Chapter 05 In-class Lab Assignment

ISTA-420, T-SQL Fundamentals

In-class Lab — Table expressions

Using the Northwind database

Use common table expressions or views to execute the following queries. Note that it may be possible to use joins and sets to do the same thing.

1. List the number of orders by each customer who lives in the United States using a CTE. Sort from highest to lowest.
2. List the product name and the number of each product from a German supplier sold to a customer in Germany using a CTE. Sort from highest to lowest.
3. Prepare an employee report showing the name of each employee, the number of employees they supervise, and the name of their supervisor using a CTE. Sort by the number of employees supervised.
4. One purpose of views is to *denormalize* databases for the purpose of efficiency, both machine efficiency and programmer efficiency. Creating denormalized objects can turn complex queries into simple ones. For example, suppose you needed a list of all employees who took orders for a specific customer, or all customers who were served by a specific employee. You can create a "table" as a view that contains distinct pairs of customers and employees. This is somewhat complex, so do this in steps.
   (a) Create a query that returns every distinct customer/employee pair.
   (b) Use that query to write another query turning the customerid, customername, and customercontact, and the employeeid, firstname, and lastname.
   (c) Make sure you drop any view that might exist.
   (d) Create a view based on your query.
   (e) Write a report listing all customers served by employee 7, Robert King.
   (f) Write a report listing all employees who served customer CHOPS, Chop-suey Chinese.
   (g) Drop the view.

Using the TSQLV4 database

Use the book's database, TSQLV4, and do the exercises 1 through 6, beginning on page 183. The solutions are in the book beginning on page 188.

Solutions to the lab queries

Attempt to write the queries before you look at the solutions. Do not look at the solutions before you attempt to write the query.

Northwind queries

```
1  with USAcust as (select customerid from customers where country like 'USA')
2  select o.customerid, count(o.customerid) as cnt from orders o
3      where o.customerid in USAcust
4      group by o.customerid order by cnt desc;
5
6  with GERprod as (select s.supplierid, s.country, p.supplierid,  p.productid as pid,
7      p.productname from suppliers s join products p on s.supplierid = p.supplierid
8      where s.country like 'Germany'),
9  GERord as (select d.productid as pid, d.quantity, d.orderid, o.orderid, o.shipcountry
10     from orders o join order_details d on o.orderid = d.orderid
11     where o.shipcountry like 'Germany')
12     select distinct gp.productname,  sum(go.quantity) as TotalSold from GERprod gp join
           GERord go
13     on gp.pid = go.pid group by gp.productname order by TotalSold desc;
14
15 WITH EmployeeSubordinatesReport (EmployeeID, LastName, FirstName, NumberOfSubordinates,
       ReportsTo) AS
16 ( SELECT
17       EmployeeID, LastName, FirstName, (SELECT COUNT(1) FROM Employees e2
18           WHERE e2.ReportsTo = e.EmployeeID) as NumberOfSubordinates, ReportsTo
19   FROM Employees e)
20 SELECT Employee.LastName, Employee.FirstName, Employee.NumberOfSubordinates,
21    Manager.LastName as ManagerLastName, Manager.FirstName as ManagerFirstName
22 FROM EmployeeSubordinatesReport Employee
23    LEFT JOIN EmployeeSubordinatesReport Manager ON
24       Employee.ReportsTo = Manager.EmployeeID order by Employee.NumberOfSubordinates desc;
25
26 drop view if exists CustEmpPairs;
27 create view CustEmpPairs as
28       with CustEmpPairs (cid, eid) as (
29         select distinct customerid, employeeid from orders)
30         select c.customerid, c.companyname, c.contactname, e.employeeid, e.firstname, e.
               lastname
31         from customers c, employees e, CustEmpPairs o
32         where o.eid = e.employeeid and o.cid = c.customerid;
33 select * from CustEmpPairs where employeeid = 7;
34 select * from CustEmpPairs where customerid like 'CHOPS';
35 drop view if exists CustEmpPairs;
```