```
SQL> SELECT Empno, Ename, Job, Sal, Deptno
  2  FROM Emp;

     EMPNO ENAME      JOB              SAL DEPTNO
---------- ---------- --------- ---------- ------
      7900 JAMES      CLERK             950     30
      7369 SMITH      CLERK             800     20
      7499 ALLEN      SALESMAN         1600     30
      7521 WARD       SALESMAN         1250     30
      7566 JONES      MANAGER          2975     20
      7654 MARTIN     SALESMAN         1250     30
      7698 BLAKE      MANAGER          2850     30
      7782 CLARK      MANAGER          2450     10
      7788 SCOTT      ANALYST          3000     20
      7839 KING       PRESIDENT        5000     10
      7844 TURNER     SALESMAN         1500     30
      7876 ADAMS      CLERK            1100     20
      7902 FORD       ANALYST          3000     20
      7934 MILLER     CLERK            1300     10

14 rows selected.

SQL> SELECT Deptno, Dname, Loc
  2  FROM Dept;

DEPTNO DNAME          LOC
------ -------------- -------------
    10 ACCOUNTING     NEW YORK
    20 RESEARCH       DALLAS
    30 SALES          CHICAGO
    40 OPERATIONS     BOSTON

SQL> SELECT Ename,Job, Sal, Deptno,
  2  DECODE
  3  (
  4  Deptno,
  5  10,'ACCOUNTING',
  6  20,'RESEARCH',
  7  30,'SALES',
  8  40,'OPERATIONS',
  9  'OTHERS'
 10  ) DEPARTMENTS
 11  FROM Emp
 12  ORDER BY Deptno;

ENAME      JOB              SAL DEPTNO DEPARTMENT
---------- --------- ---------- ------ ----------
KING       PRESIDENT       5000     10 ACCOUNTING
MILLER     CLERK           1300     10 ACCOUNTING
CLARK      MANAGER         2450     10 ACCOUNTING
FORD       ANALYST         3000     20 RESEARCH
ADAMS      CLERK           1100     20 RESEARCH
JONES      MANAGER         2975     20 RESEARCH
SCOTT      ANALYST         3000     20 RESEARCH
```

```
SMITH      CLERK            800     20 RESEARCH
TURNER     SALESMAN        1500     30 SALES
MARTIN     SALESMAN        1250     30 SALES
WARD       SALESMAN        1250     30 SALES
ALLEN      SALESMAN        1600     30 SALES
JAMES      CLERK            950     30 SALES
BLAKE      MANAGER         2850     30 SALES

14 rows selected.

SQL> COL Responsibilities FOR A40
SQL> SELECT INITCAP(Ename)||' Takes Care of '||
  2  DECODE
  3  (
  4  Job,
  5  'ANALYST', 'Analysis',
  6  'CLERK', 'Filing',
  7  'MANAGER', 'Managing',
  8  'PRESIDENT', 'Administration',
  9  'SALESMAN', 'Sales',
 10  'OTHERS'
 11  ) Responsibilities
 12  FROM Emp;

RESPONSIBILITIES
----------------------------------------
James Takes Care of Filing
Smith Takes Care of Filing
Allen Takes Care of Sales
Ward Takes Care of Sales
Jones Takes Care of Managing
Martin Takes Care of Sales
Blake Takes Care of Managing
Clark Takes Care of Managing
Scott Takes Care of Analysis
King Takes Care of Administration
Turner Takes Care of Sales
Adams Takes Care of Filing
Ford Takes Care of Analysis
Miller Takes Care of Filing

14 rows selected.

SQL> SELECT Ename, Job,
  2  DECODE
  3  (
  4  Job,
  5  'CLERK', 'E',
  6  'SALESMAN', 'D',
  7  'MANAGER', 'C',
  8  'ANALYST', 'B',
  9  'PRESIDENT', 'A',
 10  'OTHERS'
 11  ) Grades
```

```
 12  FROM Emp;

ENAME      JOB       GRADES
---------- --------- ------
JAMES      CLERK     E
SMITH      CLERK     E
ALLEN      SALESMAN  D
WARD       SALESMAN  D
JONES      MANAGER   C
MARTIN     SALESMAN  D
BLAKE      MANAGER   C
CLARK      MANAGER   C
SCOTT      ANALYST   B
KING       PRESIDENT A
TURNER     SALESMAN  D
ADAMS      CLERK     E
FORD       ANALYST   B
MILLER     CLERK     E

14 rows selected.

