

) LOOP

DBMS\_OUTPUT.PUT\_LINE('Reminder: Loan ID ' || rec.LoanID || ' for customer ' || rec.Name ||

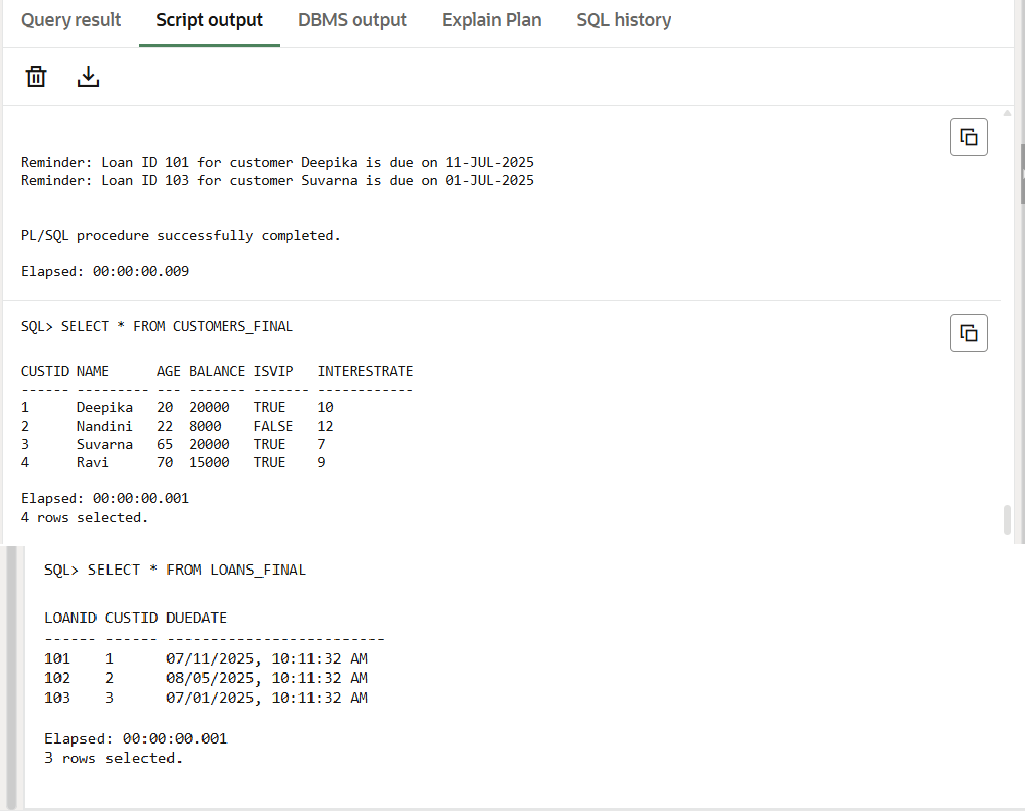
' is due on ' || TO\_CHAR(rec.DueDate, 'DD-MON-YYYY'));

END LOOP; END;

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SELECT \* FROM CUSTOMERS\_FINAL; SELECT \* FROM LOANS\_FINAL;

**Output for Scenario3:**

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# Exercise 3: 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.

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.

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.

## STEP1: Creating Tables :

### -- Table for savings accounts

CREATE TABLE ACCOUNTS\_PROC ( AccID NUMBER,

CustName VARCHAR2(50),

Balance NUMBER

);

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### -- Table for employees

CREATE TABLE EMPLOYEES\_PROC ( EmpID NUMBER,

Name VARCHAR2(50),

Department VARCHAR2(30), Salary NUMBER

);

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## STEP2: Insert Sample Data:

BEGIN

-- Accounts

INSERT INTO ACCOUNTS\_PROC VALUES (1, 'Deepika', 10000); INSERT INTO ACCOUNTS\_PROC VALUES (2, 'Nandini', 20000); INSERT INTO ACCOUNTS\_PROC VALUES (3, 'Suvarna', 15000);

-- Employees

INSERT INTO EMPLOYEES\_PROC VALUES (101, 'Asha', 'IT', 50000); INSERT INTO EMPLOYEES\_PROC VALUES (102, 'Bhavna', 'HR', 40000); INSERT INTO EMPLOYEES\_PROC VALUES (103, 'Chetan', 'IT', 55000); END;

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## Scenario 1: Procedure to Apply Monthly Interest:

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS BEGIN

FOR rec IN (SELECT AccID, Balance FROM ACCOUNTS\_PROC) LOOP UPDATE ACCOUNTS\_PROC

SET Balance = Balance + (Balance \* 0.01) WHERE AccID = rec.AccID;

END LOOP;

DBMS\_OUTPUT.PUT\_LINE('✅ Monthly interest applied to all accounts.'); END;

