

```

1  /*
2  AIM:Aim: Write and Execute SQL aggregation queries for data warehouse.
3  Details: To run queries for CUBE, PARTIAL CUBE, ROLLUP, PARTIAL ROLLUP, GROUPING,
4  GROUPING SETS, GROUP_ID( )
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7  Details: To run queries for CUBE, PARTIAL CUBE, ROLLUP, PARTIAL ROLLUP, GROUPING,
8  GROUPING SETS, GROUP_ID( )
9  */
10 Q1) Find the total sales by country_id and channel_desc for the US and GB through
11 the Internet and direct sales in September 2000 and October 2000 using ROLL-UP
12 Extension. The query should return the following:
13 □ The aggregation rows that would be produced by GROUP BY ,
14 □ The First-level subtotals aggregating across country_id for each combination
15 of channel_desc and calendar_month.
16 □ Second-level subtotals aggregating
17 across calendar_month_desc and country_id for each channel_desc value.
18 □ A grand total row.
19 select channels.channel_desc, calendar_month_desc,
20 countries.country_iso_code,
21 to_char(sum(amount_sold), '9,999,999,999') sales$
22 from sales, customers, times, channels, countries
23 where sales.time_id=times.time_id
24 and sales.cust_id=customers.cust_id
25 and customers.country_id = countries.country_id
26 and sales.channel_id = channels.channel_id
27 and channels.channel_desc in ('direct sales', 'internet')
28 and times.calendar_month_desc in ('2000-09', '2000-10')
29 and countries.country_iso_code in ('gb', 'us')
30 group by
31 rollup(channels.channel_desc, calendar_month_desc, countries.country_iso_code);
32
33 --QUERY 1:
34 CHANNEL_DESC          CALENDAR CO SALES$
35 -----
36 Internet              2000-09  GB          16,569
37 Internet              2000-09  US          124,224
38 Internet              2000-09             140,793
39 Internet              2000-10  GB          14,539
40 Internet              2000-10  US          137,054
41 Internet              2000-10             151,593
42 Internet              2000-10             292,387
43 Direct Sales          2000-09  GB           85,223
44 Direct Sales          2000-09  US          638,201
45 Direct Sales          2000-09             723,424
46 Direct Sales          2000-10  GB           91,925
47
48 CHANNEL_DESC          CALENDAR CO SALES$
49 -----
50 Direct Sales          2000-10  US          682,297
51 Direct Sales          2000-10             774,222
52 Direct Sales          2000-10             1,497,646
53 Direct Sales          2000-10             1,790,032
54
55 15 rows selected.
56
57 --QUERY 2:
58 Q2. Find the total sales by country_id and channel_desc for the US and GB through
59 the Internet and direct sales in September 2000 and October 2009 using
60 CUBE aggregation across three dimensions- channel_desc, calendar_month_desc,
61 countries.country_iso_code.
62 select channels.channel_desc, calendar_month_desc,
63 countries.country_iso_code,
64 to_char(sum(amount_sold), '9,999,999,999') total_sales
65 from sales, customers, times, channels, countries
66 where sales.time_id=times.time_id
67 and sales.cust_id=customers.cust_id

```

```

68         and customers.country_id = countries.country_id
69         and sales.channel_id = channels.channel_id
70         and upper(channels.channel_desc) in ('DIRECT SALES', 'INTERNET')
71         and times.calendar_month_desc in ('2000-09', '2000-10')
72         and upper(countries.country_iso_code) in ('GB', 'US')
73     group by
74     cube(channels.channel_desc, calendar_month_desc, countries.country_iso_code);
75
76

```

```

77 CHANNEL_DESC      CALENDAR CO TOTAL_SALES
78 -----
79                                     1,790,032
80                                     GB      208,257
81                                     US      1,581,775
82                                2000-09      864,217
83                                2000-09 GB      101,792
84                                2000-09 US      762,425
85                                2000-10      925,815
86                                2000-10 GB      106,465
87                                2000-10 US      819,351
88 Internet                                     292,387
89 Internet                                     GB      31,109
90