SQL> SELECT Ename, Job,
  2  DECODE
  3  (
  4  Job,
  5  'CLERK', 'E',
  6  'SALESMAN', 'D',
  7  'MANAGER', 'C',
  8  'ANALYST', 'B',
  9  'PRESIDENT', 'A',
 10  'OTHERS'
 11  ) Grades,
 12  Deptno,
 13  DECODE
 14  (
 15  Deptno,
 16  10,'ACCOUNTING',
 17  20,'RESEARCH',
 18  30,'SALES',
 19  40,'OPERATIONS',
 20  'OTHERS'
 21  ) Departments,
 22  Sal,
 23  Grade
 24  FROM Emp,SalGrade
 25  WHERE Sal BETWEEN LoSal AND Hisal;

ENAME      JOB       GRADES DEPTNO DEPARTMENT         SAL      GRADE
---------- --------- ------ ------ ---------- ---------- ----------
SMITH      CLERK     E          20 RESEARCH          800          1
JAMES      CLERK     E          30 SALES             950          1
ADAMS      CLERK     E          20 RESEARCH         1100          1
WARD       SALESMAN  D          30 SALES            1250          2
MARTIN     SALESMAN  D          30 SALES            1250          2
```

```
MILLER     CLERK     E          10 ACCOUNTING       1300          2
TURNER     SALESMAN  D          30 SALES            1500          3
ALLEN      SALESMAN  D          30 SALES            1600          3
CLARK      MANAGER   C          10 ACCOUNTING       2450          4
BLAKE      MANAGER   C          30 SALES            2850          4
JONES      MANAGER   C          20 RESEARCH         2975          4
SCOTT      ANALYST   B          20 RESEARCH         3000          4
FORD       ANALYST   B          20 RESEARCH         3000          4
KING       PRESIDENT A          10 ACCOUNTING       5000          5

14 rows selected.

SQL> SELECT Ename, Job,
  2  DECODE
  3  (
  4  MGR,
  5  7566,
  6  (
  7  SELECT Ename
  8  FROM Emp
  9  WHERE Empno=7566
 10  ),
 11  7698,
 12  (
 13  SELECT Ename
 14  FROM Emp
 15  WHERE Empno=7698
 16  ),
 17  7788,
 18  (
 19  SELECT Ename
 20  FROM Emp
 21  WHERE Empno=7788
 22  ),
 23  7839,
 24  (
 25  SELECT Ename
 26  FROM Emp
 27  WHERE Empno=7839
 28  ),
 29  7902,
 30  (
 31  SELECT Ename
 32  FROM Emp
 33  WHERE Empno=7902
 34  ),
 35  'Do Not Know'
 36  ) Managers,
 37  DECODE
 38  (
 39  Job,
 40  'CLERK','E',
 41  'SALESMAN','D',
 42  'ANALYST','C',
```

```
 43  'MANAGER','B',
 44  'PRESIDENT','A',
 45  'O'
 46  ) Grades,
 47  Deptno,
 48  DECODE
 49  (
 50  Deptno,
 51  10,'ACCOUNTING',
 52  20,'RESEARCH',
 53  30,'SALES',
 54  40,'OPERATIONS',
 55  'OTHERS'
 56  ) Departments,
 57  Sal,
 58  Grade
 59  FROM Emp,SalGrade
 60  WHERE Sal BETWEEN LoSal AND HiSal;

ENAME      JOB       MANAGERS    G DEPTNO DEPARTMENT  SAL      GRADE
---------- --------- ----------- - ------ ---------- ------    ---------
SMITH      CLERK     FORD        E     20 RESEARCH      800          1
JAMES      CLERK     BLAKE       E     30 SALES         950          1
ADAMS      CLERK     SCOTT       E     20 RESEARCH     1100          1
WARD       SALESMAN  BLAKE       D     30 SALES        1250          2
MARTIN     SALESMAN  BLAKE       D     30 SALES        1250          2
MILLER     CLERK     Do Not Know E     10 ACCOUNTING   1300          2
TURNER     SALESMAN  BLAKE       D     30 SALES        1500          3
ALLEN      SALESMAN  BLAKE       D     30 SALES        1600          3
CLARK      MANAGER   KING        B     10 ACCOUNTING   2450          4
BLAKE      MANAGER   KING        B     30 SALES        2850          4
JONES      MANAGER   KING        B     20 RESEARCH     2975          4
SCOTT      ANALYST   JONES       C     20 RESEARCH     3000          4
FORD       ANALYST   JONES       C     20 RESEARCH     3000          4
KING       PRESIDENT Do Not Know A     10 ACCOUNTING   5000          5

14 rows selected.

