



20280083_LaiToanThang_DBM_Lab03

```
USE Northwind;
-- 1. Sắp xếp sản phẩm tăng dần theo UnitPrice, và tìm 20% dòng có UnitPrice cao nhất (Lưu ý: Dùng ROW_NUMBER )
SELECT *
FROM (
    SELECT RowNum, Id, ProductId, Quantity, UnitPrice, MAX(RowNum) OVER() as RowLast
    FROM (
        SELECT ROW_NUMBER() OVER (ORDER BY UnitPrice ASC) AS RowNum, *
        FROM OrderItem
    ) AS DerivedTable
    ) AS Report
WHERE Report.RowNum >= 0.8 * RowLast
-- Vì sắp xếp UnitPrice tăng dần và chỉ lấy 20% nên
-- select các dòng ở dưới của table (>= 80%)
```

```
-- 2 SELECTS
SELECT *
FROM (
    SELECT ROW_NUMBER() OVER (ORDER BY UnitPrice ASC) AS RowNum,
           Id, ProductId, Quantity, UnitPrice,
           COUNT(*) OVER () AS TotalRows
    FROM OrderItem
    ) AS DerivedTable
WHERE RowNum >= 0.8 * TotalRows;
```

(432 rows affected)

	RowNum	Id	ProductId	Quantity	UnitPrice	TotalRows
1	1724	81	63	8	35.10	2155
2	1725	96	27	15	35.10	2155
3	1726	122	63	5	35.10	2155
4	1727	201	63	80	35.10	2155
5	1728	481	63	35	35.10	2155
6	1729	513	27	50	35.10	2155
7	1730	414	63	65	35.10	2155
8	1731	346	63	16	35.10	2155
9	1732	898	69	10	36.00	2155
10	1733	922	69	65	36.00	2155
11	1734	916	69	20	36.00	2155
12	1735	1034	69	20	36.00	2155
13	1736	1102	69	45	36.00	2155
14	1737	813	69	18	36.00	2155
15	1738	748	69	10	36.00	2155
16	1739	1312	69	40	36.00	2155
17	1740	1316	69	30	36.00	2155
18	1741	1331	69	3	36.00	2155
19	1742	1338	69	25	36.00	2155
20	1743	1342	69	20	36.00	2155
21	1744	1241	69	25	36.00	2155
22	1745	1170	69	30	36.00	2155
23	1746	1437	69	24	36.00	2155
24	1747	2031	69	36	36.00	2155

```
-- 2. Với mỗi hóa đơn, xuất danh sách các sản phẩm, số lượng (Quantity)
-- và số phần trăm của sản phẩm đó trong hóa đơn.
-- (Gợi ý: ta lấy Quantity chia cho tổng Quantity theo hóa đơn * 100 + '%'. Dùng SUM ... OVER)
```

```
SELECT P.ProductName, OI.Quantity, OrderId, (SUM(Quantity) OVER(PARTITION BY OrderID)) as SumQuantity,
       STR(Quantity * 100.0 / (SUM(Quantity) OVER(PARTITION BY OrderID)), 5, 2) + '%' as [Percent]
FROM OrderItem as OI
JOIN Product as P
ON OI.ProductId = P.Id
ORDER BY OrderId
```

(2155 rows affected)

