EXERCICIS MySQL

Exercicis TEMA 2

1. Diguis si les següents sentències SELECT s'executen correctament:

```
mysql> SELECT LAST_NAME, JOB_ID, SALARY AS SAL
    -> FROM EMPLOYEES;
+-----------+------------+----------+
| LAST_NAME | JOB_ID     | SAL      |
+-----------+------------+----------+
| King      | AD_PRES    | 24000.00 |
| Kochhar   | AD_VP      | 17000.00 |
| De Haan   | AD_VP      | 17000.00 |
| Hunold    | IT_PROG    |  9000.00 |
| Ernst     | IT_PROG    |  6000.00 |
| Lorentz   | IT_PROG    |  4200.00 |
| Mourgos   | ST_MAN     |  5800.00 |
| Rajs      | ST_CLERK   |  3500.00 |
| Davies    | ST_CLERK   |  3100.00 |
| Matos     | ST_CLERK   |  2600.00 |
| Vargas    | ST_CLERK   |  2500.00 |
| Grant     | SA_REP     |  7000.00 |
| Whalen    | AD_ASST    |  4400.00 |
| Hartstein | MK_MAN     | 13000.00 |
| Fay       | MK_REP     |  6000.00 |
| Higgins   | AC_MGR     | 12000.00 |
| Gietz     | AC_ACCOUNT |  8300.00 |
+-----------+------------+----------+
17 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM JOB_GRADES;
+-------------+------------+-------------+
| GRADE_LEVEL | LOWEST_SAL | HIGHEST_SAL |
+-------------+------------+-------------+
| A           |       1000 |        2999 |
| B           |       3000 |        5999 |
| C           |       6000 |        9999 |
| D           |      10000 |       14999 |
| E           |      15000 |       24999 |
| F           |      25000 |       40000 |
+-------------+------------+-------------+
6 rows in set (0.00 sec)
```

2. **Hi ha 4 errors de codificació en la següent sentència. Pots localitzar-los?**

```
mysql> SELECT EMPLOYEE_ID, LAST_NAME, SALARY*12 AS ANNUAL_SALARY FROM EMPLOYEES;

+-------------+-----------+---------------+
| EMPLOYEE_ID | LAST_NAME | ANNUAL_SALARY |
+-------------+-----------+---------------+
|         100 | King      |     288000.00 |
|         101 | Kochhar   |     204000.00 |
|         102 | De Haan   |     204000.00 |
|         103 | Hunold    |     108000.00 |
|         104 | Ernst     |      72000.00 |
|         107 | Lorentz   |      50400.00 |
|         124 | Mourgos   |      69600.00 |
|         141 | Rajs      |      42000.00 |
|         142 | Davies    |      37200.00 |
|         143 | Matos     |      31200.00 |
|         144 | Vargas    |      30000.00 |
|         178 | Grant     |      84000.00 |
|         200 | Whalen    |      52800.00 |
|         201 | Hartstein |     156000.00 |
|         202 | Fay       |      72000.00 |
|         205 | Higgins   |     144000.00 |
|         206 | Gietz     |      99600.00 |
+-------------+-----------+---------------+
17 rows in set (0.00 sec)
```

En primer lloc els noms dels camps haurien d'estar escrits en majúscula. En segon lloc no hi ha cap camp anomenat sal, sinó SALARY. El tercer error es localitza just després en el signe que s'utilitza per a multiplicar els valors del camp per 12; en comptes d'una x hauria de ser un * i per a acabar, falta un _ entre ANNUAL i SALARY o es podria fer posan-t'ho entre cometes.

3. Mostra l'estructura de la taula departaments. Selecciona després totes les dades de la taula.

```
mysql> describe DEPARTMENTS;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| DEPARTMENT_ID   | float       | NO   | PRI | 0       |       |
| DEPARTMENT_NAME | varchar(30) | NO   |     | NULL    |       |
| MANAGER_ID      | float       | YES  |     | NULL    |       |
| LOCATION_ID     | float       | YES  | MUL | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql> SELECT * FROM DEPARTMENTS;
+---------------+-----------------+------------+-------------+
| DEPARTMENT_ID | DEPARTMENT_NAME | MANAGER_ID | LOCATION_ID |
+---------------+-----------------+------------+-------------+
|            10 | Administration  |        200 |        1700 |
|            20 | Marketing       |        201 |        1800 |
|            50 | Shipping        |        124 |        1500 |
|            60 | IT              |        103 |        1400 |
|            80 | Sales           |        149 |        2500 |
|            90 | Executive       |        100 |        1700 |
|           110 | Accounting      |        205 |        1700 |
|           190 | Contracting     |       NULL |        1700 |
+---------------+-----------------+------------+-------------+
8 rows in set (0.00 sec)
```

4. Crea una consulta per mostrar el cognom, el codi de càrrec, la data de contractació i el número de treballador per a cada treballador. Amb el número de treballador en primer lloc. Proporciona un alias per a la columna.

```
mysql> SELECT EMPLOYEE_ID AS EMPLOYEE, LAST_NAME, JOB_ID, HIRE_DATE FROM EMPLOYEES;
+----------+-----------+------------+------------+
| EMPLOYEE | LAST_NAME | JOB_ID     | HIRE_DATE  |
+----------+-----------+------------+------------+
|      100 | King      | AD_PRES    | 1987-06-17 |
|      101 | Kochhar   | AD_VP      | 1989-09-20 |
|      102 | De Haan   | AD_VP      | 1993-01-13 |
|      103 | Hunold    | IT_PROG    | 1990-01-03 |
|      104 | Ernst     | IT_PROG    | 1991-05-21 |
|      107 | Lorentz   | IT_PROG    | 1999-02-07 |
|      124 | Mourgos   | ST_MAN     | 1999-11-16 |
|      141 | Rajs      | ST_CLERK   | 1995-10-17 |
|      142 | Davies    | ST_CLERK   | 1997-01-29 |
|      143 | Matos     | ST_CLERK   | 1998-03-15 |
|      144 | Vargas    | ST_CLERK   | 1998-07-09 |
|      178 | Grant     | SA_REP     | 1999-05-24 |
|      200 | Whalen    | AD_ASST    | 1987-09-17 |
|      201 | Hartstein | MK_MAN     | 1996-02-17 |
|      202 | Fay       | MK_REP     | 1997-08-17 |
|      205 | Higgins   | AC_MGR     | 1994-06-07 |
|      206 | Gietz     | AC_ACCOUNT | 1994-06-07 |
+----------+-----------+------------+------------+
17 rows in set (0.00 sec)
```

