……

```
SQL> cl scr

SQL> SELECT OrdID, ProdID, Qty
  2  FROM Item;

    ORDID     PRODID        QTY
---------- ---------- ----------
       610     100890          1
       611     100861          1
       612     100860        100
       601     200376          1
       602     100870         20
       604     100890          3
       604     100861          2
       604     100860         10
       603     100860          4
       610     100860          1
       610     100870          3
       613     200376        200
       614     100860        444
       614     100870       1000
       612     100861         20
       612     101863        150
       620     100860         10

    ORDID     PRODID        QTY
---------- ---------- ----------
       620     200376       1000
       620     102130        500
       613     100871        100
       613     101860        200
       613     200380        150
       619     102130        100
       617     100860         50
       617     100861        100
       614     100871       1000
       616     100861         10
       616     100870         50
       616     100890          2
       616     102130         10
       616     200376         10
       619     200380        100
       619     200376        100
       615     100861          4
```

```
     ORDID     PRODID        QTY
---------- ---------- ----------
       607     100871          1
       615     100870        100
       617     100870        500
       617     100871        500
       617     100890        500
       617     101860        100
       617     101863        200
       617     102130        100
       617     200376        200
       617     200380        300
       609     100870          5
       609     100890          1
       618     100860         23
       618     100861         50
       618     100870         10
       621     100861         10
       621     100870        100

     ORDID     PRODID        QTY
---------- ---------- ----------
       615     100871         50
       608     101860          1
       608     100871          2
       609     100861          1
       606     102130          1
       605     100861        100
       605     100870        500
       605     100890          5
       605     101860         50
       605     101863        100
       605     102130         10
       612     100871        100
       619     100871         50

64 rows selected.

SQL> ED
Wrote file afiedt.buf

  1  SELECT DISTINCT OrdID
  2* FROM Item
```

....

```
SQL> /

     ORDID
----------
       604
       606
       614
       619
       605
       607
       608
       620
       610
       609
       613
       616
       603
       611
       615
       612
       621

     ORDID
----------
       601
       602
       617
       618

21 rows selected.

SQL> E#D
SP2-0042: unknown command "E#D" - rest of line ignored.
SQL> ED
Wrote file afiedt.buf

  1   SELECT OrdID
  2   FROM Item
  3*  GROUP BY
SQL> /
GROUP BY
        *
ERROR at line 3:
ORA-00936: missing expression
```

```
SQL> ED
Wrote file afiedt.buf

  1  SELECT OrdID
  2  FROM Item
  3* GROUP BY OrdID
SQL> /

    ORDID
----------
       601
       602
       603
       604
       605
       606
       607
       608
       609
       610
       611
       612
       613
       614
       615
       616
       617

    ORDID
----------
       618
       619
       620
       621

21 rows selected.

SQL> cl scr

SQL> ED
Wrote file afiedt.buf
```

……

```
    1   SELECT COUNT(DISTINCT OrdID)
    2*  FROM Item
SQL> /

COUNT(DISTINCTORDID)
--------------------
                  21

SQL> cl scr

SQL> SELECT ProdId, Qty
    2   FROM Item
    3   WHERE OrdID = 605
    4   /

    PRODID        QTY
---------- ----------
    100861        100
    100870        500
    100890          5
    101860         50
    101863        100
    102130         10

6 rows selected.

SQL> SELECT OrdID, ProdID, Qty
    2   FROM Item
    3   WHERE (ProdID, Qty) IN
    4    (
    5     SELECT ProdId, Qty
    6     FROM Item
    7     WHERE OrdID = 605
    8    ) AND
    9    OrdID <> 605;

     ORDID     PRODID        QTY
---------- ---------- ----------
       617     100861        100
       617     100870        500
       616     102130         10

SQL> SELECT ProdId, Qty
    2   FROM Item
```

```
  3   WHERE OrdID = 617
  4   /

    PRODID        QTY
---------- ----------
    100860         50
    100861        100
    100870        500
    100871        500
    100890        500
    101860        100
    101863        200
    102130        100
    200376        200
    200380        300

10 rows selected.

SQL> SELECT ProdId, Qty
  2   FROM Item
  3   WHERE OrdID = 605;

    PRODID        QTY
---------- ----------
    100861        100
    100870        500
    100890          5
    101860         50
    101863        100
    102130         10

6 rows selected.

SQL> SELECT  OrdID, ProdID, Qty
  2   FROM Item
  3   WHERE ProdID IN
  4   (
  5    SELECT ProdID
  6    FROM Item
  7    WHERE OrdID = 605
  8   )
  9   AND    Qty IN
 10   (
 11    SELECT Qty
```

