PRACTICAL 2 →

CREATE TABLESPACE TBS55 DATAFILE
'C:\Users\SRCOEM\Desktop\TBS55.DBF' SIZE 10M;

Q1→Write the queries for the following:

1. 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.

Query :

```
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.
```

2)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') 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
CUBE(channels.channel_desc, calendar_month_desc,
countries.country_iso_code);
```

Output→

```
CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
                                     1,790,032
                    GB               208,257
                    US             1,581,775
                 2000-09             864,217
                 2000-09  GB          101,792
                 2000-09  US          762,425
                 2000-10             925,815
                 2000-10  GB          106,465
                 2000-10  US          819,351
Internet                             292,387
Internet                GB           31,109
```

```
CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
Internet                   US          261,278
Internet            2000-09            140,793
Internet            2000-09  GB         16,569
Internet            2000-09  US        124,224
Internet            2000-10            151,593
Internet            2000-10  GB         14,539
Internet            2000-10  US        137,054
Direct Sales                          1,497,646
Direct Sales               GB         177,148
Direct Sales               US        1,320,497
Direct Sales        2000-09            723,424

CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
Direct Sales        2000-09  GB         85,223
Direct Sales        2000-09  US        638,201
Direct Sales        2000-10            774,222
Direct Sales        2000-10  GB         91,925
Direct Sales        2000-10  US        682,297

27 rows selected.
```

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,
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')
AND countries.country_iso_code IN ('US','FR')
GROUP BY CUBE(channels.channel_desc,countries.country_iso_code);
```

Output→

```
CHANNEL_DESC        CO 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.
```

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, 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 ('US','GB')
GROUP BY channel_desc, ROLLUP(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

14 rows selected.
```

Q.5.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, 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 ('US','GB')
GROUP BY channel_desc, CUBE(calendar_month_desc,countries.country_iso_code);
```

Output→

```
CHANNEL_DESC      CALENDAR CO SALES$
------------------- -------- -- --------------
Internet                            292,387
Internet                  GB        31,109
Internet                  US       261,278
Internet          2000-09           40,793
Internet          2000-09  GB       16,569
```

```
Internet          2000-09  US       124,224
Internet          2000-10           151,593
Internet          2000-10  GB        14,539
Internet          2000-10  US       137,054
Direct Sales                      1,497,646
Direct Sales               GB       177,148

CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
Direct Sales               US         1,320,497
Direct Sales        2000-09           723,424
Direct Sales        2000-09  GB        85,223
Direct Sales        2000-09  US       638,201
Direct Sales        2000-10           774,222
Direct Sales        2000-10  GB        91,925
Direct Sales        2000-10  US       682,297

18 rows selected.
```

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 channels.channel_desc ,calendar_month_desc ,
countries.country_iso_code ,
grouping (channels.channel_desc) as CH,
grouping (calendar_month_desc) as MO,
grouping (countries.country_iso_code) as CO,
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 ('US','GB')
GROUP BY ROLLUP(channels.channel_desc,calendar_month_desc,countries.country_iso_code);
```

Output→

```
CHANNEL_DESC        CALENDAR CO        CH        MO        CO SALES$
-------------------- -------- -- ---------- ---------- ---------- --------------
```

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

CHANNEL_DESC      CALENDAR CO        CH        MO        CO SALES$
------------------- -------- -- ---------- ---------- ---------- --------------
Direct Sales      2000-10  US        0        0        0      682,297
Direct Sales      2000-10            0        0        1      774,222
Direct Sales                         0        1        1    1,497,646
                                 1        1        1    1,790,032

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)

```
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 ('US','GB')
GROUP BY GROUPING
SETS((channels.channel_desc,calendar_month_desc,countries.country_iso_code),(channel_desc,
country_iso_code),(calendar_month_desc, country_iso_code));
```

Output→

```
CHANNEL_DESC        CALENDAR CO SALES$
-------------------- -------- -- --------------
Internet            2000-09  GB        16,569
Direct Sales        2000-09  GB        85,223
Internet            2000-09  US       124,224
Direct Sales        2000-09  US       638,201
Internet            2000-10  GB        14,539
Direct Sales        2000-10  GB        91,925
Internet            2000-10  US       137,054
Direct Sales        2000-10  US       682,297
                    2000-09  GB       101,792
                    2000-09  US       762,425
                    2000-10  GB       106,465

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

16 rows selected.
```

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.