```

```

91 CHANNEL_DESC      CALENDAR CO TOTAL_SALES
92 -----
93 Internet                                     US      261,278
94 Internet                                2000-09      140,793
95 Internet                                2000-09 GB      16,569
96 Internet                                2000-09 US      124,224
97 Internet                                2000-10      151,593
98 Internet                                2000-10 GB      14,539
99 Internet                                2000-10 US      137,054
100 Direct Sales                                     1,497,646
101 Direct Sales                                     GB      177,148
102 Direct Sales                                     US      1,320,497
103 Direct Sales                                2000-09      723,424
104

```

```

105 CHANNEL_DESC      CALENDAR CO TOTAL_SALES
106 -----
107 Direct Sales                                2000-09 GB      85,223
108 Direct Sales                                2000-09 US      638,201
109 Direct Sales                                2000-10      774,222
110 Direct Sales                                2000-10 GB      91,925
111 Direct Sales                                2000-10 US      682,297
112

```

113 27 rows selected.

114
115 Q3. Find the total sales by country_iso and channel_desc for the US and France
116 through the Internet and direct sales in September 2000

117 -- Query 3:

```

118
119 SELECT CHANNELS.CHANNEL_DESC,
120        COUNTRIES.COUNTRY_ISO_CODE,
121        TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
122 FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
123 WHERE SALES.TIME_ID=TIMES.TIME_ID
124        AND SALES.CUST_ID=CUSTOMERS.CUST_ID
125        AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
126        AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
127        AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
128        AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09')
129        AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('FR', 'US')
130 GROUP BY
131 ROLLUP(CHANNELS.CHANNEL_DESC, COUNTRIES.COUNTRY_ISO_CODE);
132
133

```

```

134 CHANNEL_DESC      CO TOTAL_SALES
135 -----
136 Internet          FR      9,597

```

```

137 Internet          US      124,224
138 Internet          US      133,821
139 Direct Sales      FR       61,202
140 Direct Sales      US      638,201
141 Direct Sales      US      699,403
142 Direct Sales      US      833,224
143

```

7 rows selected.

Q4. Find the total sales **by** country_id **and** channel_desc **for** the US **and** GB through the Internet **and** direct sales **in** September 2000 **and** October 2009 **using** PARTIAL ROLL-UP. The query should **return** the following:

- Regular aggregation **rows** that would be produced **by** GROUP BY without **using** ROLLUP.
- **First-level** subtotals aggregating across country_id **for** **each** combination of channel_desc **and** calendar_month_desc.
- **Second-level** subtotals aggregating across calendar_month_desc **and** country_id **for** **each** channel_desc **value**.
- It does **not** produce a grand total **row**.

-- query 4:

```

159 SELECT CHANNELS.CHANNEL_DESC,
160        COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC,
161        TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
162        FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
163        WHERE SALES.TIME_ID=TIMES.TIME_ID
164              AND SALES.CUST_ID=CUSTOMERS.CUST_ID
165              AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
166              AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
167              AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
168              AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09', '2000-10')
169              AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
170 GROUP BY
171        CHANNELS.CHANNEL_DESC , ROLLUP
172        (COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC);

```

CHANNEL_DESC	CO	CALENDAR	TOTAL_SALES
Internet	GB	2000-09	16,569
Internet	GB	2000-10	14,539
Internet	GB		31,109
Internet	US	2000-09	124,224
Internet	US	2000-10	137,054
Internet	US		261,278
Internet			292,387
Direct Sales	GB	2000-09	85,223
Direct Sales	GB	2000-10	91,925
Direct Sales	GB		177,148
Direct Sales	US	2000-09	638,201
Direct Sales			
Direct Sales	US	2000-10	682,297
Direct Sales	US		1,320,497
Direct Sales			1,497,646

14 rows selected.

Q5. Find the total sales **by** country_id **and** channel_desc **for** the US **and** GB through the Internet **and** direct sales **in** September 2000 **and** October 2009 **using** PARTIAL CUBE aggregation **on** month **and** country code **and** GROUP BY **on** channel_desc.