………

```
 12    FROM Item
 13    WHERE OrdID = 605
 14    )
 15    AND OrdID <> 605;

      ORDID      PRODID        QTY
---------- ---------- ----------
       616     100861         10
       621     100861         10
       618     100861         50
       617     100861        100
       618     100870         10
       616     100870         50
       609     100870          5
       617     100870        500
       615     100870        100
       621     100870        100
       617     100890        500
       617     101860        100
       616     102130         10
       620     102130        500
       619     102130        100
       617     102130        100

16 rows selected.

SQL> cl scr

SQL> SELECT Ename, Deptno, Sal
  2    FROM Emp
  3    WHERE (Deptno, Sal) IN
  4    (
  5    SELECT Deptno, MAX(Sal)
  6    FROM Emp
  7    GROUP BY Deptno
  8    );

ENAME         DEPTNO        SAL
---------- ---------- ----------
KING              10       5000
BLAKE             30       2850
FORD              20       3000
SCOTT             20       3000
```

……

```
SQL> SELECT Ename, Deptno, Sal
  2  FROM Emp
  3  WHERE Deptno IN
  4  (
  5   SELECT Deptno
  6   FROM Emp
  7   GROUP BY Deptno
  8   ) AND
  9  Sal IN
 10   (
 11   SELECT MAX(Sal)
 12   FROM Emp
 13   GROUP BY Deptno
 14   );

ENAME            DEPTNO        SAL
---------- ---------- ----------
KING             10         5000
BLAKE            30         2850
FORD             20         3000
SCOTT            20         3000

SQL> INSERT INTO Emp(Empno, Ename, Deptno, Sal)
  2  VALUES(7935, 'SURESH', 10, 3000);

1 row created.

SQL> INSERT INTO Emp(Empno, Ename, Deptno, Sal)
  2  VALUES(7936, 'SUKESH', 10, 2850);

1 row created.

SQL> INSERT INTO Emp(Empno, Ename, Deptno, Sal)
  2  VALUES(7937, 'RUPESH', 20, 2850);

1 row created.

SQL> SELECT Ename, Deptno, Sal
  2  FROM Emp
  3  WHERE (Deptno, Sal) IN
  4    (
  5    SELECT Deptno, MAX(Sal)
  6    FROM Emp
  7    GROUP BY Deptno
```

```
    8       );

ENAME           DEPTNO        SAL
----------  ----------  ----------
KING               10       5000
BLAKE              30       2850
FORD               20       3000
SCOTT              20       3000

SQL> SELECT Ename, Deptno, Sal
  2  FROM Emp
  3  WHERE Deptno IN
  4      (
  5      SELECT Deptno
  6      FROM Emp
  7      GROUP BY Deptno
  8      ) AND
  9  Sal IN
 10      (
 11      SELECT MAX(Sal)
 12      FROM Emp
 13      GROUP BY Deptno
 14      );

ENAME           DEPTNO        SAL
----------  ----------  ----------
KING               10       5000
BLAKE              30       2850
FORD               20       3000
SCOTT              20       3000
SURESH             10       3000
SUKESH             10       2850
RUPESH             20       2850

7 rows selected.

SQL> cl scr

SQL> SELECT Ename, Deptno, Sal
  2  FROM Emp
  3  WHERE (Deptno, Sal) IN
  4   (
  5   SELECT Deptno, MIN(Sal)
  6   FROM Emp
```

```
   7    GROUP BY Deptno
   8    );

ENAME              DEPTNO         SAL
---------- ---------- ----------
JAMES                  30         950
SMITH                  20         800
MILLER                 10        1300

SQL> ROLLBACK;

Rollback complete.

SQL> ED
Wrote file afiedt.buf

   1    SELECT Ename, Deptno, Sal
   2    FROM Emp
   3    WHERE Deptno IN
   4     (
   5     SELECT Deptno
   6     FROM Emp
   7     GROUP BY Deptno
   8     ) AND
   9    Sal IN
  10     (
  11     SELECT MIN(Sal)
  12     FROM Emp
  13     GROUP BY Deptno
  14*    )
SQL> /

ENAME              DEPTNO         SAL
---------- ---------- ----------
JAMES                  30         950
SMITH                  20         800
MILLER                 10        1300

SQL> cl scr

SQL> ED
Wrote file afiedt.buf

   1    SELECT Ename, Job, Sal
```

```
  2   FROM Emp
  3   WHERE (Job, Sal) IN
  4   (
  5   SELECT Job, MIN(Sal)
  6   FROM Emp
  7   GROUP BY Job
  8*  )
SQL> /

ENAME       JOB            SAL
----------  ---------  ----------
KING        PRESIDENT      5000
CLARK       MANAGER        2450
MARTIN      SALESMAN       1250
WARD        SALESMAN       1250
FORD        ANALYST        3000
