AIM: WRITE AND EXECUTE SQL AGGREGATION QUERIES FOR DATA WAREHOUSE.

QUERY 1:

Q1. 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 2000 using ROLL-UP Extension. The query should return the following:

- **The aggregation rows that would be produced by GROUP BY ,**

- **The First-level subtotals aggregating across country_id for each combination of channel_desc and calendar_month.**

- **Second-level subtotals aggregating across calendar_month_desc and country_id for each**

channel_desc value. • A grand total row.

```
SELECT channels.channel_desc, calendar_month_desc,
countries.country_iso_code,
TO_CHAR(SUM(amount_sold), '9,999,999,999') 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 channels.channel_desc IN ('Direct Sales', 'Internet')
AND times.calendar_month_desc IN ('2000-09', '2000-10')
AND countries.country_iso_code IN ('GB', 'US')
GROUP BY
ROLLUP(channels.channel_desc, calendar_month_desc,
countries.country_iso_code);
/* output
CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
Internet             2000-09  GB      16,569
Internet             2000-09  US     124,224
Internet             2000-09         140,793
Internet             2000-10  GB      14,539
Internet             2000-10  US     137,054
Internet             2000-10         151,593
Internet                             292,387
Direct Sales         2000-09  GB      85,223
Direct Sales         2000-09  US     638,201
Direct Sales         2000-09         723,424
Direct Sales         2000-10  GB      91,925

CHANNEL_DESC        CALENDAR CO SALES$
```

```
-------------------- -------- -- -------------
Direct Sales      2000-10 US      682,297
Direct Sales      2000-10         774,222
Direct Sales                    1,497,646
                                1,790,032
```

15 rows selected.

——

QUERY 2:

Q2. 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
CUBE aggregation across three dimensions- channel_desc, calendar_month_desc, countries.country_iso_code.

```
select channels.channel_desc, calendar_month_desc,
      countries.country_iso_code,
      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
            cube(channels.channel_desc, calendar_month_desc,
countries.country_iso_code)
            order by channels.channel_desc;

            /*output
CHANNEL_DESC        CALENDAR CO TOTAL_SALES
-------------------- -------- -- --------------
Direct Sales      2000-09 GB       85,223
Direct Sales      2000-09 US      638,201
Direct Sales      2000-09         723,424
Direct Sales      2000-10 GB       91,925
Direct Sales      2000-10 US      682,297
Direct Sales      2000-10         774,222
Direct Sales              GB      177,148
Direct Sales              US    1,320,497
Direct Sales                    1,497,646
Internet          2000-09 GB       16,569
Internet          2000-09 US      124,224

CHANNEL_DESC        CALENDAR  CO  TOTAL_SALES
-------------------- --------     --    --------------
Internet            2000-09          140,793
```

CHANNEL_DESC	CALENDAR	CO	TOTAL_SALES
Internet	2000-10	GB	14,539
Internet	2000-10	US	137,054
Internet	2000-10		151,593
Internet		GB	31,109
Internet		US	261,278
Internet			292,387
	2000-09	GB	101,792
	2000-09	US	762,425
	2000-09		864,217
	2000-10	GB	106,465

CHANNEL_DESC	CALENDAR	CO	TOTAL_SALES
--------------------	--------	--	--------------
	2000-10	US	819,351
	2000-10		925,815
		GB	208,257
		US	1,581,775
			1,790,032

27 rows selected. */
———

QUERY 3:

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

```
SELECT CHANNELS.CHANNEL_DESC,
 2  COUNTRIES.COUNTRY_ISO_CODE,
 3  TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
 4  FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
 5  WHERE SALES.TIME_ID=TIMES.TIME_ID
 6  AND SALES.CUST_ID=CUSTOMERS.CUST_ID
 7  AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
 8  AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
 9  AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
 10  AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09')
 11  AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('FR', 'US')
 12  GROUP BY
 13  CUBE(CHANNELS.CHANNEL_DESC, COUNTRIES.COUNTRY_ISO_CODE);
```
/*