-- query 5:

```

203 SELECT CHANNELS.CHANNEL_DESC,
204        COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC,

```

```

205     TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
206     FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
207     WHERE SALES.TIME_ID=TIMES.TIME_ID
208           AND SALES.CUST_ID=CUSTOMERS.CUST_ID
209           AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
210           AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
211           AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
212           AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09', '2000-10')
213           AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
214     GROUP BY
215     CHANNELS.CHANNEL_DESC , CUBE (COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC);

```

```

217
218 CHANNEL_DESC          CO CALENDAR TOTAL_SALES
219 -----
220 Internet              292,387
221 Internet              2000-09 140,793
222 Internet              2000-10 151,593
223 Internet              GB      31,109
224 Internet              GB 2000-09 16,569
225 Internet              GB 2000-10 14,539
226 Internet              US      261,278
227 Internet              US 2000-09 124,224
228 Internet              US 2000-10 137,054
229 Direct Sales          1,497,646
230 Direct Sales          2000-09 723,424

```

```

231
232 CHANNEL_DESC          CO CALENDAR TOTAL_SALES
233 -----
234 Direct Sales          2000-10 774,222
235 Direct Sales          GB      177,148
236 Direct Sales          GB 2000-09 85,223
237 Direct Sales          GB 2000-10 91,925
238 Direct Sales          US      1,320,497
239 Direct Sales          US 2000-09 638,201
240 Direct Sales          US 2000-10 682,297

```

241
242 18 rows selected.

243
244 Q6.Use GROUPING to create a set of mask columns for the result set of Q1.

- 245 ☐ Create grouping on channel_desc and name it as CH
- 246 ☐ Create grouping calendar_month_desc and name it as MO
- 247 ☐ Create grouping on country_iso_code and name it as CO

248
249 -- QUERY 6:

```

250
251 SELECT CHANNELS.CHANNEL_DESC,
252        COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC,
253        GROUPING(CHANNELS.CHANNEL_DESC) CH,
254        GROUPING(CALENDAR_MONTH_DESC) MO,
255        GROUPING(COUNTRIES.COUNTRY_ISO_CODE)
256     FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
257     WHERE SALES.TIME_ID=TIMES.TIME_ID
258           AND SALES.CUST_ID=CUSTOMERS.CUST_ID
259           AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
260           AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
261           AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
262           AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09', '2000-10')
263           AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
264     GROUP BY
265     ROLLUP (CHANNELS.CHANNEL_DESC, COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC);

```

```

266
267 CHANNEL_DESC          CO CALENDAR          CH          MO
268 GROUPING(COUNTRIES.COUNTRY_ISO_CODE)
269 -----
270 Internet              GB 2000-09          0
271 0                      0

```

271	Internet	GB	2000-10	0	0
272	Internet	GB		0	0
273	Internet	US	2000-09	0	0
274	Internet	US	2000-10	0	0
275	Internet	US		0	0
276	Internet			1	0
277	Direct Sales	GB	2000-09	0	0
278	Direct Sales	GB	2000-10	0	0
279	Direct Sales	GB		0	0
280	Direct Sales	US	2000-09	0	0
281				0	
282	CHANNEL_DESC	CO	CALENDAR	CH	MO
283	GROUPING(COUNTRIES.COUNTRY_ISO_CODE)				
284	Direct Sales	US	2000-10	0	
285	Direct Sales	US		0	
286	Direct Sales			1	
287				1	1

15 rows selected.

Q7. Find the total sales by country_id and channel_desc for the US and GB through the Internet and direct sales in September 2000 and October 2009 using GROUPING SETS.

Calculate aggregates over three groupings:

- (channel_desc, calendar_month_desc, country_iso_code)
- (channel_desc, country_iso_code)
- (calendar_month_desc, country_iso_code)

```
-- QUERY 7:

SELECT CHANNELS.CHANNEL_DESC,
       COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC,
       TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
WHERE SALES.TIME_ID=TIMES.TIME_ID
      AND SALES.CUST_ID=CUSTOMERS.CUST_ID
      AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
      AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
      AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
      AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09','2000-10')
      AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')

GROUP BY
GROUPING
SETS((CHANNELS.CHANNEL_DESC,CALENDAR_MONTH_DESC,COUNTRIES.COUNTRY_ISO_CODE),
      (CHANNELS.CHANNEL_DESC, COUNTRIES.COUNTRY_ISO_CODE),
      (CALENDAR_MONTH_DESC,COUNTRIES.COUNTRY_ISO_CODE));
```

CHANNEL_DESC	CO	CALENDAR	TOTAL_SALES
Internet	GB	2000-09	16,569
Direct Sales	GB	2000-09	85,223
Internet	US	2000-09	124,224

