

# Lab Assignment 5: Subtotal Operators

## Query 1: Sales Order Shipments by Month and Category Code1

```
1  --Query 1: Sales Order Shipments by Month and Category Code1--
2
3  SELECT calMonth, addrCatCode1,
4         SUM(EXTCOST) AS SumExCost,
5         SUM(QUANTITY) AS SUMQUANTITY
6  FROM INVENTORY_FACT as i, DATE_DIM as d,
7       CUST_VENDOR_DIM as c
8  WHERE d.datekey = i.datekey
9        AND i.custVendorKey = c.custVendorKey
10       AND i.transTypeKey = 5
11       AND d.calYear = 2011
12  GROUP BY CUBE(calMonth, addrCatCode1)
13  ORDER BY calMonth, addrCatCode1;
```

History		Results	
Result set 1		Details	
Filter table		Total:78	
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY
1	1	12876795.00	12970.0000
1	2	6856150.00	7004.0000
1	3	5643236.00	5629.0000
1	4	5657775.00	5691.0000
1	5	8189894.00	8368.0000
1	-	39223850.00	39662.0000
2	1	9481319.00	8983.0000
2	2	6808224.00	6935.0000
2	3	4023869.00	4139.0000
Items per page: 50		1-50 of 78 items	
		1 of 2 pages	

Filter table		Total:78	
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY
12	3	4383227.00	4394.0000
12	4	4313641.00	4449.0000
12	5	5975486.00	6439.0000
12	-	30723372.00	31574.0000
-	1	122255354.00	122248.0000
-	2	76074121.00	77251.0000
-	3	60696692.00	60739.0000
-	4	63554999.00	62335.0000
-	5	86055350.00	85420.0000
-	-	408636516.00	407993.0000
Items per page: 50		51-78 of 78 items	
		2 of 2 pages	

## Query 2: Sales Order Shipments by Name, Zip, and Quarter

```

15  --Query 2: Sales Order Shipments by Name, Zip, and Quarter--
16  SELECT d.calQuarter, c.zip, c.name,
17         SUM(EXTCOST) AS SUMexCost,
18         COUNT(*) AS InvTRANSACTIONS
19  FROM INVENTORY_FACT as i, DATE_DIM as d,
20         CUST_VENDOR_DIM as c
21  WHERE d.datekey = i.datekey
22         AND i.custVendorKey = c.custVendorKey
23         AND i.transTypeKey = 5
24         AND d.calYear BETWEEN 2011 AND 2012
25  GROUP BY GROUPING SETS ((calQuarter, zip, c.name),
26         (calQuarter, zip), (zip, c.name), (calQuarter, c.name),
27         calQuarter, zip, c.name, ())
28  ORDER BY calQuarter, zip, c.name;

```

Result set 1				
Details				
Filter table				
Total:305				
CALQUARTER	ZIP	NAME	SUMEXCOST	INVTRANSACTIONS
1	02162	Customer 11	9082032.00	94
1	02162	-	9082032.00	94
1	10231	Customer 17	10594965.00	103
1	10231	-	10594965.00	103
1	10251	Customer 2	11075812.00	102
1	10251	-	11075812.00	102
1	19084	Customer 9	12227671.00	114
1	19084	-	12227671.00	114
1	20054	Customer 12	11000482.00	114
1	20054	-	11000482.00	114

Items per page: 50 1-50 of 305 items

1 of 7 pages

Result set 1				
Details				
Filter table				
Total:305				
CALQUARTER	ZIP	NAME	SUMEXCOST	INVTRANSACTIONS
-	-	Customer 6	38141988.00	401
-	-	Customer 7	40345742.00	407
-	-	Customer 8	44576414.00	446
-	-	Customer 9	41201776.00	424
-	-	-	822589920.00	8320

