```
SQL> conn system
Enter password:
Connected.
SQL> grant all privileges to test_21051232;

Grant succeeded.

SQL> conn test_21051232
Enter password:
Connected.
```

```
Connected.
SQL> create table employee(empno number(4,0) primary key,ename varchar2(10) not null,job varchar2(9) not null,mgr number(4,0),hiredate date,sal number(7,2),comm number(7,2),deptno number(2,0));

Table created.

SQL> create table department(deptno number9(2,0) primary key,dname varchar2(20),loc varchar2(20));
create table department(deptno number9(2,0) primary key,dname varchar2(20),loc varchar2(20))
                                     *
ERROR at line 1:
ORA-00907: missing right parenthesis

SQL> create table department(deptno number (2,0) primary key,dname varchar2(20),loc varchar2(20));

Table created.

SQL> alter table employee add constraint foreign key (deptno) references to department(deptno);
alter table employee add constraint foreign key (deptno) references to department(deptno)
                                                                      *
ERROR at line 1:
ORA-00902: invalid datatype

SQL> alter table employee add constraint foreign key (deptno) references department(deptno);
alter table employee add constraint foreign key (deptno) references department(deptno)
                                                                   *
ERROR at line 1:
ORA-00902: invalid datatype

SQL> alter table employee add constraint c1 foreign key (deptno) references department(deptno);

Table altered.
```

```
SQL> insert into department values(10,'Accounting','New York');

1 row created.

SQL> insert into department values(20,'Research','Dallas');

1 row created.

SQL> insert into department values(20,'Sales','Chicago');
insert into department values(20,'Sales','Chicago')
*
ERROR at line 1:
ORA-00001: unique constraint (TEST_21051232.SYS_C007699) violated


SQL> insert into department values(30,'Sales','Chicago');

1 row created.

SQL> insert into department values(40,'Operations','Boston');

1 row created.

SQL> insert into employee values(7369,'Smith','Clerk',7902,'17-dec-1980',800,,20);
insert into employee values(7369,'Smith','Clerk',7902,'17-dec-1980',800,,20)
                                                                          *
ERROR at line 1:
ORA-00936: missing expression

SQL> insert into employee values(7369,'Smith','Clerk',7902,'17-dec-1980',800,null,20);

1 row created.

SQL> insert into employee values(7499,'Allen','Salesman',7698,'20-feb-1981',1600,300,30);

1 row created.

SQL> insert into employee values(7521,'Ward','Salesman',7698,'22-feb-1981',1250,500,30);

1 row created.

SQL> insert into employee values(7566,'Jones','Manager',7839,'2-apr-1981',2975,null,20);

1 row created.
```

```
SQL> insert into employee values(7499,'Allen','Salesman',7698,'20-feb-1981',1600,300,30);

1 row created.

SQL> insert into employee values(7521,'Ward','Salesman',7698,'22-feb-1981',1250,500,30);

1 row created.

SQL> insert into employee values(7566,'Jones','Manager',7839,'2-apr-1981',2975,null,20);

1 row created.

SQL> insert into employee values(7654,'Martin','Salesman',7698,'28-sep-1981',1250,1400,30);

1 row created.

SQL> insert into employee values(7698,'Blake','Manger',7839,'01-may-1981',2850,null,30);

1 row created.

SQL> insert into employee values(7782,'Clark','Manger',7839,'09-jun-1981',2450,null,10);

1 row created.

SQL> insert into employee values(7788,'Scott','Analyst',7566,'19-apr-1987',3000,null,20);

1 row created.

SQL> insert into employee values(7839,'King','President',null,'17-nov-1981',5000,null,10);

1 row created.

SQL> insert into employee values(7844,'Turner','Salesman',7698,'08-sep-1981',1500,0,30);

1 row created.

SQL> insert into employee values(7876,'Adams','Clerk',7788,'23-may-1987',1100,null,20);

1 row created.

SQL> insert into employee values(7900,'James','Clerk',7698,'3-dec-1981',950,null,30);

1 row created.

SQL> insert into employee values(7902,'Ford','Analyst',7566,'3-dec-1981',3000,null,20);

1 row created.
```

```
SQL> insert into employee values(7844,'Turner','Salesman',7698,'08-sep-1981',1500,0,30);

1 row created.

SQL> insert into employee values(7876,'Adams','Clerk',7788,'23-may-1987',1100,null,20);

1 row created.

SQL> insert into employee values(7900,'James','Clerk',7698,'3-dec-1981',950,null,30);

1 row created.