323	Direct Sales	US	2000-09	638,201
324	Internet	GB	2000-10	14,539
325	Direct Sales	GB	2000-10	91,925
326	Internet	US	2000-10	137,054
327	Direct Sales	US	2000-10	682,297
328		GB	2000-09	101,792
329		US	2000-09	762,425
330		GB	2000-10	106,465

332	CHANNEL_DESC	CO	CALENDAR	TOTAL_SALES
333	-----			
334		US	2000-10	819,351
335	Direct Sales	GB		177,148
336	Internet	GB		31,109
337	Direct Sales	US		1,320,497
338	Internet	US		261,278

339
340 16 rows selected.

341
342
343 Q: 8 Perform aggregation on amount sold. It should get aggregated by month first,
344 then by all the months in each quarter, and then across all months and quarters in
345 the year.

346
347 -- QUERY 8: COUNTRIES: US.GB. YEAR =1999, DIRECT SALES AND INTERNET

```

349 SELECT      TIMES.CALENDAR_MONTH_DESC,TIMES.CALENDAR_QUARTER_DESC, TIMES.CALENDAR_YEAR,
350             SUM(AMOUNT_SOLD) TOTAL_SALES
351       FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
352          WHERE SALES.TIME_ID=TIMES.TIME_ID
353                AND SALES.CUST_ID=CUSTOMERS.CUST_ID
354                AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
355                AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
356                AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
357                AND TIMES.CALENDAR_YEAR=1999
358                AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
359          GROUP BY
360
361                ROLLUP(TIMES.CALENDAR_YEAR,TIMES.CALENDAR_QUARTER_DESC,TIMES.CALENDAR_MON
362                TH_DESC);

```

362	CALENDAR	CALENDAR	CALENDAR_YEAR	TOTAL_SALES
363	-----			
364	1999-01	1999-01	1999	974627.95
365	1999-02	1999-01	1999	1089255.92
366	1999-03	1999-01	1999	754026.7
367		1999-01	1999	2817910.57
368	1999-04	1999-02	1999	708060.57
369	1999-05	1999-02	1999	818055.52
370	1999-06	1999-02	1999	729677.52
371		1999-02	1999	2255793.61
372	1999-07	1999-03	1999	893452.47
373	1999-08	1999-03	1999	883460.92
374	1999-09	1999-03	1999	923577.01

376	CALENDAR	CALENDAR	CALENDAR_YEAR	TOTAL_SALES
377	-----			
378		1999-03	1999	2700490.4
379	1999-10	1999-04	1999	715831.36
380	1999-11	1999-04	1999	742248.42
381	1999-12	1999-04	1999	841572.17
382		1999-04	1999	2299651.95
383			1999	10073846.5
384				10073846.5

385
386 18 rows selected.

387
388
389 Q: 9 Implement concatenated rollup. First roll up on (channel_total, channel_class)

```

390 and second roll up on(country_region and country_iso_code)
391
392 -- QUERY 9:
393 SELECT
CHANNELS.CHANNEL_TOTAL,CHANNELS.CHANNEL_CLASS,COUNTRIES.COUNTRY_REGION,COUNTRIES.COUNTRY_
ISO_CODE,
394     SUM(AMOUNT_SOLD)
395     FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
396     WHERE SALES.TIME_ID=TIMES.TIME_ID
397           AND SALES.CUST_ID=CUSTOMERS.CUST_ID
398           AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
399           AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
400           AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
401           AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09','2000-10')
402           AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
403     GROUP BY
404
           ROLLUP (CHANNELS.CHANNEL_TOTAL,CHANNELS.CHANNEL_CLASS) ,ROLLUP (COUNTRIES.CO
UNTRY_REGION,COUNTRIES.COUNTRY_ISO_CODE) ;

