```
SQL> SELECT DEPTNO, JOB, SUM(SAL)
```

- 2 FROM EMP
- 3 GROUP BY DEPTNO, JOB
- 4 ORDER BY 1;

DEPTNO	JOB	SUM(SAL)
10	CLERK	1300
10	MANAGER	2450
10	PRESIDENT	5000
20	ANALYST	6000
20	CLERK	1900
20	MANAGER	2975
30	CLERK	950
30	MANAGER	2850
30	SALESMAN	5600

9 rows selected.

```
SQL> CREATE MATERIALIZED VIEW EMP SUM
```

- 2 ENABLE QUERY REWRITE
- 3 AS
- 4 SELECT DEPTNO, JOB, SUM(SAL)
- 5 FROM EMP
- 6 GROUP BY DEPTNO, JOB;

FROM EMP

*

ERROR at line 5:

ORA-01031: insufficient privileges

SQL> CONN SYS AS SYSDBA

Connected.

SQL> GRANT CREATE MATERIALIZED VIEW TO SCOTT;

Grant succeeded.

SQL> GRANT QUERY REWRITE TO SCOTT;

Grant succeeded.

SQL> GRANT ALTER SESSION TO SCOTT;

Grant succeeded.

SQL> CONN SCOTT/tiger

ERROR:

ORA-28002: the password will expire within 11015 days

Connected.

SQL> ALTER SESSION SET QUERY REWRITE ENABLED='TRUE';

Session altered.

SQL> CREATE MATERIALIZED VIEW EMP SUM

- 2 ENABLE QUERY REWRITE
- 3 A.S
- 4 SELECT DEPTNO, JOB, SUM(SAL)
- 5 FROM EMP
- 6 GROUP BY DEPTNO, JOB;

Materialized view created.

SQL> SET AUTOTRACE ON EXPLAIN SQL> SELECT DEPTNO, JOB, SUM(SAL)

- 2 FROM EMP
- 3 GROUP BY DEPTNO, JOB
- 4

DEPTNO	JOB	SUM(SAL)
30	CLERK	950
20	CLERK	1900
30	SALESMAN	5600
20	MANAGER	2975
10	PRESIDENT	5000
30	MANAGER	2850
10	CLERK	1300
10	MANAGER	2450
20	ANALYST	6000

9 rows selected.

Execution Plan

Plan hash value: 82228995

Id Operation (%CPU) Time	Name	Rows	3	B	ytes	Cos	t
0 SELECT STATEMENT (0) 00:00:01 1 MAT_VIEW REWRITE ACCESS FULL (0) 00:00:01	 EMP_SUM				288 288	'	3

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, SUM(SAL)

- 2 FROM EMP
- 3 GROUP BY DEPTNO

4

DEPTNO	SUM(SAL)
30	9400
20	10875
10	8750

Execution Plan

Plan hash value: 2751693713

Id	Name	Row	s	Bytes	Cost
0 SELECT STATEMENT (25) 00:00:01	1 8		9	234	4
1 HASH GROUP BY		1	9 I	234	4
(25) 00:00:01		ı	J	231	1
2 MAT VIEW REWRITE ACCESS	FULL EMP SUM		9	234	3
(0) 00:00:01	\bigcirc	· 			

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT JOB, SUM(SAL)

(0)

- 2 FROM EMP
- 3 GROUP BY JOB;

JOB	SUM (SAL)
CLERK	4150
SALESMAN	5600
PRESIDENT	5000
MANAGER	8275
ANALYST	6000

Execution Plan

Plan hash value: 2751693713

Id Operation (%CPU) Time	Name	Rov	vs	Bytes	Cost
	1	1	0 1	171	4
0 SELECT STATEMENT (25) 00:00:01	I	I	9	171	4
1 HASH GROUP BY (25) 00:00:01			9	171	4
2 MAT_VIEW REWRITE ACCESS FT (0) 00:00:01	JLL EMP_SUM	I	9	171	3
Note				110)
- dynamic sampling used for this	statement (level=	=2)		
<pre>SQL> SELECT DEPTNO, SUM(SAL) 2 FROM EMP 3 GROUP BY ROLLUP(DEPTNO);</pre>			8		
DEPTNO SUM(SAL)		54			
10 8750 20 10875 30 9400 29025					
Execution Plan					
Plan hash value: 2868327837		. – – – – -			
 Id	Name	Rov	vs	Bytes	Cost
0 SELECT STATEMENT (25) 00:00:01		l	9	234	4
1 SORT GROUP BY ROLLUP		1	9	234	4
(25) 00:00:01 2 MAT_VIEW REWRITE ACCESS FU (0) 00:00:01	JLL EMP_SUM	I	9	234	3

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT JOB, SUM(SAL)

2 FROM EMP

3 GROUP BY ROLLUP(JOB);

JOB	SUM(SAL)
ANALYST	6000
CLERK	4150
MANAGER	8275
PRESIDENT	5000
SALESMAN	5600
	29025

6 rows selected.