SQL> SELECT Ename, Job,
  2  DECODE
  3  (
  4  MGR,
  5  7566,
  6  (
  7  SELECT Ename
  8  FROM Emp
  9  WHERE Empno=7566
 10  ),
 11  7698,
 12  (
 13  SELECT Ename
 14  FROM Emp
 15  WHERE Empno=7698
 16  ),
```

```
17  7788,
18  (
19  SELECT Ename
20  FROM Emp
21  WHERE Empno=7788
22  ),
23  7839,
24  (
25  SELECT Ename
26  FROM Emp
27  WHERE Empno=7839
28  ),
29  7902,
30  (
31  SELECT Ename
32  FROM Emp
33  WHERE Empno=7902
34  ),
35  7782,
36  (
37  SELECT Ename
38  FROM Emp
39  WHERE Empno=7782
40  ),
41  'Do Not Know'
42  ) Managers,
43  DECODE
44  (
45  Job,
46  'CLERK','E',
47  'SALESMAN','D',
48  'ANALYST','C',
49  'MANAGER','B',
50  'PRESIDENT','A',
51  'O'
52  ) Grades,
53  Deptno,
54  DECODE
55  (
56  Deptno,
57  10,'ACCOUNTING',
58  20,'RESEARCH',
59  30,'SALES',
60  40,'OPERATIONS',
61  'OTHERS'
62  ) Departments,
63  Sal,
64  Grade
65  FROM Emp,SalGrade
66  WHERE Sal BETWEEN LoSal AND HiSal;
```

```
ENAME      JOB       MANAGERS    G DEPTNO DEPARTMENT    SAL      GRADE
---------- --------- ----------- - ------ ---------- ------ ----------
SMITH      CLERK     FORD        E     20 RESEARCH      800          1
JAMES      CLERK     BLAKE       E     30 SALES         950          1
ADAMS      CLERK     SCOTT       E     20 RESEARCH     1100          1
WARD       SALESMAN  BLAKE       D     30 SALES        1250          2
MARTIN     SALESMAN  BLAKE       D     30 SALES        1250          2
MILLER     CLERK     CLARK       E     10 ACCOUNTING   1300          2
TURNER     SALESMAN  BLAKE       D     30 SALES        1500          3
ALLEN      SALESMAN  BLAKE       D     30 SALES        1600          3
CLARK      MANAGER   KING        B     10 ACCOUNTING   2450          4
BLAKE      MANAGER   KING        B     30 SALES        2850          4
JONES      MANAGER   KING        B     20 RESEARCH     2975          4
SCOTT      ANALYST   JONES       C     20 RESEARCH     3000          4
FORD       ANALYST   JONES       C     20 RESEARCH     3000          4
KING       PRESIDENT Do Not Know A     10 ACCOUNTING   5000          5

14 rows selected.


SQL> SELECT Ename, Job, Sal,
  2  DECODE
  3  (
  4  Job,
  5  'ANALYST', Sal * 1.1,
  6  'MANAGER', Sal * 1.15,
  7  'CLERK', Sal * 1.2,
  8  Sal
  9  ) "Revised_Salary"
 10  FROM Emp;

ENAME      JOB              SAL Revised_Salary
---------- --------- ---------- --------------
JAMES      CLERK             950           1140
SMITH      CLERK             800            960
ALLEN      SALESMAN         1600           1600
WARD       SALESMAN         1250           1250
JONES      MANAGER          2975        3421.25
MARTIN     SALESMAN         1250           1250
BLAKE      MANAGER          2850         3277.5
CLARK      MANAGER          2450         2817.5
SCOTT      ANALYST          3000           3300
KING       PRESIDENT        5000           5000
TURNER     SALESMAN         1500           1500
ADAMS      CLERK            1100           1320
FORD       ANALYST          3000           3300
MILLER     CLERK            1300           1560

14 rows selected.