```

```

405
406
407 CHANNEL_TOTAL CHANNEL_CLASS          COUNTRY_REGION          CO TOTAL_SALES
408 -----
409                                     Europe          GB      208256.85
410                                     Europe          GB      208256.85
411                                     Americas         US      1581775.44
412                                     Americas         US      1581775.44
413                                     Americas         US      1790032.29
414 Channel total          Europe          GB      208256.85
415 Channel total          Europe          GB      208256.85
416 Channel total          Americas         US      1581775.44
417 Channel total          Americas         US      1581775.44
418 Channel total          Americas         US      1790032.29
419 Channel total Direct   Europe          GB      177148.35
420
421 CHANNEL_TOTAL CHANNEL_CLASS          COUNTRY_REGION          CO TOTAL_SALES
422 -----
423 Channel total Direct   Europe          GB      177148.35
424 Channel total Direct   Americas         US      1320497.4
425 Channel total Direct   Americas         US      1320497.4
426 Channel total Direct   Americas         US      1497645.75
427 Channel total Indirect Europe          GB      31108.5
428 Channel total Indirect Europe          GB      31108.5
429 Channel total Indirect Americas         US      261278.04
430 Channel total Indirect Americas         US      261278.04
431 Channel total Indirect Americas         US      292386.54
432

```

20 rows selected.

Q10. Consider the following Query and make conclusion from the result obtained.

```

436 Query: (scott Schema)
437 SELECT deptno, job, SUM(sal)
438 FROM emp
439 GROUP BY CUBE(deptno, job)

```

```

440
441 DEPTNO JOB          SUM(SAL)
442 -----
443                                     29025
444         CLERK          4150
445         ANALYST        6000
446         MANAGER        8275
447         SALESMAN       5600
448         PRESIDENT      5000
449     10          8750
450     10 CLERK          1300
451     10 MANAGER        2450
452     10 PRESIDENT      5000
453     20          10875
454

```

```

455      DEPTNO JOB          SUM(SAL)
456      -----
457      20 CLERK           1900
458      20 ANALYST        6000
459      20 MANAGER        2975
460      30                9400
461      30 CLERK           950
462      30 MANAGER        2850
463      30 SALESMAN       5600

```

465 18 rows selected.

467 Q11. Find the total sales by country name and channel_desc for the country name
 468 starting from U through the Internet and direct sales in September 2000 and October.

470 -- QUERY 11:

```

471 SELECT CHANNELS.CHANNEL_DESC,
472        COUNTRIES.COUNTRY_NAME,
473        TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
474        FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
475        WHERE SALES.TIME_ID=TIMES.TIME_ID
476              AND SALES.CUST_ID=CUSTOMERS.CUST_ID
477              AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
478              AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
479              AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
480              AND TIMES.CALENDAR_MONTH_DESC IN ('2000')
481              AND UPPER(COUNTRIES.COUNTRY_NAME) LIKE 'U%'
482        GROUP BY
483        ROLLUP (COUNTRIES.COUNTRY_NAME, CHANNELS.CHANNEL_DESC);

```

CHANNEL_DESC	CALENDAR	COUNTRY_NAME	SALES\$
Internet	2000-09	United Kingdom	16,569
Internet	2000-09	United States of America	124,224
Internet	2000-09		140,793
Direct Sales	2000-09	United Kingdom	85,223
Direct Sales	2000-09	United States of America	638,201
Direct Sales	2000-09		723,424
	2000-09		864,217
Internet	2000-10	United Kingdom	14,539
Internet	2000-10	United States of America	137,054
Internet	2000-10		151,593
Direct Sales	2000-10	United Kingdom	91,925
CHANNEL_DESC	CALENDAR	COUNTRY_NAME	SALES\$
Direct Sales	2000-10	United States of America	682,297
Direct Sales	2000-10		774,222
	2000-10		925,815
			1,790,032

506 15 rows selected.

510 Q12. Analyze the output

512 -- QUIERY 12:

```

514 SELECT
515 ch.channel_desc,
516 t.calendar_month_desc,
517 co.country_iso_code,
518 CO.COUNTRY_NAME,
519 SUM(s.amount_sold) sum_amount_sold,
520 GROUPING_ID(
521 ch.channel_desc,
522 t.calendar_month_desc,
523 co.country_iso_code) grouping_id

