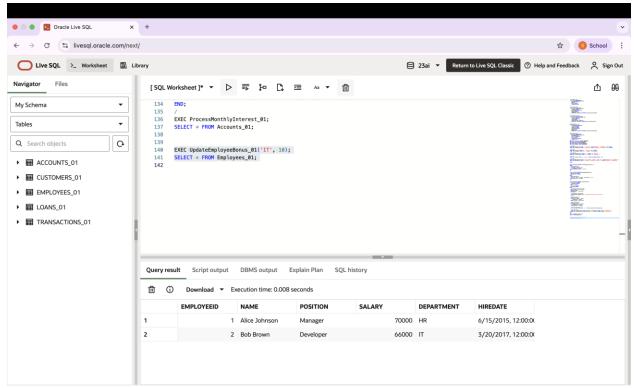
Exercise 3: Stored Procedures

```
CREATE TABLE Customers_01 (
CustomerID NUMBER PRIMARY KEY,
Name VARCHAR2(100),
DOB DATE,
Balance NUMBER,
LastModified DATE
);
CREATE TABLE Accounts_01 (
AccountID NUMBER PRIMARY KEY,
CustomerID NUMBER,
AccountType VARCHAR2(20),
Balance NUMBER,
LastModified DATE,
FOREIGN KEY (CustomerID) REFERENCES Customers_01(CustomerID)
);
CREATE TABLE Transactions_01 (
TransactionID NUMBER PRIMARY KEY,
AccountID NUMBER,
TransactionDate DATE,
Amount NUMBER,
TransactionType VARCHAR2(10),
FOREIGN KEY (AccountID) REFERENCES Accounts_01(AccountID)
);
CREATE TABLE Loans_01 (
LoanID NUMBER PRIMARY KEY,
CustomerID NUMBER,
LoanAmount NUMBER,
InterestRate NUMBER,
StartDate DATE,
EndDate DATE,
FOREIGN KEY (CustomerID) REFERENCES Customers_01(CustomerID)
);
```

```
CREATE TABLE Employees_01 (
EmployeeID NUMBER PRIMARY KEY,
Name VARCHAR2(100),
Position VARCHAR2(50),
Salary NUMBER,
Department VARCHAR2(50),
HireDate DATE
);
DROP TABLE Transactions CASCADE CONSTRAINTS;
DROP TABLE Accounts CASCADE CONSTRAINTS:
DROP TABLE Loans CASCADE CONSTRAINTS:
DROP TABLE Employees CASCADE CONSTRAINTS;
DROP TABLE Customers CASCADE CONSTRAINTS;
-- Customers
INSERT INTO Customers_01 VALUES (1, 'John Doe', TO_DATE('1985-05-15', 'YYYY-MM-
DD'), 1000, SYSDATE);
INSERT INTO Customers_01 VALUES (2, 'Jane Smith', TO_DATE('1990-07-20', 'YYYY-MM-
DD'), 1500, SYSDATE);
-- Accounts
INSERT INTO Accounts_01 VALUES (1, 1, 'Savings', 1000, SYSDATE);
INSERT INTO Accounts_01 VALUES (2, 2, 'Checking', 1500, SYSDATE);
-- Transactions
INSERT INTO Transactions_01 VALUES (1, 1, SYSDATE, 200, 'Deposit');
INSERT INTO Transactions_01 VALUES (2, 2, SYSDATE, 300, 'Withdrawal');
-- Loans
INSERT INTO Loans 01 VALUES (1, 1, 5000, 5, SYSDATE, ADD MONTHS(SYSDATE, 60));
-- Employees
INSERT INTO Employees_01 VALUES (1, 'Alice Johnson', 'Manager', 70000, 'HR',
TO_DATE('2015-06-15', 'YYYY-MM-DD'));
INSERT INTO Employees_01 VALUES (2, 'Bob Brown', 'Developer', 60000, 'IT',
TO_DATE('2017-03-20', 'YYYY-MM-DD'));
COMMIT;
```

