```
CREATE TABLE departments
    ( department_id
                       NUMBER(4)
    , department_name VARCHAR2(30)
        CONSTRAINT dept name nn NOT NULL
    , manager_id
                       NUMBER(6)
    , location_id
                       NUMBER(4)
    );
ALTER TABLE departments
ADD ( CONSTRAINT dept_id_pk
                 PRIMARY KEY (department_id)
     );
CREATE TABLE employees
    ( employee id
                     NUMBER(6)
    , first_name
                     VARCHAR2(20)
    , last_name
                     VARCHAR2(25)
         CONSTRAINT
                        emp last name nn NOT NULL
     email
                     VARCHAR2(25)
        CONSTRAINT
                       emp_email_nn NOT NULL
      phone number
                     VARCHAR2(20)
     hire date
                     DATE
                       emp_hire_date_nn NOT NULL
        CONSTRAINT
                     VARCHAR2(10)
     job_id
        CONSTRAINT
                       emp_job_nn NOT NULL
    , salary
                     NUMBER(8,2)
    , commission_pct NUMBER(2,2)
    , manager_id
                     NUMBER(6)
                     NUMBER(4)
    , department_id
    , CONSTRAINT
                     emp_salary_min
                     CHECK (salary > 0)
    , CONSTRAINT
                     emp email uk
                     UNIQUE (email)
    );
ALTER TABLE employees
ADD ( CONSTRAINT
                     emp_emp_id_pk
                     PRIMARY KEY (employee_id)
                     emp_dept_fk
    , CONSTRAINT
                     FOREIGN KEY (department_id)
                      REFERENCES departments
                     emp_manager_fk
    , CONSTRAINT
                     FOREIGN KEY (manager_id)
                      REFERENCES employees
    );
CREATE TABLE job grades
                CHAR(1)
    ( grade
    , lowest sal NUMBER(5)
        CONSTRAINT low sal nn NOT NULL
                       NUMBER(5)
    , highest sal
        CONSTRAINT high sal nn NOT NULL
    );
ALTER TABLE job_grades
ADD ( CONSTRAINT grade pk
                 PRIMARY KEY (grade)
     );
INSERT INTO departments VALUES
        ( 10
          'Administration'
          200
          1700
```

```
INSERT INTO departments VALUES
        ( 20
          'Marketing'
        , 201
        , 1800
        );
INSERT INTO departments VALUES
        ( 50
        , 'Shipping'
        , 121
        , 1500
        );
INSERT INTO departments VALUES
        (60
        , 'IT'
        , 103
        , 1400
        );
INSERT INTO departments VALUES
        (80
        , 'Sales'
        , 145
        , 2500
        );
INSERT INTO departments VALUES
        ( 90
          'Executive'
        , 100
        , 1700
        );
INSERT INTO departments VALUES
        ( 100
        , 'Finance'
        , 108
        , 1700
        );
INSERT INTO departments VALUES
        (110
        , 'Accounting'
        , 205
        , 1700
        );
INSERT INTO departments VALUES
        (190
        , 'Contracting'
        , NULL
       , 1700
);
COMMIT;
INSERT INTO employees VALUES
        ( 100
          'Steven'
        , 'King'
          'SKING'
         '515.123.4567'
        , TO_DATE('17-JUN-1987', 'dd-MON-yyyy')
         'AD_PRES'
          24000
```

```
, NULL
          NULL
          90
        );
INSERT INTO employees VALUES
        ( 100
          'Steven'
          'King'
          'SKING'
          '515.123.4567'
        , TO DATE('17-JUN-1987', 'dd-MON-yyyy')
          'AD_PRES'
          24000
          NULL
        , NULL
          90
        );
INSERT INTO employees VALUES
        ( 100
          'Steven'
          'King'
          'SKING'
          '515.123.4567'
          TO DATE('17-JUN-1987', 'dd-MON-yyyy')
          'AD PRES'
          24000
          NULL
          NULL
          90
        );
select * from departments ;
select * from employees;
select employee_id, first_name, last_name,department_id from employees;
EMPLOYEE_ID
                 FIRST NAME
                                  LAST NAME
                                                   DEPARTMENT ID
100
                         Steven King
101
                         Neena
                                          Kochhar 90
102
                         Lex
                                          De Haan 90
103
                         Alexander
                                          Hunold 60
                         Bruce
                                          Ernst
                                                           60
104
105
                         David
                                          Austin 60
                         Valli
                                          Pataballa
                                                           60
106
                         Diana
                                          Lorentz 60
107
                         Kevin
                                          Mourgos 50
124
                         Trenna Rajs
141
                                                   50
                         Curtis Davies
142
                                          50
                         Randall Matos
143
                                                   50
                         Peter
144
                                          Vargas
                                                   50
                         Eleni
                                          Zlotkey 80
149
174
                         Ellen
                                          Abel
                                                           80
176
                         Jonathon
                                          Taylor
                                                   80
178
                         Kimberely
                                          Grant
200
                         Jennifer
                                          Whalen
                                                   10
201
                         Michael Hartstein
                                                   20
202
                         Pat
                                                           20
                                          Fay
205
                         Shelley Higgins 110
206
                         William Gietz
                                                   110
select distinct(salary) from employees;
SALARY
4200
3100
```