SQL> insert into employee values(7902,'Ford','Analyst',7566,'3-dec-1981',3000,null,20);

1 row created.

SQL>
SQL> insert into employee values(7934,'Miller','Clerk',7782,'23-jan-1982',1300,null,10);

1 row created.

SQL> select * from employee;

     EMPNO ENAME      JOB           MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7369 Smith      Clerk          7902 17-DEC-80        800
        20

      7499 Allen      Salesman       7698 20-FEB-81       1600        300
        30

      7521 Ward       Salesman       7698 22-FEB-81       1250        500
        30


     EMPNO ENAME      JOB           MGR HIREDATE         SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7566 Jones      Manager        7839 02-APR-81       2975
        20

      7654 Martin     Salesman       7698 28-SEP-81       1250       1400
        30

      7698 Blake      Manger         7839 01-MAY-81       2850
        30
```

```
     EMPNO ENAME      JOB            MGR HIREDATE        SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7782 Clark      Manger        7839 09-JUN-81       2450
        10

      7788 Scott      Analyst       7566 19-APR-87       3000
        20

      7839 King       President          17-NOV-81       5000
        10


     EMPNO ENAME      JOB            MGR HIREDATE        SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7844 Turner     Salesman      7698 08-SEP-81       1500          0
        30

      7876 Adams      Clerk         7788 23-MAY-87       1100
        20

      7900 James      Clerk         7698 03-DEC-81        950
        30


     EMPNO ENAME      JOB            MGR HIREDATE        SAL       COMM
---------- ---------- --------- ---------- --------- ---------- ----------
    DEPTNO
----------
      7902 Ford       Analyst       7566 03-DEC-81       3000
        20

      7934 Miller     Clerk         7782 23-JAN-82       1300
        10


14 rows selected.

SQL> select * from department;

    DEPTNO DNAME                LOC
---------- -------------------- --------------------
        10 Accounting           New York
        20 Research             Dallas
        30 Sales                Chicago
        40 Operations           Boston
```

```
SQL> select Ename from employee where deptno =any(select deptno from department where loc not in 'Boston');

ENAME
----------
Smith
Allen
Ward
Jones
Martin
Blake
Clark
Scott
King
Turner
Adams

ENAME
----------
James
Ford
Miller

14 rows selected.

SQL> select ename from employee where sal>(select avg(sal) from employee);

ENAME
----------
Jones
Blake
Clark
Scott
King
Ford

6 rows selected.
```

```
Martin
Turner

SQL> select ename from employee where job='Salesman'or job='Operations';

ENAME
----------
Allen
Ward
Martin
Turner

SQL> select ename from employee where job='Salesman'or (select ename from employee where deptno=any(sele
eptno from department where dname= operations')),```
                                                     *
ERROR at line 1:
ORA-00936: missing expression


SQL> select ename ,deptno from employee where deptno in (10,30) order by ename;

ENAME        DEPTNO
---------- ----------
Allen            30
Blake            30
Clark            10
James            30
King             10
Martin           30
Miller           10
Turner           30
Ward             30

9 rows selected.

SQL>
SQL> select ename,dname from employee natural join department where mgr=7839;

ENAME        DNAME
---------- --------------------
Clark        Accounting
Jones        Research
Blake        Sales

SQL> select ename from employee natural join department where job='Salesman' or dname='operations';

ENAME
----------
Allen
Ward
Martin
Turner


SQL> select job from employee natural join department where deptno=30;

JOB
---------
Salesman
Salesman
Salesman
Manger
Salesman
Clerk

6 rows selected.
```

```
SQL> select ename ,sal,(sal+1000) as new salary from employee;
select ename ,sal,(sal+1000) as new salary from employee
                                         *
ERROR at line 1:
ORA-00923: FROM keyword not found where expected


SQL> select ename ,sal,(sal+1000) as new_salary from employee;

ENAME             SAL NEW_SALARY
---------- ---------- ----------
Smith             800       1800
Allen            1600       2600
Ward             1250       2250
Jones            2975       3975
Martin           1250       2250
Blake            2850       3850
Clark            2450       3450
Scott            3000       4000
King             5000       6000
Turner           1500       2500
Adams            1100       2100

ENAME             SAL NEW_SALARY
---------- ---------- ----------
James             950       1950
Ford             3000       4000
Miller           1300       2300

14 rows selected.

SQL>
```
```
SQL> select avg(sal) from employee group by deptno;

  AVG(SAL)
----------
1566.66667
      2175
2916.66667

SQL>
```