Items per page: 50 301-305 of 305 items

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### Query 3: Transfers by Company and Branch Plant

```
30 --Query 3: Transfers by Company and Branch Plant--
31 SELECT companyName, BPName, SUM(EXTCOST) AS SUMexCost, SUM(QUANTITY) AS SUMquantity
32 FROM COMPANY_DIM AS CD,
33      BRANCH_PLANT_DIM AS BP,
34      INVENTORY_FACT AS I
35 WHERE i.branchPlantKey = BP.branchPlantKey
36 AND CD.companyKey = BP.companyKey
37 AND I.transTypeKey = 2
38 GROUP BY ROLLUP(companyName,BPName)
39 ORDER BY companyName,BPName;
```

History

Results




Result set 1

Details

Q

Filter table

Total:26



COMPANYNAME	BPNAME	SUMEXCOST	SUMQUANTITY
Company 1	Branch Plant 1	872065.00	1141.0000
Company 1	Branch Plant 2	1452906.00	1183.0000
Company 1	Branch Plant 3	-992788.00	-726.0000
Company 1	Branch Plant 4	1011788.00	728.0000
Company 1	-	2343971.00	2326.0000
Company 2	Branch Plant 5	133624.00	-121.0000
Company 2	Branch Plant 6	183894.00	130.0000
Company 2	Branch Plant 7	488275.00	205.0000
Company 2	Branch Plant 8	-269480.00	-289.0000
Company 2	-	536313.00	-75.0000

Result set 1

Details

Filter table

Total:26

COMPANYNAME	BPNAME	SUMEXCOST	SUMQUANTITY
Company 4	Branch Plant 14	269750.00	401.0000
Company 4	Branch Plant 15	-674220.00	-559.0000
Company 4	Branch Plant 16	-526426.00	-574.0000
Company 4	-	-2193471.00	-1945.0000
Company 5	Branch Plant 17	1165434.00	1059.0000
Company 5	Branch Plant 18	-670863.00	-693.0000
Company 5	Branch Plant 19	-282431.00	-114.0000
Company 5	Branch Plant 20	-271104.00	-102.0000
Company 5	-	-58964.00	150.0000
-	-	0.00	0.0000

#### Query 4: Inventory Transactions by Transaction Description, Company, and Branch Plant

```
42 --Query 4: Inventory Transactions by Transaction Description, Company, and Branch Plant--
43 SELECT transDescription, companyName, BPName, COUNT(*) AS InvTRANSACTIONS , SUM(EXTCOST) AS SUMExCost
44 FROM INVENTORY_FACT I, BRANCH_PLANT_DIM BP, COMPANY_DIM CD, TRANS_TYPE_DIM tt
45 WHERE I.branchPlantKey = BP.branchPlantKey
46       AND BP.companyKey = CD.companyKey
47       AND I.transTypeKey = tt.transTypeKey
48 GROUP BY GROUPING SETS ((transDescription, companyName, BPName),
49                          (transDescription, companyName)
50                          ,transDescription,())
51 ORDER BY transDescription, companyName, BPName;
```

Result set 1					Details				
Filter table					Total:131				
TRANSDescription	COMPANYNAME	BPNAME	INVTRANSACTIONS	SUMEXCOST					
Inventory Adjustment	Company 1	Branch Plant 1	30	3188065.00					
Inventory Adjustment	Company 1	Branch Plant 2	22	2542496.00					
Inventory Adjustment	Company 1	Branch Plant 3	18	1777790.00					
Inventory Adjustment	Company 1	Branch Plant 4	19	2042114.00					
Inventory Adjustment	Company 1	-	89	9550465.00					
Inventory Adjustment	Company 2	Branch Plant 5	22	1829049.00					
Inventory Adjustment	Company 2	Branch Plant 6	21	2274809.00					
Inventory Adjustment	Company 2	Branch Plant 7	15	1245359.00					
Inventory Adjustment	Company 2	Branch Plant 8	22	2067322.00					
Inventory Adjustment	Company 2	-	80	7416539.00					
Items per page: 50					1-50 of 131 items				
					1 of 3 pages				