CHANNEL_DESC	CO	TOTAL_SALES
--------------------	--	--------------
		833,224
	FR	70,799
	US	762,425
Internet		133,821
Internet	FR	9,597
Internet	US	124,224
Direct Sales		699,403
Direct Sales	FR	61,202
Direct Sales	US	638,201

9 rows selected.*/
———————————————————————————————————————

QUERY 4:

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.**

```
 SELECT CHANNELS.CHANNEL_DESC,
 2  COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC,
 3  TO_CHAR(SUM(AMOUNT_SOLD), '9,999,999,999') TOTAL_SALES
 4  FROM SALES, CUSTOMERS, TIMES, CHANNELS, COUNTRIES
 5  WHERE SALES.TIME_ID=TIMES.TIME_ID
 6  AND SALES.CUST_ID=CUSTOMERS.CUST_ID
 7  AND CUSTOMERS.COUNTRY_ID = COUNTRIES.COUNTRY_ID
 8  AND SALES.CHANNEL_ID = CHANNELS.CHANNEL_ID
 9  AND UPPER(CHANNELS.CHANNEL_DESC) IN ('DIRECT SALES', 'INTERNET')
 10  AND TIMES.CALENDAR_MONTH_DESC IN ('2000-09','2000-10')
 11  AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
 12  GROUP BY
 13  CHANNELS.CHANNEL_DESC  , ROLLUP
(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

CHANNEL_DESC        CO CALENDAR TOTAL_SALES
-------------------- -- -------- --------------
```

```
Direct Sales        US 2000-10        682,297
Direct Sales        US          1,320,497
Direct Sales                  1,497,646
```

14 rows selected.*/

—————————————————————————————————————

QUERY 5:

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.

```
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
          CHANNELS.CHANNEL_DESC  , CUBE
(COUNTRIES.COUNTRY_ISO_CODE,CALENDAR_MONTH_DESC);
```

```
/*
CHANNEL_DESC        CO CALENDAR TOTAL_SALES
-------------------- -- -------- --------------
Internet                      292,387
Internet            2000-09     140,793
Internet            2000-10     151,593
Internet        GB            31,109
Internet        GB 2000-09       16,569
Internet        GB 2000-10       14,539
Internet        US            261,278
Internet        US 2000-09      124,224
Internet        US 2000-10      137,054
Direct Sales                  1,497,646
Direct Sales        2000-09     723,424

CHANNEL_DESC        CO CALENDAR TOTAL_SALES
-------------------- -- -------- --------------
Direct Sales        2000-10     774,222
Direct Sales        GB          177,148
Direct Sales        GB 2000-09      85,223
Direct Sales        GB 2000-10      91,925
```

```
Direct Sales      US           1,320,497
Direct Sales      US 2000-09     638,201
Direct Sales      US 2000-10     682,297

18 rows selected.
*/
```

——

QUERY 6:
Q6. Use GROUPING to create a set of mask columns for the result set of Q1.

- **Create grouping on channel_desc and name it as CH**

- **Create grouping calendar_month_desc and name it as MO**

- **Create grouping on country_iso_code and name it as CO**

```
SELECT countries.country_iso_code, calendar_month_desc,channels.channel_desc,
TO_CHAR(SUM(amount_sold), '9,999,999,999') SALES$,
grouping(channels.channel_desc) as CH,
grouping(calendar_month_desc) as MO,
grouping(countries.country_iso_code) as CO
FROM sales, channels, countries, customers, times
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 channels.channel_desc IN ('Direct Sales', 'Internet')
   AND times.calendar_month_desc IN ('2000-09','2000-10')
   AND countries.country_iso_code IN ('GB', 'US')
GROUP BY ROLLUP(channels.channel_desc, calendar_month_desc,
countries.country_iso_code);
```

```
/* oUTPUT
```