	ProductName	Quantity	OrderId	SumQuantity	Percent
1	Queso Cabrales	12	1	27	44.44%
2	Singaporean Hokkien Fried Mee	10	1	27	37.04%
3	Mozzarella di Giovanni	5	1	27	18.52%
4	Tofu	9	2	49	18.37%
5	Manjimup Dried Apples	40	2	49	81.63%
6	Jack's New England Clam Chowder	10	3	60	16.67%
7	Manjimup Dried Apples	35	3	60	58.33%
8	Louisiana Fiery Hot Pepper Sauce	15	3	60	25.00%
9	Gustaf's Knäckebröd	6	4	41	14.63%
10	Ravioli Angelo	15	4	41	36.59%
11	Louisiana Fiery Hot Pepper Sauce	20	4	41	48.78%
12	Sir Rodney's Marmalade	40	5	105	38.10%
13	Geitost	25	5	105	23.81%
14	Camembert Pierrot	40	5	105	38.10%
15	Gorgonzola Telino	20	6	102	19.61%
16	Chartreuse verte	42	6	102	41.18%
17	Maxilaku	40	6	102	39.22%
18	Guaraná Fantástica	15	7	57	26.32%
19	Pâté chinois	21	7	57	36.84%
20	Longlife Tofu	21	7	57	36.84%
21	Chang	20	8	110	18.18%
22	Pavlova	35	8	110	31.82%
23	Inlagd Sill	25	8	110	22.73%

```

-- 3. Xuất danh sách các nhà cung cấp kèm theo các cột USA, UK, France, Germany, Others.
-- Nếu nhà cung cấp nào thuộc các quốc gia này thì ta đánh số 1 còn lại là 0

-- (Gợi ý: Tạo bảng tạm theo chiều dọc trước với tên nhà cung cấp và thuộc quốc gia USA,
-- UK, France, Germany hay Others.

IF EXISTS (
  SELECT *
  FROM INFORMATION_SCHEMA.TABLES
  WHERE TABLE_NAME = N'OrderByCountry'
)
BEGIN
  DROP TABLE OrderByCountry
END

SELECT S.Country, S.CompanyName
INTO OrderByCountry
FROM [Supplier] as S
ORDER BY Country
-- Kết quả theo chiều dọc
SELECT * FROM OrderByCountry
-- Vì yêu cầu đề bài chỉ có một vài nước nên tạo thêm bảng tạm mới

IF EXISTS (
  SELECT *
  FROM INFORMATION_SCHEMA.TABLES
  WHERE TABLE_NAME = N'SupplierCountry'
)
BEGIN
  DROP TABLE SupplierCountry
END

SELECT CompanyName,
  CASE -- Phân loại nhà cung cấp theo quốc gia
    WHEN Country = 'USA' THEN 'USA'
    WHEN Country = 'UK' THEN 'UK'
    WHEN Country = 'France' THEN 'France'
    WHEN Country = 'Germany' THEN 'Germany'
    ELSE 'Others'
  END AS CountryGroup
INTO SupplierCountry
FROM OrderByCountry

SELECT *
FROM SupplierCountry
ORDER BY CompanyName
-- Sau đó PIVOT bảng tạm này để tạo kết quả theo chiều ngang)

SELECT CompanyName,
  ISNULL([USA], 0) AS USA,
  ISNULL([UK], 0) AS UK,
  ISNULL([France], 0) AS France,
  ISNULL([Germany], 0) AS Germany,
  ISNULL([Others], 0) AS Others
FROM SupplierCountry
PIVOT (
  COUNT(CountryGroup)
  FOR CountryGroup IN ([USA], [UK], [France], [Germany], [Others])
) AS PivotTable
ORDER BY CompanyName

```

	CompanyName	USA	UK	France	Germany	Others
1	Aux joyeux ecclésiastiques	0	0	1	0	0
2	Bigfoot Breweries	1	0	0	0	0
3	Cooperativa de Quesos 'Las Cabras'	0	0	0	0	1
4	Escargots Nouveaux	0	0	1	0	0
5	Exotic Liquids	0	1	0	0	0
6	Forêts d'érables	0	0	0	0	1
7	Formaggi Fortini s.r.l.	0	0	0	0	1
8	Gai pâturage	0	0	1	0	0
9	G'day, Mate	0	0	0	0	1
10	Grandma Kelly's Homestead	1	0	0	0	0
11	Heli Süßwaren GmbH & Co. KG	0	0	0	1	0
12	Karkki Oy	0	0	0	0	1
13	Leka Trading	0	0	0	0	1
14	Lyngbysild	0	0	0	0	1
15	Ma Maison	0	0	0	0	1
16	Mayumi's	0	0	0	0	1
17	New England Seafood Cannery	1	0	0	0	0
18	New Orleans Cajun Delights	1	0	0	0	0
19	Nord-Ost-Fisch Handelsgesellschaft mbH	0	0	0	1	0
20	Norske Meierier	0	0	0	0	1
21	Pasta Buttini s.r.l.	0	0	0	0	1
22	Pavlova, Ltd.	0	0	0	0	1
23	PB Knäckebröd AB	0	0	0	0	1
24	Plutzer Lebensmittelgroßmärkte AG	0	0	0	1	0
25	Refrescos Americanas LTDA	0	0	0	0	1
26	Specialty Biscuits, Ltd.	0	1	0	0	0
27	Svensk Sjöföda AB	0	0	0	0	1
28	Tokyo Traders	0	0	0	0	1
29	Zaanse Snoepfabriek	0	0	0	0	1

```
-- 4. Xuất danh sách các hóa đơn gồm OrderNumber, OrderDate (format: dd mm yyyy), CustomerName,
-- Address (format: "Phone: ..... , City: .... and Country: ...."), TotalAmount làm tròn không chữ số thập phân và đơn vị theo kèm là Euro)

-- USING LTRIM (REMOVE SPACE AND CAST TO CONVERT TO OTHER DATA TYPE)
SELECT OrderNumber, OrderDate, C.FirstName + ' ' + C.LastName as Name,
       'Phone: ' + C.Phone + ', City: ' + C.City + ', Country: ' + C.Country as Address,
       LTRIM(STR(CAST(O.TotalAmount AS varchar(10)))) + ' Euro' as TotalAmount
FROM [Order] AS O
JOIN Customer AS C
ON O.CustomerId = C.Id
```

```
-- USING CONVERT
SELECT OrderNumber, OrderDate, C.FirstName + ' ' + C.LastName as Name,
       'Phone: ' + C.Phone + ', City: ' + C.City + ', Country: ' + C.Country as Address,
       CONVERT(varchar(10), O.TotalAmount) + ' Euro' as TotalAmount
FROM [Order] AS O
JOIN Customer AS C
ON O.CustomerId = C.Id
```

```
-- USING CONCAT INSTEAD OF +
SELECT OrderNumber, OrderDate, CONCAT(C.FirstName, ' ', C.LastName) AS Name,
       CONCAT('Phone: ', C.Phone, ', City: ', C.City, ', Country: ', C.Country) AS Address,
       CONCAT(LTRIM(STR(CAST(O.TotalAmount AS varchar(10)))), ' Euro') AS TotalAmount
FROM [Order] AS O
JOIN Customer AS C
ON O.CustomerId = C.Id
```

