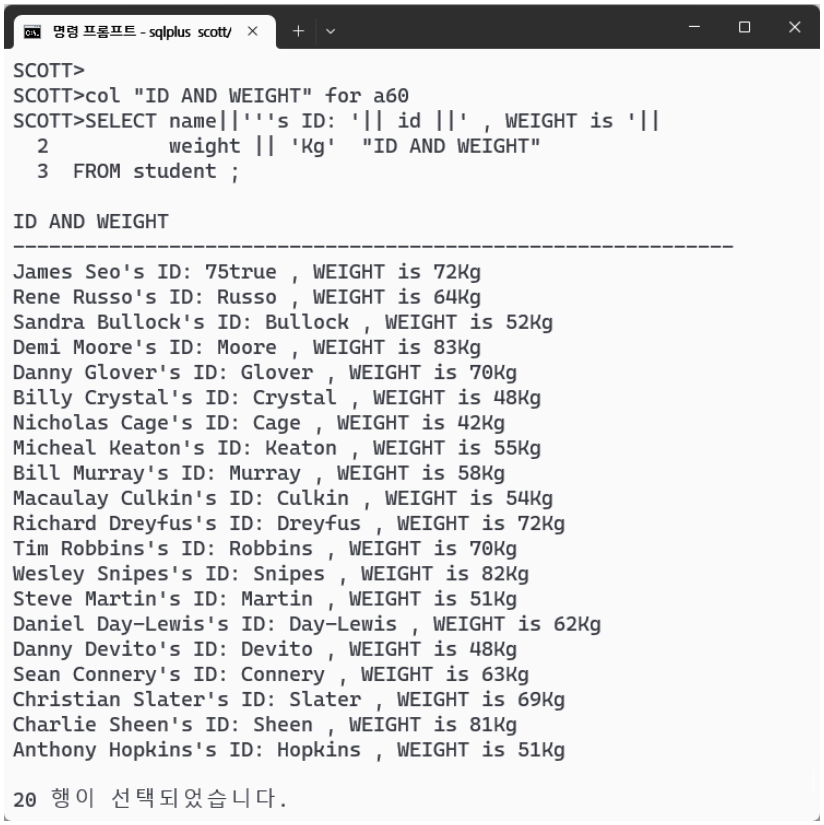
연습문제 해답

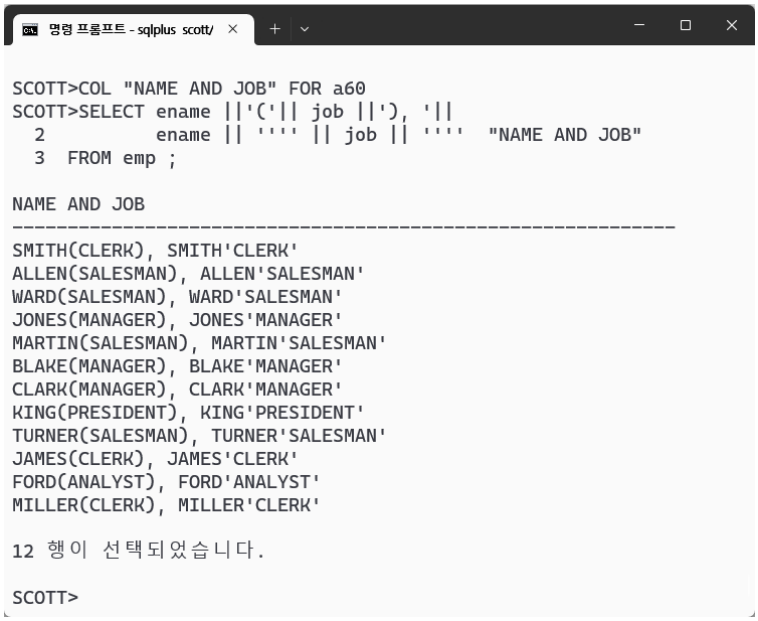
<1장 연습문제 해 답>

- 연결연산자 1번 문제 답:



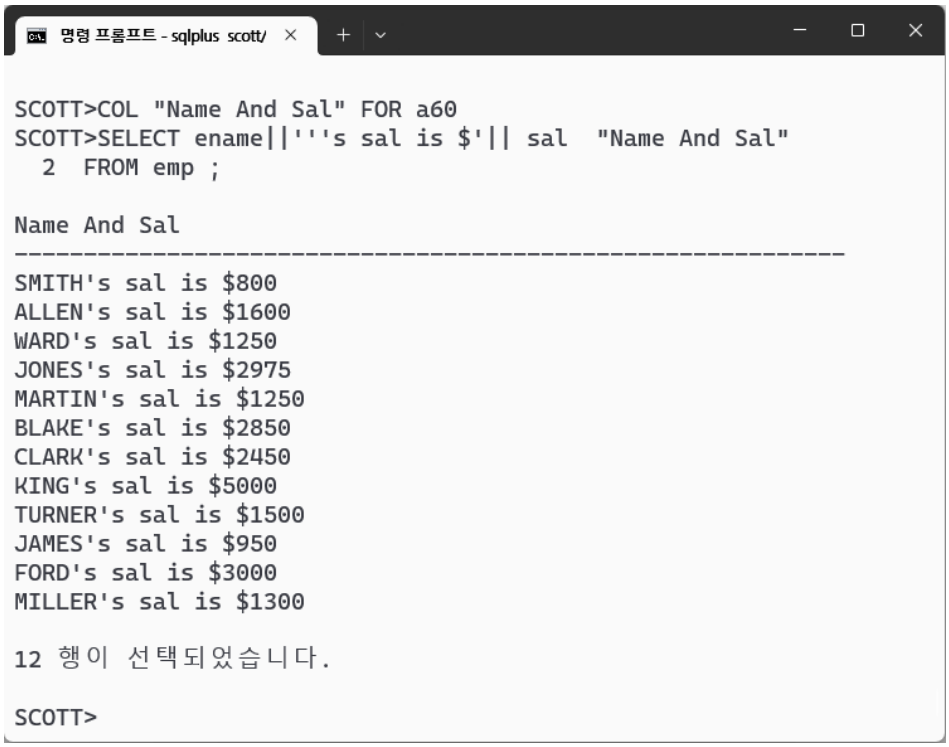
```
명령 프롬프트 - sqlplus  scott/

SCOTT>
SCOTT>col "ID AND WEIGHT" for a60
SCOTT>SELECT name||'''s ID: '|| id ||' , WEIGHT is '||
  2          weight || 'Kg'  "ID AND WEIGHT"
  3  FROM student ;

ID AND WEIGHT
------------------------------------------------------------
James Seo's ID: 75true , WEIGHT is 72Kg
Rene Russo's ID: Russo , WEIGHT is 64Kg
Sandra Bullock's ID: Bullock , WEIGHT is 52Kg
Demi Moore's ID: Moore , WEIGHT is 83Kg
Danny Glover's ID: Glover , WEIGHT is 70Kg
Billy Crystal's ID: Crystal , WEIGHT is 48Kg
Nicholas Cage's ID: Cage , WEIGHT is 42Kg
Micheal Keaton's ID: Keaton , WEIGHT is 55Kg
Bill Murray's ID: Murray , WEIGHT is 58Kg
Macaulay Culkin's ID: Culkin , WEIGHT is 54Kg
Richard Dreyfus's ID: Dreyfus , WEIGHT is 72Kg
Tim Robbins's ID: Robbins , WEIGHT is 70Kg
Wesley Snipes's ID: Snipes , WEIGHT is 82Kg
Steve Martin's ID: Martin , WEIGHT is 51Kg
Daniel Day-Lewis's ID: Day-Lewis , WEIGHT is 62Kg
Danny Devito's ID: Devito , WEIGHT is 48Kg
Sean Connery's ID: Connery , WEIGHT is 63Kg
Christian Slater's ID: Slater , WEIGHT is 69Kg
Charlie Sheen's ID: Sheen , WEIGHT is 81Kg
Anthony Hopkins's ID: Hopkins , WEIGHT is 51Kg

20 행이 선택되었습니다.
```

- 연결 연산자 2번 문제 답:



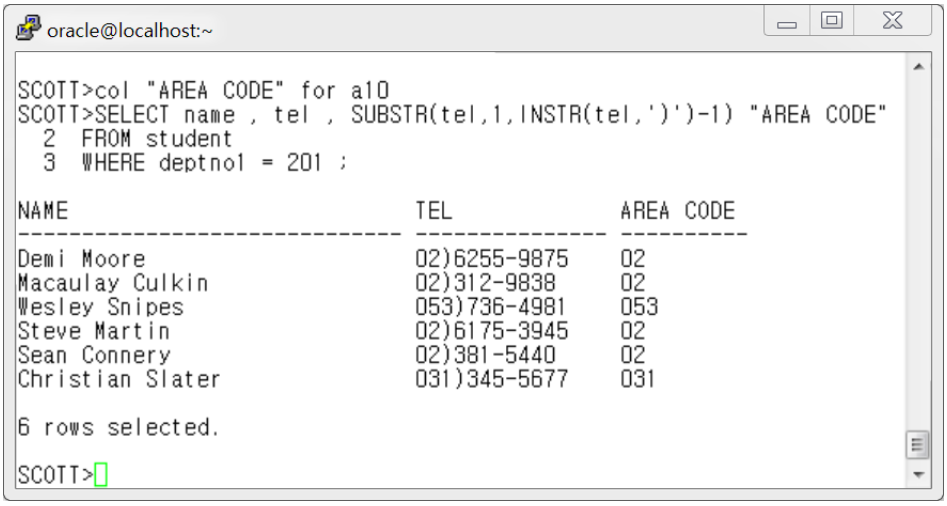
```
명령 프롬프트 - sqlplus  scott/

SCOTT>COL "NAME AND JOB" FOR a60
SCOTT>SELECT ename ||'('|| job ||'), '||
  2          ename || '''' || job || ''''  "NAME AND JOB"
  3  FROM emp ;

NAME AND JOB
------------------------------------------------------------
SMITH(CLERK), SMITH'CLERK'
ALLEN(SALESMAN), ALLEN'SALESMAN'
WARD(SALESMAN), WARD'SALESMAN'
JONES(MANAGER), JONES'MANAGER'
MARTIN(SALESMAN), MARTIN'SALESMAN'
BLAKE(MANAGER), BLAKE'MANAGER'
CLARK(MANAGER), CLARK'MANAGER'
KING(PRESIDENT), KING'PRESIDENT'
TURNER(SALESMAN), TURNER'SALESMAN'
JAMES(CLERK), JAMES'CLERK'
FORD(ANALYST), FORD'ANALYST'
MILLER(CLERK), MILLER'CLERK'

12 행이 선택되었습니다.

SCOTT>
```

- 연결 연산자 3번 문제 답:

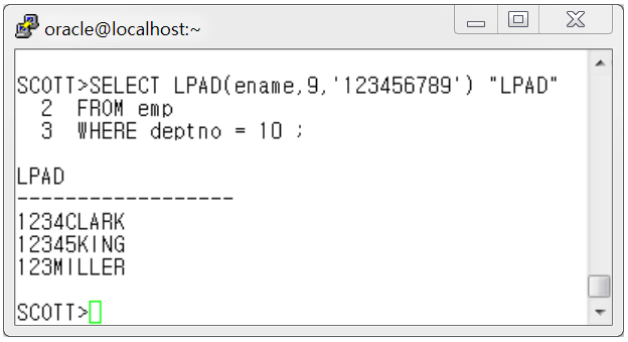


<2장 일반함수 연습문제 해답>

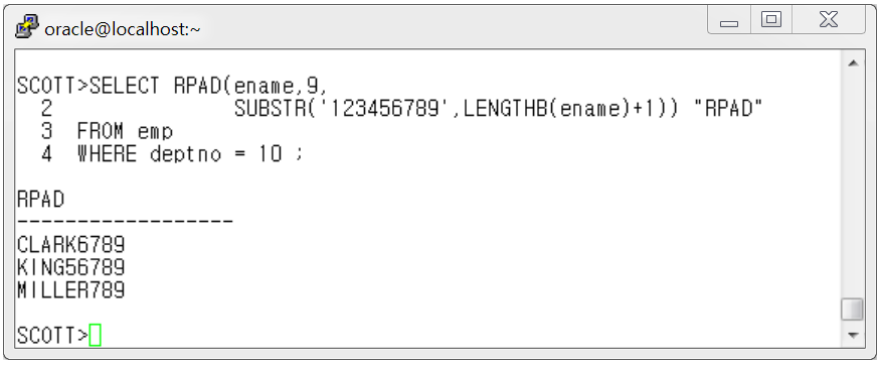
- SUBSTR / INSTR 퀴즈 답:



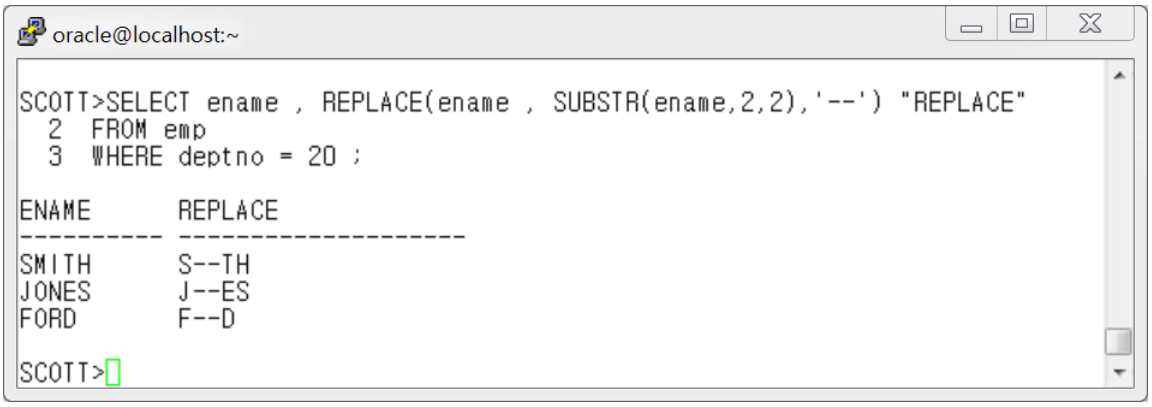
- LPAD 퀴즈 답:



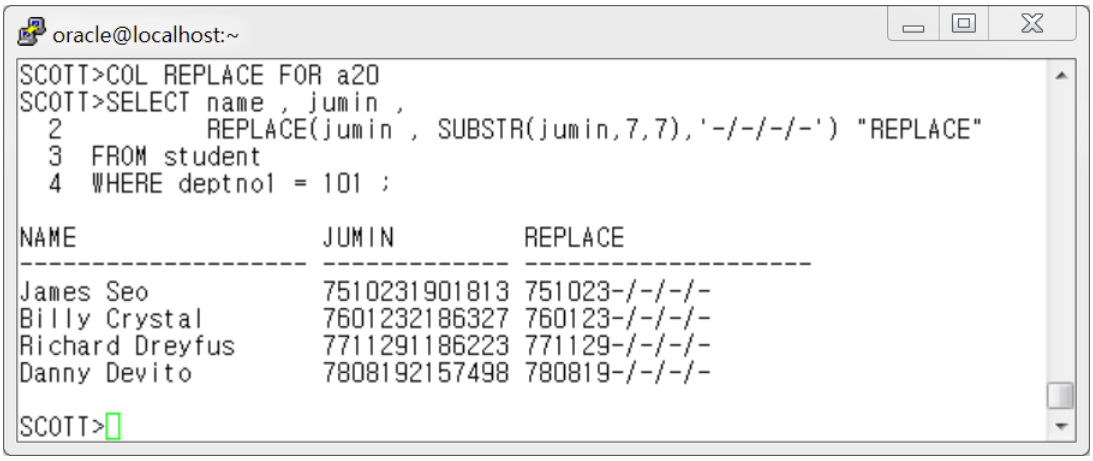
- RPAD 퀴즈 답 :



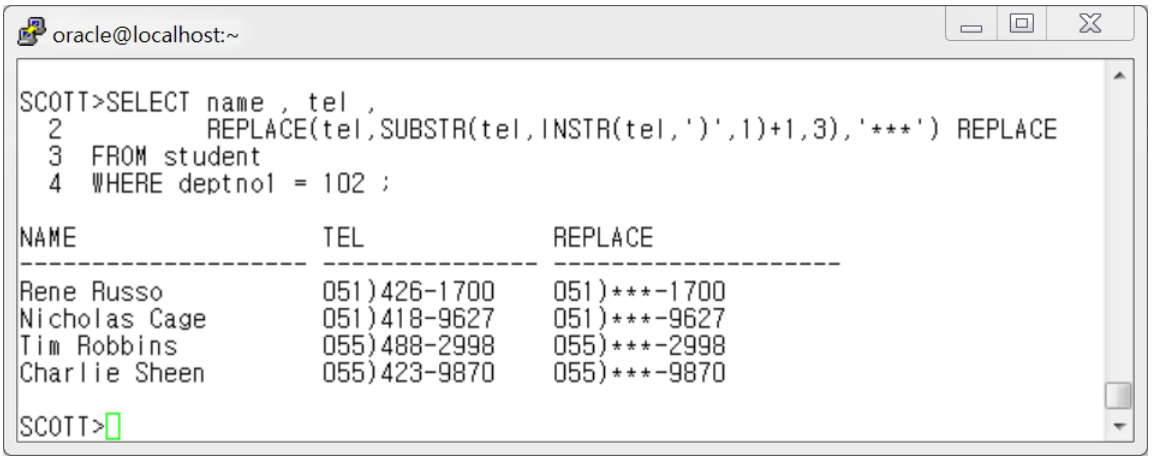
- REPLACE 퀴즈 1 답 :



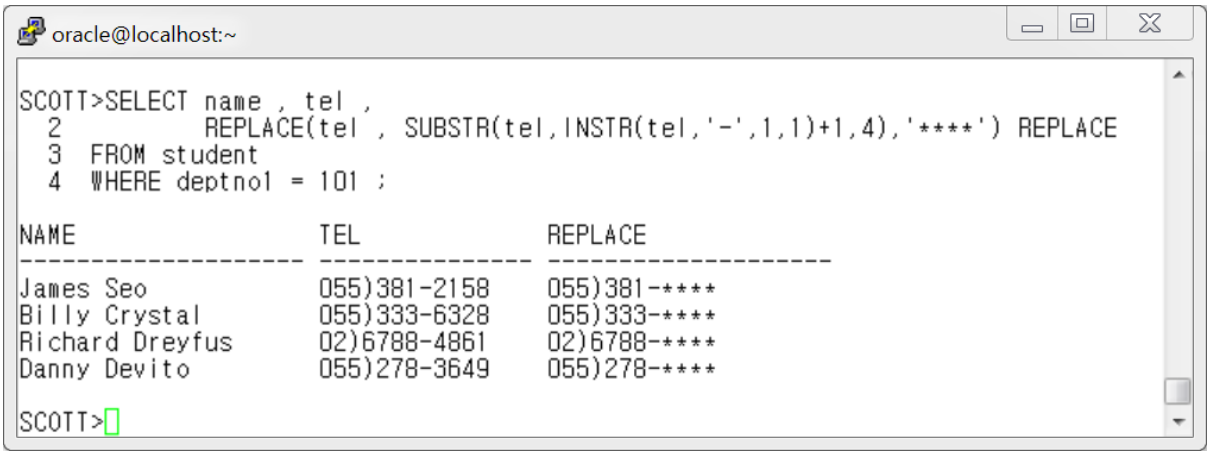
- **REPLACE 퀴즈 2 답 :**



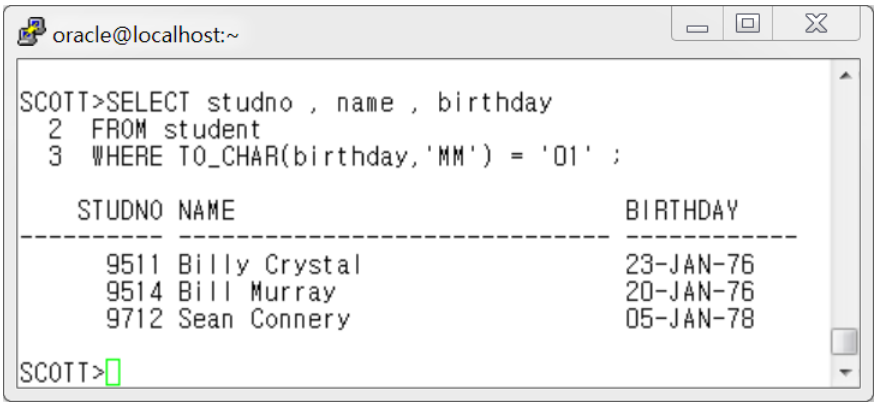
- **REPLACE 퀴즈 3 답:**



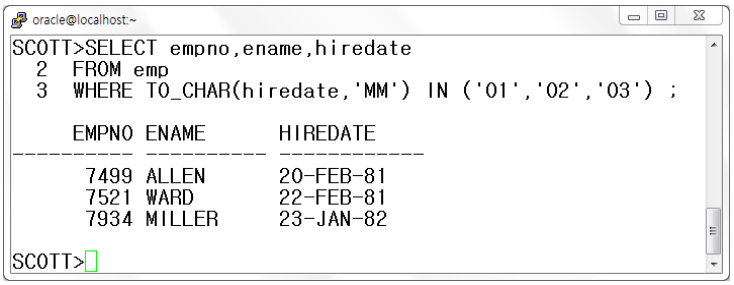
- **REPLACE 퀴즈 4 답:**



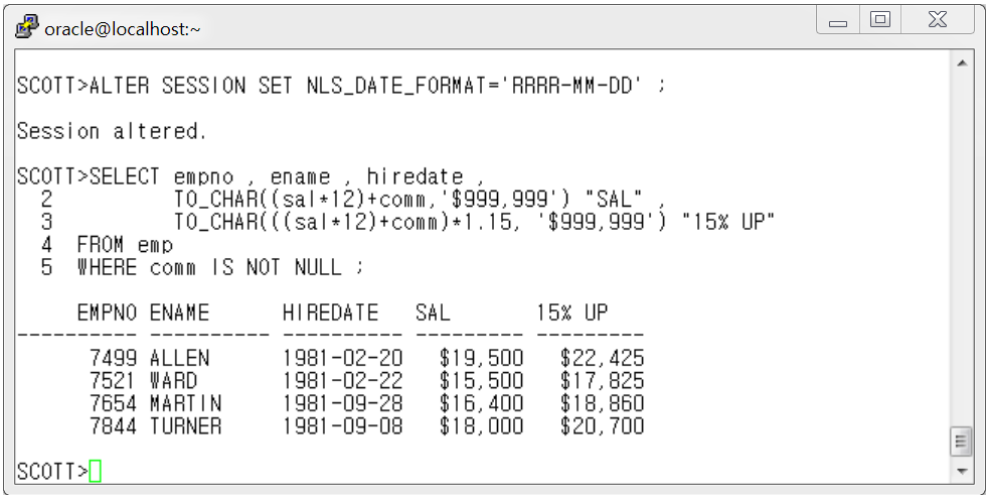
- 형 변환 함수 퀴즈-날짜변환하기 1 **



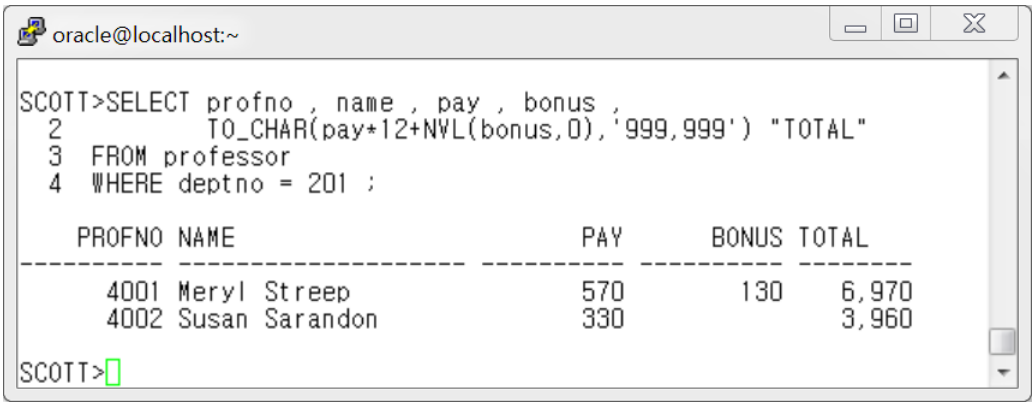
- 형 변환 함수 퀴즈-날짜변환하기 2



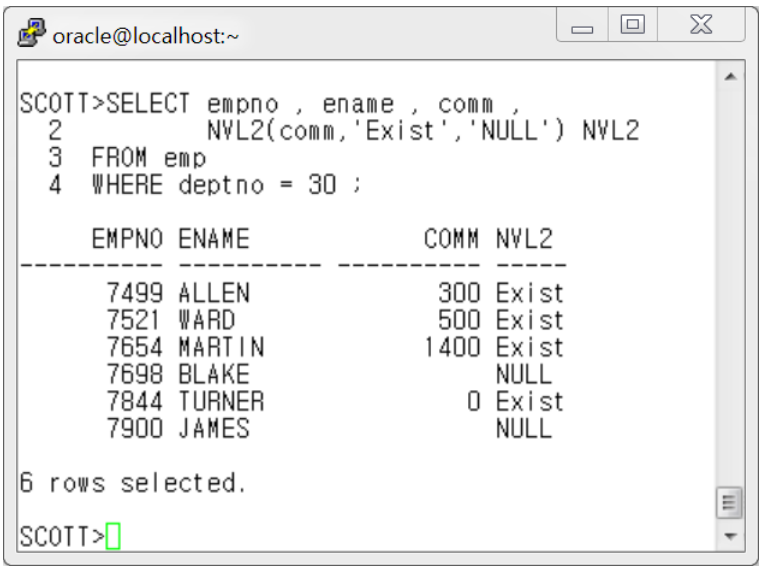
- 형변환 함수 퀴즈 3



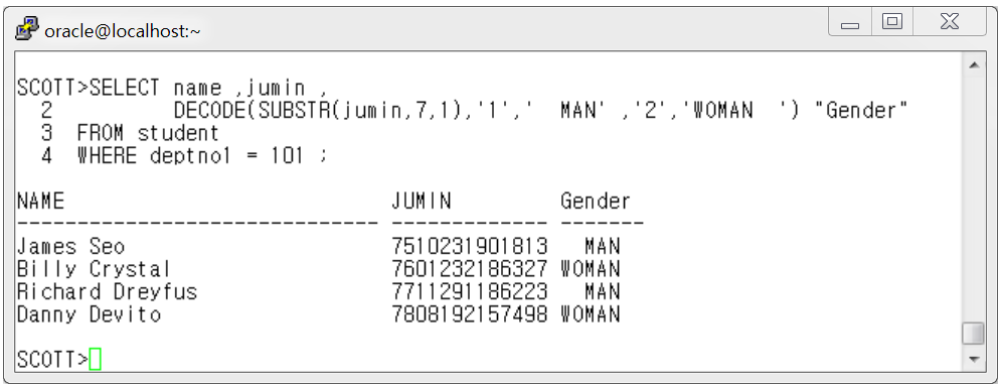
- NVL 함수 퀴즈



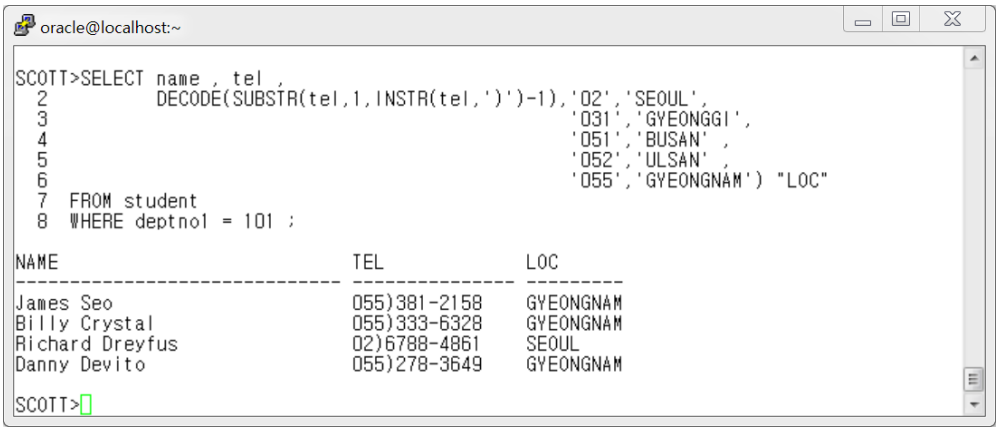
- NVL2 함수 퀴즈



- DECODE 연습 문제 1 답:

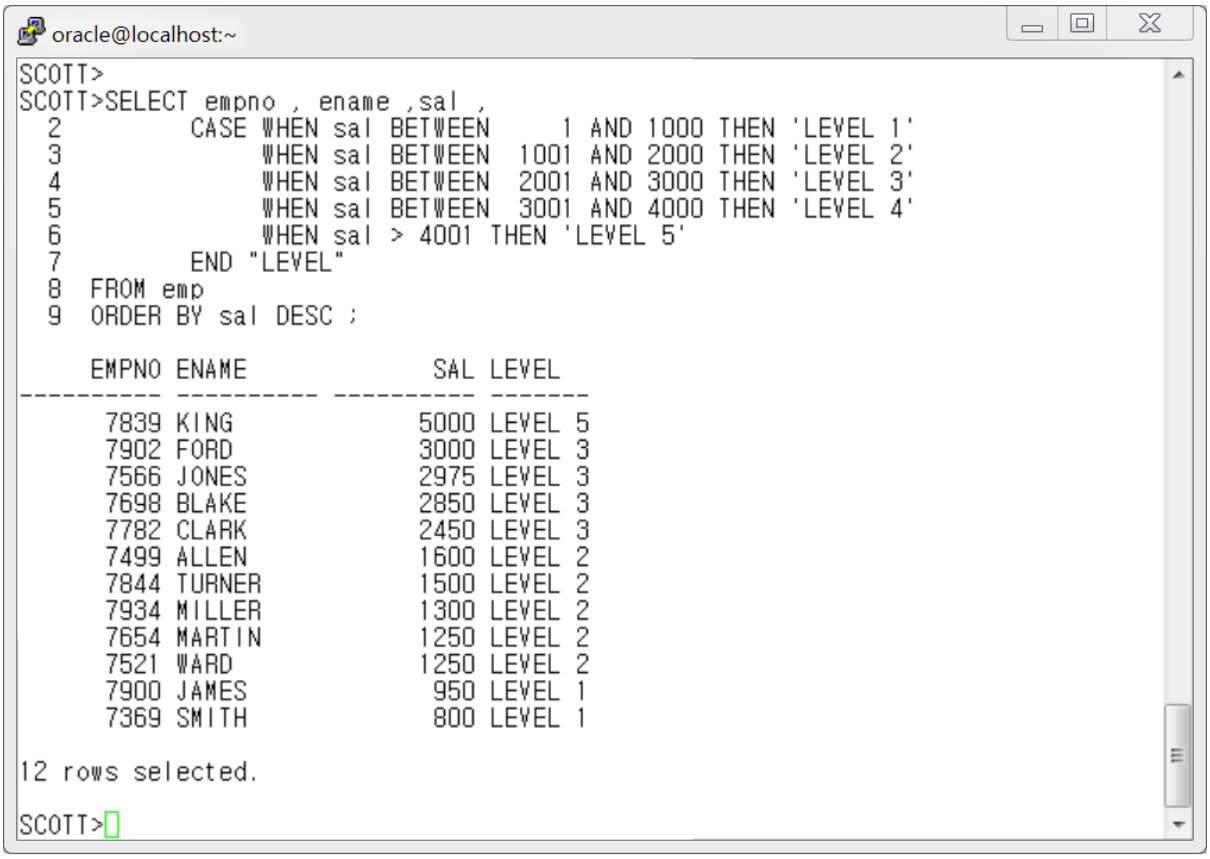


- **DECODE 연습 문제 2 답:**



```
oracle@localhost:~

SCOTT>SELECT name , tel ,
  2         DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'02','SEOUL',
  3                                               '031','GYEONGGI',
  4                                               '051','BUSAN' ,
  5                                               '052','ULSAN' ,
  6                                               '055','GYEONGNAM') "LOC"
  7  FROM student
  8  WHERE deptno1 = 101 ;

NAME                           TEL             LOC
------------------------------ --------------- ---------
James Seo                      055)381-2158    GYEONGNAM
Billy Crystal                  055)333-6328    GYEONGNAM
Richard Dreyfus                02)6788-4861    SEOUL
Danny Devito                   055)278-3649    GYEONGNAM

SCOTT>
```

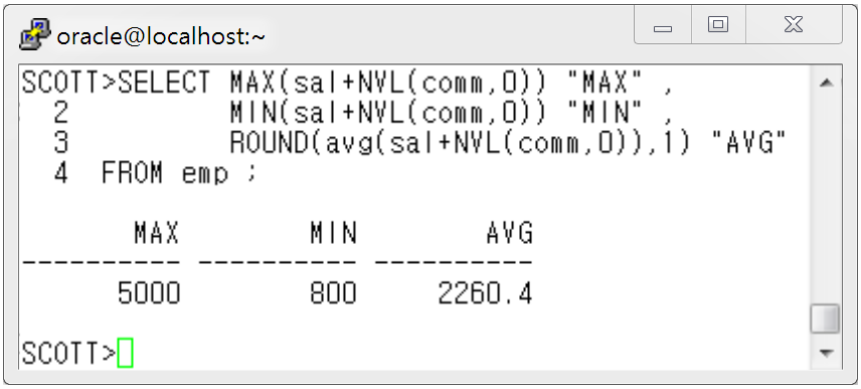
- **CASE 식 연습문제 답**



```
oracle@localhost:~

SCOTT>
SCOTT>SELECT empno , ename ,sal ,
  2         CASE WHEN sal BETWEEN     1 AND 1000 THEN 'LEVEL 1'
  3              WHEN sal BETWEEN  1001 AND 2000 THEN 'LEVEL 2'
  4              WHEN sal BETWEEN  2001 AND 3000 THEN 'LEVEL 3'
  5              WHEN sal BETWEEN  3001 AND 4000 THEN 'LEVEL 4'
  6              WHEN sal > 4001 THEN 'LEVEL 5'
  7         END "LEVEL"
  8  FROM emp
  9  ORDER BY sal DESC ;

     EMPNO ENAME             SAL LEVEL
---------- ---------- ---------- -------
      7839 KING             5000 LEVEL 5
      7902 FORD             3000 LEVEL 3
      7566 JONES            2975 LEVEL 3
      7698 BLAKE            2850 LEVEL 3
      7782 CLARK            2450 LEVEL 3
      7499 ALLEN            1600 LEVEL 2
      7844 TURNER           1500 LEVEL 2
      7934 MILLER           1300 LEVEL 2
      7654 MARTIN           1250 LEVEL 2
      7521 WARD             1250 LEVEL 2
      7900 JAMES             950 LEVEL 1
      7369 SMITH             800 LEVEL 1

12 rows selected.

SCOTT>
```

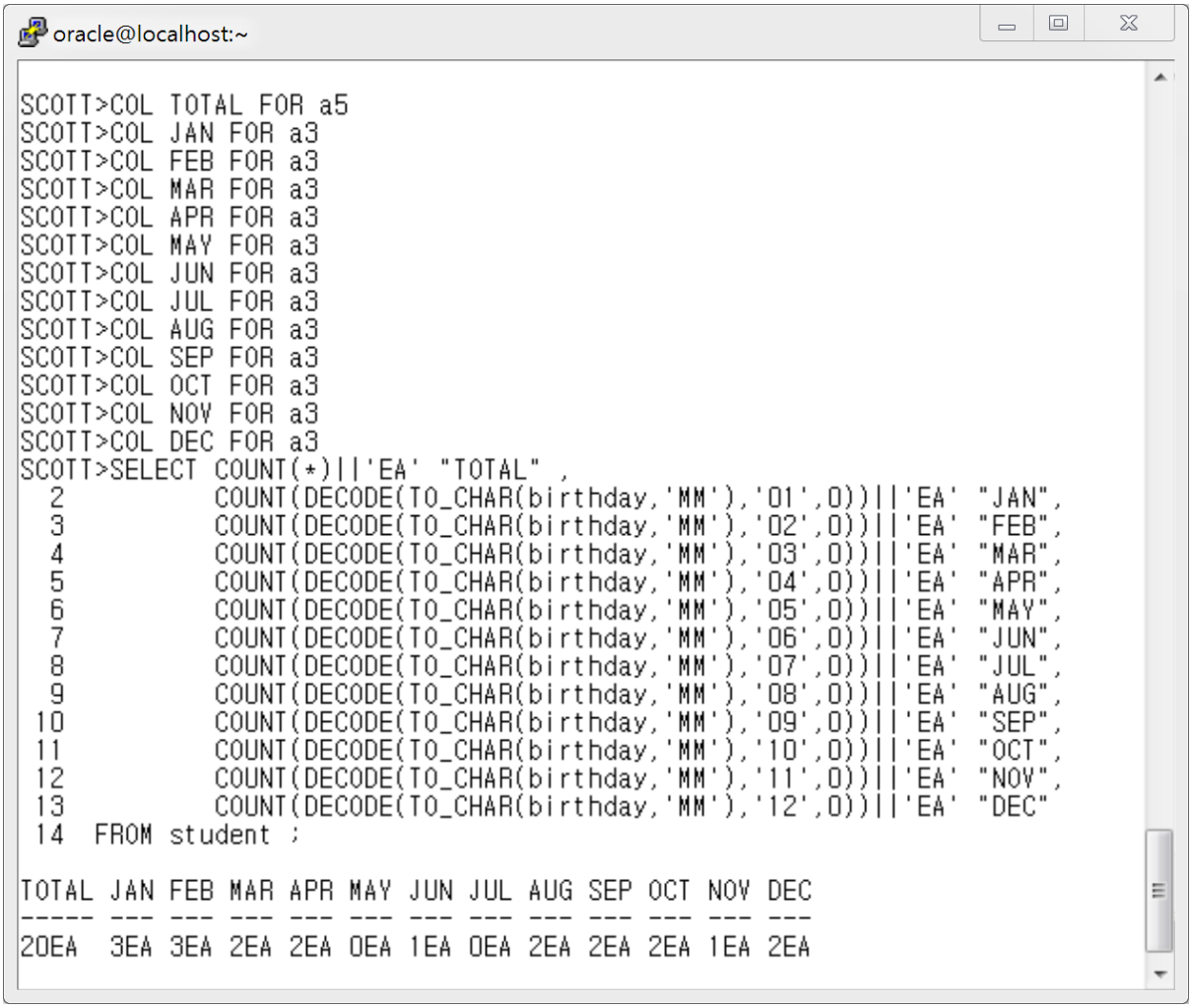
< 3장 그룹함수 연습문제 해답>

- 1번 답 :



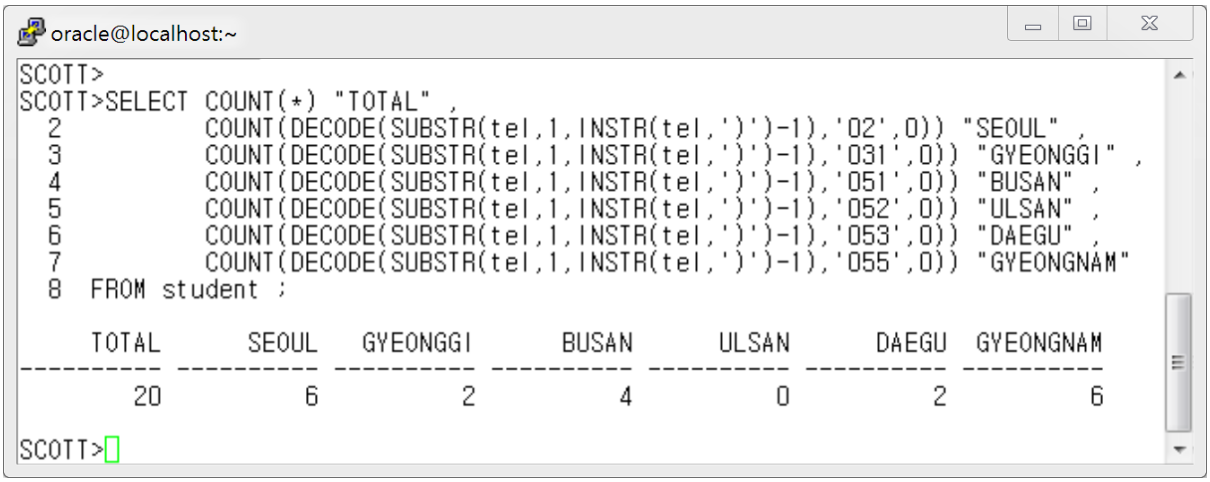
```
oracle@localhost:~
SCOTT>SELECT MAX(sal+NVL(comm,0)) "MAX" ,
  2          MIN(sal+NVL(comm,0)) "MIN" ,
  3          ROUND(avg(sal+NVL(comm,0)),1) "AVG"
  4  FROM emp ;

       MAX        MIN        AVG
---------- ---------- ----------
      5000        800     2260.4

SCOTT>
```

- 2번 답 :

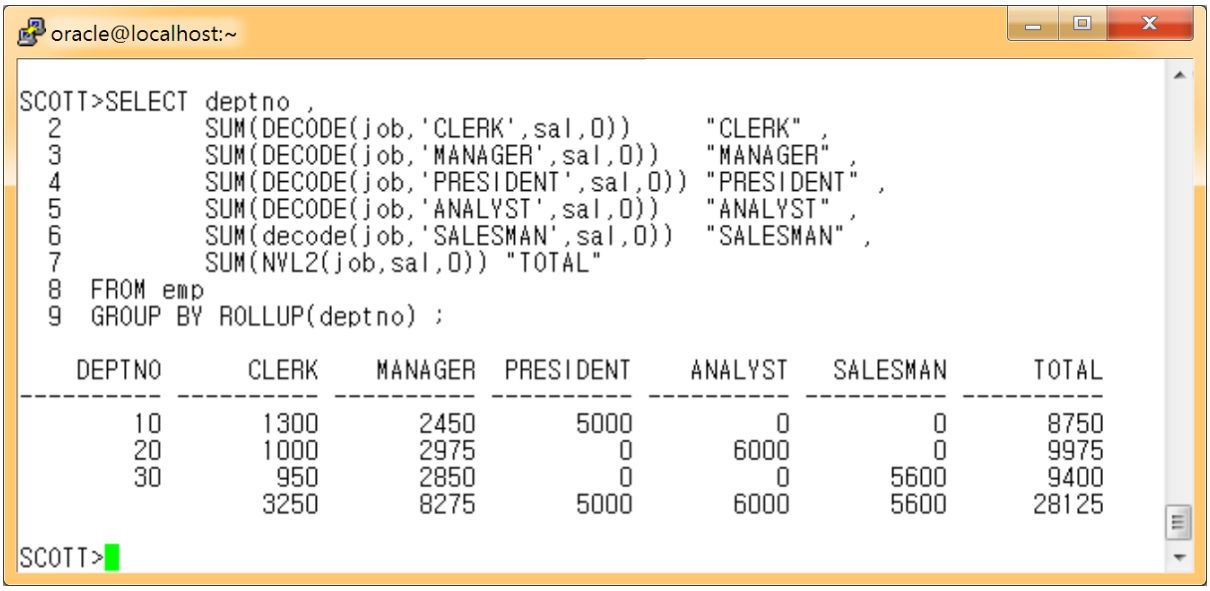


```
oracle@localhost:~

SCOTT>COL TOTAL FOR a5
SCOTT>COL JAN FOR a3
SCOTT>COL FEB FOR a3
SCOTT>COL MAR FOR a3
SCOTT>COL APR FOR a3
SCOTT>COL MAY FOR a3
SCOTT>COL JUN FOR a3
SCOTT>COL JUL FOR a3
SCOTT>COL AUG FOR a3
SCOTT>COL SEP FOR a3
SCOTT>COL OCT FOR a3
SCOTT>COL NOV FOR a3
SCOTT>COL DEC FOR a3
SCOTT>SELECT COUNT(*)||'EA' "TOTAL" ,
  2          COUNT(DECODE(TO_CHAR(birthday,'MM'),'01',0))||'EA' "JAN",
  3          COUNT(DECODE(TO_CHAR(birthday,'MM'),'02',0))||'EA' "FEB",
  4          COUNT(DECODE(TO_CHAR(birthday,'MM'),'03',0))||'EA' "MAR",
  5          COUNT(DECODE(TO_CHAR(birthday,'MM'),'04',0))||'EA' "APR",
  6          COUNT(DECODE(TO_CHAR(birthday,'MM'),'05',0))||'EA' "MAY",
  7          COUNT(DECODE(TO_CHAR(birthday,'MM'),'06',0))||'EA' "JUN",
  8          COUNT(DECODE(TO_CHAR(birthday,'MM'),'07',0))||'EA' "JUL",
  9          COUNT(DECODE(TO_CHAR(birthday,'MM'),'08',0))||'EA' "AUG",
 10          COUNT(DECODE(TO_CHAR(birthday,'MM'),'09',0))||'EA' "SEP",
 11          COUNT(DECODE(TO_CHAR(birthday,'MM'),'10',0))||'EA' "OCT",
 12          COUNT(DECODE(TO_CHAR(birthday,'MM'),'11',0))||'EA' "NOV",
 13          COUNT(DECODE(TO_CHAR(birthday,'MM'),'12',0))||'EA' "DEC"
 14  FROM student ;

TOTAL JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
----- --- --- --- --- --- --- --- --- --- --- --- ---
20EA  3EA 3EA 2EA 2EA 0EA 1EA 0EA 2EA 2EA 2EA 1EA 2EA
```