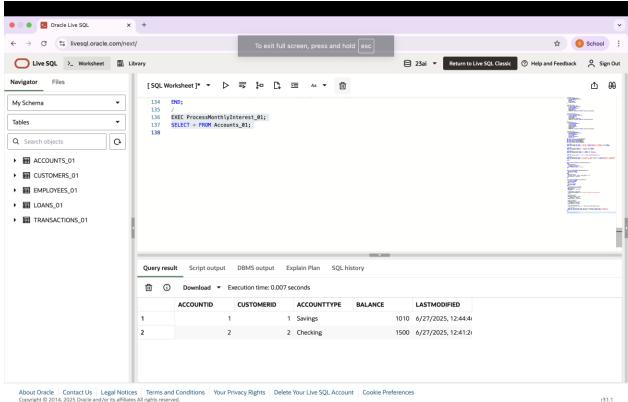
```
CREATE OR REPLACE PROCEDURE ProcessMonthlyInterest_01 IS
BEGIN
UPDATE Accounts_01
SET Balance = Balance * 1.01,
LastModified = SYSDATE
WHERE LOWER(AccountType) = 'savings';
END;
CREATE OR REPLACE PROCEDURE UpdateEmployeeBonus_01 (
dept_name IN VARCHAR2,
bonus_percent IN NUMBER
) IS
BEGIN
UPDATE Employees_01
SET Salary = Salary + (Salary * bonus_percent / 100)
WHERE Department = dept_name;
END;
/
CREATE OR REPLACE PROCEDURE TransferFunds_01 (
from_account IN NUMBER,
to_account IN NUMBER,
amount IN NUMBER
) IS
from_balance NUMBER;
new_txn_id NUMBER;
BEGIN
-- Check and lock source account
SELECT Balance INTO from balance
FROM Accounts_01
WHERE AccountID = from_account
FOR UPDATE;
IF from_balance < amount THEN</pre>
RAISE_APPLICATION_ERROR(-20001, 'Insufficient balance in source account');
END IF:
-- Deduct from source
UPDATE Accounts 01
```

```
SET Balance = Balance - amount,
LastModified = SYSDATE
WHERE AccountID = from_account;
-- Add to destination
UPDATE Accounts_01
SET Balance = Balance + amount,
LastModified = SYSDATE
WHERE AccountID = to_account;
-- Get next transaction ID
SELECT NVL(MAX(TransactionID), 0) + 1 INTO new_txn_id FROM Transactions_01;
-- Log both sides
INSERT INTO Transactions_01 VALUES (new_txn_id, from_account, SYSDATE, amount,
'Transfer-Out');
INSERT INTO Transactions_01 VALUES (new_txn_id + 1, to_account, SYSDATE, amount,
'Transfer-In');
END:
EXEC ProcessMonthlyInterest_01;
SELECT * FROM Accounts 01;
EXEC UpdateEmployeeBonus_01('IT', 10);
SELECT * FROM Employees_01;
EXEC TransferFunds_01(1, 2, 200);
SELECT * FROM Accounts_01;
SELECT * FROM Transactions_01;
```

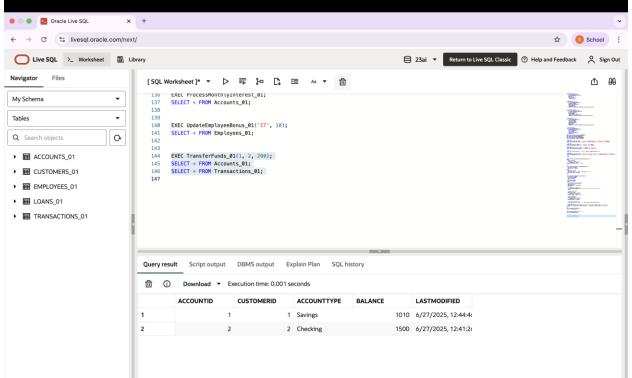


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