ASSIGNMENT-2

Aim: To understand rollup and cube concept.

Pre-requisites:

Step 1: Create given below table.

Table Structure:

Name	Type
TIME	NUMBER(4)
REGION	VARCHAR2(15)
DEPT	VARCHAR2(20)
PROFIT	NUMBER(10,2)

Query:

```
create table sales(
  Time    number(4),
  Region  varchar2(15),
  Dept    varchar2(20),
  Profit  number(10,2)
)
```

Step 2: Insert given below data in table.

Input values:

TIME	REGION	DEPT	PROFIT
1996	central	pen_sales	75000
1996	central	book_sales	74000
1996	east	pen_sales	89000
1996	east	book_sales	115000
1996	west	pen_sales	87000

1996	west	book_sales	86000
1997	central	pen_sales	82000
1997	central	book_sales	85000
1997	east	pen_sales	101000
1997	east	book_sales	137000
1997	west	pen_sales	96000
1997	west	book_sales	97000

Query:

```
insert all
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'central', 'pen_sales'
,75000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'central',
'book_sales', 74000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'east', 'pen_sales',
89000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'east', 'book_sales',
115000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'west', 'pen_sales',
87000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1996, 'west', 'book_sales',
86000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'pen_sales',
82000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'book_sales',
85000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'pen_sales',
101000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'book_sales',
137000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'pen_sales',
96000)
into sales (TIME, REGION, DEPT, PROFIT)  values(1997, 'east', 'book_sales',
97000)
select* from dual;
```

Step 3.1: Select all data from table and display it.

Query:

```
select * from sales
```

Output:

TIME	REGION	DEPT	PROFIT
1996	central	pen_sales	75000
1996	central	book_sale	74000
1996	east	pen_sales	89000
1996	east	book_sale	115000
1996	west	pen_sales	87000
1996	west	book_sale	86000
1997	east	pen_sales	82000
1997	east	book_sale	85000
1997	east	pen_sales	101000
1997	east	book_sale	137000
1997	east	pen_sales	96000
1997	east	book_sale	97000

Step 3.2: Select all data from table and display it in ascending order of profit.

Query:

```
select * from sales

order by profit asc;
```

Output:

TIME	REGION	DEPT	PROFIT
1996	central	book_sale	74000
1996	central	pen_sales	75000
1997	east	pen_sales	82000
1997	east	book_sale	85000
1996	west	book_sale	86000
1996	west	pen_sales	87000
1996	east	pen_sales	89000
1997	east	pen_sales	96000
1997	east	book_sale	97000
1997	east	pen_sales	101000
1996	east	book_sale	115000
1997	east	book_sale	137000

Step 3.3: Select all data from table and display only the records that have profit greater than 10,000.

Query:

select * from sales where profit>10000;

Output:

TIME	REGION	DEPT	PROFIT
1996	central	pen_sales	75000
1996	central	book_sales	74000
1996	east	pen_sales	89000
1996	east	book_sales	115000
1996	west	pen_sales	87000
1996	west	book_sales	86000
1997	central	pen_sales	82000
1997	central	book_sales	85000
1997	east	pen_sales	101000
1997	east	book_sales	137000
1997	west	pen_sales	96000
1997	west	book_sales	97000

Step 3.4: Write a query to display count number of records and sum of all profits.

Query:

```
select count(*), sum(profit)
from sales
```

Output:

COUNT(*)	SUM(PROFIT)
12	1124000

Assignment-1 : Rollup – Cube

1. **Question Statement:**
   Find the total profit dept wise.
   Query:

   ```
   select dept, sum(profit)
   from sales
   group by dept;
   ```

   Output:

DEPT	SUM(PROFIT)
pen_sales	530000
book_sales	594000

2. **Question Statement:**
   Find the total profit dept wise along with grand total.
   Query:
   select dept, sum(profit)
   from sales
   group by rollup(dept);
   Output:

DEPT	TOTAL
book_sales	594000
pen_sales	530000
-	1124000

3. **Question Statement:**
   Find the total profit, time and region wise.
   Query:
   select time, region, sum(profit)total
   from sales
   group by time,region order by time, region;
   Output:

TIME	REGION	TOTAL
1996	central	149000
1996	east	204000
1996	west	173000
1997	east	598000

4. **Question Statement:**

   Find the total profit time, region wise along with time wise total & grand total.

   Query:

   select TIME, REGION, sum(PROFIT) as TOTAL from sales group by rollup(TIME, REGION) order by TIME, REGION;

   Output:

TIME	REGION	TOTAL
1996	central	149000
1996	east	204000
1996	west	173000
1996	-	526000
1997	central	167000
1997	east	238000
1997	west	193000
1997	-	598000
-	-	1124000

5. **Question Statement:**

   Find the total profit time, region wise along with region wise total & grand total.