SQL> SELECT Ename, Job, Sal,
  2  DECODE
  3  (
  4  Job,
```

```
  5  'ANALYST', Sal * 1.1,
  6  'MANAGER', Sal * 1.15,
  7  'CLERK', Sal * 1.2,
  8  Sal
  9  ) "Revised_Salary",
 10  DECODE
 11  (
 12  Job,
 13  'ANALYST', 'Revised',
 14  'MANAGER', 'Revised',
 15  'CLERK', 'Revised',
 16  'Sorry!'
 17  ) "Status"
 18  FROM Emp;

ENAME      JOB              SAL Revised_Salary Status
---------- --------- ---------- -------------- -------
JAMES      CLERK            950           1140 Revised
SMITH      CLERK            800            960 Revised
ALLEN      SALESMAN        1600           1600 Sorry!
WARD       SALESMAN        1250           1250 Sorry!
JONES      MANAGER         2975        3421.25 Revised
MARTIN     SALESMAN        1250           1250 Sorry!
BLAKE      MANAGER         2850         3277.5 Revised
CLARK      MANAGER         2450         2817.5 Revised
SCOTT      ANALYST         3000           3300 Revised
KING       PRESIDENT       5000           5000 Sorry!
TURNER     SALESMAN        1500           1500 Sorry!
ADAMS      CLERK           1100           1320 Revised
FORD       ANALYST         3000           3300 Revised
MILLER     CLERK           1300           1560 Revised

14 rows selected.

SQL> COL "Revised Salary Status" FORMAT A25
SQL> SELECT Ename, Job,Sal,
  2  DECODE
  3  (
  4  JOB,
  5  'ANALYST',SAL*1.1||' Revised',
  6  'CLERK',SAL*1.15||' Revised',
  7  'MANAGER',SAL*1.2||' Revised',
  8  Sal
  9  ) "Revised Salary Status"
 10  FROM Emp;

ENAME      JOB              SAL Revised Salary Status
---------- --------- ---------- -------------------------
JAMES      CLERK            950 1092.5 Revised
SMITH      CLERK            800 920    Revised
ALLEN      SALESMAN        1600 1600
WARD       SALESMAN        1250 1250
JONES      MANAGER         2975 3570   Revised
MARTIN     SALESMAN        1250 1250
```

```
BLAKE      MANAGER         2850 3420 Revised
CLARK      MANAGER         2450 2940 Revised
SCOTT      ANALYST         3000 3300 Revised
KING       PRESIDENT       5000 5000
TURNER     SALESMAN        1500 1500
ADAMS      CLERK           1100 1265 Revised
FORD       ANALYST         3000 3300 Revised
MILLER     CLERK           1300 1495 Revised

14 rows selected.

SQL> COL "Revised Salary Status" FORMAT A25
SQL> SELECT Ename, Job,Sal,
  2  NVL(DECODE
  3  (
  4  JOB,
  5  'ANALYST',SAL*1.1||' Revised',
  6  'CLERK',SAL*1.15||' Revised',
  7  'MANAGER',SAL*1.2||' Revised',
  8  Sal
  9  ), 'N.A.') "Revised Salary Status"
 10  FROM Emp;

ENAME      JOB              SAL Revised Salary Status
---------- --------- ---------- -------------------------
JAMES      CLERK             950 1092.5 Revised
SMITH      CLERK             800 920 Revised
ALLEN      SALESMAN         1600 1600
WARD       SALESMAN         1250 1250
JONES      MANAGER          2975 3570 Revised
MARTIN     SALESMAN         1250 1250
BLAKE      MANAGER          2850 3420 Revised
CLARK      MANAGER          2450 2940 Revised
SCOTT      ANALYST          3000 3300 Revised
KING       PRESIDENT        5000 5000
TURNER     SALESMAN         1500 1500
ADAMS      CLERK            1100 1265 Revised
FORD       ANALYST          3000 3300 Revised
MILLER     CLERK            1300 1495 Revised

14 rows selected.