5. Crea una consulta per mostrar codis de càrrec únics de la taula EMPLOYEES.

```
mysql> SELECT DISTINCT JOB_ID FROM EMPLOYEES;
+------------+
| JOB_ID     |
+------------+
| AC_ACCOUNT |
| AC_MGR     |
| AD_ASST    |
| AD_PRES    |
| AD_VP      |
| IT_PROG    |
| MK_MAN     |
| MK_REP     |
| SA_REP     |
| ST_CLERK   |
| ST_MAN     |
+------------+
11 rows in set (0.00 sec)
```

6. Crea una consulta per mostrar totes les dades de la taula EMPLOYEES. Separa cada columna amb una coma. Anomena a la columna: "*Sortida completa*".

```
mysql> SELECT CONCAT(EMPLOYEE_ID, ', ', FIRST_NAME, ', ', LAST_NAME, ', ',EMAIL, ', ',
PHONE_NUMBER, ', ', HIRE_DATE, ', ', SALARY) "Sortida completa" FROM EMPLOYEES;
+----------------------------------------------------------------------+
| Sortida completa                                                     |
+----------------------------------------------------------------------+
| 100, Steven, King, SKING, 515.123.4567, 1987-06-17, 24000.00         |
| 101, Neena, Kochhar, NKOCHHAR, 515.123.4568, 1989-09-20, 17000.00    |
| 102, Lex, De Haan, LDEHAAN, 515.123.4569, 1993-01-13, 17000.00       |
| 103, Alexander, Hunold, AHUNOLD, 590.423.4567, 1990-01-03, 9000.00   |
| 104, Bruce, Ernst, BERNST, 590.423.4568, 1991-05-21, 6000.00         |
| 107, Diana, Lorentz, DLORENTZ, 590.423.5567, 1999-02-07, 4200.00     |
| 124, Kevin, Mourgos, KMOURGOS, 650.123.5234, 1999-11-16, 5800.00     |
| 141, Trenna, Rajs, TRAJS, 650.121.8009, 1995-10-17, 3500.00          |
| 142, Curtis, Davies, CDAVIES, 650.121.2994, 1997-01-29, 3100.00      |
| 143, Randall, Matos, RMATOS, 650.121.2874, 1998-03-15, 2600.00       |
| 144, Peter, Vargas, PVARGAS, 650.121.2004, 1998-07-09, 2500.00       |
| 178, Kimberely, Grant, KGRANT, 011.44.1644.429263, 1999-05-24, 7000.00 |
| 200, Jennifer, Whalen, JWHALEN, 515.123.4444, 1987-09-17, 4400.00    |
| 201, Michael, Hartstein, MHARTSTE, 515.123.5555, 1996-02-17, 13000.00 |
| 202, Pat, Fay, PFAY, 603.123.6666, 1997-08-17, 6000.00               |
| 205, Shelley, Higgins, SHIGGINS, 515.123.8080, 1994-06-07, 12000.00  |
| 206, William, Gietz, WGIETZ, 515.123.8181, 1994-06-07, 8300.00       |
+----------------------------------------------------------------------+
17 rows in set (0.00 sec)
```

<u>Exercicis TEMA 3:</u>

1. Crea una consulta per mostrar el cognom i el salari dels empleats que guanyen més de $12000.

```
mysql> SELECT LAST_NAME, SALARY FROM EMPLOYEES WHERE SALARY > 12000;
+-----------+----------+
| LAST_NAME | SALARY   |
+-----------+----------+
| King      | 24000.00 |
| Kochhar   | 17000.00 |
| De Haan   | 17000.00 |
| Hartstein | 13000.00 |
+-----------+----------+
4 rows in set (0.00 sec)
```

2. Crea una consulta per mostrar el cognom del treballador i el número de departament del treballador número 176.

```
mysql> SELECT LAST_NAME, DEPARTMENT_ID FROM EMPLOYEES WHERE EMPLOYEE_ID=176;
Empty set (0.00 sec)
```

3 Modifica la consulta de l'exercici 1 per mostrar el cognom i el salari de tots els treballadors el salari dels quals no està comprés entre $5000 i $12000.

```
mysql> SELECT LAST_NAME, SALARY FROM EMPLOYEES WHERE SALARY<5000 OR SALARY>12000;
+-----------+----------+
| LAST_NAME | SALARY   |
+-----------+----------+
| King      | 24000.00 |
| Kochhar   | 17000.00 |
| De Haan   | 17000.00 |
| Lorentz   |  4200.00 |
| Rajs      |  3500.00 |
| Davies    |  3100.00 |
| Matos     |  2600.00 |
| Vargas    |  2500.00 |
| Whalen    |  4400.00 |
| Hartstein | 13000.00 |
+-----------+----------+
10 rows in set (0.00 sec)
```

4 Mostra el cognom del treballador, l'identificador de càrrec i la data d'inici dels empleats contractats entre el 20 de febrer de 1998 i l'1 de maig de 1998. Ordena la consulta en ordre ascendent per data d'inici.

```
mysql> SELECT LAST_NAME, JOB_ID, HIRE_DATE FROM
 EMPLOYEES WHERE HIRE_DATE BETWEEN '1998-02-20'
 AND '1998-05-01' ORDER BY HIRE_DATE;
+-----------+----------+------------+
| LAST_NAME | JOB_ID   | HIRE_DATE  |
+-----------+----------+------------+
| Matos     | ST_CLERK | 1998-03-15 |
+-----------+----------+------------+
1 row in set (0.01 sec)
```

5 Mostra el cognom i el número de departament de tots els empleats del departament 20 i 50 en ordre alfabètic per cognom.

```
mysql> SELECT LAST_NAME, DEPARTMENT_ID FROM EMPLOYEES WHERE DEPARTMENT_ID=20
OR DEPARTMENT_ID=50 ORDER BY LAST_NAME;
+-----------+---------------+
| LAST_NAME | DEPARTMENT_ID |
+-----------+---------------+
| Davies    |            50 |
| Fay       |            20 |
| Hartstein |            20 |
| Matos     |            50 |
| Mourgos   |            50 |
| Rajs      |            50 |
| Vargas    |            50 |
+-----------+---------------+
7 rows in set (0.00 sec)
```

6 Modifica el fitxer exer3.sql per a enumerar el cognom i el salari dels empleats que guanyen entre $5000 i $12000 i estan en el departament 20 o 50. Canvia el nom de les columnes.

```
mysql> SELECT LAST_NAME AS COGNOM,SALARY AS SALARI
    -> FROM EMPLOYEES WHERE (SALARY BETWEEN 5000 AND 12000) AND DEPARTMENT_ID IN (20,50);
+---------+---------+
| COGNOM  | SALARI  |
+---------+---------+
| Mourgos | 5800.00 |
| Fay     | 6000.00 |
+---------+---------+
2 rows in set (0.00 sec)
```

