**Exercise 3: Stored Procedures**

CREATE TABLE Accounts (

    AccountID NUMBER PRIMARY KEY,

    CustomerName VARCHAR2(100),

    Balance NUMBER(12,2),

    AccountType VARCHAR2(20)

);

CREATE TABLE Employees (

    EmployeeID NUMBER PRIMARY KEY,

    Name VARCHAR2(100),

    Department VARCHAR2(50),

    Salary NUMBER(10,2)

);

CREATE TABLE Transactions (

    TransID NUMBER GENERATED ALWAYS AS IDENTITY,

    FromAccount NUMBER,

    ToAccount NUMBER,

    Amount NUMBER(10,2),

    TransDate DATE DEFAULT SYSDATE

);

INSERT INTO Accounts VALUES (1, 'Alice', 10000, 'SAVINGS');

INSERT INTO Accounts VALUES (2, 'Bob', 5000, 'SAVINGS');

INSERT INTO Accounts VALUES (3, 'Charlie', 2000, 'CURRENT');

INSERT INTO Employees VALUES (101, 'John Manager', 'HR', 50000);

INSERT INTO Employees VALUES (102, 'Sarah Exec', 'HR', 30000);

INSERT INTO Employees VALUES (103, 'Dev Raj', 'IT', 40000);

COMMIT;

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest IS

BEGIN

  FOR acc IN (SELECT AccountID, Balance FROM Accounts WHERE AccountType = 'SAVINGS') LOOP

    UPDATE Accounts

    SET Balance = Balance + (acc.Balance \* 0.01)

    WHERE AccountID = acc.AccountID;

  END LOOP;

  COMMIT;

END;

/

EXEC ProcessMonthlyInterest;

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus(

  p\_Department IN VARCHAR2,

  p\_BonusPercent IN NUMBER

) IS

BEGIN

  UPDATE Employees

  SET Salary = Salary + (Salary \* p\_BonusPercent / 100)

  WHERE Department = p\_Department;

  COMMIT;

END;

/

EXEC UpdateEmployeeBonus('HR', 10);

CREATE OR REPLACE PROCEDURE TransferFunds(

  p\_FromAccount IN NUMBER,

  p\_ToAccount IN NUMBER,

  p\_Amount IN NUMBER

) IS

  v\_Balance NUMBER;

BEGIN

  SELECT Balance INTO v\_Balance FROM Accounts WHERE AccountID = p\_FromAccount;

  IF v\_Balance < p\_Amount THEN

    RAISE\_APPLICATION\_ERROR(-20001, 'Insufficient balance.');

  END IF;

  -- Deduct from source

  UPDATE Accounts SET Balance = Balance - p\_Amount WHERE AccountID = p\_FromAccount;

  -- Add to destination

  UPDATE Accounts SET Balance = Balance + p\_Amount WHERE AccountID = p\_ToAccount;

  -- Log transaction

  INSERT INTO Transactions (FromAccount, ToAccount, Amount)

  VALUES (p\_FromAccount, p\_ToAccount, p\_Amount);

  COMMIT;

END;

/

EXEC TransferFunds(1, 2, 500);

SELECT \* FROM Accounts;

SELECT \* FROM Employees;

SELECT \* FROM Transactions;

Outputs:

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