CO	CALENDAR	CHANNEL_DESC	SALES$	CH	MO	CO
GB	2000-09	Internet	16,569	0	0	0
US	2000-09	Internet	124,224	0	0	0
	2000-09	Internet	140,793	0	0	1
GB	2000-10	Internet	14,539	0	0	0
US	2000-10	Internet	137,054	0	0	0
	2000-10	Internet	151,593	0	0	1
		Internet	292,387	0	1	1
GB	2000-09	Direct Sales	85,223	0	0	0
US	2000-09	Direct Sales	638,201	0	0	0
	2000-09	Direct Sales	723,424	0	0	1
GB	2000-10	Direct Sales	91,925	0	0	0

CO	CALENDAR	CHANNEL_DESC	SALES$	CH	MO	CO

US 2000-10	Direct Sales	682,297	0	0	0
2000-10	Direct Sales	774,222	0	0	1
	Direct Sales	1,497,646	0	1	1
		1,790,032	1	1	1

15 rows selected.*/

——

QUERY 7:

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)

```
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.COUNTR
Y_ISO_CODE),
               (CHANNELS.CHANNEL_DESC, COUNTRIES.COUNTRY_ISO_CODE),
               (CALENDAR_MONTH_DESC,COUNTRIES.COUNTRY_ISO_CODE));
```

/*output

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
Direct Sales	US	2000-09	638,201
Internet	GB	2000-10	14,539
Direct Sales	GB	2000-10	91,925
Internet	US	2000-10	137,054
Direct Sales	US	2000-10	682,297

```
          GB 2000-09      101,792
          US 2000-09      762,425
          GB 2000-10      106,465


CHANNEL_DESC      CO CALENDAR TOTAL_SALES
-------------------- -- -------- --------------
              US 2000-10      819,351
Direct Sales     GB         177,148
Internet         GB          31,109
Direct Sales      US       1,320,497
Internet          US         261,278


16 rows selected.*/
```
——

QUERY 8:

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

```
SELECT   TIMES.CALENDAR_MONTH_DESC,TIMES.CALENDAR_QUARTER_DESC,
TIMES.CALENDAR_YEAR,
      SUM(AMOUNT_SOLD) 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_YEAR=1999
                  AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
                      GROUP BY

ROLLUP(TIMES.CALENDAR_YEAR,TIMES.CALENDAR_QUARTER_DESC,TIMES.CALEN
DAR_MONTH_DESC);
/*OUTPUT


CALENDAR CALENDA CALENDAR_YEAR TOTAL_SALES
-------- ------- ------------- -----------
1999-01  1999-01       1999  974627.95
1999-02  1999-01       1999  1089255.92
1999-03  1999-01       1999   754026.7
         1999-01       1999  2817910.57
1999-04  1999-02       1999   708060.57
1999-05  1999-02       1999   818055.52
1999-06  1999-02       1999   729677.52
         1999-02       1999  2255793.61
1999-07  1999-03       1999   893452.47
1999-08  1999-03       1999   883460.92
1999-09  1999-03       1999   923577.01
```

```
CALENDAR CALENDA CALENDAR_YEAR TOTAL_SALES
-------- ------- ------------- -----------
      1999-03      1999  2700490.4
1999-10  1999-04      1999  715831.36
1999-11  1999-04      1999  742248.42
1999-12  1999-04      1999  841572.17
      1999-04      1999 2299651.95
              1999 10073846.5
                 10073846.5

18 rows selected.*/
```

— —

QUERY 9:

Q: 9 Implement concatenated rollup. First roll up on (channel_total, channel_class) and second roll up on(country_region and country_iso_code)

```
SELECT
CHANNELS.CHANNEL_TOTAL,CHANNELS.CHANNEL_CLASS,COUNTRIES.COUNTRY_
REGION,COUNTRIES.COUNTRY_ISO_CODE,
     SUM(AMOUNT_SOLD)
          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 TIMES.CALENDAR_MONTH_DESC IN ('2000-09','2000-10')
                    AND UPPER(COUNTRIES.COUNTRY_ISO_CODE) IN ('GB', 'US')
               GROUP BY

ROLLUP(CHANNELS.CHANNEL_TOTAL,CHANNELS.CHANNEL_CLASS),ROLLUP(COUN
TRIES.COUNTRY_REGION,COUNTRIES.COUNTRY_ISO_CODE);

/*Output
CHANNEL_TOTAL CHANNEL_CLASS     COUNTRY_REGION     CO
SUM(AMOUNT_SOLD)
------------- -------------------- -------------------- -- ----------------
                    Europe      GB    266785.98
                    Europe         266785.98
                    Americas     US    2382646.81
                    Americas        2382646.81
                         2649432.79
Channel total           Europe      GB    266785.98
Channel total           Europe         266785.98
Channel total           Americas     US    2382646.81
Channel total           Americas        2382646.81
Channel total                2649432.79
Channel total Direct        Europe      GB    177148.35

CHANNEL_TOTAL CHANNEL_CLASS     COUNTRY_REGION     CO
SUM(AMOUNT_SOLD)
```

```
------------ ------------------- ------------------- -- ---------------
Channel total Direct        Europe                177148.35
Channel total Direct        Americas      US      1320497.4
Channel total Direct        Americas              1320497.4
Channel total Direct                         1497645.75
Channel total Others        Europe        GB      58529.13
Channel total Others        Europe                58529.13
Channel total Others        Americas      US      800871.37
Channel total Others        Americas              800871.37
Channel total Others                         859400.5
Channel total Indirect      Europe        GB      31108.5
Channel total Indirect      Europe                31108.5


CHANNEL_TOTAL CHANNEL_CLASS        COUNTRY_REGION       CO
SUM(AMOUNT_SOLD)
------------- ------------------- ------------------- -- ---------------
Channel total Indirect      Americas      US      261278.04
Channel total Indirect      Americas              261278.04
Channel total Indirect                       292386.54
```

25 rows selected.*/
——

QUERY 10:

Q10. Consider the following Query and make conclusion from the result obtained. Query: (scott Schema)
SELECT deptno, job, SUM(sal) FROM emp
GROUP BY CUBE(deptno, job)

```
SELECT deptno, job, SUM(sal) FROM emp
GROUP BY CUBE(deptno, job);

DEPTNO    JOB          SUM(SAL)
————      ——           ————-
                       29025
          CLERK        4150
          ANALYST      6000
          MANAGER      8275
          SALESMAN     5600
          PRESIDENT    5000
10                     8750
10        CLERK        1300
10        MANAGER      2450
10        PRESIDENT    5000
20                     10875
20        CLERK        1900
20        ANALYST      6000
20        MANAGER      2975
30                     9400
30        CLERK        950
30        MANAGER      2850
```

30   SALESMAN   5600

18 rows selected.

— —

QUERY 11:

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

```
SELECT CHANNELS.CHANNEL_DESC,
      COUNTRIES.COUNTRY_NAME,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_NAME) LIKE 'U%'
          GROUP BY

ROLLUP(COUNTRIES.COUNTRY_NAME,CHANNELS.CHANNEL_DESC,CALENDAR_MONTH_DESC);
```

```
/*oOUTPUT
CHANNEL_DESC        COUNTRY_NAME                            CALENDAR
------------------- --------------------------------------- --------
TOTAL_SALES
--------------
Internet        United Kingdom                  2000-09
      16,569

Internet        United Kingdom                  2000-10
      14,539

Internet        United Kingdom
      31,109


CHANNEL_DESC        COUNTRY_NAME                            CALENDAR
------------------- --------------------------------------- --------
TOTAL_SALES
--------------
Direct Sales    United Kingdom                  2000-09
      85,223

Direct Sales    United Kingdom                  2000-10
      91,925
```

