**Week-2**

**PL/SQL programming**

**Exercise 3: Stored Procedures**

**CODE:**

CREATE TABLE Customers (

CustomerID NUMBER PRIMARY KEY,

Name VARCHAR2(100),

DOB DATE,

Balance NUMBER,

LastModified DATE

);

CREATE TABLE Accounts (

AccountID NUMBER PRIMARY KEY,

CustomerID NUMBER,

AccountType VARCHAR2(20),

Balance NUMBER,

LastModified DATE,

FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)

);

CREATE TABLE Employees (

EmployeeID NUMBER PRIMARY KEY,

Name VARCHAR2(100),

Position VARCHAR2(50),

Salary NUMBER,

Department VARCHAR2(50),

HireDate DATE

);

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified)

VALUES (1, 'John Doe', TO\_DATE('1985-05-15', 'YYYY-MM-DD'), 10000, SYSDATE);

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified)

VALUES (2, 'Jane Smith', TO\_DATE('1990-07-20', 'YYYY-MM-DD'), 15000, SYSDATE);

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified)

VALUES (3, 'Will Buyer', TO\_DATE('1965-06-25', 'YYYY-MM-DD'), 5000, SYSDATE);

INSERT INTO Customers (CustomerID, Name, DOB, Balance, LastModified)

VALUES (4, 'Joyce Buyer', TO\_DATE('1950-02-15', 'YYYY-MM-DD'), 20000, SYSDATE);

INSERT INTO Accounts (AccountID, CustomerID, AccountType, Balance, Lastmodified)

VALUES (1, 1, 'Savings', 50000, SYSDATE);

INSERT INTO Accounts (AccountID, CustomerID, AccountType, Balance, Lastmodified)

VALUES (2, 2, 'Checking',150000, SYSDATE);

INSERT INTO Accounts (AccountID, CustomerID, AccountType, Balance, Lastmodified)

VALUES (3, 3, 'Savings', 75000, SYSDATE);

INSERT INTO Accounts (AccountID, CustomerID, AccountType, Balance, Lastmodified)

VALUES (4, 4, 'Savings', 75000, SYSDATE);

INSERT INTO Employees (EmployeeID, Name, Position, Salary, Department, HireDate)

VALUES (1, 'Alice Johnson', 'Manager', 70000, 'HR', TO\_DATE('2015-06-15', 'YYYY-MM-DD'));

INSERT INTO Employees (EmployeeID, Name, Position, Salary, Department, HireDate)

VALUES (2, 'Bob Brown', 'Developer', 60000, 'IT', TO\_DATE('2017-03-20', 'YYYY-MM-DD'));

INSERT INTO Employees (EmployeeID, Name, Position, Salary, Department, HireDate)

VALUES (3, 'Jonathan Buyers', 'Developer', 60000, 'HR', TO\_DATE('2016-04-25', 'YYYY-MM-DD'));

CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest AS

BEGIN

FOR acct\_rec IN (

SELECT AccountID, Balance

FROM Accounts

WHERE AccountType = 'Savings'

) LOOP

UPDATE Accounts

SET Balance = acct\_rec.Balance \* 1.01

WHERE AccountID = acct\_rec.AccountID;

END LOOP;

COMMIT;

END ProcessMonthlyInterest;

/

BEGIN

ProcessMonthlyInterest;

END;

/

SELECT a.AccountID AS "AccountID",c.Name AS "CustomerName", a.AccountType AS "AccountType",ROUND(a.Balance,2) AS "NewBalance"

FROM Accounts a

JOIN Customers c

ON a.CustomerID = c.CustomerID

WHERE a.AccountType = 'Savings'

ORDER BY a.AccountID;

/

CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus(

dept IN Employees.Department%TYPE,

bonus\_pct IN NUMBER

) AS

BEGIN

FOR bonus\_rec IN (

SELECT EmployeeID,Salary

FROM Employees

) LOOP

UPDATE Employees

SET Salary = bonus\_rec.salary \*(1+bonus\_pct/100)

WHERE EmployeeID = bonus\_rec.EmployeeID;

END LOOP;

COMMIT;

END UpdateEmployeeBonus;

/

BEGIN

UpdateEmployeeBonus('HR', 10);

END;

/

SELECT EmployeeID,Name,Department,ROUND(Salary,2) AS NewSalary

FROM Employees

WHERE Department = 'HR'

ORDER BY EmployeeID;

/

CREATE OR REPLACE PROCEDURE TransferFunds (

p\_from\_acct IN Accounts.AccountID%TYPE,

p\_to\_acct IN Accounts.AccountID%TYPE,

p\_amount IN NUMBER

) AS

v\_balance Accounts.Balance%TYPE;

BEGIN

SELECT Balance

INTO v\_balance

FROM Accounts

WHERE AccountID = p\_from\_acct

FOR UPDATE;

IF v\_balance < p\_amount THEN

RAISE\_APPLICATION\_ERROR(

-20001,

'Insufficient funds in account ' || p\_from\_acct

);

END IF;

UPDATE Accounts

SET Balance = Balance - p\_amount

WHERE AccountID = p\_from\_acct;

UPDATE Accounts

SET Balance = Balance + p\_amount

WHERE AccountID = p\_to\_acct;

COMMIT;

DBMS\_OUTPUT.PUT\_LINE('Transferred ' || TO\_CHAR(p\_amount) || ' from acct ' || p\_from\_acct || ' to acct ' || p\_to\_acct);