10500 7000

8300

6000

2500

11000 17000

12000

24000

5800

3500

8600

13000

SELECT employee id, department id from employees where first NAME='Steven' AND Last NAME='King'

EMPLOYEE_ID DEPARTMENT_ID

100 90

SELECT last_name, salary, department_id from employees where department_id=60 and salary=4800;

LAST_NAME SALARY DEPARTMENT_ID
Austin 4800 60

Pataballa 4800 60

SELECT employee_id, first_name,salary,department_id from employees where salary>15000 or department id=110;

EMPLOYEE_ID FIRST NAME **SALARY** DEPARTMENT_ID 100 Steven 24000 90 101 Neena 17000 90 102 Lex 17000 90 205 Shelley 12000 110 206 William 8300 110

SELECT * from employees where department_id!=60

E_ID	FIRST_N	AME	LAST_NA	ME	EMAIL	PHONE_N	UMBER	HIRE_DA	TE	JOB_ID	
COMMISS	ION_PCT	MANAGER	_ID	DEPARTM	ENT_ID						
Steven	King	SKING	515.123	.4567	17-JUN-	87	AD_PRES	24000	-	-	90
Neena	Kochhar	NKOCHHAI	R	515.123	.4568	21-SEP-	89	AD_VP	17000	-	
90											
Lex	De Haan	LDEHAAN	515.123	.4569	13-JAN-	93	AD_VP	17000	-	100	90
Kevin	Mourgos	KMOURGO:	S	650.123	.5234	16-NOV-	99	ST_MAN	5800	-	
50											
Trenna	Rajs	TRAJS	650.121	.8009	17-0CT-	95	ST_CLER	K	3500	-	
50											
Curtis	Davies	CDAVIES	650.121	.2994	29-JAN-	97	ST_CLER	(3100	-	
50											
Randall	Matos	RMATOS	650.121	.2874	15-MAR-	98	ST_CLER	K	2600	-	
50											
Peter	Vargas	PVARGAS	650.121	.2004	09-JUL-	98	ST_CLER	K	2500	-	
50											
Eleni	Zlotkey	EZLOTKE,	Υ	011.44.3	1344.429	018	29-JAN-	90	SA_MAN	10500	.2
80											
Ellen	Abel	EABEL	011.44.	1644.4292	267	11-MAY-	96	SA_REP	11000	.3	
80											
Jonatho	n	Taylor	JTAYLOR	011.44.3	1644.429	265	24-MAR-	98	SA_REP	8600	.2
80											
	Steven Neena 90 Lex Kevin 50 Trenna 50 Curtis 50 Randall 50 Peter 50 Eleni 80 Ellen 80 Jonatho	COMMISSION_PCT Steven King Neena Kochhar 90 Lex De Haan Kevin Mourgos 50 Trenna Rajs 50 Curtis Davies 50 Randall Matos 50 Peter Vargas 50 Eleni Zlotkey 80 Ellen Abel 80 Jonathon	COMMISSION_PCT MANAGER Steven King SKING Neena Kochhar NKOCHHAI 90 Lex De Haan LDEHAAN Kevin Mourgos KMOURGOS 50 Trenna Rajs TRAJS 50 Curtis Davies CDAVIES 50 Randall Matos RMATOS 50 Peter Vargas PVARGAS 50 Eleni Zlotkey EZLOTKES 80 Ellen Abel EABEL 80 Jonathon Taylor	COMMISSION_PCT MANAGER_ID Steven King SKING 515.123 Neena Kochhar NKOCHHAR 90 Lex De Haan LDEHAAN 515.123 Kevin Mourgos KMOURGOS 50 Trenna Rajs TRAJS 650.121 50 Curtis Davies CDAVIES 650.121 50 Randall Matos RMATOS 650.121 50 Peter Vargas PVARGAS 650.121 50 Eleni Zlotkey EZLOTKEY 80 Ellen Abel EABEL 011.44. 80 Jonathon Taylor JTAYLOR	COMMISSION_PCT MANAGER_ID DEPARTM Steven King SKING 515.123.4567 Neena Kochhar NKOCHHAR 515.123 90 Lex De Haan LDEHAAN 515.123.4569 Kevin Mourgos KMOURGOS 650.123 50 Trenna Rajs TRAJS 650.121.8009 50 Curtis Davies CDAVIES 650.121.2994 50 Randall Matos RMATOS 650.121.2874 50 Peter Vargas PVARGAS 650.121.2004 50 Eleni Zlotkey EZLOTKEY 011.44.3 80 Ellen Abel EABEL 011.44.1644.429 80 Jonathon Taylor JTAYLOR 011.44.3	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-Neena Neena Kochhar NKOCHHAR 515.123.4568 90 Lex De Haan LDEHAAN 515.123.4569 13-JAN-Kevin Mourgos 650.123.5234 50 Trenna Rajs TRAJS 650.121.8009 17-OCT-50 Curtis Davies CDAVIES 650.121.2994 29-JAN-50 Randall Matos RMATOS 650.121.2874 15-MAR-50 Peter