Result set 1					Details				
Filter table					Total:131				
TRANSDescription	COMPANYNAME	BPNAME	INVTRANSACTIONS	SUMEXCOST					
Sales Order Shipment	Company 4	Branch Plant 15	426	42139477.00					
Sales Order Shipment	Company 4	Branch Plant 16	436	41492781.00					
Sales Order Shipment	Company 4	-	1652	161806965.00					
Sales Order Shipment	Company 5	Branch Plant 17	401	39629378.00					
Sales Order Shipment	Company 5	Branch Plant 18	384	37915444.00					
Sales Order Shipment	Company 5	Branch Plant 19	413	39682587.00					
Sales Order Shipment	Company 5	Branch Plant 20	400	38645923.00					
Sales Order Shipment	Company 5	-	1598	155873332.00					
Sales Order Shipment	-	-	8320	822589920.00					
-	-	-	18300	84268940465.00					
Items per page: 50					101-131 of 131 items				
					3 of 3 pages				

### Query 5: Adjustments by Part Number

```

53  --Query 5: Adjustments by Part Number--
54  SELECT D.calYear, D.calQuarter, CV.name,
55         SUM(EXTCOST) AS SUMexCost, COUNT(*) AS InvTRANSACTIONS
56  FROM INVENTORY_FACT I, DATE_DIM D, CUST_VENDOR_DIM CV
57  WHERE D.dateKey = I.dateKey
58         AND I.custVendorKey = CV.custVendorKey
59         AND I.transTypeKey = 5
60         AND D.calyear BETWEEN 2011 AND 2012
61  GROUP BY CV.name, ROLLUP(D.calYear, D.calQuarter)
62  ORDER BY D.calYear, D.calQuarter, CV.name;

```

Result set 1				
Details				
<div> <div>Filter table</div> <div>Total:220</div> <div></div> <div></div> <div></div> </div>				
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS
2011	1	Customer 1	4695612.00	49
2011	1	Customer 10	5765357.00	55
2011	1	Customer 11	4870548.00	51
2011	1	Customer 12	5412366.00	59
2011	1	Customer 13	4524202.00	53
2011	1	Customer 14	3980483.00	42
2011	1	Customer 15	5297558.00	51
2011	1	Customer 16	4373309.00	46
2011	1	Customer 17	5428721.00	53
2011	1	Customer 18	5202736.00	56
<div> <div>Items per page: 50</div> <div>1-50 of 220 items</div> <div>1 of 5 pages</div> <div></div> <div></div> </div>				

Result set 1				
Details				
<div> <div>Filter table</div> <div>Total:220</div> <div></div> <div></div> <div></div> </div>				
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS
-	-	Customer 19	42641911.00	428
-	-	Customer 2	41472138.00	391
-	-	Customer 20	40287693.00	419
-	-	Customer 3	40680456.00	410
-	-	Customer 4	40990684.00	410
-	-	Customer 5	38657564.00	400
-	-	Customer 6	38141988.00	401
-	-	Customer 7	40345742.00	407
-	-	Customer 8	44576414.00	446
-	-	Customer 9	41201776.00	424
<div> <div>Items per page: 50</div> <div>201-220 of 220 items</div> <div>5 of 5 pages</div> <div></div> <div></div> </div>				