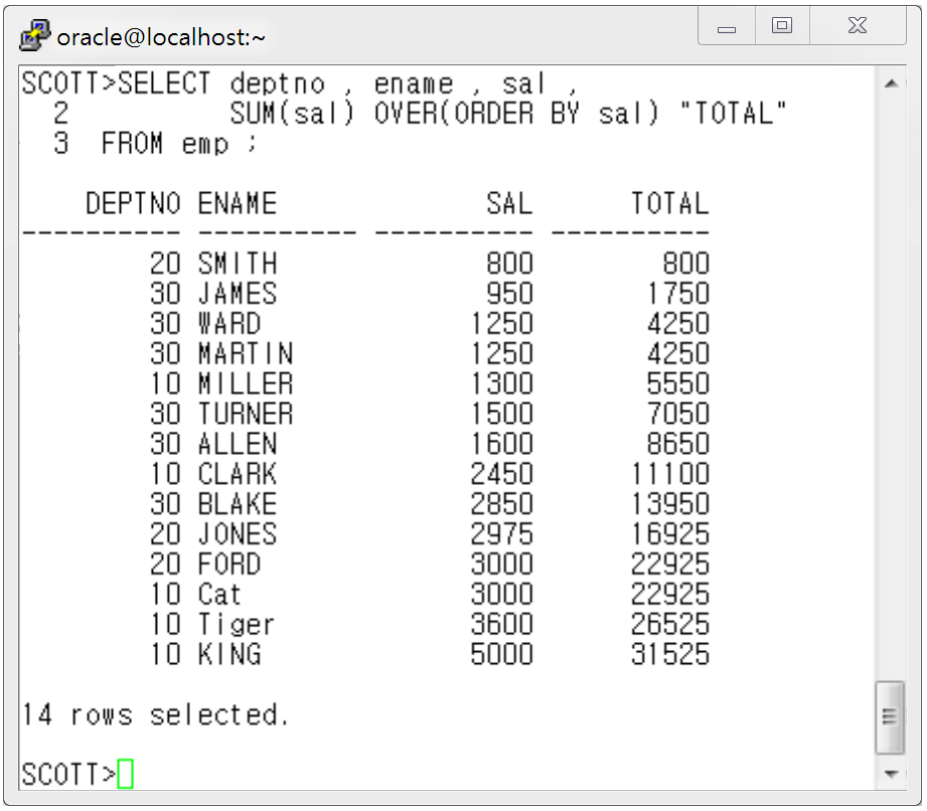
- 3 번 답:


oracle@localhost:~
SCOTT>
SCOTT>SELECT COUNT(*) "TOTAL" ,
2 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'02',0)) "SEOUL" ,
3 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'031',0)) "GYEONGGI" ,
4 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'051',0)) "BUSAN" ,
5 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'052',0)) "ULSAN" ,
6 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'053',0)) "DAEGU" ,
7 COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')')-1),'055',0)) "GYEONGNAM"
8 FROM student ;
TOTAL SEOUL GYEONGGI BUSAN ULSAN DAEGU GYEONGNAM
20 6 2 4 0 2 6
SCOTT>

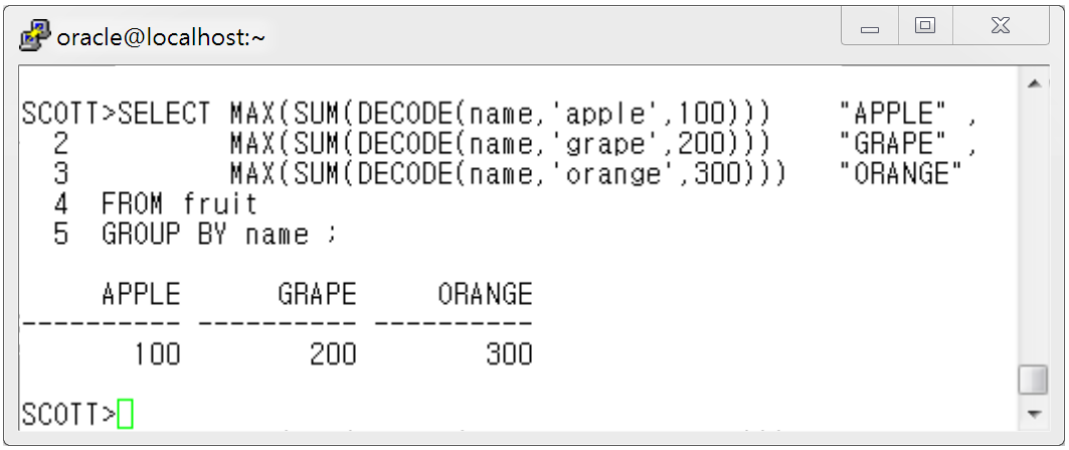
4 번 답 :


oracle@localhost:~
SCOTT>SELECT deptno ,
2 SUM(DECODE(job,'CLERK',sal,0)) "CLERK" ,
3 SUM(DECODE(job,'MANAGER',sal,0)) "MANAGER" ,
4 SUM(DECODE(job,'PRESIDENT',sal,0)) "PRESIDENT" ,
5 SUM(DECODE(job,'ANALYST',sal,0)) "ANALYST" ,
6 SUM(decode(job,'SALESMAN',sal,0)) "SALESMAN" ,
7 SUM(NVL2(job,sal,0)) "TOTAL"
8 FROM emp
9 GROUP BY ROLLUP(deptno) ;
DEPTNO CLERK MANAGER PRESIDENT ANALYST SALESMAN TOTAL
10 1300 2450 5000 0 0 8750
20 1000 2975 0 6000 0 9975
30 950 2850 0 0 5600 9400
3250 8275 5000 6000 5600 28125
SCOTT>

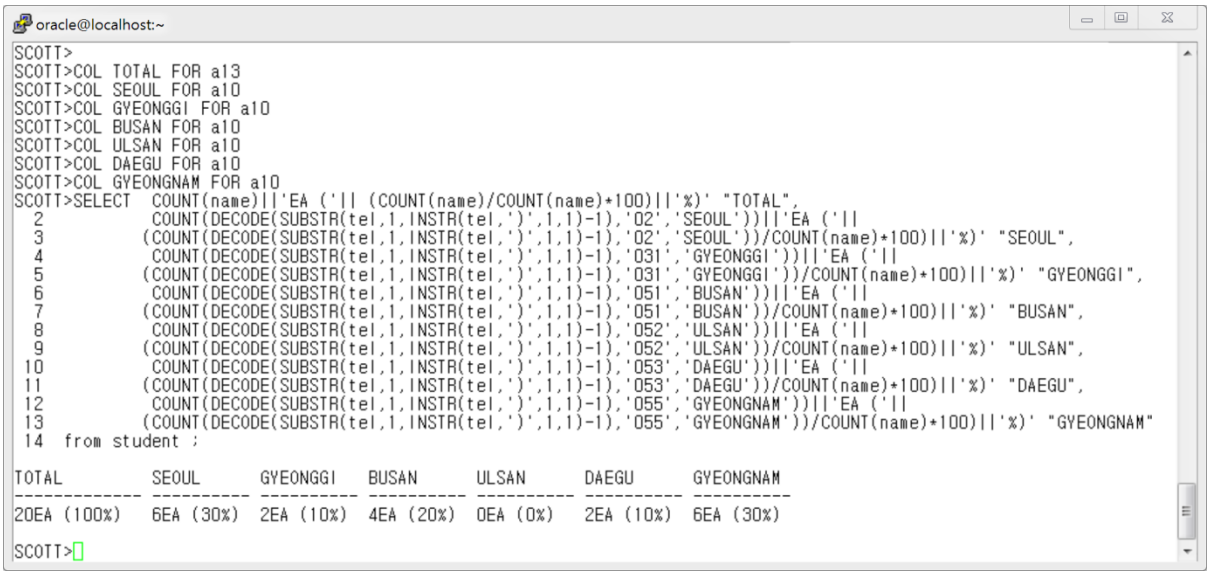
5 번 답 :


oracle@localhost:~
SCOTT>SELECT deptno , ename , sal ,
2 SUM(sal) OVER(ORDER BY sal) "TOTAL"
3 FROM emp ;
DEPTNO ENAME SAL TOTAL
20 SMITH 800 800
30 JAMES 950 1750
30 WARD 1250 4250
30 MARTIN 1250 4250
10 MILLER 1300 5550
30 TURNER 1500 7050
30 ALLEN 1600 8650
10 CLARK 2450 11100
30 BLAKE 2850 13950
20 JONES 2975 16925
20 FORD 3000 22925
10 Cat 3000 22925
10 Tiger 3600 26525
10 KING 5000 31525
14 rows selected.
SCOTT>

6 번 답 :


oracle@localhost:~
SCOTT>SELECT MAX(SUM(DECODE(name,'apple',100))) "APPLE" ,
2 MAX(SUM(DECODE(name,'grape',200))) "GRAPE" ,
3 MAX(SUM(DECODE(name,'orange',300))) "ORANGE"
4 FROM fruit
5 GROUP BY name ;
APPLE GRAPE ORANGE
100 200 300
SCOTT>

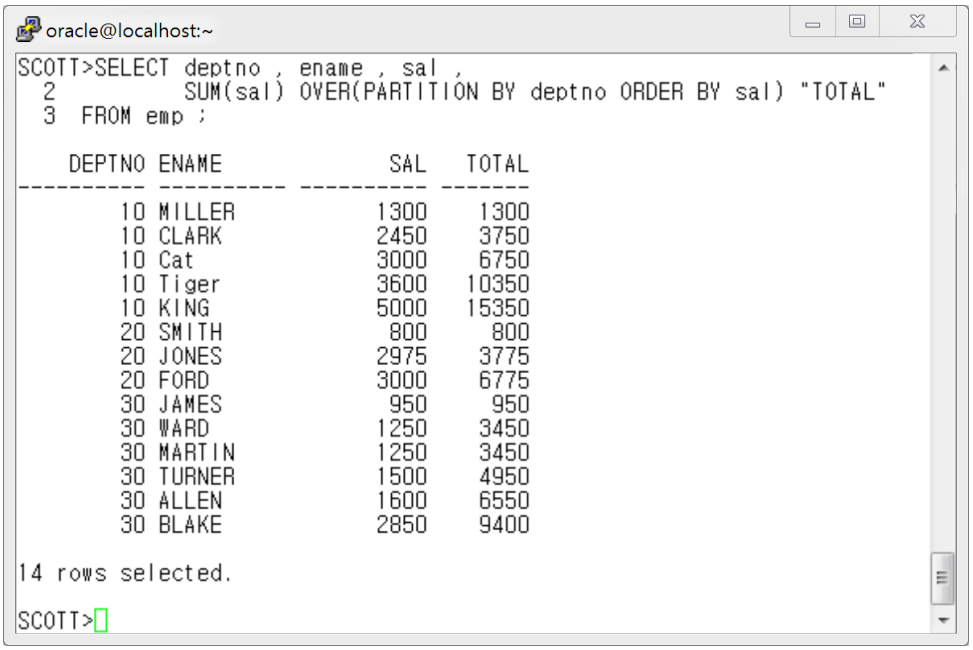
7번 답:



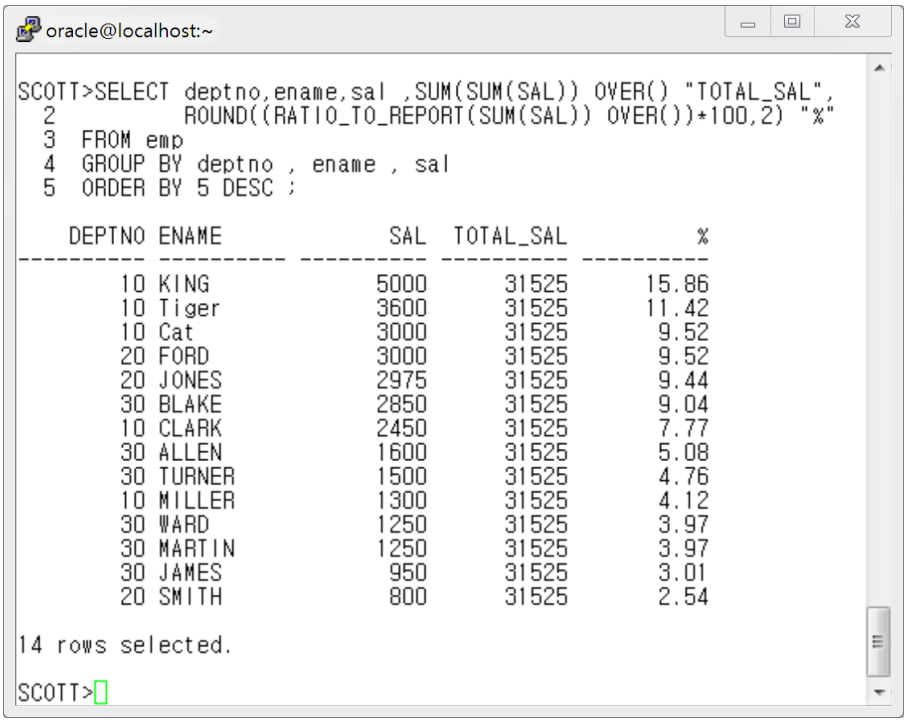
```
oracle@localhost:~
SCOTT>
SCOTT>COL TOTAL FOR a13
SCOTT>COL SEOUL FOR a10
SCOTT>COL GYEONGGI FOR a10
SCOTT>COL BUSAN FOR a10
SCOTT>COL ULSAN FOR a10
SCOTT>COL DAEGU FOR a10
SCOTT>COL GYEONGNAM FOR a10
SCOTT>SELECT   COUNT(name)||'EA ('|| (COUNT(name)/COUNT(name)*100)||'%)' "TOTAL",
  2            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'02','SEOUL'))||'EA ('||
  3           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'02','SEOUL'))/COUNT(name)*100)||'%)' "SEOUL",
  4            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'031','GYEONGGI'))||'EA ('||
  5           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'031','GYEONGGI'))/COUNT(name)*100)||'%)' "GYEONGGI",
  6            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'051','BUSAN'))||'EA ('||
  7           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'051','BUSAN'))/COUNT(name)*100)||'%)' "BUSAN",
  8            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'052','ULSAN'))||'EA ('||
  9           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'052','ULSAN'))/COUNT(name)*100)||'%)' "ULSAN",
 10            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'053','DAEGU'))||'EA ('||
 11           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'053','DAEGU'))/COUNT(name)*100)||'%)' "DAEGU",
 12            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'055','GYEONGNAM'))||'EA ('||
 13           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'055','GYEONGNAM'))/COUNT(name)*100)||'%)' "GYEONGNAM"
 14  from student ;

TOTAL         SEOUL      GYEONGGI   BUSAN      ULSAN      DAEGU      GYEONGNAM
------------- ---------- ---------- ---------- ---------- ---------- ----------
20EA (100%)   6EA (30%)  2EA (10%)  4EA (20%)  0EA (0%)   2EA (10%)  6EA (30%)

SCOTT>
```

```
SCOTT>COL TOTAL FOR a13
SCOTT>COL SEOUL FOR a10
SCOTT>COL GYEONGGI FOR a10
SCOTT>COL BUSAN FOR a10
SCOTT>COL ULSAN FOR a10
SCOTT>COL DAEGU FOR a10
SCOTT>COL GYEONGNAM FOR a10
SCOTT>SELECT   COUNT(name)||'EA ('|| (COUNT(name)/COUNT(name)*100)||'%)' "TOTAL",
  2            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'02','SEOUL'))||'EA ('||
  3           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'02','SEOUL'))/COUNT(name)*100)||'%)' "SEOUL",
  4            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'031','GYEONGGI'))||'EA ('||
  5           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'031','GYEONGGI'))/COUNT(name)*100)||'%)' "GYEONGGI",
  6            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'051','BUSAN'))||'EA ('||
  7           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'051','BUSAN'))/COUNT(name)*100)||'%)' "BUSAN",
  8            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'052','ULSAN'))||'EA ('||
  9           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'052','ULSAN'))/COUNT(name)*100)||'%)' "ULSAN",
 10            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'053','DAEGU'))||'EA ('||
 11           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'053','DAEGU'))/COUNT(name)*100)||'%)' "DAEGU",
 12            COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'055','GYEONGNAM'))||'EA ('||
 13           (COUNT(DECODE(SUBSTR(tel,1,INSTR(tel,')',1,1)-1),'055','GYEONGNAM'))/COUNT(name)*100)||'%)' "GYEONGNAM"
 14  from student ;

TOTAL            SEOUL        GYEONGGI     BUSAN        ULSAN        DAEGU        GYEONGNAM
---------- ---------- ---------- ---------- ---------- ---------- ----------
20EA (100%)    6EA (30%)   2EA (10%)   4EA (20%)   0EA (0%)    2EA (10%)   6EA (30%)
```

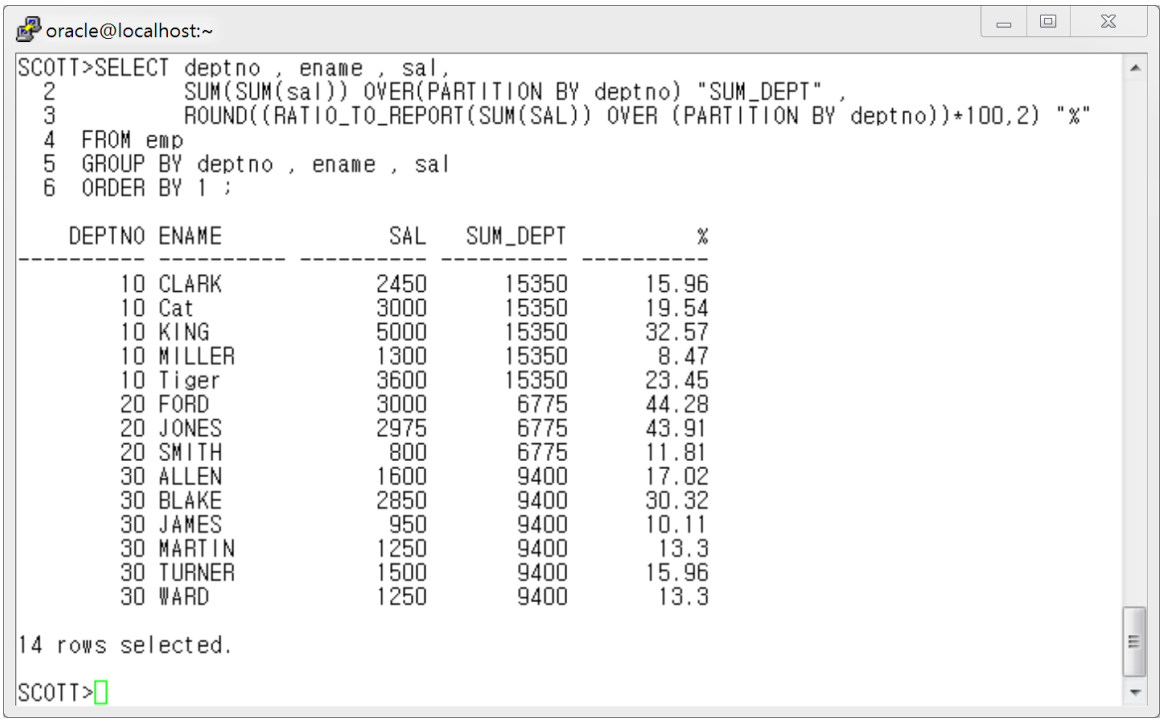
8번 답:


oracle@localhost:~
SCOTT>SELECT deptno , ename , sal ,
2 SUM(sal) OVER(PARTITION BY deptno ORDER BY sal) "TOTAL"
3 FROM emp ;
DEPTNO ENAME SAL TOTAL
10 MILLER 1300 1300
10 CLARK 2450 3750
10 Cat 3000 6750
10 Tiger 3600 10350
10 KING 5000 15350
20 SMITH 800 800
20 JONES 2975 3775
20 FORD 3000 6775
30 JAMES 950 950
30 WARD 1250 3450
30 MARTIN 1250 3450
30 TURNER 1500 4950
30 ALLEN 1600 6550
30 BLAKE 2850 9400
14 rows selected.
SCOTT>

9번 답 :

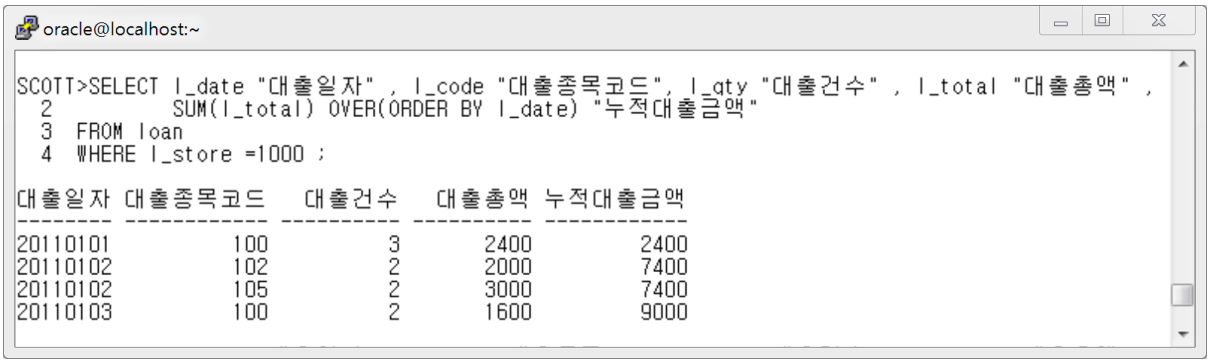

oracle@localhost:~
SCOTT>SELECT deptno,ename,sal ,SUM(SUM(SAL)) OVER() "TOTAL_SAL",
2 ROUND((RATIO_TO_REPORT(SUM(SAL)) OVER())*100,2) "%"
3 FROM emp
4 GROUP BY deptno , ename , sal
5 ORDER BY 5 DESC ;
DEPTNO ENAME SAL TOTAL_SAL %
10 KING 5000 31525 15.86
10 Tiger 3600 31525 11.42
10 Cat 3000 31525 9.52
20 FORD 3000 31525 9.52
20 JONES 2975 31525 9.44
30 BLAKE 2850 31525 9.04
10 CLARK 2450 31525 7.77
30 ALLEN 1600 31525 5.08
30 TURNER 1500 31525 4.76
10 MILLER 1300 31525 4.12
30 WARD 1250 31525 3.97
30 MARTIN 1250 31525 3.97
30 JAMES 950 31525 3.01
20 SMITH 800 31525 2.54
14 rows selected.
SCOTT>

10번 답 :



```
oracle@localhost:~
SCOTT>SELECT deptno , ename , sal,
  2          SUM(SUM(sal)) OVER(PARTITION BY deptno) "SUM_DEPT" ,
  3          ROUND((RATIO_TO_REPORT(SUM(SAL)) OVER (PARTITION BY deptno))*100,2) "%"
  4  FROM emp
  5  GROUP BY deptno , ename , sal
  6  ORDER BY 1 ;

    DEPTNO ENAME             SAL   SUM_DEPT          %
---------- ---------- ---------- ---------- ----------
        10 CLARK            2450      15350      15.96
        10 Cat              3000      15350      19.54
        10 KING             5000      15350      32.57
        10 MILLER           1300      15350       8.47
        10 Tiger            3600      15350      23.45
        20 FORD             3000       6775      44.28
        20 JONES            2975       6775      43.91
        20 SMITH             800       6775      11.81
        30 ALLEN            1600       9400      17.02
        30 BLAKE            2850       9400      30.32
        30 JAMES             950       9400      10.11
        30 MARTIN           1250       9400       13.3
        30 TURNER           1500       9400      15.96
        30 WARD             1250       9400       13.3

14 rows selected.

SCOTT>
```

11번답)



```
oracle@localhost:~
SCOTT>SELECT l_date "대출일자" , l_code "대출종목코드", l_qty "대출건수" , l_total "대출총액" ,
  2          SUM(l_total) OVER(ORDER BY l_date) "누적대출금액"
  3  FROM loan
  4  WHERE l_store =1000 ;

대출일자 대출종목코드   대출건수   대출총액 누적대출금액
-------- ------------ ---------- ---------- ------------
20110101          100          3       2400         2400
20110102          102          2       2000         7400
20110102          105          2       3000         7400
20110103          100          2       1600         9000
```

12번 답)

oracle@localhost:~

```
SCOTT>
SCOTT>SELECT l_code "대출종목코드" , l_store "대출지점" ,
  2          l_date "대출일자" , l_qty "대출건수", l_total "대출액",
  3          SUM(l_total) OVER(PARTITION BY l_code , l_store ORDER BY l_date) "누적대출금액"
  4  FROM loan ;

대출종목코드 대출지점  대출일자   대출건수     대출액 누적대출금액
------------ --------- -------- ---------- ---------- ------------
         100 1000      20110101          3       2400         2400
         100 1000      20110103          2       1600         4000
         100 1001      20110103          3       2400         2400
         100 1002      20110104          2       1600         1600
         100 1003      20110104          4       3200         3200
         100 1004      20110103         10       8000         8000
         100 1004      20110104          5       4000        12000
         101 1001      20110101          5       4500         4500
         101 1001      20110104          3       2700         7200
         101 1002      20110104          4       3600         3600
         101 1003      20110103          4       3600         3600
         101 1003      20110104          3       2700         6300
         102 1000      20110102          2       2000         2000
         102 1001      20110104          4       4000         4000
         102 1002      20110104          2       2000         2000
         102 1003      20110101          2       2000         2000
         103 1002      20110102          5       4500         4500
         103 1003      20110104          2       1800         1800
         103 1004      20110101          6       5400         5400
         104 1002      20110102          3       2400         2400
         105 1000      20110102          2       3000         3000

21 rows selected.

SCOTT>
```