Vargas PVARGAS 650.121.2004 09-JUL-50 Eleni Zlotkey EZLOTKEY 011.44.1344.429 80 Ellen Abel EABEL 011.44.1644.429267 80 Jonathon Taylor JTAYLOR 011.44.1644.429267	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-87 Neena Kochhar NKOCHHAR 515.123.4568 21-SEP- 90 Lex De Haan LDEHAAN 515.123.4569 13-JAN-93 Kevin Mourgos KMOURGOS 650.123.5234 16-NOV- 50 Trenna Rajs TRAJS 650.121.8009 17-OCT-95 50 Curtis Davies CDAVIES 650.121.2994 29-JAN-97 50 Randall Matos RMATOS 650.121.2874 15-MAR-98 50 Peter Vargas PVARGAS 650.121.2004 09-JUL-98 50 Eleni Zlotkey EZLOTKEY 011.44.1344.429018 80 Ellen Abel EABEL 011.44.1644.429267 11-MAY- 80 Jonathon Taylor JTAYLOR 011.44.1644.429265	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-87 AD_PRES Neena Kochhar NKOCHHAR 515.123.4568 21-SEP-89 90 Lex De Haan LDEHAAN 515.123.4569 13-JAN-93 AD_VP Kevin Mourgos KMOURGOS 650.123.5234 16-NOV-99 50 Trenna Rajs TRAJS 650.121.8009 17-OCT-95 ST_CLERN 50 Curtis Davies CDAVIES 650.121.2994 29-JAN-97 ST_CLERN 50 Randall Matos RMATOS 650.121.2874 15-MAR-98 ST_CLERN 50 Peter Vargas PVARGAS 650.121.2004 09-JUL-98 ST_CLERN 50 Eleni Zlotkey EZLOTKEY 011.44.1344.429018 29-JAN-680 Ellen Abel EABEL 011.44.1644.429267 11-MAY-96 80 Jonathon Taylor JTAYLOR 011.44.1644.429265 24-MAR-580	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-87 AD_PRES 24000 Neena KOChHAR 515.123.4568 21-SEP-89 AD_VP 90 Lex De Haan LDEHAAN 515.123.4569 13-JAN-93 AD_VP 17000 Kevin Mourgos KMOURGOS 650.123.5234 16-NOV-99 ST_MAN 50 Curtis Davies CDAVIES 650.121.8009 17-OCT-95 ST_CLERK 50 Randall Matos RMATOS 650.121.2874 15-MAR-98 ST_CLERK 50 Peter Vargas PVARGAS 650.121.2004 09-JUL-98	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-87 AD_PRES 24000 - Neena Kochhar NKOCHHAR 515.123.4569 13-JAN-93 AD_VP 17000 - Mevin Mourgos KMOURGOS 650.123.5234 16-NOV-99 ST_MAN 5800 Trenna Rajs TRAJS 650.121.8009 17-OCT-95 ST_CLERK 3500 Curtis Davies CDAVIES 650.121.2994 29-JAN-97 ST_CLERK 3100 S0 Randall Matos RMATOS 650.121.2874 15-MAR-98 ST_CLERK 2600 Peter Vargas PVARGAS 650.121.2004 09-JUL-98 ST_CLERK 2500 Eleni Zlotkey EZLOTKEY 011.44.1644.429267 11-MAY-96 SA_REP 11000 80 Jonathon Taylor JTAYLOR 011.44.1644.429265 24-MAR-98 SA_REP	COMMISSION_PCT MANAGER_ID DEPARTMENT_ID Steven King SKING 515.123.4567 17-JUN-87 AD_PRES 24000 - - Neena Kochhar NKOCHHAR 515.123.4568 21-SEP-89 AD_VP 17000 - 90 Lex De Haan LDEHAAN 515.123.4569 13-JAN-93 AD_VP 17000 - 100 Kevin Mourgos KMOURGOS 650.123.5234 16-NOV-99 ST_MAN 5800 - 50 Trenna Rajs TRAJS 650.121.8009 17-OCT-95 ST_CLERK 3500 - 50 Curtis Davies CDAVIES 650.121.2994 29-JAN-97 ST_CLERK 3100 - 50 Randall Matos RMATOS 650.121.2874 15-MAR-98 ST_CLERK 2600 - 50 Peter Vargas PVARGAS 650.121.2004 09-JUL-98 ST_CLERK 2500 - 80 Tellinia

```
200
                        Whalen JWHALEN 515.123.4444
                                                          17-SEP-87
                                                                           AD ASST 4400
        Jennifer
101
        10
                                 MHARTSTE
201
        Michael Hartstein
                                                 515.123.5555
                                                                  17-FEB-96
                                                                                           13000