```
SQL> SELECT calendar_month_desc, calendar_quarter_desc,calendar_year,
  2  TO_CHAR(SUM(amount_sold), '9,999,999,999') SALES$
  3  FROM sales, customers, times, channels, countries
  4  WHERE sales.time_id=times.time_id
  5  AND sales.cust_id=customers.cust_id
  6  AND customers.country_id = countries.country_id
  7  AND sales.channel_id = channels.channel_id
  8  AND channels.channel_desc IN ('Direct Sales', 'Internet')
  9  AND times.calendar_year IN ('1999')
 10  AND countries.country_iso_code IN ('GB', 'US')
 11  GROUP BY
 12  ROLLUP(calendar_year,  calendar_quarter_desc, calendar_month_desc);
```

Output→

```
CALENDAR CALENDA CALENDAR_YEAR SALES$
-------- ------- ------------- --------------
```

1999-01	1999-01	1999	974,628
1999-02	1999-01	1999	1,089,256
1999-03	1999-01	1999	754,027
	1999-01	1999	2,817,911
1999-04	1999-02	1999	708,061
1999-05	1999-02	1999	818,056
1999-06	1999-02	1999	729,678
	1999-02	1999	2,255,794
1999-07	1999-03	1999	893,452
1999-08	1999-03	1999	883,461
1999-09	1999-03	1999	923,577
	1999-03	1999	2,700,490
1999-10	1999-04	1999	715,831
1999-11	1999-04	1999	742,248
1999-12	1999-04	1999	841,572
	1999-04	1999	2,299,652
		1999	10,073,847
			10,073,847

18 rows selected.

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

Query:

```
SELECT channels.channel_total,channels.channel_class ,
countries.country_region,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 times.calendar_month_desc IN ('2001-09', '2001-10')
AND countries.country_iso_code IN ('GB', 'US')
GROUP BY
ROLLUP(channels.channel_total,channels.channel_class),
ROLLUP(countries.country_region,countries.country_iso_code);
```

Output→

CHANNEL_TOTAL	CHANNEL_CLASS	COUNTRY_REGION	CO	SALES$
		Europe	GB	321,244
		Europe		321,244

	Americas	US	2,603,473
	Americas		2,603,473
			2,924,717
Channel total	Europe	GB	321,244
Channel total	Europe		321,244
Channel total	Americas	US	2,603,473
Channel total	Americas		2,603,473
Channel total			2,924,717
Channel total Direct	Europe	GB	168,161
Channel total Direct	Europe		168,161
Channel total Direct	Americas	US	1,187,918
Channel total Direct	Americas		1,187,918
Channel total Direct			1,356,079
Channel total Others	Europe	GB	77,265
Channel total Others	Europe		77,265
Channel total Others	Americas	US	729,606
Channel total Others	Americas		729,606
Channel total Others			806,872
Channel total Indirect	Europe	GB	75,817
Channel total Indirect	Europe		75,817
Channel total Indirect	Americas	US	685,949
Channel total Indirect	Americas		685,949
Channel total Indirect			761,766

25 rows selected.

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.

Query:

```
SQL> SELECT channels.channel_desc, countries.country_name,
  2  TO_CHAR(SUM(amount_sold), '9,999,999,999') SALES$
  3  FROM sales, customers, times, channels, countries
  4  WHERE sales.time_id=times.time_id
  5  AND sales.cust_id=customers.cust_id
  6  AND customers.country_id = countries.country_id
  7  AND sales.channel_id = channels.channel_id
  8  AND channels.channel_desc IN ('Direct Sales', 'Internet')
  9  AND times.calendar_month_desc IN ('2000-09', '2000-10')
 10  AND countries.country_iso_code IN ('GB', 'US')
 11  AND countries.country_name LIKE 'U%'
 12  GROUP BY
 13  ROLLUP(channels.channel_desc, calendar_month_desc, countries.country_name);
```

Output→

```
CHANNEL_DESC       COUNTRY_NAME                             SALES$
------------------- ---------------------------------------- --------------
Internet           United Kingdom                              16,569
Internet           United States of America                   124,224
Internet                                                      140,793
Internet           United Kingdom                              14,539
Internet           United States of America                   137,054
Internet                                                      151,593
Internet                                                      292,387
Direct Sales       United Kingdom                              85,223
Direct Sales       United States of America                   638,201
Direct Sales                                                  723,424
Direct Sales       United Kingdom                              91,925
Direct Sales       United States of America                   682,297
Direct Sales                                                  774,222
Direct Sales                                                  1,497,646
                                                           1,790,032

15 rows selected.


SQL> SELECT channels.channel_desc, countries.country_name,GROUP_ID(),
  2  TO_CHAR(SUM(amount_sold), '9,999,999,999') SALES$
  3  FROM sales, customers, times, channels, countries
  4  WHERE sales.time_id=times.time_id
  5  AND sales.cust_id=customers.cust_id
  6  AND customers.country_id = countries.country_id
  7  AND sales.channel_id = channels.channel_id
  8  AND channels.channel_desc IN ('Direct Sales', 'Internet')
  9  AND times.calendar_month_desc IN ('2000-09', '2000-10')
 10  AND countries.country_iso_code IN ('GB', 'US')
 11  AND countries.country_name LIKE 'U%'
 12  GROUP BY
 13  ROLLUP((channels.channel_desc, calendar_month_desc, countries.country_name),
 14  (channels.channel_desc, calendar_month_desc, countries.country_name),
 15  (channels.channel_desc, calendar_month_desc, countries.country_name),
 16  (channels.channel_desc, calendar_month_desc, countries.country_name))
 17  ORDER BY GROUP_ID();

CHANNEL_DESC       COUNTRY_NAME       GROUP_ID() SALES$
------------------- ---------------------------------------- ---------- --------------
Internet           United Kingdom               0       16,569
Internet           United States of America     0      124,224
Internet           United Kingdom               0       14,539
```

Internet	United States of America	0	137,054
		0	1,790,032
Direct Sales	United States of America	0	638,201
Direct Sales	United Kingdom	0	91,925
Direct Sales	United States of America	0	682,297
Direct Sales	United Kingdom	0	85,223
Direct Sales	United States of America	1	682,297
Direct Sales	United Kingdom	1	91,925
Direct Sales	United States of America	1	638,201
Direct Sales	United Kingdom	1	85,223
Internet	United States of America	1	137,054
Internet	United Kingdom	1	14,539
Internet	United States of America	1	124,224
Internet	United Kingdom	1	16,569
Direct Sales	United States of America	2	682,297
Direct Sales	United Kingdom	2	91,925
Direct Sales	United States of America	2	638,201
Direct Sales	United Kingdom	2	85,223
Internet	United States of America	2	137,054
Internet	United Kingdom	2	14,539
Internet	United Kingdom	2	16,569
Internet	United States of America	2	124,224
Internet	United Kingdom	3	14,539
Internet	United States of America	3	137,054
Direct Sales	United Kingdom	3	85,223
Direct Sales	United States of America	3	638,201
Direct Sales	United Kingdom	3	91,925
Direct Sales	United States of America	3	682,297
Internet	United States of America	3	124,224
Internet	United Kingdom	3	16,569

33 rows selected.