13번 답)

oracle@localhost:~

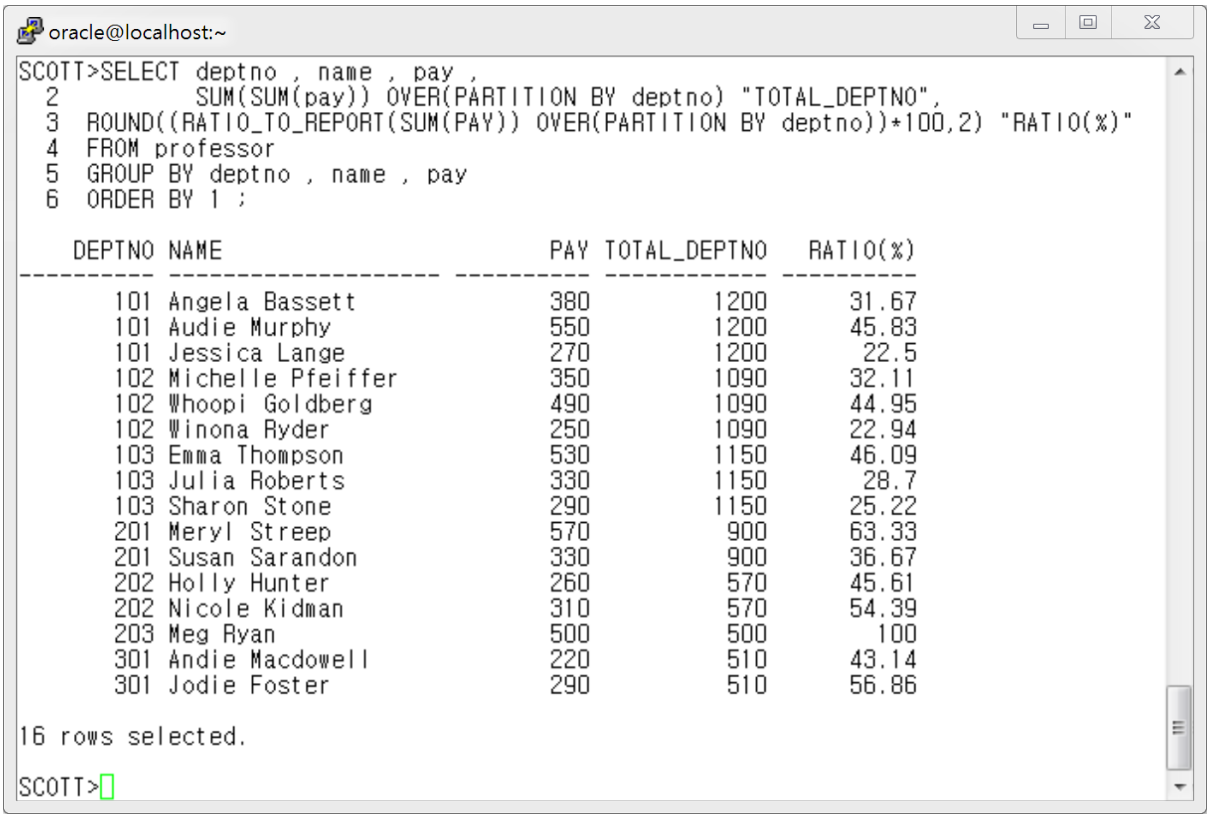
```
SCOTT>SELECT l_date "대출일자" , l_code "대출구분코드" , l_qty "대출건수" ,
  2          l_total " 대출총액" ,
  3          SUM(l_total) OVER(PARTITION BY l_code ORDER BY l_total) "누적대출금액"
  4  FROM loan
  5  WHERE l_store=1000 ;

대출일자 대출구분코드   대출건수   대출총액 누적대출금액
-------- ------------ ---------- ---------- ------------
20110103          100          2       1600         1600
20110101          100          3       2400         4000
20110102          102          2       2000         2000
20110102          105          2       3000         3000

SCOTT>
```

14번 답)

oracle@localhost:~

```
SCOTT>SELECT deptno , name , pay ,
  2          SUM(pay) OVER() "TOTAL PAY" ,
  3          ROUND((RATIO_TO_REPORT(SUM(PAY)) OVER())*100,2) "RATIO %"
  4  FROM professor
  5  GROUP BY deptno , name , pay
  6  ORDER BY 5 DESC ;

    DEPTNO NAME                      PAY  TOTAL PAY    RATIO %
---------- -------------------- ---------- ---------- ----------
       201 Meryl Streep                570       5920       9.63
       101 Audie Murphy                550       5920       9.29
       103 Emma Thompson               530       5920       8.95
       203 Meg Ryan                    500       5920       8.45
       102 Whoopi Goldberg             490       5920       8.28
       101 Angela Bassett              380       5920       6.42
       102 Michelle Pfeiffer           350       5920       5.91
       201 Susan Sarandon              330       5920       5.57
       103 Julia Roberts               330       5920       5.57
       202 Nicole Kidman               310       5920       5.24
       103 Sharon Stone                290       5920        4.9
       301 Jodie Foster                290       5920        4.9
       101 Jessica Lange               270       5920       4.56
       202 Holly Hunter                260       5920       4.39
       102 Winona Ryder                250       5920       4.22
       301 Andie Macdowell             220       5920       3.72

16 rows selected.

SCOTT>
```

15번 답)



oracle@localhost:~

```
SCOTT>SELECT deptno , name , pay ,
  2         SUM(SUM(pay)) OVER(PARTITION BY deptno) "TOTAL_DEPTNO",
  3  ROUND((RATIO_TO_REPORT(SUM(PAY)) OVER(PARTITION BY deptno))*100,2) "RATIO(%)"
  4  FROM professor
  5  GROUP BY deptno , name , pay
  6  ORDER BY 1 ;

    DEPTNO NAME                      PAY TOTAL_DEPTNO   RATIO(%)
---------- -------------------- ---------- ------------ ----------
       101 Angela Bassett              380         1200      31.67
       101 Audie Murphy                550         1200      45.83
       101 Jessica Lange               270         1200       22.5
       102 Michelle Pfeiffer           350         1090      32.11
       102 Whoopi Goldberg             490         1090      44.95
       102 Winona Ryder                250         1090      22.94
       103 Emma Thompson               530         1150      46.09
       103 Julia Roberts               330         1150       28.7
       103 Sharon Stone                290         1150      25.22
       201 Meryl Streep                570          900      63.33
       201 Susan Sarandon              330          900      36.67
       202 Holly Hunter                260          570      45.61
       202 Nicole Kidman               310          570      54.39
       203 Meg Ryan                    500          500        100
       301 Andie Macdowell             220          510      43.14
       301 Jodie Foster                290          510      56.86

16 rows selected.

SCOTT>
```

< 4장 Join 연습문제 해답>

1 번 답)

[Oracle Join 문법]

```
oracle@localhost:~
SCOTT>SELECT s.name "STU_NAME" , s.deptno1 , d.dname "DEPT_NAME"
  2  FROM student s , department d
  3  WHERE s.deptno1 = d.deptno ;
```

[ANSI Join 문법]

```
oracle@localhost:~
SCOTT>SELECT s.name "STU_NAME" , s.deptno1 , d.dname "DEPT_NAME"
  2  FROM student s JOIN department d
  3  ON s.deptno1 = d.deptno ;
```

2 번 답)

[Oracle Join 문법]

```
oracle@localhost:~
SCOTT>SELECT e.name , p.position ,TO_CHAR(e.pay,'999,999,999') "PAY" ,
  2          TO_CHAR(p.s_pay,'999,999,999') "Low PAY" ,
  3          TO_CHAR(p.e_pay,'999,999,999') "High Pay"
  4  FROM emp2 e , p_grade p
  5  WHERE e.position = p.position ;
```

[ANSI Join 문법]

```
oracle@localhost:~

SCOTT>SELECT e.name , p.position ,TO_CHAR(e.pay,'999,999,999') "PAY" ,
  2          TO_CHAR(p.s_pay,'999,999,999') "Low PAY" ,
  3          TO_CHAR(p.e_pay,'999,999,999') "High Pay"
  4  FROM emp2 e JOIN p_grade p
  5  ON e.position = p.position ;
```

3번 답)

[Oracle Join 문법]

```
oracle@localhost:~

SCOTT>SELECT e.name , TRUNC((sysdate - e.birthday)/365,0) "AGE" ,
  2          e.position "CURR_POSITION" ,
  3          g.position "BE_POSITION"
  4  FROM emp2 e , p_grade g
  5  WHERE TRUNC((sysdate - e.birthday)/365,0) BETWEEN g.s_age AND g.e_age;
```

[ANSI Join 문법]

```
oracle@localhost:~

SCOTT>SELECT e.name , TRUNC((sysdate - e.birthday)/365,0) "AGE" ,
  2          e.position "CURR_POSITION" ,
  3          g.position "BE_POSITION"
  4  FROM emp2 e JOIN p_grade g
  5  ON TRUNC((sysdate - e.birthday)/365,0) BETWEEN g.s_age AND g.e_age;
```

4번 답)

[Oracle Join 문법]

```
oracle@localhost:~

SCOTT>SELECT c.gname "CUST_NAME" , c.point "POINT" , g.gname "GIFT_NAME"
  2  FROM customer c , gift g
  3  WHERE g.g_start <= c.point
  4  AND g.gname = 'Notebook' ;

CUST_NAME                      POINT GIFT_NAME
------------------------------ ----------- ------------------------------
James Seo                         980000 Notebook
Winona Ryder                      625000 Notebook
Michelle Pfeiffer                 670000 Notebook

SCOTT>
```

[ANSI Join 문법]

```
oracle@localhost:~

SCOTT>SELECT c.gname "CUST_NAME" , c.point "POINT" , g.gname
  2  FROM customer c JOIN gift g
  3  ON g.g_start <= c.point
  4  AND g.gname = 'Notebook' ;
```

5번 답)

[Oracle Join 문법]

```
oracle@localhost:~
SCOTT>SELECT p1.profno , p1.name ,
  2          TO_CHAR(p1.hiredate,'YYYY/MM/DD') "HIREDATE",
  3          COUNT(p2.hiredate) "COUNT"
  4  FROM professor p1 , professor p2
  5  WHERE p2.hiredate(+) < p1.hiredate
  6  GROUP BY p1.profno , p1.name , p1.hiredate
  7  ORDER BY 4 ;
```

[ANSI Join 문법]

```
oracle@localhost:~
SCOTT>SELECT p1.profno , p1.name ,
  2          TO_CHAR(p1.hiredate,'YYYY/MM/DD') "HIREDATE",
  3          COUNT(p2.hiredate) "COUNT"
  4  FROM professor p1 LEFT OUTER JOIN professor p2
  5  ON p2.hiredate < p1.hiredate
  6  GROUP BY p1.profno , p1.name , TO_CHAR(p1.hiredate,'YYYY/MM/DD')
  7  ORDER BY 4 ;
```

6번 답)

[Oracle Join 문법]

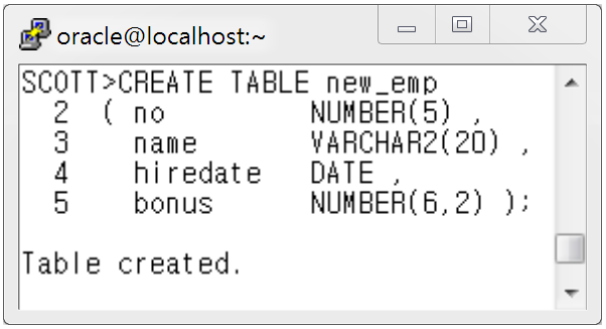
```
oracle@localhost:~
SCOTT>SELECT e1.empno , e1.ename ,
  2          TO_CHAR(e1.hiredate,'YY/MM/DD') "HIREDATE" ,
  3          COUNT(e2.hiredate) "COUNT"
  4  FROM emp e1 , emp e2
  5  WHERE e2.hiredate(+) < e1.hiredate
  6  AND e1.hiredate IS NOT NULL
  7  GROUP BY e1.empno , e1.ename , TO_CHAR(e1.hiredate,'YY/MM/DD')
  8  ORDER BY 4 ;
```

[ANSI Join 문법]

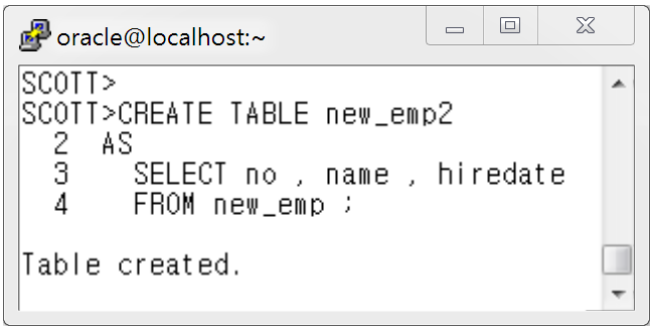
```
oracle@localhost:~
SCOTT>SELECT e1.empno , e1.ename ,
  2          TO_CHAR(e1.hiredate,'YY/MM/DD') "HIREDATE" ,
  3          COUNT(e2.hiredate) "COUNT"
  4  FROM emp e1 LEFT OUTER JOIN emp e2
  5  ON e2.hiredate < e1.hiredate
  6  WHERE e1.hiredate IS NOT NULL
  7  GROUP BY e1.empno , e1.ename , TO_CHAR(e1.hiredate,'YY/MM/DD')
  8  ORDER BY 4 ;
```

< 5장 DDL 연습문제 답 >

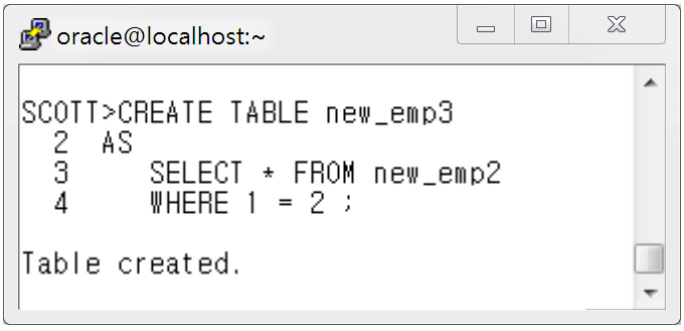
- 1번 답 :



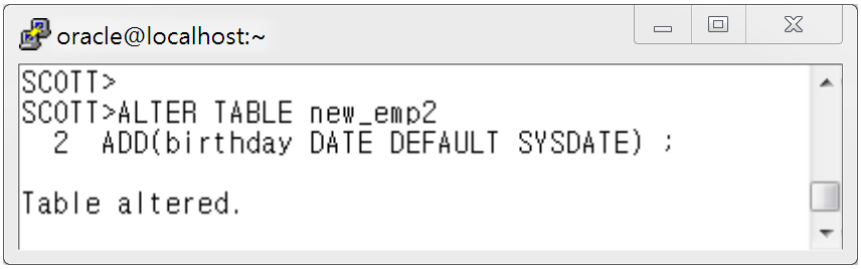
- 2번 답 :



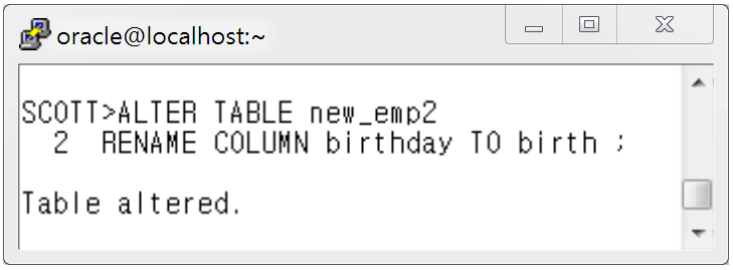
- 3번 답 :



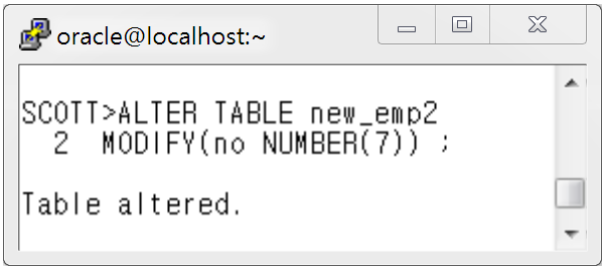
-4번 답 :