Name, Roll : Tanvi, 19

Direct Sales   United Kingdom
       177,148

CHANNEL_DESC   COUNTRY_NAME   CALENDAR
------------------- --------------------------------------- --------
TOTAL_SALES

            United Kingdom
       208,257

Internet   United States of America   2000-09
       124,224

Internet   United States of America   2000-10
       137,054

CHANNEL_DESC   COUNTRY_NAME   CALENDAR
------------------- --------------------------------------- --------
TOTAL_SALES

Internet   United States of America
       261,278

Direct Sales   United States of America   2000-09
       638,201

Direct Sales   United States of America   2000-10
       682,297

CHANNEL_DESC   COUNTRY_NAME   CALENDAR
------------------- --------------------------------------- --------
TOTAL_SALES

Direct Sales   United States of America
     1,320,497

            United States of America
     1,581,775

     1,790,032

15 rows selected.

*/

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QUERY 12:
Q12. Analyze the output

SQL> SELECT
2 ch.channel_desc,
3 t.calendar_month_desc,
4 co.country_iso_code,
5 SUM(s.amount_sold) sum_amount_sold, 6 GROUPING_ID(
7 ch.channel_desc,
8 t.calendar_month_desc,
9 co.country_iso_code) grouping_id 10 FROM
11 sales s,
12 customers cu,
13 times t,
14 channels ch,
15 countries co
16 WHERE
17 s.time_id=t.time_id AND
18 s.cust_id=cu.cust_id AND
19 cu.country_id = co.country_id AND
20 s.channel_id = ch.channel_id AND
21 ch.channel_desc IN ('Direct Sales', 'Internet') AND
22 t.calendar_month_desc IN ('2001-09', '2001-10') AND 23 co.country_iso_code IN ('GB', 'US')
24 GROUP BY
25 ROLLUP(
26 ch.channel_desc,
27 t.calendar_month_desc,
28 co.country_iso_code);

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Internet	2001-09	GB	36806.73	0
Internet	2001-09	US	299621.96	0
Internet	2001-09		336428.69	1
Internet	2001-10	GB	39010.76	0
Internet	2001-10	US	386326.55	0
Internet	2001-10		425337.31	1
Internet			761766	3
Direct Sales	2001-09	GB	92865.04	0
Direct Sales	2001-09	US	621197.94	0
Direct Sales	2001-09		714062.98	1
Direct Sales	2001-10	GB	75296.44	0

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Direct Sales	2001-10	US	566719.8	0
Direct Sales	2001-10		642016.24	1
Direct Sales			1356079.22	3
			2117845.22	7

15 rows selected.

SELECT ch.channel_desc, t.calendar_month_desc, co.country_iso_code,
SUM(s.amount_sold) sum_amount_sold,
GROUPING_ID(ch.channel_desc, t.calendar_month_desc, co.country_iso_code)
grouping_id
 FROM sales s, customers cu, times t, channels ch, countries co
 WHERE s.time_id=t.time_id AND s.cust_id=cu.cust_id AND cu.country_id =
co.country_id
 AND s.channel_id = ch.channel_id AND ch.channel_desc IN ('Direct Sales', 'Internet')
 AND t.calendar_month_desc IN ('2001-09', '2001-10') AND co.country_iso_code IN
('GB', 'US')
 GROUP BY ROLLUP(ch.channel_desc, t.calendar_month_desc, co.country_iso_code),
 ROLLUP(ch.channel_desc, t.calendar_month_desc, co.country_iso_code)
 ORDER BY grouping_id;

```
CHANNEL_DESC        CALENDAR CO SUM_AMOUNT_SOLD GROUPING_ID
------------------- -------- -- --------------- -----------
Internet            2001-09  GB    36806.73         0
Direct Sales        2001-10  US    566719.8          0
Internet            2001-10  GB    39010.76         0
Internet            2001-10  US    386326.55         0
Direct Sales        2001-09  GB    92865.04          0
Direct Sales        2001-09  US    621197.94          0
Direct Sales        2001-10  GB    75296.44         0
Direct Sales        2001-10  US    566719.8          0
Internet            2001-09  GB    36806.73         0
Internet            2001-09  US    299621.96         0
Internet            2001-10  GB    39010.76         0

CHANNEL_DESC        CALENDAR CO SUM_AMOUNT_SOLD GROUPING_ID
------------------- -------- -- --------------- -----------
Internet            2001-10  US    386326.55         0
Direct Sales        2001-09  GB    92865.04          0
Direct Sales        2001-09  US    621197.94          0
Direct Sales        2001-10  GB    75296.44         0
Direct Sales        2001-10  US    566719.8          0
Internet            2001-09  GB    36806.73         0
Internet            2001-09  US    299621.96         0
Internet            2001-10  GB    39010.76         0
Internet            2001-10  US    386326.55         0
Direct Sales        2001-09  GB    92865.04          0
Direct Sales        2001-09  US    621197.94          0

CHANNEL_DESC        CALENDAR CO SUM_AMOUNT_SOLD GROUPING_ID
------------------- -------- -- --------------- -----------
Direct Sales        2001-10  GB    75296.44          0
Direct Sales        2001-10  US    566719.8          0
Internet            2001-09  GB    36806.73         0
Internet            2001-09  US    299621.96          0
```