SMITH       CLERK           800
SCOTT       ANALYST        3000

7 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Job, Sal
  2   FROM Emp
  3   WHERE (Job, Sal) IN
  4   (
  5   SELECT Job, MAX(Sal)
  6   FROM Emp
  7   GROUP BY Job
  8*  )
SQL> /

ENAME       JOB            SAL
----------  ---------  ----------
KING        PRESIDENT      5000
JONES       MANAGER        2975
ALLEN       SALESMAN       1600
FORD        ANALYST        3000
SCOTT       ANALYST        3000
MILLER      CLERK          1300

6 rows selected.
```

```
SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Job, Sal
  2   FROM Emp
  3   WHERE (Job, Sal) IN
  4   (
  5   SELECT Job, AVG(Sal)
  6   FROM Emp
  7   GROUP BY Job
  8*  )
SQL> /

ENAME      JOB             SAL
---------- --------- ----------
KING       PRESIDENT      5000
FORD       ANALYST        3000
SCOTT      ANALYST        3000

SQL> ED
Wrote file afiedt.buf

  1   SELECT
  2   Ename,
  3   TO_CHAR(HireDate, 'YYYY') Year,
  4   Sal
  5   FROM Emp
  6   WHERE (TO_CHAR(HireDate, 'YYYY'), Sal) IN
  7   (
  8   SELECT TO_CHAR(HireDate, 'YYYY'), MIN(Sal)
  9   FROM Emp
 10   GROUP BY TO_CHAR(HireDate, 'YYYY')
 11*  )
SQL> /

ENAME      YEAR        SAL
---------- ---- ----------
JAMES      1981        950
SMITH      1980        800
ADAMS      1983       1100
MILLER     1982       1300

SQL> ED
```

```
Wrote file afiedt.buf

   1   SELECT
   2   Ename,
   3   TO_CHAR(HireDate, 'YYYY') Year,
   4   Sal
   5   FROM Emp
   6   WHERE (TO_CHAR(HireDate, 'YYYY'), Sal) IN
   7    (
   8    SELECT TO_CHAR(HireDate, 'YYYY'), MAX(Sal)
   9    FROM Emp
  10    GROUP BY TO_CHAR(HireDate, 'YYYY')
  11*  )
SQL> /

ENAME        YEAR        SAL
----------   ----   ----------
KING         1981        5000
SMITH        1980         800
SCOTT        1982        3000
ADAMS        1983        1100

SQL> ED
Wrote file afiedt.buf

   1   SELECT
   2   Ename,
   3   TO_CHAR(HireDate, 'YYYY') Year,
   4   TO_CHAR(HireDate, 'Month') Month,
   5   Sal
   6   FROM Emp
   7   WHERE
   8    (
   9    TO_CHAR(HireDate, 'YYYY'),
  10    TO_CHAR(HireDate, 'Month'),
  11    Sal
  12    ) IN
  13     (
  14        SELECT
  15        TO_CHAR(HireDate, 'YYYY'),
  16        TO_CHAR(HireDate, 'Month'),
  17        MAX(Sal)
  18        FROM Emp
  19        GROUP BY
```

```
 20          TO_CHAR(HireDate, 'YYYY'),
 21          TO_CHAR(HireDate, 'Month')
 22*         )
SQL> /

ENAME       YEAR MONTH                                   SAL
---------- ---- ------------------------------------- ----------
KING        1981 November                              5000
BLAKE       1981 May                                   2850
CLARK       1981 June                                  2450
JONES       1981 April                                 2975
ALLEN       1981 February                              1600
TURNER      1981 September                             1500
FORD        1981 December                              3000
SMITH       1980 December                               800
SCOTT       1982 December                              3000
ADAMS       1983 January                               1100
MILLER      1982 January                               1300

11 rows selected.

SQL> cl scr

SQL> SELECT Empno, Ename, Deptno, Sal, Comm
  2  FROM Emp
  3  WHERE Comm = NULL;

no rows selected

SQL> cl scr

SQL> SELECT Empno, Ename, MGR
  2  FROM Emp
  3  /

    EMPNO ENAME             MGR
--------- ---------- ----------
     7839 KING
     7698 BLAKE            7839
     7782 CLARK            7839
     7566 JONES            7839
     7654 MARTIN           7698
     7499 ALLEN            7698
     7844 TURNER           7698
```

SkyEss Techno Solutions Pvt. Ltd.
Flat No. 201, II Floor, Abhilash Towers, BK Guda, Hyderabad – 500 038
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```
      7900 JAMES              7698
      7521 WARD               7698
      7902 FORD               7566
      7369 SMITH              7902
      7788 SCOTT              7566
      7876 ADAMS              7788
      7934 MILLER             7782

14 rows selected.