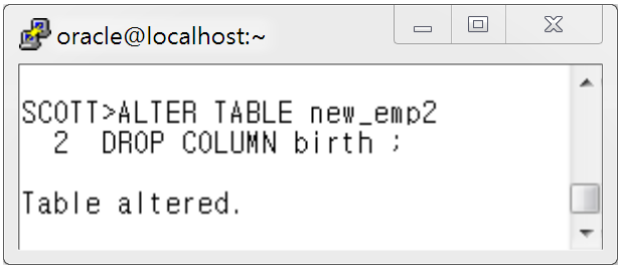
- 5번 답 :



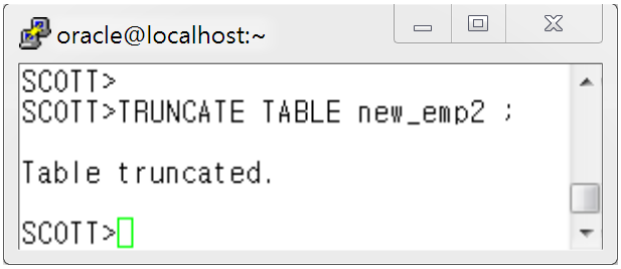
- 6번 답 :



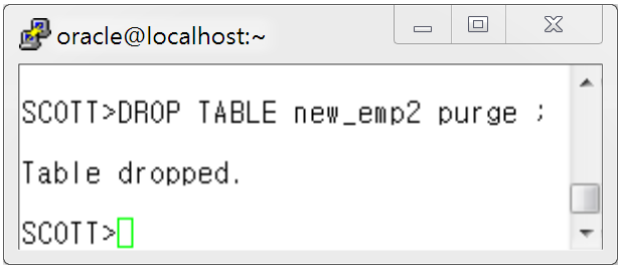
- 7번 답 :



-8번 답 :



-9번 답 :



<6 장 DML 연습문제 정답>

- **1번 답: INSERT INTO dept2 VALUES('9010','temp_10','1006','temp area') ;**

- **2번 답: INSERT INTO dept2(DCODE , DNAME , PDEPT) VALUES('9020','temp_20','1006') ;**

- **3번 답:**

```
INSERT INTO professor4
SELECT profno, name, pay
FROM professor
WHERE profno <= 3000 ;
```

- **4번 답:**

```
UPDATE professor
SET bonus = 100
WHERE name = ''Sharon Stone' ;
```

<7장 연습문제 정답>

- **1번 답 :**

```
CREATE TABLE tcons
  ( no   NUMBER(4)
         CONSTRAINT   tcons_no_pk   PRIMARY KEY ,
      name VARCHAR2(20)
         CONSTRAINT   tcons_name_nn   NOT NULL,
    jumin   VARCHAR2(13)
         CONSTRAINT   tcons_jumin_nn   NOT NULL
         CONSTRAINT   tcons_jumin_uk   UNIQUE ,
    area   NUMBER(1)
         CONSTRAINT   tcons_area_ck   CHECK ( loc_code < 5 ),
    deptno VARCHAR2(6)
       CONSTRAINT   tcons_deptno_fk   REFERENCES   dept2(dcode)
   ) ;
```

- **2번 답:**

```
ALTER   TABLE   tcons
ADD   CONSTRAINT   tcons_name_fk   FOREIGN KEY(name)
REFERENCES   emp2(name) ;
```

- **3번 답:**

```
ALTER   TABLE   tcons
DISABLE   VALIDATE   CONSTRAINT tcons_jumin_uk ;
```

- **4번 답:**

```
ALTER   TABLE scott.tcons ENABLE   VALIDATE   CONSTRAINT   tcons_jumin_uk
EXCEPTIONS   INTO   scott.execptions;
```

- **5번 답:**

```
SELECT   owner , constraint_name , table_name , column_name
FROM user_cons_columns
WHERE table_name='EMP';
```

<9 장 View 연습문제 정답>

- 1번 답 :

```
SCOTT>CREATE OR REPLACE VIEW v_prof_dept
  2  AS
  3     SELECT p.profno "교수번호"
  4        ,      p.name   "교수명"
  5        ,      d.dname   "소속학과명"
  6     FROM professor p , department d
  7     WHERE p.deptno = d.deptno ;
```

- 2번 답 :

```
SCOTT> SELECT d.dname
  2    ,       s.max_height
  3    ,       s.max_weight
  4  FROM ( SELECT deptno1, MAX(height) max_height, MAX(weight) max_weight
  5           FROM   student
  6           GROUP BY deptno1) s , department d
  7  WHERE s.deptno1 = d.deptno ;
```

- 3번 답 :

```
SCOTT> SELECT   d.dname , a.max_height , s.name , s.height
  2  FROM ( SELECT deptno1, MAX(height) max_height
  3           FROM   student
  4           GROUP BY deptno1) a , student s, department d
  5  WHERE s.deptno1=a.deptno1
  6  AND s.height = a.max_height
  7   AND s.deptno1=d.deptno ;
```

- 4번 답 :

```
SCOTT>SELECT     s.grade , s.name , s.height , a.avg_height
  2   FROM ( SELECT grade , AVG(height) avg_height
  3            FROM student
  4            GROUP BY grade) a , student s
  5   WHERE a.grade = s.grade
  6   AND s.height > a.avg_height
  7   ORDER BY 1 ;
```

- 5번 답:

```
SCOTT>SELECT rownum "Ranking" , name , pay
  2   FROM ( SELECT name , pay
  3            FROM professor
  4            ORDER BY 2 desc )
  5   WHERE rownum BETWEEN 1 and 5 ;
```

- 6번 답:

```
SCOTT>SELECT num , profno , name , pay ,sum(pay) , round(avg(pay),1)
  2    FROM (SELECT profno , name , pay , rownum num
  3             FROM professor )
  4   GROUP BY CEIL(num/3) , ROLLUP((profno , name , pay , num))
  5   ORDER BY CEIL(num/3) ;
```

< 10장 Sub Query 연습문제 해답>

단일행 서브쿼리 문제 1 답

```
SCOTT> SELECT s.name "STUD_NAME" , d.dname "DEPT_NAME"
  2  FROM student s , department   d
  3  WHERE s.deptno1=d.deptno
  4  and s.deptno1 = ( SELECT deptno1
  5                    FROM   student
  6                    WHERE name='Anthony Hopkins') ;
```

단일행 서브쿼리 연습문제 2 답

```
SCOTT>SELECT p.name "PROF_NAME" , p.hiredate   ,d.dname "DEPT_NAME"
  2  FROM professor   p , department d
  3  WHERE p.deptno = d.deptno
  4  AND hiredate > ( SELECT hiredate
  5                    FROM   professor
  6                    WHERE name='Meg Ryan') ;
```

단일행 서브쿼리 연습문제 3 답:

```
SCOTT>SELECT name   , weight
  2  FROM student
  3  WHERE weight > ( SELECT avg(weight)
  4                    FROM   student
  5                    WHERE deptno1=201) ;
```

다중행 서브쿼리 연습문제 1 답:

```
SCOTT> SELECT name , position ,
  2                TO_CHAR(pay,'$999,999,999') "SALARY"
  3  FROM emp2
  4  WHERE pay > ANY (SELECT pay
  5                   FROM emp2
  6                   WHERE position='Section head') ;
```

다중행 서브쿼리 연습문제 2 답:

```
SCOTT> SELECT name , grade   , weight
  2  FROM student
  3  WHERE weight < ALL (SELECT weight
  4                      FROM student
  5                      WHERE grade = 2 ) ;
```

다중 행 서브쿼리 연습문제 3 답:

```
SCOTT>SELECT d.dname   , e.name   ,to_char( e.pay,'$999,999,999') "SALARY"
  2   FROM emp2 e , dept2 d
  3  WHERE e.deptno=d.dcode
  4  AND   e.pay < ALL (SELECT AVG(pay)
  5                     FROM emp2
  6                     GROUP BY deptno )
  7  ORDER BY 3 ;
```

다중 컬럼 서브쿼리 연습문제 1 답 :

```
SCOTT>SELECT p.profno "PROFNO" ,p.name "PROF_NAME",
  2            p.hiredate , d.dname "DEPT_NAME"
  3  FROM professor p , department d
  4  WHERE p.deptno=d.deptno
  5  AND (p.deptno , p.hiredate) IN (SELECT deptno,MIN(hiredate)
  6                                  FROM professor
  7                                  GROUP BY deptno )
  8  ORDER BY 3 ;
```

다중 컬럼 서브쿼리 연습문제 2 답:

```
SCOTT>SELECT name , position , TO_CHAR(pay,'$999,999,999') "SALARY"
  2  FROM emp2
  3  WHERE (position,pay) IN ( SELECT position, MAX(pay)
  4                            FROM emp2
  5                            GROUP BY position )
  6  ORDER BY 3 ;
```

< 12장 계층형 쿼리 연습문제 답>

- 1번 답:

```
SCOTT> SELECT LPAD(e.name||'-'||d.dname||'-'||
  2              NVL(e.position,'Worker'),LEVEL*27,'-') "Name And Position"
  3  FROM emp2 e, (SELECT dname,dcode,pdept
  4                 FROM dept2) d
  5  WHERE   e.deptno = d.dcode
  6  CONNECT BY   PRIOR   e.empno =   e.pempno
  7  START WITH e.empno = 19900101 ;
```

- 1번-2 답:

```
SCOTT> SELECT LPAD(e.name||'-'||d.dname||'-'||
  2              NVL(e.position,'Worker'),LEVEL*27,'-') "Name And Position"
  3  FROM emp2 e, (SELECT dname,dcode,pdept
  4                 FROM dept2) d
  5  WHERE   e.deptno = d.dcode
  6  CONNECT BY   PRIOR   e.empno =   e.pempno
  7  START WITH e.empno = 19900101
  8  ORDER SIBLINGS BY e.name ;
```

- 2번 답:

```
SCOTT> SELECT    LPAD(e.name||'-'||d.dname||'-'||
  2                    NVL(e.position,'Worker'),LEVEL*27,'-') "Name And Position"
  3   FROM emp2 e, (SELECT dname,dcode,pdept
  4                        FROM dept2) d
  5   WHERE e.deptno = d.dcode
  6   CONNECT BY     PRIOR e.empno =    e.pempno
  7   START WITH e.empno = 19966102 ;
```

- 3번 답:

```
SCOTT> SELECT
  2   LPAD(e.name||'-'||d.dname||'-'||NVL(e.position,'Worker'),LEVEL*25,'-') "Name And Position"
  3   FROM emp2 e, (SELECT dname,dcode,pdept
  4                        FROM dept2) d
  5   WHERE e.deptno = d.dcode
  6   CONNECT BY     e.empno = PRIOR    e.pempno
  7   START WITH e.empno = 20000334 ;
```

- 4번 답:

```
SCOTT> SELECT name "NAME" , PRIOR name "MGR_NAME"
  2   FROM emp2
  3   START WITH pempno IS NULL
  4   CONNECT BY PRIOR empno=pempno ;
```

- 5번 답:

```
SCOTT>COL ename FOR a58
SCOTT>SELECT empno , name||'-'||d.dname||'-'||NVL(a.position,'Worker') "ENAME" ,
  2              (SELECT COUNT(*)
  3                FROM emp2
  4                START WITH empno = a.empno
  5                CONNECT BY PRIOR empno = pempno) -1 "COUNT"
  6   FROM emp2 a , ( SELECT dname , dcode
  7                          FROM dept2 ) d
  8   WHERE a.deptno = d.dcode
  9   ORDER BY 3 DESC ;
```

6번 답

```
SCOTT>COL "Name And Position" FOR a70
SCOTT>COL   "PATH" FOR   a50
SCOTT>SELECT
  2 LPAD(e.name||' '||d.dname||' '||NVL(e.position,'Worker'),LEVEL*18,'-') "Name And Position"
  3               ,SYS_CONNECT_BY_PATH(e.name,'-') "PATH"
  4  FROM emp2 e, (SELECT dname,dcode,pdept
  5                       FROM dept2) d
  6  WHERE e.deptno = d.dcode
  7  CONNECT BY     PRIOR e.empno =    e.pempno ;
  8  START WITH e.empno = 19966102 ;
```

< 15장 PL/SQL 변수사용하기 연습문제 답 >

1번 답 :

```
SCOTT>SET   SERVEROUTPUT   ON ;
SCOTT>DECLARE
  2    v_empno emp.empno%TYPE ;
  3    v_ename emp.ename%TYPE ;
  4    v_deptno dept.deptno%TYPE ;
  5    v_dname   dept.dname%TYPE ;
  6
  7  BEGIN
  8    SELECT e.empno, e.ename, d.deptno, d.dname
  9    INTO v_empno, v_ename, v_deptno, v_dname
 10    FROM emp e, dept d
 11    WHERE e.empno=7902
 12    AND e.deptno=d.deptno ;
 13  DBMS_OUTPUT.PUT_LINE('EMPNO//ENAME//DEPTNO//DNAME') ;
 14  DBMS_OUTPUT.PUT_LINE(v_empno||'    '||v_ename||'    '||v_deptno||'    '||v_dname) ;
 15  END ;
 16  /
EMPNO//ENAME//DEPTNO//DNAME
7902    FORD    20        RESEARCH

PL/SQL procedure successfully completed.
```

2번 답 :

```
SCOTT>SET VERIFY OFF
SCOTT>SET   SERVEROUTPUT ON
SCOTT>DECLARE
2    v_no1   NUMBER := &no1 ;
3    v_no2   NUMBER := &no2 ;
4    v_sum    NUMBER ;
5
6   BEGIN
7    v_sum := v_no1 + v_no2 ;
8    DBMS_OUTPUT.PUT_LINE('FIRST: '||v_no1||', SECOND : '||v_no2||' , TOTAL : '||v_sum||);
9   END ;
10   /
```

<16장 PLSQL 제어문 익히기 연습문제 답 >

연습문제 1 답:

```
SQL>DECLARE
 2       vempno    emp.empno%TYPE;
 3       vename    emp.ename%TYPE;
 4       vcomm     emp.comm%TYPE := NULL;
 5    BEGIN
 6       SELECT    empno , ename , comm    INTO    vempno , vename , vcomm
 7       FROM emp
 8       WHERE empno= &empno;   -- 사원번호 입력 받기입니다
 9
10      IF   vcomm > 0 THEN
11          DBMS_OUTPUT.PUT_LINE (vename||' 사원의 보너스는 '||vcomm||'입니다');
12      ELSE
13          DBMS_OUTPUT.PUT_LINE (vename||' 사원의 보너스는 없습니다');
14      END IF ;
15   END;
16   /
```