```



```

524 FROM
525 sales s,
526 customers cu,
527 times t,
528 channels ch,
529 countries co
530 WHERE
531 s.time_id=t.time_id AND
532 s.cust_id=cu.cust_id AND
533 cu.country_id = co.country_id AND
534 s.channel_id = ch.channel_id AND
535 ch.channel_desc IN ('Direct Sales', 'Internet') AND
536 t.calendar_month_desc IN ('2001-09', '2001-10') AND
537 co.country_iso_code IN ('GB', 'US')
538 GROUP BY
539 ROLLUP(
540 ch.channel_desc,
541 t.calendar_month_desc,
542 co.country_iso_code,CO.COUNTRY_NAME);
543
544 /*
545 CHANNEL_DESC          CALENDAR CO COUNTRY_NAME
546 SUM_AMOUNT_SOLD GROUPING_ID
547 -----
548 Internet              2001-09  GB United Kingdom
549 36806.73              0
550 Internet              2001-09  GB
551 36806.73              0
552 Internet              2001-09  US United States of America
553 299621.96             0
554 Internet              2001-09  US
555 299621.96             0
556 Internet              2001-09
557 336428.69             1
558 Internet              2001-10  GB United Kingdom
559 39010.76              0
560 Internet              2001-10  GB
561 39010.76              0
562 Internet              2001-10  US United States of America
563 386326.55             0
564 Internet              2001-10  US
565 386326.55             0
566 Internet              2001-10
567 425337.31             1
568 Internet              761766    3
569
570 CHANNEL_DESC          CALENDAR CO COUNTRY_NAME
571 SUM_AMOUNT_SOLD GROUPING_ID
572 -----
573 Direct Sales          2001-09  GB United Kingdom
574 92865.04              0
575 Direct Sales          2001-09  GB
576 92865.04              0
577 Direct Sales          2001-09  US United States of America
578 621197.94             0
579 Direct Sales          2001-09  US
580 621197.94             0
581 Direct Sales          2001-09
582 714062.98             1
583 Direct Sales          2001-10  GB United Kingdom
584 75296.44              0
585 Direct Sales          2001-10  GB
586 75296.44              0
587 Direct Sales          2001-10  US United States of America
588 566719.8              0
589 Direct Sales          2001-10  US

```

```

566719.8      0
570 Direct Sales      2001-10
642016.24      1
571 Direct Sales
1356079.22      3
572
573 CHANNEL_DESC      CALENDAR CO COUNTRY_NAME
SUM_AMOUNT_SOLD GROUPING_ID
574 -----
575
2117845.22      7
576
577 23 rows selected.
578 */
579
580
581 -- EXISTENCE OF GROUP_ID
582
583 SELECT CHANNELS.CHANNEL_DESC,
584        COUNTRIES.COUNTRY_NAME,
585        TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES,
586        GROUP_ID()
587        FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
588        WHERE SALES.TIME_ID=TIMES.TIME_ID
589              AND SALES.CUST_ID=CUSTOMERS.CUST_ID
590              AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
591              AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
592              AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
593              AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09', '2000-10')
594              AND UPPER(COUNTRIES.COUNTRY_NAME) LIKE 'U%'
595        GROUP BY
596
597        ROLLUP(COUNTRIES.COUNTRY_NAME, CHANNELS.CHANNEL_DESC), ROLLUP(CHANNELS.CHANNEL_DESC
598        )
599        ORDER BY GROUP_ID();
600
601 /*
602
603 CHANNEL_DESC      COUNTRY_NAME      TOTAL_SALES      GROUP_ID()
604 -----
605
606      United Kingdom      208,257      0
607      United States of America      1,581,775      0
608 Direct Sales      United States of America      1,320,497      0
609 Direct Sales      United Kingdom      177,148      0
610 Internet      United States of America      261,278      0
611 Internet      United Kingdom      31,109      0
612      1,790,032      0
613 Direct Sales      1,497,646      0
614 Internet      292,387      0
615 Direct Sales      United Kingdom      177,148      1
616 Internet      United States of America      261,278      1
617
618 CHANNEL_DESC      COUNTRY_NAME      TOTAL_SALES      GROUP_ID()
619 -----
620
621 Internet      United Kingdom      31,109      1
622 Direct Sales      United States of America      1,320,497      1
623 Direct Sales      United States of America      1,320,497      2
624 Direct Sales      United Kingdom      177,148      2
625 Internet      United States of America      261,278      2
626 Internet      United Kingdom      31,109      2
627
628 17 rows selected.
629 */
630
631 -- QUERY 10:
632 SELECT deptno, job, SUM(sal)
633        FROM emp
634        GROUP BY CUBE(deptno, job) ;

```

631
632 / *
633
634
635 * /