Execution Plan

Plan hash value: 2868327837

	Name	Rows	B	sytes C	ost
0 SELECT STATEMENT		9		171	4
(25) 00:00:01 1 SORT GROUP BY ROLLUP	\	9	ı	171	4
(25) 00:00:01		_		'	_
2 MAT_VIEW REWRITE ACCESS FULL	EMP_SUM	9		171	3
(0) 00:00:01					

Note

----- dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, JOB, SUM(SAL)

- 2 FROM EMP
- 3 GROUP BY ROLLUP(DEPTNO, JOB);

DEPTNO	JOB	SUM(SAL)
10	CLERK	1300
10	MANAGER	2450
10	PRESIDENT	5000
10		8750
20	CLERK	1900
20	ANALYST	6000
20	MANAGER	2975
20		10875
30	CLERK	950
30	MANAGER	2850
30	SALESMAN	5600

30 9400 29025

13 rows selected.

Execution Plan

Plan hash value: 2868327837

Id Operation (%CPU) Time	l	Name	 Row	s E	Bytes 0	Cost
0 SELECT STATEMENT (25) 00:00:01				9	288	4
1 SORT GROUP BY ROLLUP (25) 00:00:01	1		Τ	9	288	4
2 MAT_VIEW REWRITE ACCESS (0) 00:00:01	FULL	EMP_SUM		9	288	3

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, JOB, SUM(SAL)

- 2 FROM EMP
- 3 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
DEPTNO	JOB	SUM(SAL)
DELINO	UOD	SOM (SAL)

30 SALESMAN 5600

18 rows selected.

Execution Plan

Plan hash value: 1797585325

Id Operation	Name I	Rows 1	Bytes C	ost
(%CPU) Time				
0 SELECT STATEMENT	I I	9 1	288	4
(25) 00:00:01			000 1	4
1 SORT GROUP BY (25) 00:00:01		9	288	4
2 GENERATE CUBE		9	288	4
(25) 00:00:01	(A)			
3 SORT GROUP BY		9	288	4
(25) 00:00:01 4 MAT VIEW REWRITE ACCESS	FULL EMP SUM	9	288	3
(0) 00:00:01		- '		

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, JOB, SUM(SAL)

- 2 FROM EMP
- 3 GROUP BY GROUPING SETS (DEPTNO, JOB);

DEPTNO	JOB	SUM(SAL)
30		9400
20		10875
10		8750
	CLERK	4150
	SALESMAN	5600
	PRESIDENT	5000
	MANAGER	8275
	ANALYST	6000

8 rows selected.

Execution Plan

Plan hash value: 3271332219

Id Operation Bytes Cost (%CPU) Time	Name	Rows
0 SELECT STATEMENT	I I	9
288 11 (19) 00:00:01 1 TEMP TABLE TRANSFORMATION	1	
	SYS_TEMP_OFD9D6608_BFB538	I
3 MAT_VIEW ACCESS FULL 288 3 (0) 00:00:01	EMP_SUM	9
4 LOAD AS SELECT	SYS_TEMP_0FD9D6609_BFB538	I
5 HASH GROUP BY 26 3 (34) 00:00:01		1
6 TABLE ACCESS FULL 26 2 (0) 00:00:01	SYS_TEMP_OFD9D6608_BFB538	1
7 LOAD AS SELECT 	SYS_TEMP_OFD9D6609_BFB538	
8 HASH GROUP BY 19 3 (34) 00:00:01		1
9 TABLE ACCESS FULL 19 2 (0) 00:00:01	SYS_TEMP_OFD9D6608_BFB538	1
10 VIEW 32 2 (0) 00:00:01		1
11 TABLE ACCESS FULL 32 2 (0) 00:00:01	SYS_TEMP_0FD9D6609_BFB538	1

Note

- dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, AVG(SAL)

- 2 FROM EMP
- 3 GROUP BY DEPTNO;