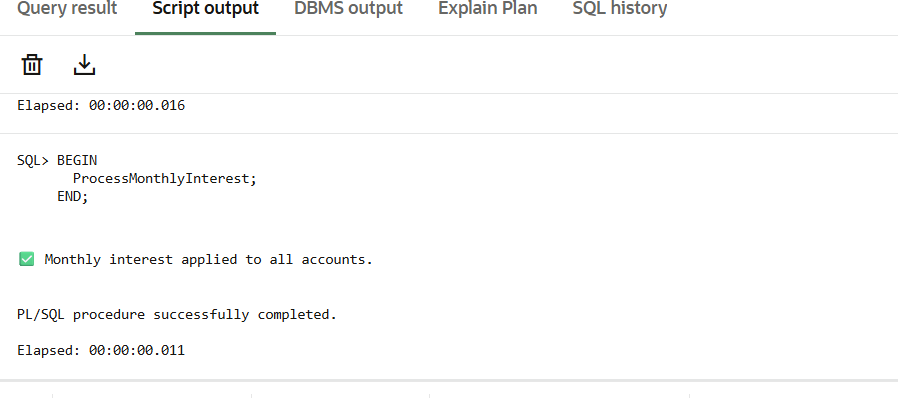
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BEGIN

ProcessMonthlyInterest; END;

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**Output for Scenario1:**

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## Scenario 2: Procedure to Apply Bonus by Department:

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus( p\_dept IN VARCHAR2,

p\_bonus\_percent IN NUMBER

) IS BEGIN

UPDATE EMPLOYEES\_PROC

SET Salary = Salary + (Salary \* (p\_bonus\_percent / 100)) WHERE Department = p\_dept;

DBMS\_OUTPUT.PUT\_LINE('✅ Bonus applied to department: ' || p\_dept); END;

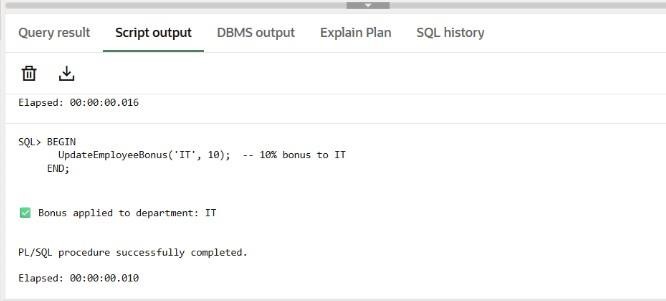
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BEGIN

UpdateEmployeeBonus('IT', 10); -- 10% bonus to IT END;

/

**Output for Scenario 2:**

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## Scenario 3: Transfer Funds Between Accounts

CREATE OR REPLACE PROCEDURE TransferFunds(

p\_from\_acc IN NUMBER, p\_to\_acc IN NUMBER, p\_amount IN NUMBER

) IS

v\_balance NUMBER; BEGIN

-- Check source balance

SELECT Balance INTO v\_balance FROM ACCOUNTS\_PROC WHERE AccID = p\_from\_acc;

IF v\_balance < p\_amount THEN

DBMS\_OUTPUT.PUT\_LINE('❌ Insufficient balance in source account.'); ELSE

UPDATE ACCOUNTS\_PROC SET Balance = Balance - p\_amount WHERE AccID = p\_from\_acc;

UPDATE ACCOUNTS\_PROC SET Balance = Balance + p\_amount WHERE AccID = p\_to\_acc;

DBMS\_OUTPUT.PUT\_LINE('✅ Transferred ₹' || p\_amount || ' from Account ' || p\_from\_acc ||

' to Account ' || p\_to\_acc);

END IF; EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('❌ One or both account IDs not found.'); END;

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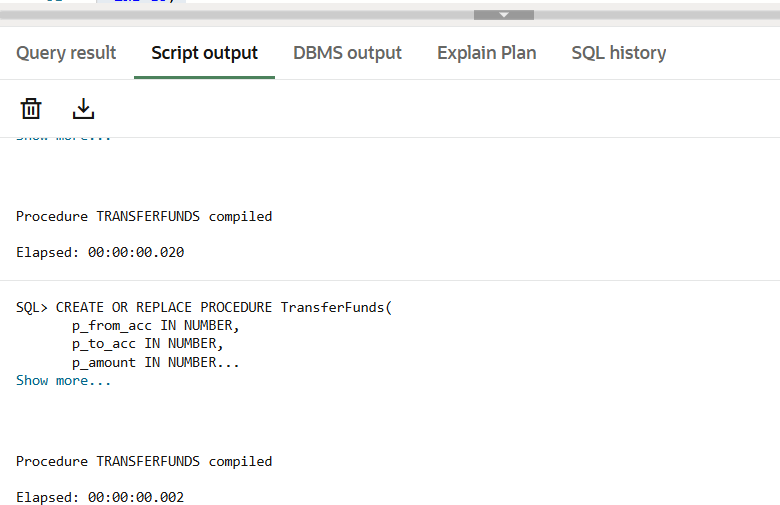
BEGIN

TransferFunds(1, 2, 3000); -- Transfer ₹3000 from Acc 1 to Acc 2 END;

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SELECT \* FROM ACCOUNTS\_PROC; SELECT \* FROM EMPLOYEES\_PROC;

**Output for Scenario3:**

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