### Query 6: Rewrite Query 1 without CUBE, ROLLUP, or GROUPING SETS

```
63 --Query 6: Rewrite Query 1 without CUBE, ROLLUP, or GROUPING SETS--
64 SELECT calMonth, addrCatCode1,
65         SUM(EXTCOST) AS SumExCost,
66         SUM(QUANTITY) AS SUMQUANTITY
67 FROM INVENTORY_FACT as i, DATE_DIM as d,
68      CUST_VENDOR_DIM as c
69 WHERE d.datekey = i.datekey
70       AND i.custVendorKey = c.custVendorKey
71       AND i.transTypeKey =5
72       AND d.calYear = 2011
73 GROUP BY calMonth, addrCatCode1
74 UNION
75 SELECT calMonth, NULL,
76         SUM(EXTCOST) AS SumExCost,
77         SUM(QUANTITY) AS SUMQUANTITY
78 FROM INVENTORY_FACT as i, DATE_DIM as d,
79      CUST_VENDOR_DIM as c
80 WHERE d.datekey = i.datekey
81       AND i.custVendorKey = c.custVendorKey
82       AND i.transTypeKey =5
83       AND d.calYear = 2011
84 GROUP BY calMonth
85 UNION
86 SELECT NULL, addrCatCode1,
87         SUM(EXTCOST) AS SumExCost,
88         SUM(QUANTITY) AS SUMQUANTITY
89 FROM INVENTORY_FACT as i, DATE_DIM as d,
90      CUST_VENDOR_DIM as c
91 WHERE d.datekey = i.datekey
92       AND i.custVendorKey = c.custVendorKey
93       AND i.transTypeKey =5
94       AND d.calYear = 2011
95 GROUP BY addrCatCode1
96 UNION
97 SELECT NULL, NULL,
98         SUM(EXTCOST) AS SumExCost,
99         SUM(QUANTITY) AS SUMQUANTITY
100 FROM INVENTORY_FACT as i, DATE_DIM as d,
101      CUST_VENDOR_DIM as c
102 WHERE d.datekey = i.datekey
103       AND i.custVendorKey = c.custVendorKey
104       AND i.transTypeKey
105       AND d.calYear = 2011
106 ORDER BY calMonth, addrCatCode1;
```




History		Results	
Result set 1		Details	
<div> <div> <div></div> <div>Filter table</div> </div> <div> <div>Total:78</div> <div></div> <div></div> <div></div> </div> </div>			
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY
1	1	12876795.00	12970.0000
1	2	6856150.00	7004.0000
1	3	5643236.00	5629.0000
1	4	5657775.00	5691.0000
1	5	8189894.00	8368.0000
1	-	39223850.00	39662.0000
2	1	9481319.00	8983.0000
2	2	6808224.00	6935.0000
2	3	4023869.00	4139.0000
Items per page: 50		1-50 of 78 items	1 of 2 pages
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY
12	4	4313641.00	4449.0000
12	5	5975486.00	6439.0000
12	-	30723372.00	31574.0000
-	1	122255354.00	122248.0000
-	2	76074121.00	77251.0000
-	3	60696692.00	60739.0000
-	4	63554999.00	62335.0000
-	5	86055350.00	85420.0000
-	-	42367811707.00	42262979.0000
Items per page: 50		51-78 of 78 items	2 of 2 pages




## Query 7: Rewrite Query 3 without CUBE, ROLLUP, or GROUPING SETS

```

108 --Query 7: Rewrite Query 3 without CUBE, ROLLUP, or GROUPING SETS--
109 SELECT companyName, BPName, SUM(EXTCOST) AS SUMexCost, SUM(QUANTITY) AS SUMquantity
110 FROM COMPANY_DIM AS CD,
111      BRANCH_PLANT_DIM AS BP,
112      INVENTORY_FACT AS I
113 WHERE i.branchPlantKey = BP.branchPlantKey
114        AND CD.companyKey = BP.companyKey
115        AND I.transTypeKey = 2
116 GROUP BY companyName, BPName
117 UNION
118 SELECT companyName, NULL, SUM(EXTCOST) AS SUMexCost, SUM(QUANTITY) AS SUMquantity
119 FROM COMPANY_DIM AS CD,
120      BRANCH_PLANT_DIM AS BP,
121      INVENTORY_FACT AS I
122 WHERE i.branchPlantKey = BP.branchPlantKey
123        AND CD.companyKey = BP.companyKey
124        AND I.transTypeKey = 2
125 GROUP BY companyName
126 UNION
127 SELECT NULL, NULL, SUM(EXTCOST) AS SUMexCost, SUM(QUANTITY) AS SUMquantity
128 FROM COMPANY_DIM AS CD,
129      BRANCH_PLANT_DIM AS BP,
130      INVENTORY_FACT AS I
131 WHERE i.branchPlantKey = BP.branchPlantKey
132        AND CD.companyKey = BP.companyKey
133        AND I.transTypeKey = 2
134 ORDER BY companyName, BPName;