SQL> COL "Revised Salary Status" FORMAT A25
SQL> SELECT Ename, Job,Sal,
  2  DECODE
  3  (
  4  JOB,
  5  'ANALYST',SAL*1.1||' Revised',
  6  'CLERK',SAL*1.15||' Revised',
  7  'MANAGER',SAL*1.2||' Revised',
  8  Sal||' Sorry!.'
  9  ) "Revised Salary Status"
 10  FROM Emp;
```

```
ENAME      JOB              SAL Revised Salary Status
---------- --------- ---------- -------------------------
JAMES      CLERK             950 1092.5 Revised
SMITH      CLERK             800 920 Revised
ALLEN      SALESMAN         1600 1600 Sorry!.
WARD       SALESMAN         1250 1250 Sorry!.
JONES      MANAGER          2975 3570 Revised
MARTIN     SALESMAN         1250 1250 Sorry!.
BLAKE      MANAGER          2850 3420 Revised
CLARK      MANAGER          2450 2940 Revised
SCOTT      ANALYST          3000 3300 Revised
KING       PRESIDENT        5000 5000 Sorry!.
TURNER     SALESMAN         1500 1500 Sorry!.
ADAMS      CLERK            1100 1265 Revised
FORD       ANALYST          3000 3300 Revised
MILLER     CLERK            1300 1495 Revised

14 rows selected.

SQL> SELECT Ename, Job,Sal,
  2  DECODE
  3  (
  4  JOB,
  5  'ANALYST',Sal*1.1||' Revised',
  6  'CLERK',Sal*1.15||' Revised',
  7  'MANAGER',Sal*1.2||' Revised',
  8  Sal||' Sorry!.'
  9  ) "Revised Salary Status",
 10  DECODE
 11  (
 12  JOB,
 13  'ANALYST',Sal*1.1,
 14  'CLERK',Sal*1.15,
 15  'MANAGER',Sal*1.2,
 16  Sal
 17  )-Sal "Extra Amount"
 18  FROM Emp;

ENAME      JOB              SAL Revised Salary Status     Extra Amount
---------- --------- ---------- ------------------------- ------------
JAMES      CLERK             950 1092.5 Revised                   142.5
SMITH      CLERK             800 920 Revised                      120
ALLEN      SALESMAN         1600 1600 Sorry!.                       0
WARD       SALESMAN         1250 1250 Sorry!.                       0
JONES      MANAGER          2975 3570 Revised                     595
MARTIN     SALESMAN         1250 1250 Sorry!.                       0
BLAKE      MANAGER          2850 3420 Revised                     570
CLARK      MANAGER          2450 2940 Revised                     490
SCOTT      ANALYST          3000 3300 Revised                     300
KING       PRESIDENT        5000 5000 Sorry!.                       0
TURNER     SALESMAN         1500 1500 Sorry!.                       0
ADAMS      CLERK            1100 1265 Revised                     165
FORD       ANALYST          3000 3300 Revised                     300
MILLER     CLERK            1300 1495 Revised                     195
```

```
14 rows selected.

SQL> SELECT TO_CHAR(HireDate,'YYYY') Year,
  2  COUNT(*) Staff
  3  FROM Emp
  4  GROUP BY ROLLUP(TO_CHAR(HireDate,'YYYY'));

YEAR      STAFF
---- ----------
1980          1
1981         10
1982          1
1987          2
             14

SQL> SELECT
  2  SUM
  3  (
  4  DECODE
  5  (
  6  TO_CHAR(HireDate,'YYYY'),
  7  1980,1,
  8  0
  9  )) "1980",
 10  SUM
 11  (
 12  DECODE
 13  (
 14  TO_CHAR(HireDate,'YYYY'),
 15  1981,1,
 16  0
 17  )) "1981",
 18  SUM
 19  (
 20  DECODE
 21  (
 22  TO_CHAR(HireDate,'YYYY'),
 23  1982,1,
 24  0
 25  )) "1982",
 26  SUM
 27  (
 28  DECODE
 29  (
 30  TO_CHAR(HireDate,'YYYY'),
 31  1987,1,
 32  0
 33  )) "1987",
 34  COUNT(*) Total
 35  FROM Emp;
```

```
1980       1981       1982       1987      TOTAL
---------- ---------- ---------- ---------- ----------
         1         10          1          2         14

SQL> SELECT
  2  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  3  1980,1,0)) "1980",