7. Mostra el cognom i la data de contractació de tots els empleats contractats l'any 1994.

```
mysql> SELECT LAST_NAME, HIRE_DATE FROM EMPLOYEES WHERE HIRE_DA
TE BETWEEN '1994-01-01' AND '1994-12-31';
+-----------+------------+
| LAST_NAME | HIRE_DATE  |
+-----------+------------+
| Higgins   | 1994-06-07 |
| Gietz     | 1994-06-07 |
+-----------+------------+
2 rows in set (0.00 sec)
```

també estaria bé d'aquesta manera

```
mysql> SELECT LAST_NAME,HIRE_DATE
    -> FROM EMPLOYEES
    -> WHERE YEAR(HIRE_DATE)=1994;
+-----------+------------+
| LAST_NAME | HIRE_DATE  |
+-----------+------------+
| Higgins   | 1994-06-07 |
| Gietz     | 1994-06-07 |
+-----------+------------+
2 rows in set (0.00 sec)
```

8. Mostra el cognom i el càrrec de tots els empleats que no tenen director.

```
mysql> SELECT LAST_NAME, JOB_ID FROM EMPLOYEES WHERE MANAGER_ID IS NULL;
+-----------+---------+
| LAST_NAME | JOB_ID  |
+-----------+---------+
| King      | AD_PRES |
+-----------+---------+
1 row in set (0.00 sec)
```

9. Mostra el cognom, el salari i la comissió per a tots els empleats que guanyen comissions. Ordena les dades en ordre descendent de salari i comissions.

```
mysql> SELECT LAST_NAME, SALARY, COMMISSION_PCT FROM EMPLOYEES WHERE COMMISSION_PCT IS
NOT NULL ORDER BY SALARY AND COMMISSION_PCT;
+-----------+---------+----------------+
| LAST_NAME | SALARY  | COMMISSION_PCT |
+-----------+---------+----------------+
| Grant     | 7000.00 |           0.15 |
+-----------+---------+----------------+
1 row in set (0.00 sec)
```

10. Mostra el cognom de tots els empleats que tinguin la a com a tercera lletra.

```
mysql> SELECT LAST_NAME FROM EMPLOYEES WHERE LAST_NAME LIKE '__a%';
+------------+
| LAST_NAME  |
+------------+
| Grant      |
| Whalen     |
+------------+
2 rows in set (0.00 sec)
```

11. Mostra el cognom de tots els empleats que tinguin una a i una e en el cognom.

```
mysql> SELECT LAST_NAME  FROM EMPLOYEES WHERE LAST_NAME LIKE '%a%' AND LAST_NAME LIKE '%e%';
+-----------+
| LAST_NAME |
+-----------+
| De Haan   |
| Davies    |
| Whalen    |
| Hartstein |
+-----------+
4 rows in set (0.00 sec)
```

12. Mostra el cognom, el càrrec i el salari de tots els empleats que siguin representants de vendes (SA_REP) o encarregats de stock (ST_CLERK) i que els salaris no siguin iguals a $2500, $3500 ni $7000.

```
mysql> SELECT LAST_NAME,JOB_ID,SALARY
    -> FROM EMPLOYEES
    -> WHERE JOB_ID IN ('SA_REP','ST_CLERK') AND SALARY NOT IN (2500,3500,7000);
+-----------+----------+---------+
| LAST_NAME | JOB_ID   | SALARY  |
+-----------+----------+---------+
| Davies    | ST_CLERK | 3100.00 |
| Matos     | ST_CLERK | 2600.00 |
+-----------+----------+---------+
2 rows in set (0.00 sec)
```

13. Modifica el fitxer exer6.sql per a mostrar el cognom, el salari i la comissió per a tots els empleats que tinguin comissions del 20%.

```
mysql> SELECT LAST_NAME, SALARY, COMMISSION_PCT FROM EMPLOYEES WHERE COMMISSION_PCT=0.20;
Empty set (0.00 sec)
```

<u>Exercicis TEMA 4:</u>

1. Fes una consulta que visualitzi el salari major, menor, la suma i la mitjana de tots els treballadors. Etiqueta adequadament les columnes. Arrodoneix fins al nombre enter més pròxim.

```
mysql> SELECT ROUND(MAX(SALARY),0) AS MAX_SALARY, ROUND(MIN(SALARY),0) AS MIN_SALARY, ROUND(SUM(SALARY),0)
AS SUM_SALARY, ROUND(AVG(SALARY),0) AS AVERAGE_SALARY FROM EMPLOYEES;
+------------+------------+------------+----------------+
| MAX_SALARY | MIN_SALARY | SUM_SALARY | AVERAGE_SALARY |
+------------+------------+------------+----------------+
|      24000 |       2500 |     145400 |           8553 |
+------------+------------+------------+----------------+
1 row in set (0.00 sec)
```

2. Modifica la consulta anterior per visualitzar els mateixos camps però per a cada tipus de càrrec.

```
mysql> SELECT JOB_ID, MAX(SALARY) AS MAX_SALARY, MIN(SALARY) AS MIN_SALARY, SUM(SALARY)
 AS SUM_SALARY, ROUND(AVG(SALARY),0) AS AVERAGE_SALARY FROM EMPLOYEES GROUP BY JOB_ID;
+------------+------------+------------+------------+----------------+
| JOB_ID     | MAX_SALARY | MIN_SALARY | SUM_SALARY | AVERAGE_SALARY |
+------------+------------+------------+------------+----------------+
| AC_ACCOUNT |    8300.00 |    8300.00 |    8300.00 |           8300 |
| AC_MGR     |   12000.00 |   12000.00 |   12000.00 |          12000 |
| AD_ASST    |    4400.00 |    4400.00 |    4400.00 |           4400 |
| AD_PRES    |   24000.00 |   24000.00 |   24000.00 |          24000 |
| AD_VP      |   17000.00 |   17000.00 |   34000.00 |          17000 |
| IT_PROG    |    9000.00 |    4200.00 |   19200.00 |           6400 |
| MK_MAN     |   13000.00 |   13000.00 |   13000.00 |          13000 |
| MK_REP     |    6000.00 |    6000.00 |    6000.00 |           6000 |
| SA_REP     |    7000.00 |    7000.00 |    7000.00 |           7000 |
| ST_CLERK   |    3500.00 |    2500.00 |   11700.00 |           2925 |
| ST_MAN     |    5800.00 |    5800.00 |    5800.00 |           5800 |
+------------+------------+------------+------------+----------------+
11 rows in set (0.00 sec)
```

3. Escriu una consulta per visualitzar el nombre de persones amb el mateix càrrec.

```
mysql> SELECT JOB_ID, COUNT(EMPLOYEE_ID) AS "TOTAL_EMPLOYEES" FROM
EMPLOYEES GROUP BY JOB_ID;
+------------+-----------------+
| JOB_ID     | TOTAL_EMPLOYEES |
+------------+-----------------+
| AC_ACCOUNT |               1 |
| AC_MGR     |               1 |
| AD_ASST    |               1 |
| AD_PRES    |               1 |
| AD_VP      |               2 |
| IT_PROG    |               3 |
| MK_MAN     |               1 |
| MK_REP     |               1 |
| SA_REP     |               1 |
| ST_CLERK   |               4 |
| ST_MAN     |               1 |
+------------+-----------------+
11 rows in set (0.01 sec)
```