SQL> SELECT DISTINCT MGR
  2  FROM Emp;

       MGR
----------

      7839
      7782
      7698
      7902
      7566
      7788

7 rows selected.

SQL> ED
Wrote file afiedt.buf

  1  SELECT Empno, Ename, MGR
  2  FROM Emp
  3* WHERE MGR IN(7839, 7782, 7698, 7902, 7566, 7788)
SQL> /

     EMPNO ENAME               MGR
---------- ---------- ----------
      7698 BLAKE             7839
      7782 CLARK             7839
      7566 JONES             7839
      7654 MARTIN            7698
      7499 ALLEN             7698
      7844 TURNER            7698
      7900 JAMES             7698
      7521 WARD              7698
      7902 FORD              7566
```

```
        7369 SMITH                7902
        7788 SCOTT                7566
        7876 ADAMS                7788
        7934 MILLER               7782

13 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Empno, Ename, MGR
  2   FROM Emp
  3*  WHERE MGR IN(7839, 7782, 7698)
SQL> /

     EMPNO ENAME            MGR
---------- ---------- ----------
      7698 BLAKE           7839
      7782 CLARK           7839
      7566 JONES           7839
      7654 MARTIN          7698
      7499 ALLEN           7698
      7844 TURNER          7698
      7900 JAMES           7698
      7521 WARD            7698
      7934 MILLER          7782

9 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Empno, Ename, MGR
  2   FROM Emp
  3*  WHERE MGR NOT IN(7839, 7782, 7698)
SQL> /

     EMPNO ENAME            MGR
---------- ---------- ----------
      7902 FORD            7566
      7369 SMITH           7902
      7788 SCOTT           7566
      7876 ADAMS           7788
```

```
SQL> ED
Wrote file afiedt.buf

  1   SELECT Empno, Ename, MGR
  2   FROM Emp
  3*  WHERE MGR IN(7839, 7782, 7698, NULL)
SQL> /

     EMPNO ENAME            MGR
---------- ---------- ----------
      7698 BLAKE           7839
      7782 CLARK           7839
      7566 JONES           7839
      7654 MARTIN          7698
      7499 ALLEN           7698
      7844 TURNER          7698
      7900 JAMES           7698
      7521 WARD            7698
      7934 MILLER          7782

9 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Empno, Ename, MGR
  2   FROM Emp
  3*  WHERE MGR NOT IN(7839, 7782, 7698, NULL)
SQL> /

no rows selected

SQL> cl scr

SQL> SELECT Ename, Sal, Comm
  2   FROM Emp;

ENAME           SAL       COMM
---------- ---------- ----------
KING           5000
BLAKE          2850
CLARK          2450
JONES          2975
MARTIN         1250       1400
```

```
    ALLEN               1600            300
    TURNER              1500              0
    JAMES                950
    WARD                1250            500
    FORD                3000
    SMITH                800
    SCOTT               3000
    ADAMS               1100
    MILLER              1300

14 rows selected.

SQL> SELECT Ename, Sal, Comm
  2  FROM Emp
  3  WHERE Comm IN(1400, 300, 0, 500);

ENAME               SAL       COMM
----------  ----------  ----------
MARTIN             1250       1400
ALLEN              1600        300
TURNER             1500          0
WARD               1250        500

SQL> ED
Wrote file afiedt.buf

  1  SELECT Ename, Sal, Comm
  2  FROM Emp
  3* WHERE Comm IN(1400, 300)
SQL> /

ENAME               SAL       COMM
----------  ----------  ----------
MARTIN             1250       1400
ALLEN              1600        300

SQL> ED
Wrote file afiedt.buf

  1  SELECT Ename, Sal, Comm
  2  FROM Emp
  3* WHERE Comm NOT IN(1400, 300)
SQL> /
```

....

```
ENAME            SAL        COMM
---------- ---------- ----------
TURNER          1500           0
WARD            1250         500

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3*  WHERE Comm IN(1400, 300, NULL)
SQL> /

ENAME            SAL        COMM
---------- ---------- ----------
MARTIN          1250        1400
ALLEN           1600         300