(830 rows affected)

	OrderNumber	OrderDate	Name	Address	TotalAmount
1	542773	2013-08-25 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	1086 Euro
2	542822	2013-10-03 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	878 Euro
3	542832	2013-10-13 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	330 Euro
4	542965	2014-01-15 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	851 Euro
5	543082	2014-03-16 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	491 Euro
6	543141	2014-04-09 00:00:00.000	Maria Anders	Phone: 030-0074321, City: Berlin, Country: Germany	960 Euro
7	543056	2014-03-04 00:00:00.000	Ana Trujillo	Phone: (5) 555-4729, City: México D.F., Country: ...	514 Euro
8	542889	2013-11-28 00:00:00.000	Ana Trujillo	Phone: (5) 555-4729, City: México D.F., Country: ...	320 Euro
9	542755	2013-08-08 00:00:00.000	Ana Trujillo	Phone: (5) 555-4729, City: México D.F., Country: ...	480 Euro
10	542438	2012-09-18 00:00:00.000	Ana Trujillo	Phone: (5) 555-4729, City: México D.F., Country: ...	89 Euro
11	542495	2012-11-27 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	403 Euro
12	542637	2013-04-15 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	881 Euro
13	542665	2013-05-13 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	2157 Euro
14	542807	2013-09-22 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	957 Euro
15	542703	2013-06-19 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	2082 Euro
16	542812	2013-09-25 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	376 Euro
17	542986	2014-01-28 00:00:00.000	Antonio Moreno	Phone: (5) 555-3932, City: México D.F., Country: ...	660 Euro
18	542994	2014-02-02 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	282 Euro
19	543050	2014-03-03 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	390 Euro
20	543083	2014-03-16 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	4675 Euro
21	543146	2014-04-10 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	492 Euro
22	542837	2013-10-16 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	1704 Euro
23	542871	2013-11-14 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	285 Euro
24	542873	2013-11-17 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	336 Euro
25	542898	2013-12-08 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	1477 Euro
26	542923	2013-12-24 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	191 Euro
27	542688	2013-06-04 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	2143 Euro
28	542583	2013-02-21 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	453 Euro
29	542485	2012-11-15 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	480 Euro
30	542513	2012-12-16 00:00:00.000	Thomas Hardy	Phone: (171) 555-7788, City: London, Country: UK	899 Euro
31	542514	2012-12-16 00:00:00.000	Christina Bergl...	Phone: 0921-12 34 65, City: Luleå, Country: Swed...	2222 Euro
32	542408	2012-08-12 00:00:00.000	Christina Bergl...	Phone: 0921-12 34 65, City: Luleå, Country: Swed...	1489 Euro
33	542410	2012-08-14 00:00:00.000	Christina Bergl...	Phone: 0921-12 34 65, City: Luleå, Country: Swed...	613 Euro

```
-- 5. Xuất danh sách các sản phẩm dưới dạng đóng gói bags. Thay đổi chữ bags thành 'túi'
-- (Lưu ý: để dùng tiếng việt có dấu ta ghi chuỗi dưới dạng N'túi')
```

```
-- USING REPLACE
SELECT ProductName, UnitPrice,
       Package,
       REPLACE(Package, N'bags', N'túi') AS NewPackage
FROM Product
WHERE Package LIKE N'%bag%'
```

```
-- USING STUFF
SELECT ProductName, STUFF(Package, CHARINDEX('bags', Package), LEN('bags'), N'túi') AS NewPackage
FROM Product
WHERE Package LIKE '%bags%';
```

