-

```
SQL> cl scr
SQL> SELECT SUM(Sal)
  2 FROM Emp;
 SUM(SAL)
    29025
SQL> SELECT Deptno, SUM(Sal)
  2 FROM Emp
  3 GROUP BY ROLLUP(Deptno)
  4 HAVING GROUPING(Deptno) & GiveIDX;
Enter value for giveidx: = 0
   DEPTNO SUM(SAL)
             9400
       30
       20
              10875
       10
               8750
SQL> /
Enter value for giveidx: = 0
   DEPTNO SUM(SAL)
       30
               9400
       20
              10875
       10
                8750
SQL> /
Enter value for giveidx:
   DEPTNO
            SUM(SAL)
               29025
SOL> /
Enter value for giveidx: IN(0, 1)
    DEPTNO
            SUM(SAL)
       10
                8750
       20
               10875
        30
               9400
               29025
```

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SQL> cl scr

SOL> CONN SYSTEM

Connected.

SQL> GRANT QUERY REWRITE

2 TO SCOTT;

Grant succeeded.

SOL> GRANT

- 2 CREATE MATERIALIZED VIEW
- 3 TO SCOTT;

Grant succeeded.

SQL> GRANT ALTER SESSION

2 TO SCOTT;

Grant succeeded.

SQL> CONN SCOTT/tiger

Connected.

SQL> ALTER SESSION

2 SET QUERY_REWRITE_ENABLED = TRUE;

Session altered.

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
- 7 ORDER BY Deptno;

Materialized view created.

SQL> SELECT * FROM TAB;

TNAME	TABTYPE	CLUSTERID
BONUS	TABLE	
CUSTOMER	TABLE	
DEPT	TABLE	
DUMMY	TABLE	
EMP	TABLE	
EMP_SUM	TABLE	

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•

ITEM	TABLE
ORD	TABLE
PRICE	TABLE
PRODUCT	TABLE
SALES	VIEW
SALGRADE	TABLE
SKYESS_BULK_COLLECT_TEST	TABLE
SKYESS_EMPLOYEES	TABLE
SKYESS_FORALL_TEST	TABLE

15 rows selected.

SQL> SET AUTOTRACE ON EXPLAIN SQL> cl scr

SQL> SELECT * FROM EMP_SUM;

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.

Execution Plan

Plan hash value: 2108572782

 Id Operation Time	Name	Ro	ows] 1	Bytes	 Cos	 t (%	 CPU)	_
 0 SELECT STATEMENT 00:00:01 1 MAT_VIEW ACCESS FU 00:00:01		 		 	288 288		3	(0)	

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._____

Note

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

SQL> SELECT Deptno , Job, SUM(Sal)

- 2 FROM Emp
- 3 GROUP BY Deptno, Job
- 4 ORDER BY Deptno;

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.

Execution Plan

Plan hash value: 825659509

0 SELECT STATEMENT 9 288 4 (25) 00:00:01	Id	Name		Rows		Bytes		Cost
1 SORT ORDER BY				9		288		4
2 MAT_VIEW REWRITE ACCESS FULL EMP_SUM 9 288 3	SORT ORDER BY			9		288		4
		EMP_SUM		9		288		3

Note

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

SQL> SELECT Deptno, SUM(Sal)

2 FROM Emp

3 GROUP BY Deptno;

DEPTNO	SUM(SAL)
30	9400
20	10875
10	8750

Execution Plan

Plan hash value: 2751693713

Note

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

SQL> SELECT Job, SUM(Sal)

- 2 FROM Emp
- 3 GROUP BY Job;