4. Determina el nombre de directors sense enumerar-los. Etiqueta la columna com a "Nombre de directors" (utilitza la columna manager_id).

```
mysql> SELECT COUNT(DISTINCT MANAGER_ID) AS "NOMBRE DE DIRECTORS"
    -> FROM EMPLOYEES;
+----------------------+
| NOMBRE DE DIRECTORS |
+----------------------+
|                    8 |
+----------------------+
1 row in set (0.03 sec)
```

5. Escriu una consulta per visualitzar la diferència entre el salari màxim i mínim. Etiqueta adequadament la columna.

```
mysql> SELECT MAX(SALARY)-MIN(SALARY) AS SAL_DIFFERENCE FROM EMPLOYEES;
+----------------+
| SAL_DIFFERENCE |
+----------------+
|       21500.00 |
+----------------+
1 row in set (0.01 sec)
```

6. Visualitza el número de director i el salari del treballador amb menor sou per a aquest director.

```
mysql> SELECT MANAGER_ID,MIN(SALARY)
    -> FROM EMPLOYEES
    -> WHERE MANAGER_ID IS NOT NULL
    -> GROUP BY MANAGER_ID;
+------------+--------------+
| MANAGER_ID | MIN(SALARY) |
+------------+--------------+
|        100 |      5800.00 |
|        101 |      4400.00 |
|        102 |      9000.00 |
|        103 |      4200.00 |
|        124 |      2500.00 |
|        149 |      7000.00 |
|        201 |      6000.00 |
|        205 |      8300.00 |
+------------+--------------+
8 rows in set (0.00 sec)
```

7. Escriu una consulta per visualitzar el nom, la ubicació, el número d'empleats i el salari mitjà de tots els treballadors de cada departament.

```
mysql> SELECT DEP.DEPARTMENT_NAME, DEP.LOCATION_ID, COUNT(E.EMPLOYEE_ID) AS NUM_EMPLOYEES, AVG(E.SALARY) AS AVERAGE_SALARY
FROM DEPARTMENTS DEP JOIN EMPLOYEES E ON DEP.DEPARTMENT_ID=E.DEPARTMENT_ID GROUP BY DEP.DEPARTMENT_ID;
+----------------+-------------+--------------+----------------+
| DEPARTMENT_NAME | LOCATION_ID | NUM_EMPLOYEES | AVERAGE_SALARY |
+----------------+-------------+--------------+----------------+
| Administration  |        1700 |            1 |    4400.000000 |
| Marketing       |        1800 |            2 |    9500.000000 |
| Shipping        |        1500 |            5 |    3500.000000 |
| IT              |        1400 |            3 |    6400.000000 |
| Executive       |        1700 |            3 |   19333.333333 |
| Accounting      |        1700 |            2 |   10150.000000 |
+----------------+-------------+--------------+----------------+
6 rows in set (0.00 sec)
```

8. Crea una consulta que et mostri el nombre total d'empleats i, d'aquest total, el nombre d'empleats contractats en 1995, 1996, 1997 i 1998. Crea les capçaleres de columna adequades.

```
mysql> select count(*) as "Total", (select count(*) from employees where year(hi
re_date)=1995) as "Contr. 1995", (select count(*) from employees where year(hire
_date)=1996) as "Contr. 1996", (select count(*) from employees where year(hire_d
ate)=1997) as "Contr. 1997", (select count(*) from employees where year(hire_dat
e)=1998) as "Contr. 1998" from employees;
+-------+-------------+-------------+-------------+-------------+
| Total | Contr. 1995 | Contr. 1996 | Contr. 1997 | Contr. 1998 |
+-------+-------------+-------------+-------------+-------------+
|    17 |           1 |           1 |           2 |           2 |
+-------+-------------+-------------+-------------+-------------+
1 row in set (0.00 sec)
```

Exercicis TEMA 5:

1. Escriu una consulta que mostri el cognom i la data de contractació de qualsevol empleat del mateix departament que Zlotkey. Exclòs Zlotkey.

```
mysql> SELECT LAST_NAME, HIRE_DATE FROM EMPLOYEES WHERE DEPARTMENT_ID=(SELECT DEPARTMENT_ID FROM EMPLOYEES WHERE
LAST_NAME="Zlotkey") AND LAST_NAME<>"Zlotkey";
Empty set (0.01 sec)
```

2. Crea una consulta per a mostrar els números de l'empleat i els cognoms de tots els empleats que guanyen més salari mig. Ordena els resultats per salari en ordre ascendent.

```
mysql> SELECT EMPLOYEE_ID, LAST_NAME FROM EMPLOYEES WHERE SALARY>
(SELECT AVG(SALARY) FROM EMPLOYEES) ORDER BY SALARY ASC;
+-------------+-----------+
| EMPLOYEE_ID | LAST_NAME |
+-------------+-----------+
|         103 | Hunold    |
|         205 | Higgins   |
|         201 | Hartstein |
|         101 | Kochhar   |
|         102 | De Haan   |
|         100 | King      |
+-------------+-----------+
6 rows in set (0.00 sec)
```

3. Escriu una consulta que mostri els números de l'empleat i els cognoms de tots els empleats que treballen en un departament amb qualsevol empleat i el cognom del qual contingui una 'u'. Col·loca la sentencia SQL en un fitxer de text cridat lab6_3.sql. Executa la consulta.

```
mysql> SELECT EMPLOYEE_ID, LAST_NAME FROM EMPLOYEES WHERE DEPARTMENT_ID IN
(SELECT DEPARTMENT_ID FROM EMPLOYEES WHERE LAST_NAME LIKE '%u%');
+-------------+-----------+
| EMPLOYEE_ID | LAST_NAME |
+-------------+-----------+
|         103 | Hunold    |
|         104 | Ernst     |
|         107 | Lorentz   |
|         124 | Mourgos   |
|         141 | Rajs      |
|         142 | Davies    |
|         143 | Matos     |
|         144 | Vargas    |
+-------------+-----------+
8 rows in set (0.00 sec)
```