  4  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  5  1981,1,0)) "1981",
  6  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  7  1982,1,0)) "1982",
  8  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  9  1987,1,0)) "1987",
 10  COUNT(*) TOTAL
 11  FROM Emp;

      1980       1981       1982       1987      TOTAL
---------- ---------- ---------- ---------- ----------
        14         14         14         14         14

SQL> SELECT
  2  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  3  1980,1,NULL)) "1980",
  4  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  5  1981,1,NULL)) "1981",
  6  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  7  1982,1,NULL)) "1982",
  8  COUNT(DECODE(TO_CHAR(HireDate,'YYYY'),
  9  1987,1,NULL)) "1987",
 10  COUNT(*) TOTAL
 11  FROM EMP;

      1980       1981       1982       1987      TOTAL
---------- ---------- ---------- ---------- ----------
         1         10          1          2         14

SQL> SELECT
  2  COUNT(DECODE(DEPTNO,10,'*',NULL)) D10_Count,
  3  SUM(DECODE(DEPTNO,10,SAL,NULL))  D10_SAL,
  4  COUNT(DECODE(DEPTNO,20,'*',NULL))  D20_Count,
  5  SUM(DECODE(DEPTNO,20,SAL,NULL))  D20_SAL,
  6  COUNT(DECODE(DEPTNO,30,'*',NULL)) D30_Count,
  7  SUM(DECODE(DEPTNO,30,SAL,NULL))  D30_SAL
  8  FROM Emp;

 D10_COUNT    D10_SAL  D20_COUNT    D20_SAL  D30_COUNT    D30_SAL
---------- ---------- ---------- ---------- ---------- ----------
         3       8750          5      10875          6       9400


SQL> SELECT Deptno, COUNT(*)
  2  FROM Emp
  3  GROUP BY Deptno;
```

```
DEPTNO   COUNT(*)
------ ----------
    30          6
    20          5
    10          3

SQL> SELECT DEPTNO, COUNT(*),SUM(SAL)
  2  FROM EMP
  3  GROUP BY DEPTNO;

DEPTNO   COUNT(*)   SUM(SAL)
------ ---------- ----------
    30          6       9400
    20          5      10875
    10          3       8750

SQL> COL D10_COUNT FORMAT 99
SQL> COL D10_SAL  FORMAT 99999
SQL> COL D20_COUNT FORMAT 99
SQL> COL D20_SAL  FORMAT 99999
SQL> COL D30_COUNT FORMAT 99
SQL> COL D30_SAL FORMAT 99999
SQL> COL EMPCOUNT FORMAT 99
SQL> COL SALSUM FORMAT 99999
SQL> SELECT
  2  COUNT(DECODE(DEPTNO,10,'*',NULL)) D10_COUNT,
  3  SUM(DECODE(DEPTNO,10,SAL,NULL))  D10_SAL,
  4  COUNT(DECODE(DEPTNO,20,'*',NULL))  D20_COUNT,
  5  SUM(DECODE(DEPTNO,20,SAL,NULL))  D20_SAL,
  6  COUNT(DECODE(DEPTNO,30,'*',NULL)) D30_COUNT,
  7  SUM(DECODE(DEPTNO,30,SAL,NULL))  D30_SAL,
  8  COUNT(*) EMPCOUNT, SUM(SAL) SALSUM
  9  FROM EMP;

D10_COUNT D10_SAL D20_COUNT D20_SAL D30_COUNT D30_SAL EMPCOUNT SALSUM
--------- ------- --------- ------- --------- ------- -------- ------
        3    8750         5   10875         6    9400       14  29025

SQL> SELECT
  2  JOB,
  3  SUM(DECODE(DEPTNO,10,SAL)) "DEPTNO 10",
  4  SUM(DECODE(DEPTNO,20,SAL)) "DEPTNO 20",
  5  SUM(DECODE(DEPTNO,30,SAL)) "DEPTNO 30",
  6  SUM(SAL) "TOTAL"
  7  FROM EMP
  8  GROUP BY JOB;

JOB         DEPTNO 10  DEPTNO 20  DEPTNO 30      TOTAL
---------- ---------- ---------- ---------- ----------
CLERK             1300       1900        950       4150
SALESMAN                                5600       5600
PRESIDENT         5000                             5000
MANAGER           2450       2975       2850       8275
ANALYST                      6000                   6000
```

```
SQL> SELECT
  2  JOB,
  3  SUM(DECODE(DEPTNO,10,SAL)) "DEPTNO 10",
  4  SUM(DECODE(DEPTNO,20,SAL)) "DEPTNO 20",
  5  SUM(DECODE(DEPTNO,30,SAL)) "DEPTNO 30",
  6  SUM(SAL) "TOTAL"
  7  FROM EMP
  8  GROUP BY ROLLUP(JOB);

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

6 rows selected.