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

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ANALYST 6000	
Execution Plan	
Plan hash value: 2751693713	
Id Operation (%CPU) Time	Name Rows Bytes Cost
 0 SELECT STATEMENT (25) 00:00:01	9 171 4
1 HASH GROUP BY	9 171 4
(25) 00:00:01 2 MAT_VIEW REWRITE ACCESS FUL (0) 00:00:01	L EMP_SUM 9 171 3
	16
Note	
- dynamic sampling used for this s	tatement (level=2)
SQL> SELECT SUM(Sal) 2 FROM Emp;	
SUM(SAL)	
29025	
Execution Plan	
Plan hash value: 4050022887	
Id Operation (%CPU) Time	Name Rows Bytes Cost
0 SELECT STATEMENT (0) 00:00:01	1 13 3

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1	SORT	AGGRE	EGATE		1		1		13	
2			REWRITE	ACCESS	FULL	EMP_SUM	9		117	3

Note

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

SQL> SELECT Deptno, SUM(Sal)

- 2 FROM Emp
- 3 GROUP BY ROLLUP(Deptno);

SUM(SAL)	DEPTNO
8750	10
10875	20
9400	30
29025	

Execution Plan

Plan hash value: 2868327837

Id	Name		Rows		Bytes	Cost	
0 SELECT STATEMENT			9		234	4	
(25) 00:00:01 1 SORT GROUP BY ROLLUP (25) 00:00:01	I		9		234	4	
2 MAT_VIEW REWRITE ACCESS (0) 00:00:01	FULL EMP_SUM		9		234	3	

Note

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

SQL> ED

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-

1 SELECT Job, SUM(Sal)
2 FROM Emp
3* GROUP BY ROLLUP(Job)
SQL> /

JOB SUM(SAL)

Wrote file afiedt.buf

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

6 rows selected.

Execution Plan

Plan hash value: 2868327837

Id Operation Name (%CPU) Time		Rows		Bytes C	lost
0 SELECT STATEMENT (25) 00:00:01		9		171	4
1 SORT GROUP BY ROLLUP (25) 00:00:01		9		171	4
2 MAT_VIEW REWRITE ACCESS FULL EMP_SUM (0) 00:00:01		9		171	3

Note

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

SQL> ED

Wrote file afiedt.buf

- 1 SELECT Deptno, Job, SUM(Sal)
- 2 FROM Emp

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.....

```
3* GROUP BY ROLLUP(Deptno, Job)
SQL> /
```

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

	Name	 	Rows		Bytes		Cost
0 SELECT STATEMENT (25) 00:00:01	1		9	1	288	1	4
1 SORT GROUP BY ROLLUP (25) 00:00:01			9		288		4
2 MAT_VIEW REWRITE ACCESS FUI (0) 00:00:01	LL EMP_SUM	 	9		288		3