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Internet	2001-10	GB	39010.76	0
Internet	2001-10	US	386326.55	0
Direct Sales	2001-09	GB	92865.04	0
Direct Sales	2001-09	US	621197.94	0
Direct Sales	2001-10	GB	75296.44	0
Direct Sales	2001-10	US	566719.8	0
Internet	2001-09	GB	36806.73	0

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Internet	2001-09	US	299621.96	0
Internet	2001-10	GB	39010.76	0
Internet	2001-10	US	386326.55	0
Direct Sales	2001-09	GB	92865.04	0
Direct Sales	2001-09	US	621197.94	0
Direct Sales	2001-10	GB	75296.44	0
Direct Sales	2001-10	US	566719.8	0
Internet	2001-09	GB	36806.73	0
Internet	2001-09	US	299621.96	0
Internet	2001-10	GB	39010.76	0
Internet	2001-10	US	386326.55	0

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Direct Sales	2001-09	GB	92865.04	0
Direct Sales	2001-09	US	621197.94	0
Direct Sales	2001-10	GB	75296.44	0
Direct Sales	2001-10	US	566719.8	0
Internet	2001-09	GB	36806.73	0
Internet	2001-09	US	299621.96	0
Internet	2001-10	GB	39010.76	0
Internet	2001-10	US	386326.55	0
Direct Sales	2001-09	GB	92865.04	0
Direct Sales	2001-09	US	621197.94	0
Direct Sales	2001-10	GB	75296.44	0

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID
Internet	2001-09	US	299621.96	0
Internet	2001-10		425337.31	1
Direct Sales	2001-10		642016.24	1
Direct Sales	2001-09		714062.98	1
Internet	2001-09		336428.69	1
Internet	2001-10		425337.31	1
Direct Sales	2001-10		642016.24	1
Direct Sales	2001-09		714062.98	1
Internet	2001-09		336428.69	1
Internet	2001-10		425337.31	1
Direct Sales	2001-10		642016.24	1

CHANNEL_DESC	CALENDAR	CO	SUM_AMOUNT_SOLD	GROUPING_ID

Direct Sales	2001-09	714062.98	1
Internet	2001-09	336428.69	1
Internet	2001-10	425337.31	1
Direct Sales	2001-10	642016.24	1
Direct Sales	2001-09	714062.98	1
Internet	2001-09	336428.69	1
Internet	2001-10	425337.31	1
Direct Sales	2001-10	642016.24	1
Direct Sales	2001-09	714062.98	1
Internet	2001-09	336428.69	1
Internet		761766	3

CHANNEL_DESC	CALENDAR CO	SUM_AMOUNT_SOLD	GROUPING_ID
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Direct Sales		1356079.22	3
Internet		761766	3
Direct Sales		1356079.22	3
Internet		761766	3
Direct Sales		1356079.22	3
		2117845.22	7

83 rows selected.

Name, Roll : Tanvi, 19