END TransferFunds;

/

EXEC TransferFunds(1, 2, 1000);

**Output:**

AccountID

----------

CustomerName

--------------------------------------------------------------------------------

AccountType NewBalance

-------------------- ----------

1

John Doe

Savings 50500

3

Will Buyer

Savings 75750

AccountID

----------

CustomerName

--------------------------------------------------------------------------------

AccountType NewBalance

-------------------- ----------

4

Joyce Buyer

Savings 75750

AccountID

----------

CustomerName

--------------------------------------------------------------------------------

AccountType NewBalance

-------------------- ----------

1

John Doe

Savings 50500

3

Will Buyer

Savings 75750

AccountID

----------

CustomerName

--------------------------------------------------------------------------------

AccountType NewBalance

-------------------- ----------

4

Joyce Buyer

Savings 75750

EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENT NEWSALARY

-------------------------------------------------- ----------

1

Alice Johnson

HR 77000

3

Jonathan Buyers

HR 66000

EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENT NEWSALARY

-------------------------------------------------- ----------

EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENT NEWSALARY

-------------------------------------------------- ----------

1

Alice Johnson

HR 77000

3

Jonathan Buyers

HR 66000

EMPLOYEEID

----------

NAME

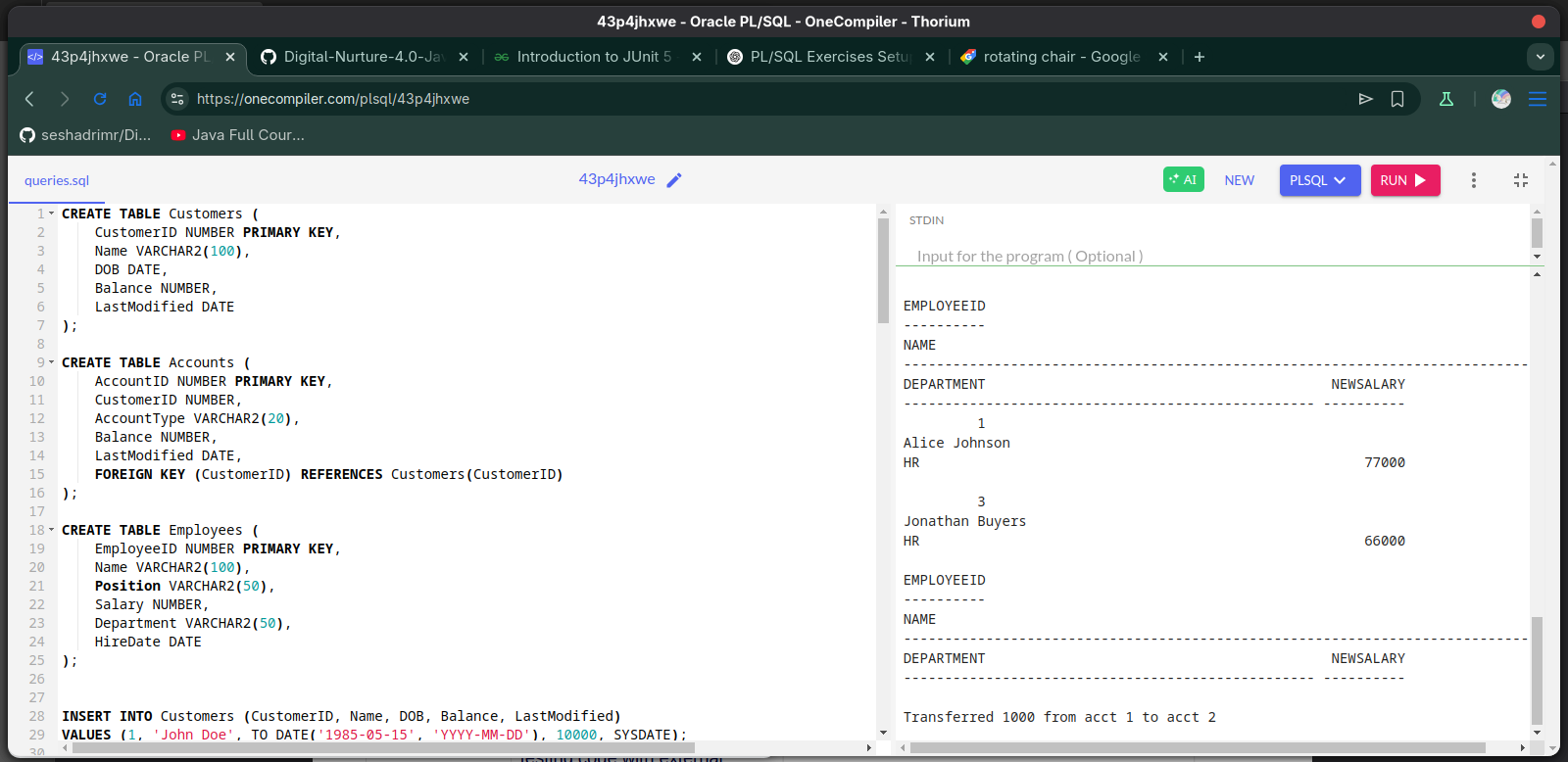
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DEPARTMENT NEWSALARY

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Transferred 1000 from acct 1 to acct 2

**Code Image:**

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