	ProductName	UnitPrice	Package	NewPackage
1	Chai	18.00	10 boxes x 20 bags	10 boxes x 20 túi
2	Gumbär Gummibärchen	31.23	100 - 250 g bags	100 - 250 g túi
3	Thüringer Rostbratwurst	123.79	50 bags x 30 sausgs.	50 túi x 30 sausgs.
4	Gula Malacca	19.45	20 - 2 kg bags	20 - 2 kg túi
5	Wimmers gute Semmelknödel	33.25	20 bags x 4 pieces	20 túi x 4 pieces

```
-- 6. Xuất danh sách các khách hàng theo tổng số hóa đơn mà khách hàng đó có,
-- sắp xếp theo thứ tự giảm dần của tổng số hóa đơn, kèm theo đó là
```

```
-- các thông tin phân hạng DENSE_RANK và nhóm (chia thành 3 nhóm) (Gợi ý: dùng NTILE(3) để chia nhóm.

-- USING THE CODE SAMPLE
SELECT CustomerID = Report.Id,
       CustomerName = Report.Name,
       [Number Of Order] = Report.[Number Of Order],
       [Group] = NTILE (3) OVER (ORDER BY Report.[Number Of Order] DESC)
FROM (
  SELECT C.Id, [Name] = CONCAT(C.FirstName, ' ', C.LastName),
         [Number Of Order] = COUNT(ISNULL(O.Id, 0))
  FROM Customer AS C
  LEFT JOIN [Order] AS O
  ON C.Id = O.CustomerId
  GROUP BY C.Id, C.FirstName, C.LastName
) AS Report
```

```
-- USING DENSE RANK() AND NTILE(3)
SELECT C.Id AS CustomerID, CONCAT(C.FirstName, ' ', C.LastName) AS CustomerName,
       COUNT(O.Id) AS [Number of Orders],
       DENSE_RANK() OVER (ORDER BY COUNT(O.Id) DESC) AS CustomerRank,
       NTILE(3) OVER (ORDER BY COUNT(ISNULL(O.Id, 0)) DESC) AS GroupNumber
FROM Customer C
LEFT JOIN [Order] O ON C.Id = O.CustomerId
GROUP BY C.Id, C.FirstName, C.LastName
ORDER BY [Number of Orders] DESC
```

(91 rows affected)

	CustomerID	CustomerName	Number of Orders	CustomerRank	GroupNumber
1	71	Jose Pavarotti	31	1	1
2	20	Roland Mendel	30	2	1
3	63	Horst Kloss	28	3	1
4	37	Patricia McKenna	19	4	1
5	24	Maria Larsson	19	4	1
6	35	Carlos Hernández	18	5	1
7	5	Christina Berglund	18	5	1
8	65	Paula Wilson	18	5	1
9	9	Laurence Lebihan	17	6	1
10	25	Peter Franken	15	7	1
11	44	Renate Messner	15	7	1
12	87	Pirkko Koskitalo	15	7	1
13	89	Karl Jablonski	14	8	1
14	41	Annette Roulet	14	8	1
15	39	Philip Cramer	14	8	1
16	46	Carlos González	14	8	1
17	34	Mario Pontes	14	8	1
18	10	Elizabeth Lincoln	14	8	1
19	4	Thomas Hardy	13	9	1
20	51	Jean Fresnière	13	9	1
21	62	Lúcia Carvalho	13	9	1
22	66	Maurizio Moroni	12	10	1
23	47	Felipe Izquierdo	12	10	1
24	76	Pascale Cartrain	12	10	1
25	83	Palle Ibsen	11	11	1
26	67	Janete Limeira	11	11	1
27	7	Frédérique Citea...	11	11	1
28	32	Howard Snyder	11	11	1
29	30	José Pedro Freyre	10	12	1
30	11	Victoria Ashworth	10	12	1
31	68	Michael Holz	10	12	1
32	59	Georg Pippis	10	12	2
33	49	Giovanni Rovelli	10	12	2