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**Pre-requisite of Assignment 1: To be completed before starting assignment 1 questions.**

**Step 1: Create given below table.**

**Table structure:**

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

Code:

```
CREATE TABLE Assign (  
    TIME NUMBER(4),  
    REGION VARCHAR2(15),  
    DEPT VARCHAR2(20),  
    PROFIT NUMBER(10,2)  
);
```

Output:

```
Table created.
```

**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

Code:

```

INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'central', 'pen_sales', 75000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'central', 'book_sales', 74000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'east', 'pen_sales', 89000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'east', 'book_sales', 115000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'west', 'pen_sales', 87000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1996, 'west', 'book_sales', 86000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1997, 'central', 'pen_sales', 82000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1997, 'central', 'book_sales', 85000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1997, 'east', 'pen_sales', 101000);
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
VALUES (1997, 'east', 'book_sales', 137000);

```

```
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
```

```
VALUES (1997, 'west', 'pen_sales', 96000);
```

```
INSERT INTO Assign (TIME, REGION, DEPT, PROFIT)
```

```
VALUES (1997, 'west', 'book_sales', 97000);
```

Output:

```
1 row(s) inserted.
```

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

Code:

```
SELECT * FROM Assign;
```

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

Code:

```
SELECT * FROM Assign  
ORDER BY PROFIT ASC;
```

Output:

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

**Step 3.3: Select all data from table and display only the records that have profit greater than 1,00,000.**

Code:

```
SELECT * FROM Assign  
WHERE PROFIT > 100000;
```

Output:

TIME	REGION	DEPT	PROFIT
1996	east	book_sales	115000
1997	east	pen_sales	101000
1997	east	book_sales	137000

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

Code:

```
SELECT COUNT(*) AS RecordCount, SUM(PROFIT) AS TotalProfit
```

```
FROM Assign;
```

Output:

RECORDCOUNT	TOTALPROFIT
12	1124000

### Assignment 1: Rollup-Cube

1. Find the total profit dept wise.

Code:

```
SELECT DEPT, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY DEPT
ORDER BY DEPT;
```

Output:

DEPT	TOTALPROFIT
book_sales	594000
pen_sales	530000

2. Find the total profit dept wise along with grand total.

Code:

```
SELECT DEPT, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY ROLLUP (DEPT)
ORDER BY DEPT;
```

Output:

DEPT	TOTALPROFIT
book_sales	594000
pen_sales	530000
-	1124000

3. Find the total profit, time and region wise.

Code:

```
SELECT TIME, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
```

GROUP BY TIME, REGION  
ORDER BY TIME, REGION;

Output:

TIME	REGION	TOTALPROFIT
1996	central	149000
1996	east	204000
1996	west	173000
1997	central	167000
1997	east	238000
1997	west	193000

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

Code:

```
SELECT TIME, REGION, SUM(PROFIT) AS TotalProfit  
FROM Assign  
GROUP BY ROLLUP (TIME, REGION)  
ORDER BY TIME, REGION;
```

Output:

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

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

Code:

```
SELECT TIME, REGION, SUM(PROFIT) AS TotalProfit  
FROM Assign
```

GROUP BY TIME, ROLLUP (REGION)  
ORDER BY TIME, REGION;

Output:

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

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

Code:

```
SELECT TIME, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY TIME, REGION
ORDER BY TIME, REGION;
```

Output:

TIME	REGION	TOTALPROFIT
1996	central	149000
1996	east	204000
1996	west	173000
1997	central	167000
1997	east	238000
1997	west	193000



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

Code:

```
SELECT REGION, TIME, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY REGION, TIME
ORDER BY REGION, TIME;
```

Output:

REGION	TIME	TOTALPROFIT
central	1996	149000
central	1997	167000
east	1996	204000
east	1997	238000
west	1996	173000
west	1997	193000