연습문제 2 답:

```
SQL>DECLARE
  2       v_empno      emp.empno%TYPE := &eno ;
  3       v_ename      emp.ename%TYPE ;
  4       v_sal        emp.sal%TYPE ;
  5       v_segum      NUMBER ;
  6   BEGIN
  7       SELECT   ename, sal   INTO   v_ename, v_sal
  8       FROM emp
  9       WHERE   empno = v_empno ;
 10
 11     IF v_sal >= 5000   THEN
 12           v_segum := v_sal * 0.05 ;
 13     ELSIF   v_sal BETWEEN 4000 AND 4999 THEN
 14           v_segum := v_sal * 0.04 ;
 15     ELSIF   v_sal BETWEEN 3000 AND 3999 THEN
 16           v_segum := v_sal * 0.03 ;
 17     ELSIF   v_sal BETWEEN 2000 AND 2999 THEN
 18           v_segum := v_sal * 0.02 ;
 19     ELSE
 20           v_segum := v_sal * 0.01 ;
 21     END IF ;
 22
 23          DBMS_OUTPUT.PUT_LINE ('입력하신 사번 '||v_empno||' 님의 연봉은 '||
 24                                    v_sal ||' 만원이고 , 세금은 '||v_segum||' 만원입니다') ;
 25   END ;
 26   /

Enter value for eno: 7900
입력하신 사번 7900 님의 연봉은 950 만원이고 , 세금은 9.5 만원입니다

PL/SQL procedure successfully completed.
```

연습문제 3번 답 :

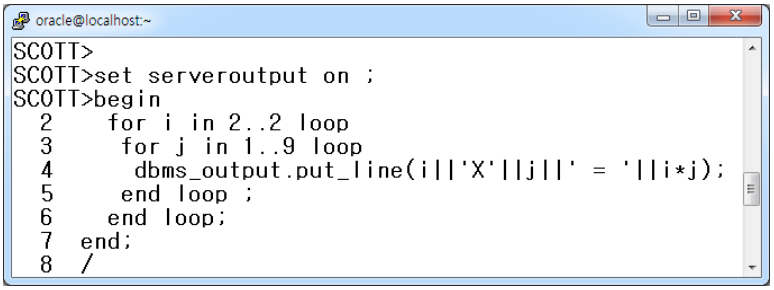
BASIC LOOP 문 사용 시

```
SCOTT>DECLARE
  2       num number := 5 ;
  3  BEGIN
  4     LOOP
  5       DBMS_OUTPUT.PUT_LINE(num) ;
  6       num := num - 1 ;
  7     EXIT WHEN num = - 1;
  8     END LOOP ;
  9  END ;
 10  /
```

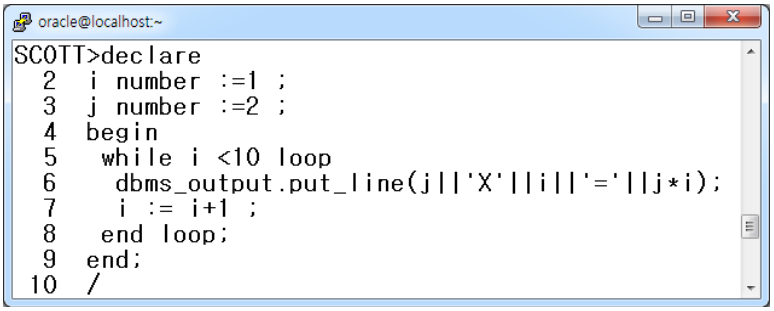
WHILE 문 사용 시

```
SCOTT>DECLARE
  2       num number := 5 ;
  3  BEGIN
  4     WHILE num >= 0   LOOP
  5       DBMS_OUTPUT.PUT_LINE(num) ;
  6       num := num - 1 ;
  7       END LOOP ;
  8  END ;
  9   /
```

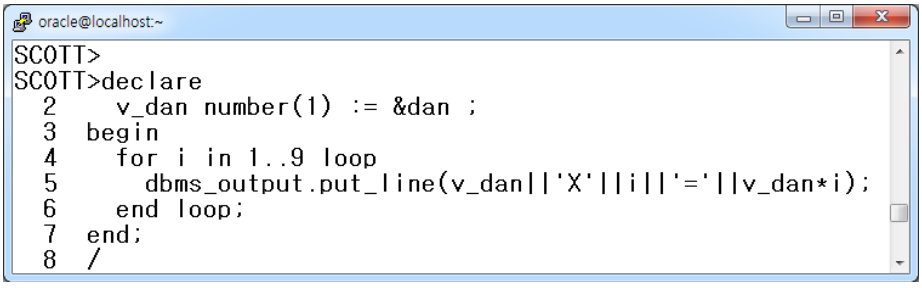
연습문제 4 답-for 반복문을 사용한 구구단 2단 출력하기



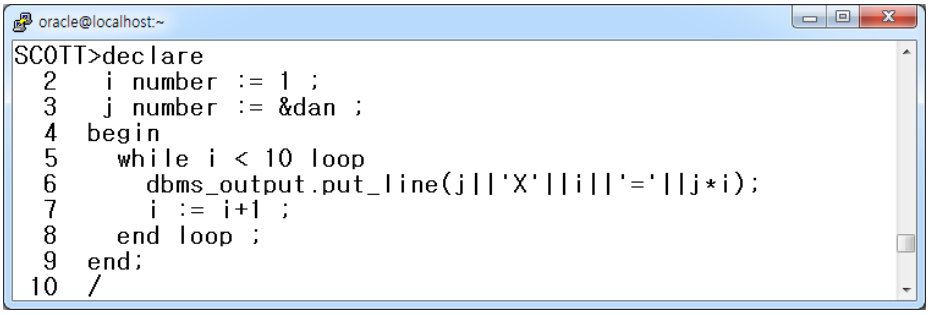
연습문제 4번 답-while 반복문을 사용한 구구단 2단 출력하기



연습문제 5번 답 - for 반복문을 사용하여 원하는 단을 입력 받은 후 구구단 출력하기



연습문제 5 답 - While 반복문을 사용하여 원하는 단을 입력 받은 후 구구단 출력하기



< 17장. PLSQL CURSOR 연습문제 답 >

답 1.

```
SQL> SET VERIFY OFF
SQL> SET SERVEROUTPUT ON
SQL> DECLARE
  2   v_deptno NUMBER := &dno;
  3  BEGIN
  4   DELETE emp WHERE deptno = v_deptno;
  5   DBMS_OUTPUT.PUT_LINE( '삭제 건수는 총 '|| SQL%ROWCOUNT||' 건 입니다');
  6  END ;
  7  /
Enter value for dno: 10
삭제 건수는 총 4 건 입니다


PL/SQL procedure successfully completed.
```

답 2.

```
SQL> SET VERIFY OFF
SQL> SET SERVEROUTPUT ON
SQL> DECLARE
  2     CURSOR cur_emp   IS
  3      SELECT ename, sal
  4      FROM emp
  5      WHERE deptno = &dno;
  6
  7     v_ename emp.ename%TYPE;
  8     v_sal     emp.sal%TYPE;
  9
 10   BEGIN
 11     OPEN   cur_emp;
 12     LOOP
 13        FETCH   cur_emp   INTO v_ename,v_sal ;
 14        EXIT   WHEN   cur_emp%NOTFOUND;
 15        DBMS_OUTPUT.PUT_LINE(v_ename||' 의 급여는 '||v_sal||' 입니다');
 16     END LOOP;
 17   CLOSE cur_emp ;
 18   END;
 19   /
```

답 3.

```
SCOTT>alter session set nls_date_format='YYYY-MM-DD:HH24:MI:SS';

Session altered.

SCOTT>declare
  2     vdname department.dname%type;
  3     vbuild department.build%type;
  4
  5     cursor d_cur is
  6        select dname,build
  7        from department
  8        where build is not null ;
  9
 10  begin
 11     open d_cur ;
 12     dbms_output.put_line(' 학과명과  학과의 위치 안내 입니다');
 13     dbms_output.put_line('-----------------------------------------');
 14
 15     loop
 16        fetch d_cur into vdname,vbuild;
 17        exit when d_cur%notfound;
 18        dbms_output.put_line(vdname||' ---> '||vbuild||' 에 있습니다');
 19     end loop;
 20
 21     dbms_output.put_line('-----------------------------------------');
 22     dbms_output.put_line('출력시간:'||sysdate) ;
 23     dbms_output.put_line('총 '||d_cur%rowcount||' 건 출력 완료하였습니다');
 24
 25     close d_cur;
 26  end;
 27  /
```

< 19장 Sub Program 연습문제 답 >

프로시저 연습문제 1 답 :

```
SQL> CREATE OR REPLACE PROCEDURE new_man (
  2       v_empno         IN   emp.empno%TYPE,
  3       v_ename         IN   emp.ename%TYPE,
  4       v_job           IN   emp.job%TYPE,
  5       v_manager       IN   emp.mgr%TYPE,
  6       v_sal           IN   emp.sal%TYPE)
  7  IS
  8  BEGIN
  9       INSERT INTO emp(empno,ename,job,mgr,sal)
 10       VALUES(v_empno,v_ename,v_job,v_manager,v_sal);
 11  END;
 12  /
```

프로시저 연습문제 2 답:

```
SQL> CREATE OR REPLACE PROCEDURE up_comm (
  2     v_deptno   IN   emp.deptno%TYPE )
  3  IS
  4    v_comm       emp.comm%TYPE ;
  5  BEGIN
  6     IF v_deptno = 10 THEN
  7        UPDATE emp
  8        SET comm = sal*0.2
  9        WHERE deptno =v_deptno ;
 10     ELSIF v_deptno = 20 THEN
 11        UPDATE emp
 12        SET comm = sal*0.3
 13        WHERE deptno =v_deptno;
 14     ELSIF v_deptno = 30 THEN
 15        UPDATE emp
 16        SET comm = sal*0.1
 17        WHERE deptno=v_deptno;
 18     ELSE
 19        UPDATE emp
  20         SET comm = sal * 0;
  21     END IF ;
  22   END up_comm;
  23  /
```

위 예에서는 변수 2가지가 사용됩니다.
2번 줄과 4번 줄이 그 변수들입니다.
이 두 줄의 차이점은 2번 줄은 사용자에게서 값을 입력 받아 프로시져에게 전달해 주는 변수이며 4번 줄은 프로시저 실행시 프로시저 내부에서만 사용되는 변수입니다.
두 변수의 용도와 위치의 차이를 꼭 기억하세요~

프로시저 연습문제 3 답:

```
SCOTT>CREATE TABLE emp2
  2  AS
  3     SELECT * FROM EMP;

Table created.

SQL> CREATE OR REPLACE PROCEDURE del_user(
  2     v_empno   IN   emp.empno%TYPE )
  3  IS
  4  BEGIN
  5     DELETE FROM emp2   WHERE empno=v_empno;
  6  end;
  7  /
```

프로시저 연습문제 4 답 :

```
SQL > CREATE OR REPLACE PROCEDURE select_user(
  2     v_empno     IN     emp.empno%TYPE )
  3  IS
  4     v_ename            emp.ename%TYPE;
  5     v_dname            dept.dname%TYPE;
  6     v_deptno           emp.deptno%TYPE;
  7     v_sal              emp.sal%TYPE;
  8     v_comm             emp.comm%TYPE;
  9  BEGIN
 10     SELECT   e.ename, d.dname, e.sal, e.comm
 11     INTO   v_ename, v_dname, v_sal, v_comm
 12     FROM emp e, dept d
 13     WHERE empno=v_empno
 14     AND e.deptno=d.deptno;
 15     DBMS_OUTPUT.PUT_LINE('사       번:'||v_empno);
 16     DBMS_OUTPUT.PUT_LINE ('이       름:'||v_ename);
 17     DBMS_OUTPUT.PUT_LINE ('부 서 명:'||v_dname);
 18     DBMS_OUTPUT.PUT_LINE ('급       여:'||v_sal);
 19     DBMS_OUTPUT.PUT_LINE ('상 여 금:'||v_comm);
 20  END ;
 21 /
```

프로시저 연습문제 5 답:

```
create or replace procedure d_cal(i_principal number, i_interest number, i_period number) is
cnt number := 1;
month_sang_sum number;
month_sang_wongum number;
month_interest number;
left_wongum number := 1;
pay_total number;
first float := i_principal * i_interest / 12 / ( power ( 1 + i_interest / 12 , 12 * i_period) - 1);
begin
month_sang_sum := round((i_principal * i_interest / 12 + first ));
pay_total := month_sang_sum * 12;
dbms_output.put_line(' ');
dbms_output.put_line('                    ------------------------------'||'                    '||'대출금액:'||round(i_principal/10000.0,0)||'만원');
dbms_output.put_line('          |          대출  원리금  상환  계산기        |'||'        '||'대출금리:'||i_interest*100.0||'%'||'('||to_char(i_interest,'0.99')||' )');
dbms_output.put_line('          ------------------------------'||'        '||'대출기간:'||i_period||' 년('||i_period*12||'개월)');
dbms_output.put_line('================================================================================');
dbms_output.put_line('
');
dbms_output.put_line('                    총납입개월:'||i_period*12||'개월/                    '||'총납입금액:'||to_char(pay_total,'9,999,999')||'원/ ');
dbms_output.put_line('          총납입원금:'||to_char(i_principal,'9,999,999')||'원/          '||'총납입이자:'||to_char(pay_total-i_principal,'99,999')||'원');
dbms_output.put_line('--------------------------------------------------------------------------------
');
dbms_output.put_line('상환 | 월 상 환 |  월상환  | 월상환 | 미 상 환 | 월상환원리금');
dbms_output.put_line('회차 | 원리금합계 |  원 금  | 이 자 | 원리금잔액 |  누적 합계액');
dbms_output.put_line('--------------------------------------------------------------------------------
');    -- 다음 장에서 계속 됩니다
```

```
pay_total := 0;
loop
exit when left_wongum = 0;
month_sang_wongum := round(first * power ( 1 + i_interest / 12 , cnt -1 ));
month_interest := round(i_principal * i_interest /12 + first - first * power ( 1 + i_interest / 12 ,
cnt -1));
left_wongum := round(i_principal - first * (power ( 1 + i_interest / 12 , cnt) - 1) / ( i_interest /
12 ));
pay_total := pay_total + month_sang_sum;
dbms_output.put_line('*'||to_char(cnt,'09')||'       '||to_char(month_sang_sum,'999,999')||' 원   '
||to_char(month_sang_wongum,'999,999')||' 원   '
||to_char(month_interest,'999,999')||' 원     '
||to_char(left_wongum,'999,999')||' 원   '
||to_char(pay_total,'9,999,999')||' 원');
cnt := cnt + 1;
end loop;
end;
/
```