

```
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
  CONSTRAINT emp_hire_date_nn  NOT NULL
, job_id           VARCHAR2(10)
  CONSTRAINT emp_job_nn  NOT NULL
, salary           NUMBER(8,2)
, commission_pct   NUMBER(2,2)
, manager_id       NUMBER(6)
, department_id    NUMBER(4)
, 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)
    , CONSTRAINT emp_dept_fk
      FOREIGN KEY (department_id)
        REFERENCES departments
    , CONSTRAINT emp_manager_fk
      FOREIGN KEY (manager_id)
        REFERENCES employees
    ) ;

CREATE TABLE job_grades
( grade           CHAR(1)
, lowest_sal      NUMBER(5)
  CONSTRAINT low_sal_nn  NOT NULL
, highest_sal     NUMBER(5)
  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	90
101	Neena	Kochhar	90
102	Lex	De Haan	90
103	Alexander	Hunold	60
104	Bruce	Ernst	60
105	David	Austin	60
106	Valli	Pataballa	60
107	Diana	Lorentz	60
124	Kevin	Mourgos	50
141	Trenna	Rajs	50
142	Curtis	Davies	50
143	Randall	Matos	50
144	Peter	Vargas	50
149	Eleni	Zlotkey	80
174	Ellen	Abel	80
176	Jonathon	Taylor	80
178	Kimberely	Grant	-
200	Jennifer	Whalen	10
201	Michael	Hartstein	20
202	Pat	Fay	20
205	Shelley	Higgins	110
206	William	Gietz	110

```
select distinct(salary) from employees;
```

```
SALARY
4200
3100
```

2600
9000
4400
4800
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

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID
100	Steven	King	SKING	515.123.4567	17-JUN-87	AD_PRES
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-89	AD_VP
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-93	AD_VP
124	Kevin	Mourgos	KMOURGOS	650.123.5234	16-NOV-99	ST_MAN
141	Trenna	Rajs	TRAJS	650.121.8009	17-OCT-95	ST_CLERK
142	Curtis	Davies	CDAVIES	650.121.2994	29-JAN-97	ST_CLERK
143	Randall	Matos	RMATOS	650.121.2874	15-MAR-98	ST_CLERK
144	Peter	Vargas	PVARGAS	650.121.2004	09-JUL-98	ST_CLERK
149	Eleni	Zlotkey	EZLOTKEY	011.44.1344.429018	29-JAN-00	SA_MAN
174	Ellen	Abel	EABEL	011.44.1644.429267	11-MAY-96	SA_REP
176	Jonathon	Taylor	JTAYLOR	011.44.1644.429265	24-MAR-98	SA_REP

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

Select Last_NAME,SALARY,SALARY+300 from employees;

LAST_NAME	SALARY	SALARY+300
King	24000	24300
Kochhar	17000	17300
De Haan	17000	17300
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
Fay	6000	6300
Higgins	12000	12300
Gietz	8300	8600

Select Last_NAME,SALARY*.2 from employees;

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

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 103
 Lorentz 103

Select Last_NAME || First_NAME as name from EMPLOYEES;

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_NAME	FIRST_NAME	MANAGER_ID
Kochhar	Neena	100
De Haan	Lex	100
Hunold	Alexander	102
Ernst	Bruce	103
Austin	David	103
Pataballa	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	Jonathon	149
Grant	Kimberely	149
Whalen	Jennifer	101
Hartstein	Michael	100
Fay	Pat	201

SELECT last_name, salary FROM employees WHERE salary <= 3000;

LAST_NAME	SALARY
Matos	2600
Vargas	2500

SELECT BDATE, ADDRESS FROM EMPLOYEE

```
WHERE FNAME=John
Higgins Shelley 101
Gietz William 205
```

```
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_';
FIRST_NAME      HIRE_DATE
Lex             13-JAN-93
Alexander       03-JAN-90
Bruce           21-MAY-91
David           25-JUN-97
Valli           05-FEB-98
Diana           07-FEB-99
Kevin           16-NOV-99
Trenna          17-OCT-95
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
Pat             17-AUG-97
Shelley         07-JUN-94
William         07-JUN-94
```

LAST_NAME	FIRST_NAME	SALARY	DEPARTMENT_ID
King	Steven	24000	90
Kochhar	Neena	17000	90
De Haan	Lex	17000	90
Hunold	Alexander	9000	60
Ernst	Bruce	6000	60
Austin	David	4800	60
Pataballa	Valli	4800	60
Lorentz	Diana	4200	60
Higgins	Shelley	12000	110
Gietz	William	8300	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
King	Steven	24000	90
Kochhar	Neena	17000	90
De Haan	Lex	17000	90