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY ROLLUP (TIME, DEPT, REGION)
ORDER BY TIME, DEPT, REGION;
```

Output:

TIME	DEPT	REGION	TOTALPROFIT
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. Find the total profit time, dept, region wise along with dept wise total, dept & region wise total & grand total.

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY ROLLUP (TIME, DEPT, REGION)
ORDER BY TIME, DEPT, REGION;
```

Output:

TIME	DEPT	REGION	TOTALPROFIT
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

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (TIME, DEPT), (DEPT), ());
```

Output:

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

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (REGION, TIME), (REGION), ());
```

Output:

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

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (TIME, DEPT), (TIME), ());
```

Output:

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

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (DEPT, TIME), (DEPT), ());
```

Output:

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

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (TIME, REGION), (TIME), ());
```

Output:

TIME	DEPT	REGION	TOTALPROFIT
1996	pen_sales	east	89000
1996	book_sales	east	115000
1996	-	east	204000
1996	pen_sales	west	87000
1996	book_sales	west	86000
1996	-	west	173000
1996	pen_sales	central	75000
1996	book_sales	central	74000
1996	-	central	149000
1996	-	-	526000
1997	pen_sales	east	101000
1997	book_sales	east	137000
1997	-	east	238000
1997	pen_sales	west	96000
1997	book_sales	west	97000
1997	-	west	193000
1997	pen_sales	central	82000
1997	book_sales	central	85000
1997	-	central	167000
1997	-	-	598000
-	-	-	1124000

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

Code:

```
SELECT TIME, DEPT, REGION, SUM(PROFIT) AS TotalProfit
FROM Assign
GROUP BY GROUPING SETS ((TIME, DEPT, REGION), (TIME, DEPT));
```

Output:



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

16. 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.

Code:

```
SELECT
  TIME,
  REGION,
```

```

DEPT,
SUM(PROFIT) AS TotalSales
FROM Assign
GROUP BY
CUBE (TIME, REGION, DEPT);

```

Output:

TIME	REGION	DEPT	TOTALSALES
-	-	-	1124000
-	-	pen_sales	530000
-	-	book_sales	594000
-	east	-	442000
-	east	pen_sales	190000
-	east	book_sales	252000
-	west	-	366000
-	west	pen_sales	183000
-	west	book_sales	183000
-	central	-	316000
-	central	pen_sales	157000
-	central	book_sales	159000
1996	-	-	526000
1996	-	pen_sales	251000
1996	-	book_sales	275000
1996	east	-	204000
1996	east	pen_sales	89000
1996	east	book_sales	115000
1996	west	-	173000
1996	west	pen_sales	87000
1996	west	book_sales	86000
1996	central	-	149000
1996	central	pen_sales	75000

1996	central	book_sales	74000
1997	-	-	598000
1997	-	pen_sales	279000
1997	-	book_sales	319000
1997	east	-	238000
1997	east	pen_sales	101000
1997	east	book_sales	137000
1997	west	-	193000
1997	west	pen_sales	96000
1997	west	book_sales	97000
1997	central	-	167000
1997	central	pen_sales	82000
1997	central	book_sales	85000

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

Code:

```
SELECT
    TIME,
    REGION,
    DEPT,
    SUM(PROFIT) AS TotalSales
FROM Assign
GROUP BY
    ROLLUP (TIME, REGION, DEPT),
    ROLLUP (TIME, REGION),
    ROLLUP (TIME, DEPT);
```

Output:

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

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

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

Code:

```
SELECT
    TIME,
    REGION,
    DEPT,
    SUM(PROFIT) AS TotalSales
FROM Assign
GROUP BY
    ROLLUP (TIME, REGION, DEPT),
    ROLLUP (REGION, TIME),
    ROLLUP (REGION, DEPT);
```

Output:

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

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

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

Code:

```

SELECT
    TIME,
    REGION,
    DEPT,
    SUM(PROFIT) AS TotalSales
FROM Assign
GROUP BY

```

ROLLUP (TIME, REGION, DEPT),  
ROLLUP (DEPT, TIME);

Output:

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



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