DEPTNO AVG(SAL)
----30 1566.66667
20 2175
10 2916.66667

Execution Plan

Plan hash value: 4067220884

```
| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time
 0 | SELECT STATEMENT | | 3 | 21 | 4 (25) | 00:00:01
 1 | HASH GROUP BY | 3 | 21 | 4 (25) | 00:00:01
2 | TABLE ACCESS FULL| EMP | 14 | 98 | 3 (0) | 00:00:01
SOL> SELECT
 2 DEPTNO,
 3 JOB,
 4 MGR,
 5 TO CHAR (HIREDATE, 'YYYYY') Year,
 6 TO CHAR (HIREDATE, 'Q') Quarter,
 7 TO CHAR (HIREDATE, 'FMMONTH') Month,
 8 TO CHAR (HIREDATE, 'W') Week,
 9 TO CHAR (HIREDATE, 'FMDAY') Day,
10 SUM(SAL)
11 FROM EMP
12 GROUP BY
13 GROUPING SETS
14 (
15 DEPTNO,
16 JOB,
17 MGR,
18 TO CHAR (HIREDATE, 'YYYY'),
19 TO CHAR (HIREDATE, 'Q'),
20 TO CHAR (HIREDATE, 'FMMONTH'),
21 TO CHAR (HIREDATE, 'W'),
22 TO CHAR (HIREDATE, 'FMDAY')
23 );
            MGR YEAR Q MONTH W DAY SUM(SAL)
DEPTNO JOB
               7839
                                                 8275
                                                 5000
                7782
                                                 1300
                7698
                                                 6550
                7902
                                                 800
                7566
                                                 6000
                7788
                                                 1100
     CLERK
                                                 4150
     SALESMAN
                                                 5600
                                                 5000
     PRESIDENT
```

MANAGER ANALYST

30

8275

6000

9400

20 10			1987					10875 8750 4100	
			1980					800	
DEPTNO	JOB	MGR	YEAR	Q –	MONTH	W	DAY	SUM(SAL)	
			1982	1 3 4 2	FEBRUARY NOVEMBER JUNE DECEMBER APRIL JANUARY SEPTEMBER MAY	1 3 4	87	1300 22825 4150 2750 9750 12375 2850 5000 2450 4750 5975 1300 2750 3950 9775 10400 4900	
DEPTNO	JOB	MGR	YEAR	Q -	MONTH	W	DAY	SUM(SAL)	
		\ \ \	C		500	2	THURSDAY FRIDAY TUESDAY SUNDAY MONDAY WEDNESDAY SATURDAY	3950 6925 4450 8950 4250 1250 800 2400	
42 rows	s selected.	<i>)</i>							
Execut	ion Plan								
	ash value:		9645						
	Operation Cost (%CP				Name				Rows
910	SELECT ST. 29 (28) TEMP TAB	00:00	0:01		- FION				14