```

History		Results	
Result set 1		Details	
Q Filter table		Total:26   	
COMPANYNAME	BPNAME	SUMEXCOST	SUMQUANTITY
Company 1	Branch Plant 1	872065.00	1141.0000
Company 1	Branch Plant 2	1452906.00	1183.0000
Company 1	Branch Plant 3	-992788.00	-726.0000
Company 1	Branch Plant 4	1011788.00	728.0000
Company 1	-	2343971.00	2326.0000
Company 2	Branch Plant 5	133624.00	-121.0000
Company 2	Branch Plant 6	183894.00	130.0000
Company 2	Branch Plant 7	488275.00	205.0000
Company 2	Branch Plant 8	-269480.00	-289.0000

Result set 1		Details	
Q Filter table		Total:26   	
COMPANYNAME	BPNAME	SUMEXCOST	SUMQUANTITY
Company 4	Branch Plant 15	-674220.00	-559.0000
Company 4	Branch Plant 16	-526426.00	-574.0000
Company 4	-	-2193471.00	-1945.0000
Company 5	Branch Plant 17	1165434.00	1059.0000
Company 5	Branch Plant 18	-670863.00	-693.0000
Company 5	Branch Plant 19	-282431.00	-114.0000
Company 5	Branch Plant 20	-271104.00	-102.0000
Company 5	-	-58964.00	150.0000
-	-	0.00	0.0000



## Query 8: Sales Order Shipments by Name and Combination of Year and Quarter

```

140 --Query 8: Sales Order Shipments by Name and Combination of Year and Quarter--
141 SELECT D.calYear, D.calQuarter, CV.name, SUM(EXTCOST) AS SUMexCost, COUNT(*) AS InvTRANSACTIONS
142 FROM CUST_VENDOR_DIM AS CV,
143     INVENTORY_FACT AS I,
144     DATE_DIM AS D
145 WHERE CV.custVendorKey = I.custvendorKey
146     AND I.dateKey = D.dateKey
147     AND I.transTypeKey = 5
148     AND D.calYear BETWEEN 2011 AND 2012
149 GROUP BY CUBE((D.calYear, D.calQuarter), CV.name)
150 ORDER BY D.calYear, D.calQuarter, CV.name;

```

Result set 1		Details				
					Total:189	
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS		
2011	1	Customer 1	4695612.00	49		
2011	1	Customer 10	5765357.00	55		
2011	1	Customer 11	4870548.00	51		
2011	1	Customer 12	5412366.00	59		
2011	1	Customer 13	4524202.00	53		
2011	1	Customer 14	3980483.00	42		
2011	1	Customer 15	5297558.00	51		
2011	1	Customer 16	4373309.00	46		
2011	1	Customer 17	5428721.00	53		
2011	1	Customer 18	5202736.00	56		
2011	1	Customer 19	5701085.00	55		
2011	1	Customer 2	5376058.00	51		
Items per page: 50		1-50 of 189 items			1 of 4 pages	

Result set 1		Details				
					Total:189	
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS		
-	-	Customer 18	44471146.00	457		
-	-	Customer 19	42641911.00	428		
-	-	Customer 2	41472138.00	391		
-	-	Customer 20	40287693.00	419		
-	-	Customer 3	40680456.00	410		
-	-	Customer 4	40990684.00	410		
-	-	Customer 5	38657564.00	400		
-	-	Customer 6	38141988.00	401		
-	-	Customer 7	40345742.00	407		
-	-	Customer 8	44576414.00	446		
-	-	Customer 9	41201776.00	424		
-	-	-	822589920.00	8320		
Items per page: 50		151-189 of 189 items			4 of 4 pages	