   Query:

select TIME, REGION, sum(PROFIT) as TOTAL from sales group by rollup(REGION, TIME) order by TIME, REGION;

Output:

TIME	REGION	TOTAL
1996	central	149000
1996	east	204000
1996	west	173000
1997	central	167000
1997	east	238000
1997	west	193000
-	central	316000
-	east	442000
-	west	366000
-	-	1124000

6. **Question Statement:**

Find the total profit time, region wise along with time wise total only.

Query:

select TIME, REGION, sum(PROFIT) as TOTAL from sales group by TIME, rollup (REGION) order by TIME, REGION;

Output:

TIME	REGION	TOTAL
1996	central	149000
1996	east	204000
1996	west	173000
1996	-	526000
1997	central	167000
1997	east	238000
1997	west	193000
1997	-	598000

7. **Question Statement:**

Find the total profit region, time wise along with region wise total only.

Query:

select REGION, TIME, sum(PROFIT) as TOTAL from sales group by REGION, rollup (TIME) order by TIME, REGION;

Output:

REGION	TIME	TOTAL
central	1996	149000
east	1996	204000
west	1996	173000
central	1997	167000
east	1997	238000
west	1997	193000
central	-	316000
east	-	442000
west	-	366000

8. **Question Statement:**

Find the total profit, time, dept, region wise along with time wise total, time & dept wise total & grand total.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by rollup(TIME, DEPT, REGION) order by TIME, DEPT, REGION;

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	book_sales	-	275000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	pen_sales	-	251000
1996	-	-	526000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	book_sales	-	319000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	pen_sales	-	279000
1997	-	-	598000
-	-	-	1124000

9. **Question Statement:**

   Find the total profit time, dept, region wise along with dept wise total, dept & region wise total & grand total.

   Query:

   select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by rollup(DEPT, REGION, TIME) order by TIME, DEPT, REGION;

   Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
-	book_sales	central	159000
-	book_sales	east	252000
-	book_sales	west	183000
-	book_sales	-	594000
-	pen_sales	central	157000
-	pen_sales	east	190000
-	pen_sales	west	183000
-	pen_sales	-	530000
-	-	-	1124000

10. Question Statement:

Find the total profit time, dept, region wise along with dept wise, dept& time wise total & grand total.

Query:

```
select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by rollup(DEPT, TIME, REGION) order by TIME, DEPT, REGION;
```

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	book_sales	-	275000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	pen_sales	-	251000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	book_sales	-	319000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	pen_sales	-	279000
-	book_sales	-	594000
-	pen_sales	-	530000
-	-	-	1124000

11. Question Statement:

Find the total profit time, dept, region wise along with region wise, region & time wise total & grand total.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by rollup(REGION, TIME, DEPT) order by TIME, DEPT, REGION;

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	-	central	149000
1996	-	east	204000
1996	-	west	173000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	-	central	167000
1997	-	east	238000
1997	-	west	193000
-	-	central	316000
-	-	east	442000
-	-	west	366000
-	-	-	1124000

12. Question Statement:

Find the total profit time, dept, region wise along with time wise, time & dept wise total.

Query:

```
select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by TIME, rollup (DEPT, REGION) order by TIME, DEPT, REGION;
```

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	book_sales	-	275000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	pen_sales	-	251000
1996	-	-	526000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	book_sales	-	319000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	pen_sales	-	279000
1997	-	-	598000

13. Question Statement:

Find the total profit time, dept, region wise along with dept wise, time & dept wise total.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by DEPT, rollup (TIME, REGION) order by TIME, DEPT, REGION;

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	book_sales	-	275000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	pen_sales	-	251000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	book_sales	-	319000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	pen_sales	-	279000
-	book_sales	-	594000
-	pen_sales	-	530000

14. Question Statement:

Find the total profit time, dept, region wise along with time wise, time & region wise total.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by TIME, rollup(REGION, DEPT) order by TIME, DEPT, REGION;

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	-	central	149000
1996	-	east	204000
1996	-	west	173000
1996	-	-	526000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	-	central	167000
1997	-	east	238000
1997	-	west	193000
1997	-	-	598000

15. Question Paper:

Find the total profit time, dept, region wise along with time & dept wise total.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL from sales group by TIME, DEPT, rollup(REGION) order by TIME, DEPT, REGION;

Output:

TIME	DEPT	REGION	TOTAL
1996	book_sales	central	74000
1996	book_sales	east	115000
1996	book_sales	west	86000
1996	book_sales	-	275000
1996	pen_sales	central	75000
1996	pen_sales	east	89000
1996	pen_sales	west	87000
1996	pen_sales	-	251000
1997	book_sales	central	85000
1997	book_sales	east	137000
1997	book_sales	west	97000
1997	book_sales	-	319000
1997	pen_sales	central	82000
1997	pen_sales	east	101000
1997	pen_sales	west	96000
1997	pen_sales	-	279000

16. **Question Statement:**

Find out total sales (time, region, dept wise), (time, region wise), (time, dept wise), (region, dept wise), (region wise), (dept wise), (time wise), total sales irrespective of time, region and dept.