4. Mostra el cognom, el número de departament i l'identificador de càrrec de tots els empleats els identificadors d'ubicació dels quals sigui 1700.

```
mysql> SELECT E.LAST_NAME, E.DEPARTMENT_ID, E.JOB_ID FROM EMPLOYEES E JOIN DEPARTMENTS D
ON E.DEPARTMENT_ID=D.DEPARTMENT_ID WHERE D.LOCATION_ID=1700;
+-----------+---------------+------------+
| LAST_NAME | DEPARTMENT_ID | JOB_ID     |
+-----------+---------------+------------+
| Whalen    |            10 | AD_ASST    |
| King      |            90 | AD_PRES    |
| Kochhar   |            90 | AD_VP      |
| De Haan   |            90 | AD_VP      |
| Higgins   |           110 | AC_MGR     |
| Gietz     |           110 | AC_ACCOUNT |
+-----------+---------------+------------+
6 rows in set (0.01 sec)
```

5. Mostra el cognom, el número de departament i l'identificador de càrrec de tots els empleats del departament "Executive".

```
mysql> SELECT E.LAST_NAME, E.DEPARTMENT_ID, E.JOB_ID FROM EMPLOYEES E JOIN DEPARTMENTS D
ON E.DEPARTMENT_ID=D.DEPARTMENT_ID WHERE D.DEPARTMENT_NAME="Executive";
+-----------+---------------+---------+
| LAST_NAME | DEPARTMENT_ID | JOB_ID  |
+-----------+---------------+---------+
| King      |            90 | AD_PRES |
| Kochhar   |            90 | AD_VP   |
| De Haan   |            90 | AD_VP   |
+-----------+---------------+---------+
3 rows in set (0.00 sec)
```

6. Modifica la consulta lab6_3.sql per a mostrar els números d'empleat, els cognoms i els salaris de tots els empleats que guanyen més del salari mig i que treballen en un departament amb un empleat que tingui una 'u' en el seu cognom. Torna a guardar la consulta com a lab6_7.sql. Executa la sentencia en lab6_7.sql.

```
mysql> SELECT EMPLOYEE_ID, LAST_NAME, SALARY FROM EMPLOYEES WHERE SALARY>(SELECT AVG(SALARY) FROM
EMPLOYEES) AND DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM EMPLOYEES WHERE LAST_NAME LIKE '%u%');
+-------------+-----------+---------+
| EMPLOYEE_ID | LAST_NAME | SALARY  |
+-------------+-----------+---------+
|         103 | Hunold    | 9000.00 |
+-------------+-----------+---------+
1 row in set (0.00 sec)
```

Exercicis TEMA 6:

1. Escriu una consulta per visualitzar el cognom del treballador i el nom del departament on treballen per a tots els treballadors.

```
mysql> SELECT E.LAST_NAME, D.DEPARTMENT_NAME FROM EMPLOYEES E JOIN DEPARTMENTS D
ON E.DEPARTMENT_ID=D.DEPARTMENT_ID;
+-----------+-----------------+
| LAST_NAME | DEPARTMENT_NAME |
+-----------+-----------------+
| Whalen    | Administration  |
| Hartstein | Marketing       |
| Fay       | Marketing       |
| Mourgos   | Shipping        |
| Rajs      | Shipping        |
| Davies    | Shipping        |
| Matos     | Shipping        |
| Vargas    | Shipping        |
| Hunold    | IT              |
| Ernst     | IT              |
| Lorentz   | IT              |
| King      | Executive       |
| Kochhar   | Executive       |
| De Haan   | Executive       |
| Higgins   | Accounting      |
| Gietz     | Accounting      |
+-----------+-----------------+
16 rows in set (0.00 sec)
```

2. Crea un llistat únic amb tots els càrrecs que hi ha al departament 80. Inclou la ubicació del departament en el resultat.

```
mysql> SELECT E.JOB_ID, D.LOCATION_ID FROM EMPLOYEES E JOIN DEPARTMENTS D
 ON E.DEPARTMENT_ID=D.DEPARTMENT_ID WHERE E.DEPARTMENT_ID=80;
Empty set (0.00 sec)
```

3. Escriu una consulta per mostrar el cognom del treballador, el nom del departament, l'identificador d'ubicació i la ciutat de tots els empleats que reben comissió.

```
mysql> SELECT E.LAST_NAME, D.DEPARTMENT_NAME, D.LOCATION_ID, L.CITY FROM (EMPLOYEES E JOIN DEPARTMENTS D ON
 E.DEPARTMENT_ID=D.DEPARTMENT_ID) JOIN LOCATIONS L ON D.LOCATION_ID=L.LOCATION_ID WHERE E.COMMISSION_PCT IS
 NOT NULL;
Empty set (0.01 sec)
```

4. Visualitza el cognom del treballador i el nom del departament per a tots els treballadors que tinguin una 'a' minúscula en el cognom.

```
mysql> SELECT E.LAST_NAME,D.DEPARTMENT_NAME
    -> FROM EMPLOYEES E JOIN DEPARTMENTS D USING (DEPARTMENT_ID)
    -> WHERE E.LAST_NAME LIKE BINARY "%a%";
+-----------+------------------+
| LAST_NAME | DEPARTMENT_NAME  |
+-----------+------------------+
| Whalen    | Administration   |
| Hartstein | Marketing        |
| Fay       | Marketing        |
| Rajs      | Shipping         |
| Davies    | Shipping         |
| Matos     | Shipping         |
| Vargas    | Shipping         |
| Kochhar   | Executive        |
| De Haan   | Executive        |
+-----------+------------------+
9 rows in set (0.00 sec)
```

5. Escriu una consulta per visualitzar el cognom, el càrrec, el número i el número de departament per a tots els treballadors que treballen a Toronto.

```
mysql> SELECT E.LAST_NAME, J.JOB_TITLE, E.JOB_ID, D.DEPARTMENT_ID FROM ((EMPLOYEES E JOIN DEPARTMENTS D ON
E.DEPARTMENT_ID=D.DEPARTMENT_ID) NATURAL JOIN JOBS J) JOIN LOCATIONS L ON L.LOCATION_ID=D.LOCATION_ID WHERE
 L.CITY='Toronto';
+-----------+--------------------------+--------+---------------+
| LAST_NAME | JOB_TITLE                | JOB_ID | DEPARTMENT_ID |
+-----------+--------------------------+--------+---------------+
| Hartstein | Marketing Manager        | MK_MAN |            20 |
| Fay       | Marketing Representative | MK_REP |            20 |
+-----------+--------------------------+--------+---------------+
2 rows in set (0.00 sec)
```