SQL> SELECT
  2  DEPTNO,
  3  SUM(DECODE(JOB, 'PRESIDENT',SAL)) "President",
  4  SUM(DECODE(JOB,'ANALYST',SAL))  "Analyst",
  5  SUM(DECODE(JOB,'MANAGER',SAL)) "Mnanager",
  6  SUM(DECODE(JOB,'SALESMAN',SAL)) "Salesman",
  7  SUM(DECODE(JOB,'CLERK',SAL)) "Clerk",
  8  SUM(SAL) "Total"
  9  FROM EMP
 10  GROUP BY DEPTNO;

DEPTNO  President    Analyst   Mnanager   Salesman      Clerk      Total
------ ---------- ---------- ---------- ---------- ---------- ----------
    30                            2850       5600        950       9400
    20                    6000       2975                  1900      10875
    10       5000                 2450                  1300       8750

SQL> SELECT
  2  DEPTNO,
  3  SUM(DECODE(JOB, 'PRESIDENT',SAL)) "President",
  4  SUM(DECODE(JOB,'ANALYST',SAL))  "Analyst",
  5  SUM(DECODE(JOB,'MANAGER',SAL)) "Mnanager",
  6  SUM(DECODE(JOB,'SALESMAN',SAL)) "Salesman",
  7  SUM(DECODE(JOB,'CLERK',SAL)) "Clerk",
  8  SUM(SAL) "Total"
  9  FROM EMP
 10  GROUP BY ROLLUP(DEPTNO);

DEPTNO  President    Analyst   Mnanager   Salesman      Clerk      Total
------ ---------- ---------- ---------- ---------- ---------- ----------
    10       5000                 2450                  1300       8750
    20                    6000       2975                  1900      10875
    30                            2850       5600        950       9400
```

```
              5000       6000       8275       5600       4150      29025

SQL> COL Mnanager FORMAT A9
SQL> COL Analyst  FORMAT A9
SQL> COL President FORMAT A9
SQL> COL Salesman FORMAT A9
SQL> COL Clerk FORMAT A9
SQL> SELECT
  2  DEPTNO,
  3  NVL(TO_CHAR(SUM(DECODE(JOB, 'PRESIDENT',SAL))),'N.A.') "President",
  4  NVL(TO_CHAR(SUM(DECODE(JOB,'ANALYST',SAL))),'N.A.')  "Analyst",
  5  NVL(TO_CHAR(SUM(DECODE(JOB,'MANAGER',SAL))),'N.A.') "Mnanager",
  6  NVL(TO_CHAR(SUM(DECODE(JOB,'SALESMAN',SAL))),'N.A.') "Salesman",
  7  NVL(TO_CHAR(SUM(DECODE(JOB,'CLERK',SAL))),'N.A.') "Clerk",
  8  SUM(SAL) "Total"
  9  FROM EMP
 10  GROUP BY DEPTNO;

DEPTNO President Analyst   Mnanager  Salesman  Clerk         Total
------ --------- --------- --------- --------- --------- ----------
    30 N.A.      N.A.      2850      5600      950            9400
    20 N.A.      6000      2975      N.A.      1900          10875
    10 5000      N.A.      2450      N.A.      1300           8750

SQL> COLUMN DEPARTMENTS FORMAT A15
SQL> COLUM SUM(SAL) FORMAT 99999
SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(DEPTNO),
  5  1,'ALL DEPARTMENTS',
  6  DEPTNO
  7  ) DEPARTMENTS,
  8  SUM(SAL)
  9  FROM EMP
 10  GROUP BY ROLLUP(DEPTNO);

DEPARTMENTS    SUM(SAL)
--------------- -------
10                 8750
20                10875
30                 9400
ALL DEPARTMENTS   29025

SQL> COL DEPARTMENT FORMAT A29
SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(DEPTNO),
  5  1, 'ALL DEPARTMENTS INVESTMENT :',
  6  'DEPARTMENT '||DEPTNO||' INVESTMENT : '
  7  ) DEPARTMENT,
  8  SUM(SAL)
  9  FROM EMP
```

```
 10  GROUP BY ROLLUP(DEPTNO);

DEPARTMENT                     SUM(SAL)
------------------------------ --------
DEPARTMENT 10 INVESTMENT :         8750
DEPARTMENT 20 INVESTMENT :        10875