2	LOAD AS SELECT	1	SYS_TEMP_0FD9D660E_BFB538			
378	TABLE ACCESS FULL 3 (0) 00:00:01	I	EMP		14	1
4	LOAD AS SELECT	I	SYS_TEMP_0FD9D660F_BFB538			1
, 5 26	HASH GROUP BY 3 (34) 00:00:01	1			1	1
6	TABLE ACCESS FULL 2 (0) 00:00:01	1	SYS_TEMP_0FD9D660E_BFB538	1	1	I
	LOAD AS SELECT	1	SYS_TEMP_0FD9D660F_BFB538			Ī
	HASH GROUP BY 3 (34) 00:00:01	1			1	1
9	TABLE ACCESS FULL 2 (0) 00:00:01	1	SYS_TEMP_0FD9D660E_BFB538	I	1	
	LOAD AS SELECT	I	SYS_TEMP_0FD9D660F_BFB538			
	HASH GROUP BY 3 (34) 00:00:01	I			1	
12	TABLE ACCESS FULL 2 (0) 00:00:01	1	SYS_TEMP_0FD9D660E_BFB538		1	
	LOAD AS SELECT	1	SYS_TEMP_0FD9D660F_BFB538			
	HASH GROUP BY 3 (34) 00:00:01				1	
15	TABLE ACCESS FULL 2 (0) 00:00:01	Π	SYS_TEMP_0FD9D660E_BFB538		1	
	LOAD AS SELECT		SYS_TEMP_0FD9D660F_BFB538			
	HASH GROUP BY 3 (34) 00:00:01				1	
	TABLE ACCESS FULL 2 (0) 00:00:01		SYS_TEMP_0FD9D660E_BFB538		1	
19 	LOAD AS SELECT	1	SYS_TEMP_0FD9D660F_BFB538			
20 19	HASH GROUP BY 3 (34) 00:00:01	I			1	-
21 19	TABLE ACCESS FULL 2 (0) 00:00:01	I	SYS_TEMP_0FD9D660E_BFB538		1	
22	LOAD AS SELECT	I	SYS_TEMP_0FD9D660F_BFB538			
23 15	HASH GROUP BY 3 (34) 00:00:01	1			1	
24 15	TABLE ACCESS FULL 2 (0) 00:00:01	I	SYS_TEMP_0FD9D660E_BFB538		1	
25 	LOAD AS SELECT	I	SYS_TEMP_0FD9D660F_BFB538			
26 19	HASH GROUP BY 3 (34) 00:00:01	I			1	
27 19	TABLE ACCESS FULL 2 (0) 00:00:01	I	SYS_TEMP_0FD9D660E_BFB538		1	
28 65	VIEW 2 (0) 00:00:01	I			1	

```
| 29 | TABLE ACCESS FULL | SYS TEMP OFD9D660F BFB538 | 1 |
65 | 2 (0) | 00:00:01 |
SQL> CREATE MATERIALIZED VIEW MySubTotals
  2 ENABLE QUERY REWRITE
  3 BUILD IMMEDIATE
  4 REFRESH COMPLETE ON COMMIT
  5 AS
  6 SELECT
  7 DEPTNO,
 8 JOB,
 9 MGR,
 10 TO CHAR (HIREDATE, 'YYYYY') Year,
 11 TO CHAR (HIREDATE, 'Q') Quarter,
12 TO_CHAR(HIREDATE, 'FMMONTH') Month,
13 TO_CHAR(HIREDATE, 'W') Week,
 14 TO CHAR (HIREDATE, 'FMDAY') Day,
 15 SUM(SAL)
16 FROM EMP
 17 GROUP BY
18 GROUPING SETS
19 (
 20 DEPTNO,
 21 JOB,
 22 MGR,
 23 TO CHAR (HIREDATE, 'YYYY'),
 24 TO CHAR (HIREDATE, 'Q'),
 25 TO CHAR (HIREDATE, 'FMMONTH')
 26 TO CHAR (HIREDATE, 'W'),
27 TO CHAR (HIREDATE, 'FMDAY')
28 );
BUILD IMMEDIATE
ERROR at line 3:
ORA-00905: missing keyword
SQL> CREATE MATERIALIZED VIEW MySubTotals
  2 ENABLE QUERY REWRITE
  3 --BUILD IMMEDIATE
  4 REFRESH COMPLETE ON COMMIT
 5 AS
 6 SELECT
  7 DEPTNO,
 8 JOB,
 9 MGR,
 10 TO CHAR (HIREDATE, 'YYYY') Year,
 11 TO CHAR (HIREDATE, 'Q') Quarter,
 12 TO CHAR (HIREDATE, 'FMMONTH') Month,
 13 TO CHAR (HIREDATE, 'W') Week,
 14 TO CHAR (HIREDATE, 'FMDAY') Day,
 15 SUM(SAL)
```