6. Visualitza el cognom i el número d'empleat amb el cognom i el número del seu director. Etiqueta les columnes per tal que sigui més clar el resultat.

```
mysql> SELECT E.LAST_NAME AS EMPLOYEE, E.EMPLOYEE_ID AS EMPLOYEE_ID, M.LAST_NAME
AS DIRIRECTOR, M.EMPLOYEE_ID AS DIRECTOR_ID FROM EMPLOYEES E JOIN EMPLOYEES M ON
E.MANAGER_ID=M.EMPLOYEE_ID;
+-----------+-------------+------------+-------------+
| EMPLOYEE  | EMPLOYEE_ID | DIRIRECTOR | DIRECTOR_ID |
+-----------+-------------+------------+-------------+
| Kochhar   |         101 | King       |         100 |
| De Haan   |         102 | King       |         100 |
| Hunold    |         103 | De Haan    |         102 |
| Ernst     |         104 | Hunold     |         103 |
| Lorentz   |         107 | Hunold     |         103 |
| Mourgos   |         124 | King       |         100 |
| Rajs      |         141 | Mourgos    |         124 |
| Davies    |         142 | Mourgos    |         124 |
| Matos     |         143 | Mourgos    |         124 |
| Vargas    |         144 | Mourgos    |         124 |
| Whalen    |         200 | Kochhar    |         101 |
| Hartstein |         201 | King       |         100 |
| Fay       |         202 | Hartstein  |         201 |
| Higgins   |         205 | Kochhar    |         101 |
| Gietz     |         206 | Higgins    |         205 |
+-----------+-------------+------------+-------------+
15 rows in set (0.00 sec)
```

7. Complexa. Visualitza l'estructura de la taula JOB_GRADES. A continuació crea una consulta en la que es pugui visualitzar el nom, el càrrec, el nom del departament, el salari i el grau de tots els treballadors.

```
mysql> DESC JOB_GRADES;
+-------------+------------+------+-----+---------+-------+
| Field       | Type       | Null | Key | Default | Extra |
+-------------+------------+------+-----+---------+-------+
| GRADE_LEVEL | varchar(3) | YES  |     | NULL    |       |
| LOWEST_SAL  | float      | YES  |     | NULL    |       |
| HIGHEST_SAL | float      | YES  |     | NULL    |       |
+-------------+------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> SELECT E.FIRST_NAME, J.JOB_TITLE, D.DEPARTMENT_NAME, E.SALARY, JG.GRADE_LEVEL FROM ((EMPLOYEES E JOIN DEPARTMENTS D ON
 E.DEPARTMENT_ID=D.DEPARTMENT_ID) JOIN JOBS J ON E.JOB_ID=J.JOB_ID) JOIN JOB_GRADES JG ON E.SALARY BETWEEN JG.LOWEST_SAL AND
JG.HIGHEST_SAL;
+------------+------------------------------+----------------+----------+-------------+
| FIRST_NAME | JOB_TITLE                    | DEPARTMENT_NAME | SALARY   | GRADE_LEVEL |
+------------+------------------------------+----------------+----------+-------------+
| Steven     | President                    | Executive       | 24000.00 | E           |
| Neena      | Administration Vice President | Executive       | 17000.00 | E           |
| Lex        | Administration Vice President | Executive       | 17000.00 | E           |
| Alexander  | Programmer                   | IT              |  9000.00 | C           |
| Bruce      | Programmer                   | IT              |  6000.00 | C           |
| Diana      | Programmer                   | IT              |  4200.00 | B           |
| Kevin      | Stock Manager                | Shipping        |  5800.00 | B           |
| Trenna     | Stock Clerk                  | Shipping        |  3500.00 | B           |
| Curtis     | Stock Clerk                  | Shipping        |  3100.00 | B           |
| Randall    | Stock Clerk                  | Shipping        |  2600.00 | A           |
| Peter      | Stock Clerk                  | Shipping        |  2500.00 | A           |
| Jennifer   | Administration Assistant     | Administration  |  4400.00 | B           |
| Michael    | Marketing Manager            | Marketing       | 13000.00 | D           |
| Pat        | Marketing Representative     | Marketing       |  6000.00 | C           |
| Shelley    | Accounting Manager           | Accounting      | 12000.00 | D           |
| William    | Public Accountant            | Accounting      |  8300.00 | C           |
+------------+------------------------------+----------------+----------+-------------+
16 rows in set (0.00 sec)
```

8. Crea una consulta utilitzant el natural join que et llisti les ubicacions on hi ha departaments (l'id, el carrer, el codi postal, la ciutat i el nom del país).

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L NATURAL JOIN
DEPARTMENTS D WHERE D.DEPARTMENT_ID IS NOT NULL GROUP BY L.LOCATION_ID;
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS                        | POSTAL_CODE | CITY                | STATE_PROVINCE | COUNTRY_ID |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
|        1400 | 2014 Jabberwocky Rd                   | 26192       | Southlake           | Texas          | US         |
|        1500 | 2001 Interiors Blvd                   | 99236       | South
San Francisco | California     | US         |
|        1700 | 2004 Charade Rd                       | 98199       | Seattle             | Washington     | US         |
|        1800 | 460 Bloor St. W.                      | ON M5S 1X8  | Toronto             | Ontario        | CA         |
|        2500 | Magdalen Centre,The Ofxord Science
Park | OX9 9ZB     | Oxford              | Oxford         | UK         |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
5 rows in set (0.01 sec)
```

9. Fes la mateixa consulta utilitzant el join i la clàusula using.

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L JOIN DEPARTMENTS D
USING (LOCATION_ID) WHERE D.DEPARTMENT_ID IS NOT NULL GROUP BY L.LOCATION_ID;
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS                        | POSTAL_CODE | CITY                | STATE_PROVINCE | COUNTRY_ID |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
|        1400 | 2014 Jabberwocky Rd                   | 26192       | Southlake           | Texas          | US         |
|        1500 | 2001 Interiors Blvd                   | 99236       | South
San Francisco | California     | US         |
|        1700 | 2004 Charade Rd                       | 98199       | Seattle             | Washington     | US         |
|        1800 | 460 Bloor St. W.                      | ON M5S 1X8  | Toronto             | Ontario        | CA         |
|        2500 | Magdalen Centre,The Ofxord Science
Park | OX9 9ZB     | Oxford              | Oxford         | UK         |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
5 rows in set (0.00 sec)
```

10. Fes la mateixa consulta amb el join i l'on. Compara els resultats de les consultes 8, 9 i 10; han de ser els mateixos.