                                                                                   MK_MAN
100
        20
                        PFAY
                                 603.123.6666
                                                  17-AUG-97
                                                                  MK_REP
                                                                          6000
                                                                                            201
                                                                                                    20
202
        Pat
                Fay
                                                          07-JUN-94
205
        Shelley Higgins SHIGGINS
                                         515.123.8080
                                                                           AC_MGR
                                                                                   12000
101
206
                        WGIETZ 515.123.8181
                                                 07-JUN-94
                                                                  AC_ACCOUNT
        William Gietz
                                                                                   8300
205
        110
```

```
Select Last NAME, SALARY, SALARY+300 from employees;
LAST NAME
                 SALARY SALARY+300
King
                 24300
        24000
Kochhar 17000
                 17300
                 17300
De Haan 17000
Hunold 9000
                 9300
Ernst
        6000
                 6300
Austin 4800
                 5100
Pataballa
                 4800
                         5100
Lorentz 4200
                 4500
Mourgos 5800
                 6100
Rajs
        3500
                 3800
Davies
        3100
                 3400
Matos
        2600
                 2900
Vargas
        2500
                 2800
Zlotkey 10500
                 10800
Abel
        11000
                 11300
Taylor
        8600
                 8900
Grant
        7000
                 7300
Whalen 4400
                 4700
Hartstein
                 13000
                         13300
        6000
                 6300
Fay
Higgins 12000
                 12300
Gietz
        8300
                 8600
```

```
Select Last_NAME,SALARY*.2 from employees;
                          SALARY*.2
LAST NAME
                          4800
King
Kochhar
                 3400
De Haan
                 3400
                 1800
Hunold
                          1200
Ernst
                 960
Austin
                          960
Pataballa
                 840
Lorentz
Mourgos
                 1160
                          700
Rajs
Davies
                 620
Matos
                          520
Vargas
                 500
Zlotkey
                 2100
Abel
                          2200
Taylor
                 1720
Grant
                          1400
                 880
Whalen
                          2600
Hartstein
                          1200
Fay
                 2400
Higgins
                          1660
Gietz
```

```
Select Last_name as name, manager_id as MGR_ID from employees where department_id=60; NAME MGR_ID
```