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3*  WHERE Comm NOT IN(1400, 300, NULL)
SQL> /

no rows selected

SQL> cl scr

SQL> SELECT E.Ename
  2   FROM Emp E
  3   WHERE E.Empno IN
  4   (
  5    SELECT M.Mgr
  6    FROM Emp M
  7   );

ENAME
----------
KING
BLAKE
JONES
FORD
```

```
SCOTT
CLARK

6 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT E.Ename
  2   FROM Emp E
  3   WHERE E.Empno NOT IN
  4   (
  5    SELECT M.Mgr
  6    FROM Emp M
  7*  )
SQL> /

no rows selected

SQL> ED
Wrote file afiedt.buf

  1   SELECT E.Ename
  2   FROM Emp E
  3   WHERE E.Empno NOT IN
  4   (
  5    SELECT NVL(M.Mgr, 0)
  6    FROM Emp M
  7*  )
SQL> /

ENAME
----------
TURNER
WARD
MARTIN
ALLEN
MILLER
SMITH
ADAMS
JAMES

8 rows selected.
```

……

```
SQL> ED
Wrote file afiedt.buf

  1   SELECT E.Ename
  2   FROM Emp E
  3   WHERE E.Empno NOT IN
  4    (
  5    SELECT M.Mgr
  6    FROM Emp M
  7    WHERE MGR IS NOT NULL
  8*  )
SQL> /

ENAME
----------
TURNER
WARD
MARTIN
ALLEN
MILLER
SMITH
ADAMS
JAMES

8 rows selected.

SQL> cl scr

SQL> SELECT Ename, Sal, Comm
  2  FROM Emp;

ENAME            SAL        COMM
---------- ---------- ----------
KING            5000
BLAKE           2850
CLARK           2450
JONES           2975
MARTIN          1250        1400
ALLEN           1600         300
TURNER          1500           0
JAMES            950
WARD            1250         500
FORD            3000
SMITH            800
```

```
SCOTT              3000
ADAMS              1100
MILLER             1300

14 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3*  WHERE Comm IS NOT NULL
SQL> /

ENAME              SAL       COMM
---------- ---------- ----------
MARTIN             1250       1400
ALLEN              1600        300
TURNER             1500          0
WARD               1250        500

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3   WHERE Comm IN
  4   (
  5    SELECT Comm
  6    FROM Emp
  7*  )
SQL> /

ENAME              SAL       COMM
---------- ---------- ----------
MARTIN             1250       1400
ALLEN              1600        300
TURNER             1500          0
WARD               1250        500

SQL> SELECT Ename, Sal, Comm
  2   FROM Emp
  3   WHERE Comm IS NULL
  4   /
```

```
ENAME              SAL        COMM
---------- ---------- ----------
KING              5000
BLAKE             2850
CLARK             2450
JONES             2975
JAMES              950
FORD              3000
SMITH              800
SCOTT             3000
ADAMS             1100
MILLER            1300

10 rows selected.

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3   WHERE Comm NOT IN
  4      (
  5      SELECT Comm
  6      FROM Emp
  7*     )
SQL> /

no rows selected

SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3   WHERE Comm NOT IN
  4      (
  5      SELECT NVL(Comm, 0)
  6      FROM Emp
  7*     )
SQL> /

no rows selected
```

```
SQL> ED
Wrote file afiedt.buf

  1   SELECT Ename, Sal, Comm
  2   FROM Emp
  3   WHERE Comm NOT IN
  4      (
  5      SELECT Comm
  6      FROM Emp
  7      WHERE Comm IS NOT NULL
  8*     )
SQL> /

no rows selected

SQL> cl scr

SQL>
SQL> SELECT *
  2   FROM Dept;

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

SQL> ED
Wrote file afiedt.buf

  1   SELECT *
  2   FROM
  3   (
  4    SELECT *
  5    FROM Dept
  6*  )
SQL> /

    DEPTNO DNAME          LOC
---------- -------------- -------------
        10 ACCOUNTING     NEW YORK
        20 RESEARCH       DALLAS
        30 SALES          CHICAGO
```

....

```
        40 OPERATIONS     BOSTON

SQL> ED
Wrote file afiedt.buf

  1  SELECT *
  2  FROM
  3  (
  4  SELECT Deptno, Dname
  5  FROM Dept
  6* )
SQL> /

    DEPTNO DNAME
---------- --------------
        10 ACCOUNTING
        20 RESEARCH
        30 SALES
        40 OPERATIONS

SQL> SPOOL OFF
```