.....

```
16 FROM EMP
 17 GROUP BY
 18 GROUPING SETS
 19 (
 20 DEPTNO,
 21 JOB,
 22 MGR,
 23 TO CHAR (HIREDATE, 'YYYY'),
 24 TO CHAR (HIREDATE, 'Q'),
 25 TO CHAR (HIREDATE, 'FMMONTH'),
 26 TO CHAR (HIREDATE, 'W'),
 27 TO CHAR (HIREDATE, 'FMDAY')
 28 );
REFRESH COMPLETE ON COMMIT
ERROR at line 4:
ORA-00905: missing keyword
SQL> CREATE MATERIALIZED VIEW MySubTotals
  2 ENABLE QUERY REWRITE
  3 --BUILD IMMEDIATE
  4 -- REFRESH COMPLETE ON COMMIT
  5 AS
  6 SELECT
  7 DEPTNO,
  8 JOB,
  9 MGR,
 10 TO CHAR (HIREDATE, 'YYYYY') Year,
 11 TO CHAR (HIREDATE, 'Q') Quarter,
 12 TO CHAR (HIREDATE, 'FMMONTH') Month,
 13 TO CHAR (HIREDATE, 'W') Week,
 14 TO CHAR (HIREDATE, 'FMDAY') Day,
 15 SUM(SAL)
 16 FROM EMP
 17 GROUP BY
 18 GROUPING SETS
 19 (
 20 DEPTNO,
 21 JOB,
 22 MGR,
 23 TO CHAR (HIREDATE, 'YYYY'),
 24 TO CHAR (HIREDATE, 'Q'),
 25 TO CHAR (HIREDATE, 'FMMONTH'),
 26 TO CHAR (HIREDATE, 'W'),
 27 TO CHAR (HIREDATE, 'FMDAY')
 28 );
Materialized view created.
SQL> SELECT
  2 DEPTNO,
  3 JOB,
  4 MGR,
```

```
5 TO CHAR (HIREDATE, 'YYYYY') Year,
  6 TO_CHAR(HIREDATE,'Q') Quarter,
  7
    TO CHAR (HIREDATE, 'FMMONTH') Month,
  8 TO CHAR(HIREDATE, 'W') Week,
  9 TO CHAR (HIREDATE, 'FMDAY') Day,
 10 SUM(SAL)
 11 FROM EMP
12 GROUP BY
13 GROUPING SETS
 14 (
15 DEPTNO,
 16 JOB,
 17 MGR,
 18 TO CHAR (HIREDATE, 'YYYY'),
 19 TO CHAR (HIREDATE, 'Q'),
 20 TO CHAR (HIREDATE, 'FMMONTH'),
 21 TO CHAR (HIREDATE, 'W'),
 22 TO CHAR (HIREDATE, 'FMDAY')
23 );
DEPTNO JOB
                   MGR YEAR Q MONTH
                                          W DAY
                                                       SUM (SAL)
                   7839
                                                           8275
                                                           5000
                   7782
                                                           1300
                   7698
                                                           6550
                   7902
                                                            800
                   7566
                                                           6000
                   7788
                                                           1100
       CLERK
                                                           4150
       SALESMAN
                                                           5600
       PRESIDENT
                                                           5000
       MANAGER
                                                           8275
                                                           6000
       ANALYST
    30
                                                           9400
    20
                                                          10875
    10
                                                           8750
                         1987
                                                           4100
                         1980
                                                            800
DEPTNO JOB
                    MGR YEAR Q MONTH W DAY
                                                       SUM(SAL)
                         1982
                                                           1300
                        1981
                                                          22825
                                                           4150
                                                           2750
                              3
                              4
                                                           9750
                                                          12375
                                FEBRUARY
                                                           2850
                                NOVEMBER
                                                           5000
                                JUNE
                                                           2450
                                DECEMBER
                                                           4750
                                APRIL
                                                           5975
                                JANUARY
                                                           1300
```

					SEPTEMBER MAY	1 3 4		2750 3950 9775 10400 4900
DEPTNO	JOB	MGR	YEAR	Q -	MONTH	W - 2	DAY THURSDAY FRIDAY TUESDAY SUNDAY MONDAY	SUM(SAL) 3950 6925 4450 8950 4250 1250
							WEDNESDAY SATURDAY	800 2400

42 rows selected.

Execution Plan

Plan hash value: 4085117410

Id Operation (%CPU) Time	Name	1	Rows	1	Bytes	Cost
0 SELECT STATEMENT 3 (0) 00:00:01			42		2730	
1 MAT_VIEW REWRITE 3 (0) 00:00:01	ACCESS FULL MYSUBTOTALS		42	 	2730	·

Note

- dynamic sampling used for this statement (level=2)

SQL> CREATE MATERIALIZED VIEW MyCube

- 2 ENABLE QUERY REWRITE
- 3 AS
- 4 SELECT
- 5 DEPTNO,
- 6 JOB,
- 7 MGR,
- 8 TO CHAR (HIREDATE, 'YYYYY') Year,
- 9 TO CHAR (HIREDATE, 'Q') Quarter,
- 10 TO CHAR (HIREDATE, 'FMMONTH') Month,
- 11 TO CHAR (HIREDATE, 'W') Week,
- 12 TO CHAR (HIREDATE, 'FMDAY') Day,
- 13 SUM(SAL)