Hunold 102

Ernst 103

```
Austin 103
```

Pataballa

Lorentz 103

Select Last_NAME || First_NAME as name from EMPLOYEEs;

103

NAME

KingSteven

KochharNeena

De HaanLex

HunoldAlexander

ErnstBruce

AustinDavid

PataballaValli

LorentzDiana

MourgosKevin

RajsTrenna

DaviesCurtis

MatosRandall

VargasPeter

ZlotkeyEleni

AbelEllen

TaylorJonathon

GrantKimberely

WhalenJennifer

HartsteinMichael

FayPat

HigginsShelley

GietzWilliam

SELECT last_name, first_name, manager_id FROM employees where manager_id is Null;

LAST_NAME FIRST_NAME MANAGER_ID

King Steven -

SELECT last_name, first_name, manager_id FROM employees where manager_id is not Null;

LAST_NAM	1E	FIRST_NA	AME	MANAGER_ID
Kochhar	Neena		100	
De Haan	Lex		100	
Hunold	Alexande	er	102	
Ernst		Bruce		103
Austin	David		103	
Patabal:	la	Valli		103
Lorentz	Diana		103	
Mourgos	Kevin		100	
Rajs		Trenna	124	
Davies	Curtis	124		
Matos		Randall	124	
Vargas	Peter		124	
Zlotkey	Eleni		100	
Abel		Ellen		149
Taylor	Jonathor	ı	1 49	
Grant		Kimbere:	ly	149
Whalen	Jennifer	n	101	
Hartste:	in	Michael	100	
Fay		Pat		201

SELECT last_name, salary FROM employees WHERE salary <= 3000;</pre>

LAST_NAME SALARY

Matos 2600

Vargas 2500

SELECT BDATE, ADDRESS FROM EMPLOYEE

```
WHERE FNAME=♦John♦
Higgins Shelley 101
        William 205
Gietz
SELECT employee_id,job_id FROM EMPLOYEEs WHERE First_name='David' ;
EMPLOYEE_ID
                JOB_ID
105
                         IT_PROG
Select First_name,Last_name from employees where first_name like 'J%';
FIRST NAME
                LAST NAME
Jonathon
                Taylor
Jennifer
                Whalen
select first name, hire Date from employees where hire date like '%9';
                HIRE DATE
        13-JAN-93
Lex
Alexander
                03-JAN-90
Bruce
        21-MAY-91
David
        25-JUN-97
Valli
        05-FEB-98
        07-FEB-99
Diana
Kevin
        16-NOV-99
        17-0CT-95
Trenna
Curtis
        29-JAN-97
Randall 15-MAR-98
Peter
        09-JUL-98
Ellen
        11-MAY-96
Jonathon
                24-MAR-98
Kimberely
                24-MAY-99
Michael 17-FEB-96
        17-AUG-97
Shelley 07-JUN-94
William 07-JUN-94
LAST_NAME
                FIRST_NAME
                                 SALARY DEPARTMENT_ID
        Steven 24000
King
                        90
Kochhar Neena
                17000
                         90
De Haan Lex
                17000
                         90
Hunold Alexander
                         9000
                                 60
Ernst
        Bruce
                6000
                         60
Austin David
                4800
                         60
                Valli
Pataballa
                         4800
                                 60
                4200
Lorentz Diana
                         60
Higgins Shelley 12000
                         110
        William 8300
Gietz
                         110
Select last name, first name, salary, department id from employees where (salary between 15000 and
40000) and department id in (60,110,90);
LAST_NAME
                FIRST NAME
                                 SALARY DEPARTMENT ID
                24000
                         90
King
        Steven
```

90

90

17000

17000

Kochhar Neena

De Haan Lex