DEPARTMENT 30 INVESTMENT :         9400
ALL DEPARTMENTS INVESTMENT :      29025

SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(DEPTNO),
  5  1, 'ALL DEPARTMENTS INVESTMENT :',
  6  'DEPARTMENT '||DEPTNO||' INVESTMENT : '
  7  ) DEPARTMENT,
  8  TO_CHAR(SUM(SAL),'99G999D99') SALSUM
  9  FROM EMP
 10  GROUP BY ROLLUP(DEPTNO);

DEPARTMENT                     SALSUM
------------------------------ ----------
DEPARTMENT 10 INVESTMENT :      8,750.00
DEPARTMENT 20 INVESTMENT :     10,875.00
DEPARTMENT 30 INVESTMENT :      9,400.00
ALL DEPARTMENTS INVESTMENT :   29,025.00

SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(JOB),
  5  1,'ALL DESIGNATIONS',
  6  JOB
  7  ) DESIGNATIONS,
  8  SUM(SAL)
  9  FROM EMP
 10  GROUP BY ROLLUP(JOB);

DESIGNATIONS      SUM(SAL)
----------------- --------
ANALYST               6000
CLERK                 4150
MANAGER               8275
PRESIDENT             5000
SALESMAN              5600
ALL DESIGNATIONS     29025

6 rows selected.

SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(DEPTNO),
  5  1,'ALL DEPARTMENTS',
```

```
  6  DEPTNO
  7  ) DEPARTMENTS,
  8  DECODE
  9  (
 10  GROUPING(JOB),
 11  1,'ALL DESIGNATIONS',
 12  JOB
 13  ) DESIGNATIONS,
 14  SUM(SAL)
 15  FROM EMP
 16  GROUP BY ROLLUP(DEPTNO,JOB);

DEPARTMENTS     DESIGNATIONS     SUM(SAL)
--------------- ---------------- --------
10              CLERK                1300
10              MANAGER              2450
10              PRESIDENT            5000
10              ALL DESIGNATIONS     8750
20              CLERK                1900
20              ANALYST              6000
20              MANAGER              2975
20              ALL DESIGNATIONS    10875
30              CLERK                 950
30              MANAGER              2850
30              SALESMAN             5600
30              ALL DESIGNATIONS     9400
ALL DEPARTMENTS ALL DESIGNATIONS    29025

13 rows selected.

SQL> SELECT
  2  DECODE
  3  (
  4  GROUPING(DEPTNO),
  5  1,'ALL DEPARTMENTS',
  6  DEPTNO
  7  ) DEPARTMENTS,
  8  DECODE
  9  (
 10  GROUPING(JOB),
 11  1,'ALL DESIGNATIONS',
 12  JOB
 13  ) DESIGNATIONS,
 14  SUM(SAL)
 15  FROM EMP
 16  GROUP BY CUBE(DEPTNO,JOB);

DEPARTMENTS     DESIGNATIONS     SUM(SAL)
--------------- ---------------- --------
ALL DEPARTMENTS ALL DESIGNATIONS    29025
ALL DEPARTMENTS CLERK                4150
ALL DEPARTMENTS ANALYST              6000
ALL DEPARTMENTS MANAGER              8275
ALL DEPARTMENTS SALESMAN             5600
```

```
ALL DEPARTMENTS PRESIDENT            5000
10              ALL DESIGNATIONS     8750
10              CLERK                1300
10              MANAGER              2450
10              PRESIDENT            5000
20              ALL DESIGNATIONS    10875
20              CLERK                1900
20              ANALYST              6000
20              MANAGER              2975
30              ALL DESIGNATIONS     9400
30              CLERK                 950
30              MANAGER              2850

DEPARTMENTS     DESIGNATIONS     SUM(SAL)
--------------- ---------------- --------
30              SALESMAN             5600

18 rows selected.

SQL> SPOOL OFF
```