MS SQL 2008

Advanced data retrieval

Chapter 9 (Part II) | Hotek, 2008

Learning objectives

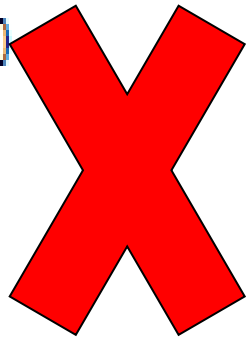
- Admin
- CUBE and ROLLUP functions will be illustrated as part of aggregates after class on Data Warehousing
- Filtering aggregates
- Creating the PIVOT table
- Class Exercise

Filtering Aggregates

- The WHERE clause is **NOT** used to filter data aggregated data, the HAVING clause is used.

```
SELECT SalesOrderID, SUM(LineTotal) AS SubTotal
FROM Sales.SalesOrderDetail
WHERE LineTotal > 30000
GROUP BY SalesOrderID
ORDER BY SalesOrderID
```

This is wrong!



This is correct

```
USE AdventureWorks
GO

SELECT SalesOrderID, SUM(LineTotal) AS SubTotal
FROM Sales.SalesOrderDetail
GROUP BY SalesOrderID
HAVING SUM(LineTotal) > 30000
GO
```

PIVOT Tables

- A Pivot Table is an interactive, cross-tabulated table that summarizes and analyses large amounts of data from various sources
  - Is user-friendly
  - Data is summarised by categories and subcategories, using custom calculations and formulas
  - Expands and collapses levels of data to focus results, drilling down to details from the summary data for areas of interest
  - Moves rows to columns or columns to rows (or "pivoting") to see different summaries of the source data

Calculating Pivot Tables

```
USE AdventureWorks
GO

SELECT VendorID, [2001], [2002], [2003], [2004]
FROM (SELECT VendorID, PurchaseOrderID, YEAR(OrderDate) ChangeYear
      FROM Purchasing.PurchaseOrderHeader) r
PIVOT
(COUNT(r.PurchaseOrderID)
   FOR ChangeYear
   IN ([2001],[2002],[2003],[2004]))
AS Results
ORDER BY VendorID
```

NB: Numbers placed in brackets to represent column names

1. Source for the PIVOT Table

2. The YEAR is selected in this source table

3. PIVOT operator

4. The YEAR is then rotated into the column

The COUNT operator can be varied with any other aggregate clause as may be required e.g. SUM, AVG… etc

Northwinds Example: Pivot

```
Use Northwind
Go

 SELECT c.companyName,
[1] as [Nancy], [2] as [Andrew], [3] as [Janet],
[4] as [Margaret], [5] as [Steven], [6] as [Michael],
[7] as [Robert], [8] as [Laura], [9] as [Anne]
FROM (SELECT customerID,employeeID FROM Orders) o
      PIVOT (COUNT(employeeID) FOR employeeID IN ([1],[2],[3],[4],[5],[6],[7],[8],[9])) p
      JOIN Customers c ON p.customerID=c.customerID
ORDER BY c.CompanyName
```

Northwinds Example: Pivot (Result)

	companyName	Nancy	Andrew	Janet	Margaret	Steven	Michael	Robert	Laura	Anne
1	Alfreds Futterkiste	2	0	1	2	0	1	0	0	0
2	Ana Trujillo Emparedados y helados	0	0	2	1	0	0	1	0	0
3	Antonio Moreno Taquería	1	0	3	1	0	0	2	0	0
4	Around the Horn	3	0	2	4	0	1	0	1	2
5	Berglunds snabbköp	4	1	6	1	2	0	0	2	2
6	Blauer See Delikatessen	0	0	1	1	0	1	0	1	3
7	Blondesddsl père et fils	0	1	2	3	1	2	0	1	1
8	Bólido Comidas preparadas	0	0	0	2	0	0	0	0	1
9	Bon app'	3	1	3	4	1	0	1	2	2
10	Bottom-Dollar Markets	2	2	4	2	0	2	1	0	1
11	B's Beverages	1	1	2	2	0	2	1	0	1
12	Cactus Comidas para llevar	0	1	0	1	0	0	1	2	1
13	Centro comercial Moctezuma	0	0	0	1	0	0	0	0	0
14	Chop-suey Chinese	1	0	1	2	1	2	1	0	0
15	Comércio Mineiro	1	1	0	2	0	0	0	1	0
16	Consolidated Holdings	0	1	0	0	0	0	1	1	0
17	Die Wandernde Kuh	1	1	0	2	0	1	1	4	0
18	Drachenblut Delikatessen	2	0	1	1	0	0	1	1	0
19	Du monde entier	1	1	0	0	0	0	2	0	0
20	Eastern Connection	2	0	0	2	0	0	2	2	0