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L JOIN DEPARTMENTS D
ON L.LOCATION_ID=D.LOCATION_ID WHERE D.DEPARTMENT_ID IS NOT NULL GROUP BY L.LOCATION_ID;
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS                        | POSTAL_CODE | CITY                | STATE_PROVINCE | COUNTRY_ID |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
|        1400 | 2014 Jabberwocky Rd                   | 26192       | Southlake           | Texas          | US         |
|        1500 | 2001 Interiors Blvd                   | 99236       | South
San Francisco | California     | US         |
|        1700 | 2004 Charade Rd                       | 98199       | Seattle             | Washington     | US         |
|        1800 | 460 Bloor St. W.                      | ON M5S 1X8  | Toronto             | Ontario        | CA         |
|        2500 | Magdalen Centre,The Ofxord Science
Park | OX9 9ZB     | Oxford              | Oxford         | UK         |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
5 rows in set (0.02 sec)
```

11. Ara, refés la consulta sense utilitzar cap de les paraules clau citades en els exercicis anteriors.

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L JOIN DEPARTMENTS D
 WHERE L.LOCATION_ID=D.LOCATION_ID AND D.DEPARTMENT_ID IS NOT NULL GROUP BY L.LOCATION_ID;
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS                        | POSTAL_CODE | CITY                | STATE_PROVINCE | COUNTRY_ID |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
|        1400 | 2014 Jabberwocky Rd                   | 26192       | Southlake           | Texas          | US         |
|        1500 | 2001 Interiors Blvd                   | 99236       | South
San Francisco | California     | US         |
|        1700 | 2004 Charade Rd                       | 98199       | Seattle             | Washington     | US         |
|        1800 | 460 Bloor St. W.                      | ON M5S 1X8  | Toronto             | Ontario        | CA         |
|        2500 | Magdalen Centre,The Ofxord Science
Park | OX9 9ZB     | Oxford              | Oxford         | UK         |
+-------------+---------------------------------------+-------------+---------------------+----------------+------------+
5 rows in set (0.00 sec)
```

12. Amplia les 4 consultes anteriors de forma que et presenti només els registres de la ciutat de Seattle.

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID
FROM LOCATIONS L NATURAL JOIN DEPARTMENTS D WHERE CITY="Seattle" GROUP BY L.LOCATION_ID;
+-------------+-----------------+-------------+---------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS  | POSTAL_CODE | CITY    | STATE_PROVINCE | COUNTRY_ID |
+-------------+-----------------+-------------+---------+----------------+------------+
|        1700 | 2004 Charade Rd | 98199       | Seattle | Washington     | US         |
+-------------+-----------------+-------------+---------+----------------+------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L
JOIN DEPARTMENTS D USING (LOCATION_ID) WHERE D.DEPARTMENT_ID IS NOT NULL AND CITY="Seattle" GROUP BY L.LOCATION_ID;
+-------------+-----------------+-------------+---------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS  | POSTAL_CODE | CITY    | STATE_PROVINCE | COUNTRY_ID |
+-------------+-----------------+-------------+---------+----------------+------------+
|        1700 | 2004 Charade Rd | 98199       | Seattle | Washington     | US         |
+-------------+-----------------+-------------+---------+----------------+------------+
1 row in set (0.01 sec)
```

```
mysql> SELECT L.LOCATION_ID, L.STREET_ADDRESS, L.POSTAL_CODE, L.CITY, L.STATE_PROVINCE, L.COUNTRY_ID FROM LOCATIONS L JOIN
DEPARTMENTS D ON L.LOCATION_ID=D.LOCATION_ID WHERE D.DEPARTMENT_ID IS NOT NULL AND CITY="Seattle" GROUP BY L.LOCATION_ID;
+-------------+-----------------+-------------+---------+----------------+------------+
| LOCATION_ID | STREET_ADDRESS  | POSTAL_CODE | CITY    | STATE_PROVINCE | COUNTRY_ID |
+-------------+-----------------+-------------+---------+----------------+------------+
|        1700 | 2004 Charade Rd | 98199       | Seattle | Washington     | US         |
+-------------+-----------------+-------------+---------+----------------+------------+
1 row in set (0.00 sec)
```

13. Hi ha una taula que no hem utilitzat fins ara: jobs. Aquesta taula ens presenta informació dels identificadors de treball, nom dels treballs i salari màxim i mínim d'aquest treball. Crea una consulta que t'indiqui: nom i cognom d'un treballador, el seu identificador de treball, el nom del seu treball i el salari mínim que podria cobrar.

a) Utilitzant natural join
b) Utilitzant join i using
c) Utilitzant join i on
d) Sense utilitzar cap de les anteriors.
e) Utilitzant el cross join. Analitza el resultat que obtens. Explica per què obtens el resultat.

```
mysql> SELECT E.FIRST_NAME, E.LAST_NAME, E.EMPLOYEE_ID, J.JOB_TITLE, J.MIN_SALARY FROM
EMPLOYEES E NATURAL JOIN JOBS J;
+------------+-----------+-------------+-----------------------------+------------+
| FIRST_NAME | LAST_NAME | EMPLOYEE_ID | JOB_TITLE                   | MIN_SALARY |
+------------+-----------+-------------+-----------------------------+------------+
| William    | Gietz     |         206 | Public Accountant           |       4200 |
| Shelley    | Higgins   |         205 | Accounting Manager          |       8200 |
| Jennifer   | Whalen    |         200 | Administration Assistant    |       3000 |
| Steven     | King      |         100 | President                   |      20000 |
| Neena      | Kochhar   |         101 | Administration Vice President |      15000 |
| Lex        | De Haan   |         102 | Administration Vice President |      15000 |
| Alexander  | Hunold    |         103 | Programmer                  |       4000 |
| Bruce      | Ernst     |         104 | Programmer                  |       4000 |
| Diana      | Lorentz   |         107 | Programmer                  |       4000 |
| Michael    | Hartstein |         201 | Marketing Manager           |       9000 |
| Pat        | Fay       |         202 | Marketing Representative    |       4000 |
| Kimberely  | Grant     |         178 | Sales Representative        |       6000 |
| Trenna     | Rajs      |         141 | Stock Clerk                 |       2000 |
| Curtis     | Davies    |         142 | Stock Clerk                 |       2000 |
| Randall    | Matos     |         143 | Stock Clerk                 |       2000 |
| Peter      | Vargas    |         144 | Stock Clerk                 |       2000 |
| Kevin      | Mourgos   |         124 | Stock Manager               |       5500 |
+------------+-----------+-------------+-----------------------------+------------+
17 rows in set (0.00 sec)
```

```
mysql> SELECT E.FIRST_NAME, E.LAST_NAME, E.EMPLOYEE_ID, J.JOB_TITLE, J.MIN_SALARY FROM
EMPLOYEES E JOIN JOBS J USING (JOB_ID);
+------------+-----------+-------------+-----------------------------+------------+
| FIRST_NAME | LAST_NAME | EMPLOYEE_ID | JOB_TITLE                   | MIN_SALARY |
+------------+-----------+-------------+-----------------------------+------------+
| William    | Gietz     |         206 | Public Accountant           |       4200 |
| Shelley    | Higgins   |         205 | Accounting Manager          |       8200 |
| Jennifer   | Whalen    |         200 | Administration Assistant    |       3000 |
| Steven     | King      |         100 | President                   |      20000 |
| Neena      | Kochhar   |         101 | Administration Vice President |      15000 |
| Lex        | De Haan   |         102 | Administration Vice President |      15000 |
| Alexander  | Hunold    |         103 | Programmer                  |       4000 |
| Bruce      | Ernst     |         104 | Programmer                  |       4000 |
| Diana      | Lorentz   |         107 | Programmer                  |       4000 |
| Michael    | Hartstein |         201 | Marketing Manager           |       9000 |
| Pat        | Fay       |         202 | Marketing Representative    |       4000 |
| Kimberely  | Grant     |         178 | Sales Representative        |       6000 |
| Trenna     | Rajs      |         141 | Stock Clerk                 |       2000 |
| Curtis     | Davies    |         142 | Stock Clerk                 |       2000 |
| Randall    | Matos     |         143 | Stock Clerk                 |       2000 |
| Peter      | Vargas    |         144 | Stock Clerk                 |       2000 |
| Kevin      | Mourgos   |         124 | Stock Manager               |       5500 |
+------------+-----------+-------------+-----------------------------+------------+
17 rows in set (0.01 sec)
```