### Query 9: Sales Order Shipments by Month and Category Code1 with Group Number

```

152 --Query 9: Sales Order Shipments by Month and Category Code1 with Group Number--
153 SELECT D.calMonth, CV.addrCatCode1, SUM(EXTCOST) AS SUMexCost, SUM(QUANTITY) AS SUMquantity,
154        ROW_NUMBER() OVER (ORDER BY D.calMonth, CV.addrCatCode1) AS GROUP_LEVEL
155 FROM CUST_VENDOR_DIM AS CV,
156      INVENTORY_FACT AS I,
157      DATE_DIM AS D
158 WHERE CV.custVendorKey = I.custVendorKey
159       AND I.dateKey = D.dateKey
160       AND I.transTypeKey = 5
161       AND D.calYear = 2011
162 GROUP BY CUBE(D.calMonth, CV.addrCatCode1)
163 ORDER BY GROUP_LEVEL;

```

Result set 1					Details				
Filter table					Total:78				
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY	GROUP_LEVEL					
1	1	12876795.00	12970.0000	1					
1	2	6856150.00	7004.0000	2					
1	3	5643236.00	5629.0000	3					
1	4	5657775.00	5691.0000	4					
1	5	8189894.00	8368.0000	5					
1	-	39223850.00	39662.0000	6					
2	1	9481319.00	8983.0000	7					
2	2	6808224.00	6935.0000	8					
2	3	4023869.00	4139.0000	9					
2	4	4862270.00	4657.0000	10					
2	5	5828930.00	6147.0000	11					
Items per page: 50					1-50 of 78 items				
					1 of 2 pages				

Result set 1					Details				
Filter table					Total:78				
CALMONTH	ADDRCATCODE1	SUMEXCOST	SUMQUANTITY	GROUP_LEVEL					
12	2	6930373.00	6908.0000	68					
12	3	4383227.00	4394.0000	69					
12	4	4313641.00	4449.0000	70					
12	5	5975486.00	6439.0000	71					
12	-	30723372.00	31574.0000	72					
-	1	122255354.00	122248.0000	73					
-	2	76074121.00	77251.0000	74					
-	3	60696692.00	60739.0000	75					
-	4	63554999.00	62335.0000	76					
-	5	86055350.00	85420.0000	77					
-	-	408636516.00	407993.0000	78					
Items per page: 50					51-78 of 78 items				
					2 of 2 pages				

## Query 10: Sales Order Shipments with Subtotals by Name and Partial Subtotals by Year and Quarter

```

165 --Query 10: Sales Order Shipments with Subtotals by Name and Partial Subtotals by Year and Quarter--
166 SELECT D.calYear, D.calQuarter, CV.name, SUM(EXTCOST) AS SUMexCost, COUNT(*) AS InvTRANSACTIONS
167 FROM CUST_VENDOR_DIM AS CV,
168     INVENTORY_FACT AS I,
169     DATE_DIM AS D
170 WHERE CV.custVendorKey = I.custvendorKey
171     AND I.dateKey = D.dateKey
172     AND I.transTypeKey = 5
173     AND D.calYear BETWEEN 2011 AND 2012
174 GROUP BY GROUPING SETS(ROLLUP(D.calYear,(D.calQuarter)),CV.name)
175 ORDER BY D.calYear, D.calQuarter, CV.name;

```

Result set 1				
Details				
Filter table				
Total:31				
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS
2011	1	-	100936873.00	1032
2011	2	-	105354913.00	1053
2011	3	-	102833662.00	1033
2011	4	-	99511068.00	1016
2011	-	-	408636516.00	4134
2012	1	-	101495171.00	1018
2012	2	-	101734934.00	1041
2012	3	-	104745569.00	1073
2012	4	-	105977730.00	1054
2012	-	-	413953404.00	4186

Result set 1				
Details				
Filter table				
Total:31				
CALYEAR	CALQUARTER	NAME	SUMEXCOST	INVTRANSACTIONS
-	-	Customer 2	41472138.00	391
-	-	Customer 20	40287693.00	419
-	-	Customer 3	40680456.00	410
-	-	Customer 4	40990684.00	410
-	-	Customer 5	38657564.00	400
-	-	Customer 6	38141988.00	401
-	-	Customer 7	40345742.00	407
-	-	Customer 8	44576414.00	446
-	-	Customer 9	41201776.00	424
-	-	-	822589920.00	8320