Note

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

SOL> ED

Wrote file afiedt.buf

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```
1 SELECT Deptno, Job, SUM(Sal)
```

SQL> /

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

18 rows selected.

Execution Plan

Plan hash value: 1797585325

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² FROM Emp

³ GROUP BY CUBE(Deptno, Job)

^{4*} ORDER BY Deptno

1 SORT GROUP BY	1		9	288	4
(25) 00:00:01 2 GENERATE CUBE			9	288	4
(25) 00:00:01 3 SORT GROUP BY	1		9	288	4
(25) 00:00:01 4 MAT_VIEW REWRITE ACCES (0) 00:00:01	S FULL EMP_	SUM	9	288	3
					1
			1		
Note		4			
- dynamic sampling used for thi	s statement	(level=2)		
SQL> ED Wrote file afiedt.buf					
1 SELECT Deptno, Job, SUM(Sal) 2 FROM Emp 3 GROUP BY GROUPING SETS(Deptno	, Job)				
4* ORDER BY Deptno SQL> /					
DEPTNO JOB SUM(SAL)					
10 8750					
20 10875 30 9400					
30 9400 MANAGER 8275					
PRESIDENT 5000					
SALESMAN 5600 ANALYST 6000					
CLERK 4150					
8 rows selected.					
Execution Plan					
Plan hash value: 3591706503					
<u> </u>					
Id Operation Bytes Cost (%CPU) Time	Name			Rows	
SkyEss Techno	Solutions I	Pyt. I td.	_		

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```
0 | SELECT STATEMENT
288 | 12 (25) | 00:00:01 |
   1 | TEMP TABLE TRANSFORMATION |
                              SYS_TEMP_0FD9D6620_CAA88A
   2 LOAD AS SELECT
        3 | MAT_VIEW ACCECT
| 3 (0)| 00:00:01 |
| CET.ECT
        MAT_VIEW ACCESS FULL
                              EMP SUM
288 |
   4 LOAD AS SELECT
                              SYS_TEMP_0FD9D6621_CAA88A
        HASH GROUP BY
       3 (34) | 00:00:01 |
        TABLE ACCESS FULL
                             SYS_TEMP_0FD9D6620_CAA88A
26 | 2 (0) | 00:00:01 |
      LOAD AS SELECT
                              SYS_TEMP_0FD9D6621_CAA88A
        8 | HASH GROUP BY
                                                            1 |
       3 (34) | 00:00:01 |
        TABLE ACCESS FULL
                              SYS TEMP 0FD9D6620 CAA88A
                                                           1 |
19 | 2 (0)| 00:00:01 |
| 10 | SORT ORDER BY
       3 (34) | 00:00:01 |
288
       VIEW
| 11 |
32 |
       2 (0) | 00:00:01 |
                                SYS_TEMP_0FD9D6621_CAA88A |
| 12 | TABLE ACCESS FULL
32 | 2 (0) | 00:00:01
Note
  - dynamic sampling used for this statement (level=2)
SQL> ED
Wrote file afiedt.buf
 1 SELECT Deptno, Job, SUM(Sal)
 2 FROM Emp
 3* GROUP BY Job, ROLLUP(Deptno)
SQL> /
                  SUM(SAL)
 DEPTNO JOB
                      1300
      10 CLERK
```

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•••••							
30	CLERK	950					
	CLERK	4150					
20	ANALYST	6000					
	ANALYST	6000					
10	MANAGER	2450					
20	MANAGER	2975					4 \$ 1
30	MANAGER	2850				4	A A
	MANAGER	8275					
30	SALESMAN	5600					
	SALESMAN	5600			4		
10	PRESIDENT	5000			4		
	PRESIDENT	5000			Δ.		
					1		
14 rows se	lected.			4			
					The '		
				4	1		
Execution 1	Plan			2	***		
Dlan hach	value: 28683278	 37					
rian nasn	value: 20003270	5 /	A 4				
			-4				
		4					
Id Ope	eration		Name	Row	s I	Bytes Co	ost
(%CPU) Tin		A 40		'	'	- 1	
			•				
0 SE	LECT STATEMENT				9	288	4
(25) 00:0	0:01		•	·		·	
1 S	ORT GROUP BY RO	LLUP			9	288	4
(25) 00:0	0:01		•	·	·	·	
2 1	MAT_VIEW REWRIT	E ACCESS FUL	L EMP_SUM		9	288	3
(0) 00:00	:01		•	·	·	·	
Note							
				_			
- dynam	ic sampling used	d for this s	tatement (level=	2)		
SQL> ED	w						
~~~							

SQL> ED
Wrote file afiedt.buf

- 1 SELECT Deptno, Job, SUM(Sal)
- 2 FROM Emp
- 3* GROUP BY Deptno, ROLLUP(Job)

SOL> /

-----

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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

12 rows selected.

Execution Plan

Plan hash value: 2868327837

Id	Row	/S		Bytes   C	ost
	1	9		288	4
1   SORT GROUP BY ROLLUP (25)   00:00:01		9		288	4
2   MAT_VIEW REWRITE ACCESS FULL  EMP_SUM (0)  00:00:01		9		288	3

_____

#### Note

____

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

SQL> SPOOL OFF

-----

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