```
mysql> SELECT E.FIRST_NAME, E.LAST_NAME, E.EMPLOYEE_ID, J.JOB_TITLE, J.MIN_SALARY FROM
EMPLOYEES E JOIN JOBS J ON E.JOB_ID=J.JOB_ID;
+------------+-----------+-------------+-----------------------------+------------+
| FIRST_NAME | LAST_NAME | EMPLOYEE_ID | JOB_TITLE                   | MIN_SALARY |
+------------+-----------+-------------+-----------------------------+------------+
| William    | Gietz     |         206 | Public Accountant           |       4200 |
| Shelley    | Higgins   |         205 | Accounting Manager          |       8200 |
| Jennifer   | Whalen    |         200 | Administration Assistant    |       3000 |
| Steven     | King      |         100 | President                   |      20000 |
| Neena      | Kochhar   |         101 | Administration Vice President |      15000 |
| Lex        | De Haan   |         102 | Administration Vice President |      15000 |
| Alexander  | Hunold    |         103 | Programmer                  |       4000 |
| Bruce      | Ernst     |         104 | Programmer                  |       4000 |
| Diana      | Lorentz   |         107 | Programmer                  |       4000 |
| Michael    | Hartstein |         201 | Marketing Manager           |       9000 |
| Pat        | Fay       |         202 | Marketing Representative    |       4000 |
| Kimberely  | Grant     |         178 | Sales Representative        |       6000 |
| Trenna     | Rajs      |         141 | Stock Clerk                 |       2000 |
| Curtis     | Davies    |         142 | Stock Clerk                 |       2000 |
| Randall    | Matos     |         143 | Stock Clerk                 |       2000 |
| Peter      | Vargas    |         144 | Stock Clerk                 |       2000 |
| Kevin      | Mourgos   |         124 | Stock Manager               |       5500 |
+------------+-----------+-------------+-----------------------------+------------+
17 rows in set (0.01 sec)
```

```
mysql> SELECT E.FIRST_NAME, E.LAST_NAME, E.EMPLOYEE_ID, J.JOB_TITLE, J.MIN_SALARY FROM
EMPLOYEES E JOIN JOBS J WHERE E.JOB_ID=J.JOB_ID;
+------------+-----------+-------------+-----------------------------+------------+
| FIRST_NAME | LAST_NAME | EMPLOYEE_ID | JOB_TITLE                   | MIN_SALARY |
+------------+-----------+-------------+-----------------------------+------------+
| William    | Gietz     |         206 | Public Accountant           |       4200 |
| Shelley    | Higgins   |         205 | Accounting Manager          |       8200 |
| Jennifer   | Whalen    |         200 | Administration Assistant    |       3000 |
| Steven     | King      |         100 | President                   |      20000 |
| Neena      | Kochhar   |         101 | Administration Vice President |      15000 |
| Lex        | De Haan   |         102 | Administration Vice President |      15000 |
| Alexander  | Hunold    |         103 | Programmer                  |       4000 |
| Bruce      | Ernst     |         104 | Programmer                  |       4000 |
| Diana      | Lorentz   |         107 | Programmer                  |       4000 |
| Michael    | Hartstein |         201 | Marketing Manager           |       9000 |
| Pat        | Fay       |         202 | Marketing Representative    |       4000 |
| Kimberely  | Grant     |         178 | Sales Representative        |       6000 |
| Trenna     | Rajs      |         141 | Stock Clerk                 |       2000 |
| Curtis     | Davies    |         142 | Stock Clerk                 |       2000 |
| Randall    | Matos     |         143 | Stock Clerk                 |       2000 |
| Peter      | Vargas    |         144 | Stock Clerk                 |       2000 |
| Kevin      | Mourgos   |         124 | Stock Manager               |       5500 |
+------------+-----------+-------------+-----------------------------+------------+
17 rows in set (0.02 sec)
```

```
mysql> SELECT E.FIRST_NAME, E.LAST_NAME, E.EMPLOYEE_ID, J.JOB_TITLE, J.MIN_SALARY FROM
EMPLOYEES E CROSS JOIN JOBS J ON E.JOB_ID=J.JOB_ID;
+------------+-----------+-------------+-----------------------------+------------+
| FIRST_NAME | LAST_NAME | EMPLOYEE_ID | JOB_TITLE                   | MIN_SALARY |
+------------+-----------+-------------+-----------------------------+------------+
| William    | Gietz     |         206 | Public Accountant           |       4200 |
| Shelley    | Higgins   |         205 | Accounting Manager          |       8200 |
| Jennifer   | Whalen    |         200 | Administration Assistant    |       3000 |
| Steven     | King      |         100 | President                   |      20000 |
| Neena      | Kochhar   |         101 | Administration Vice President |      15000 |
| Lex        | De Haan   |         102 | Administration Vice President |      15000 |
| Alexander  | Hunold    |         103 | Programmer                  |       4000 |
| Bruce      | Ernst     |         104 | Programmer                  |       4000 |
| Diana      | Lorentz   |         107 | Programmer                  |       4000 |
| Michael    | Hartstein |         201 | Marketing Manager           |       9000 |
| Pat        | Fay       |         202 | Marketing Representative    |       4000 |
| Kimberely  | Grant     |         178 | Sales Representative        |       6000 |
| Trenna     | Rajs      |         141 | Stock Clerk                 |       2000 |
| Curtis     | Davies    |         142 | Stock Clerk                 |       2000 |
| Randall    | Matos     |         143 | Stock Clerk                 |       2000 |
| Peter      | Vargas    |         144 | Stock Clerk                 |       2000 |
| Kevin      | Mourgos   |         124 | Stock Manager               |       5500 |
+------------+-----------+-------------+-----------------------------+------------+
17 rows in set (0.00 sec)
```

En todas las consultas obtengo el mismo resultado siempre que le oblige a cada una a cumplir la condicion de la relacion, por ejemplo en el caso del cross join se ha de forzar a relacionarse con un where sino mostraría las dos tablas multiplicadas como si fuera un producto cartesiano