14 FROM EMP 15 GROUP BY 16 CUBE 17 (18 DEPTNO, 19 JOB, 20 MGR, 21 TO CHAR (HIREDATE, 'YYYY'), 22 TO CHAR (HIREDATE, 'Q'), 23 TO CHAR (HIREDATE, 'FMMONTH'), 24 TO CHAR (HIREDATE, 'W'), 25 TO CHAR (HIREDATE, 'FMDAY') 26); Materialized view created. SQL> SELECT DEPTNO, SUM(SAL) 2 FROM EMP 3 GROUP BY DEPTNO; DEPTNO SUM(SAL) _____ 30 9400 20 10875 9400 10 8750 Execution Plan Plan hash value: 2751693713 | Id | Operation Name | Rows | Bytes | Cost (%CPU) | Time | | 0 | SELECT STATEMENT 9 | 234 | 4 (25) | 00:00:01 | | 1 | HASH GROUP BY | 9 | 234 | 4 $(25) \mid 00:00:01 \mid$ 2 | MAT VIEW REWRITE ACCESS FULL| EMP SUM | 9 | 234 | 3 $(0) \mid 00:00:01 \mid$ Note - dynamic sampling used for this statement (level=2) SQL> SELECT TO CHAR(HIREDATE, 'YYYYY') Year, SUM(SAL) 2 FROM EMP 3 GROUP BY TO CHAR(HIREDATE, 'YYYY');

YEAR SUM(SAL) ----1987 4100 1980 800 19821300198122825 1300 Execution Plan Plan hash value: 4067220884 | Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time 4 (25) | 00:00:01 1 | HASH GROUP BY | 13 | 156 4 (25) | 00:00:01 2 | TABLE ACCESS FULL | EMP | 14 | 168 | 3 (0) | 00:00:01 SQL> SELECT TO CHAR (HIREDATE, 'YYYY'), SUM(SAL) 2 FROM EMP 3 GROUP BY TO CHAR(HIREDATE, 'YYYY'); TO C SUM(SAL) 1987 4100 1980 800 1982 1300 1981 22825 Execution Plan Plan hash value: 4067220884 | Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time 0 | SELECT STATEMENT | 13 | 156 | 4 (25) | 00:00:01 | 1 | HASH GROUP BY | 13 | 156 | 4 (25) | 00:00:01

| 2 | TABLE ACCESS FULL| EMP | 14 | 168 | 3 (0)| 00:00:01

--

SQL> SELECT DEPTNO, JOB,

- 2 GROUPING (DEPTNO) GDPT,
- 3 GROUPING (JOB) GJOB,
- 4 GROUPING ID (DEPTNO, JOB) GRPID,
- 5 SUM(SAL)
- 6 FROM EMP
- 7 GROUP BY ROLLUP (DEPTNO, JOB);

DEPTNO	JOB	GDPT	GJOB	GRPID	SUM(SAL)
10	CLERK	0	0	0	1300
10	MANAGER	0	0	0	2450
10	PRESIDENT	0	0	0	5000
10		0	1	1	8750
20	CLERK	0	0	0	1900
20	ANALYST	0	0	0	6000
20	MANAGER	0	0	0	2975
20		0	1	1	10875
30	CLERK	0	0	0	950
30	MANAGER	0	0	0	2850
30	SALESMAN	0	0	0	5600
30		0	1	1	9400
		1	1	3	29025

13 rows selected.

Execution Plan

Plan hash value: 2868327837

Id Operation (%CPU) Time	l	Name		Rows		Bytes		Cost
0 SELECT STATEMENT (25) 00:00:01 1 SORT GROUP BY ROLLUP								4
(25) 00:00:01 2 MAT_VIEW REWRITE ACCESS (0) 00:00:01	FULL	EMP_SUM		9		288		3

Note

⁻ dynamic sampling used for this statement (level=2)

SQL> SELECT DEPTNO, JOB,

- 2 GROUPING ID (DEPTNO, JOB) GRPID,
- 3 SUM(SAL)
- 4 FROM EMP
- 5 GROUP BY ROLLUP(DEPTNO, JOB);

DEPTNO	JOB	GRPID	SUM(SAL)
10	CLERK	0	1300
10	MANAGER	0	2450
10	PRESIDENT	0	5000
10		1	8750
20	CLERK	0	1900
20	ANALYST	0	6000
20	MANAGER	0	2975
20		1	10875
30	CLERK	0	950
30	MANAGER	0	2850
30	SALESMAN	0	5600
30		1	9400
		3	29025

13 rows selected.

Execution Plan

Plan hash value: 2868327837

Id Operation (%CPU) Time	Na	ame	Rows	Bytes	Cost	_
0 SELECT STATEMENT			9	288	4	_
(25) 00:00:01 1 SORT GROUP BY ROLLUP (25) 00:00:01	I	1	9	288	4	
2 MAT_VIEW REWRITE ACCESS (0) 00:00:01	FULL EM	MP_SUM	9	288	3	
						_

Note

- dynamic sampling used for this statement (level=2)

SQL> SPOOL OFF