Query:

select TIME, DEPT, REGION, sum(PROFIT) as TOTAL_SALES from sales group by cube(TIME, REGION, DEPT) order by TIME, REGION, DEPT;

Output:

TIME	DEPT	REGION	TOTAL_SALES
1996	book_sales	central	74000
1996	pen_sales	central	75000
1996	-	central	149000
1996	book_sales	east	115000
1996	pen_sales	east	89000
1996	-	east	204000
1996	book_sales	west	86000
1996	pen_sales	west	87000
1996	-	west	173000
1996	book_sales	-	275000
1996	pen_sales	-	251000
1996	-	-	526000
1997	book_sales	central	85000
1997	pen_sales	central	82000
1997	-	central	167000
1997	book_sales	east	137000
1997	pen_sales	east	101000
1997	-	east	238000
1997	book_sales	west	97000
1997	pen_sales	west	96000
1997	-	west	193000
1997	book_sales	-	319000

1997	book_sales	-	319000
1997	pen_sales	-	279000
1997	-	-	598000
-	book_sales	central	159000
-	pen_sales	central	157000
-	-	central	316000
-	book_sales	east	252000
-	pen_sales	east	190000
-	-	east	442000
-	book_sales	west	183000
-	pen_sales	west	183000
-	-	west	366000
-	book_sales	-	594000
-	pen_sales	-	530000
-	-	-	1124000

17. **Question Statement:**

Find out total sales (time, region, dept wise), (time, region wise), (time, dept wise), total sales irrespective of region and dept.

Query:

select TIME, REGION, DEPT, sum(PROFIT) as TOTAL_SALES from sales group by TIME, cube(REGION, DEPT) order by TIME, REGION, DEPT;

Output:

TIME	REGION	DEPT	TOTAL_SALES
1996	central	book_sales	74000
1996	central	pen_sales	75000
1996	central	-	149000
1996	east	book_sales	115000
1996	east	pen_sales	89000
1996	east	-	204000
1996	west	book_sales	86000
1996	west	pen_sales	87000
1996	west	-	173000
1996	-	book_sales	275000
1996	-	pen_sales	251000
1996	-	-	526000
1997	central	book_sales	85000
1997	central	pen_sales	82000
1997	central	-	167000
1997	east	book_sales	137000
1997	east	pen_sales	101000
1997	east	-	238000
1997	west	book_sales	97000
1997	west	pen_sales	96000
1997	west	-	193000
1997	-	book_sales	319000
1997	-	pen_sales	279000
1997	-	-	598000

18.<u>Question Statement:</u>

Find out total sales (time, region, dept wise), (region, time wise), (region, dept wise), total sales irrespective of time and dept.

<u>Query:</u>

```
select TIME, REGION, DEPT, sum(PROFIT) as TOTAL_SALES from
sales group by REGION, cube(TIME, DEPT)
order by TIME, REGION, DEPT;
```

Output:

TIME	REGION	DEPT	TOTAL_SALES
1996	central	book_sales	74000
1996	central	pen_sales	75000
1996	central	-	149000
1996	east	book_sales	115000
1996	east	pen_sales	89000
1996	east	-	204000
1996	west	book_sales	86000
1996	west	pen_sales	87000
1996	west	-	173000
1997	central	book_sales	85000
1997	central	pen_sales	82000
1997	central	-	167000
1997	east	book_sales	137000
1997	east	pen_sales	101000
1997	east	-	238000
1997	west	book_sales	97000
1997	west	pen_sales	96000
1997	west	-	193000
-	central	book_sales	159000
-	central	pen_sales	157000
-	central	-	316000
-	east	book_sales	252000
-	east	pen_sales	190000
-	east	-	442000
-	west	book_sales	183000
-	west	pen_sales	183000
-	west	-	366000

19. Question Statement:

Find out total sales (time, region, dept wise), (dept, time wise).

Query:

select TIME, REGION, DEPT, sum(PROFIT) as TOTAL from sales group by TIME, rollup(REGION) , DEPT order by TIME, REGION, DEPT;

Output:

TIME	REGION	DEPT	TOTAL
1996	central	book_sales	74000
1996	central	pen_sales	75000
1996	east	book_sales	115000
1996	east	pen_sales	89000
1996	west	book_sales	86000
1996	west	pen_sales	87000
1996	-	book_sales	275000
1996	-	pen_sales	251000
1997	central	book_sales	85000
1997	central	pen_sales	82000
1997	east	book_sales	137000
1997	east	pen_sales	101000
1997	west	book_sales	97000
1997	west	pen_sales	96000
1997	-	book_sales	319000
1997	-	pen_sales	279000

Conclusion: Hence, we successfully understood concept the rollup and cube concept.