

Master in e-business and ICT management
Database Systems
Practice 1 – SQL
Tania Cerquitelli – tania.cerquitelli@polito.it

1. The following relations are given (primary keys are underlined)

COURSE (CourseCode, CourseName, Year, Semester)
COURSE-SCHEDULE (CourseCode, WeekDay, Start_Hour, Stop_Hour, Room)

- Find the rooms in which courses relating to the first year have never been taken.

```
SELECT DISTINCT Room
FROM COURSE-SCHEDULE
WHERE Room NOT IN
      (SELECT Room
       FROM COURSE-SCHEDULE CS, COURSE C
       WHERE CS.CourseCode=C.CourseCode AND C.Year=1);
```

```
-----
SELECT DISTINCT Room
FROM COURSE-SCHEDULE SC1
WHERE NOT EXISTS
      (SELECT *
       FROM COURSE-SCHEDULE SC2, COURSE C
       WHERE SC2.CourseCode=C.CourseCode
       AND C.Year=1 AND SC2.Room=SC1.Room);
```

- Find the code of course, the name of course and the total number of weekly hours relating to the courses of the third year for which the total number of weekly hours is greater than 10 and these hours are related to three different week days.

```
SELECT C.CourseCode, C.CourseName, SUM(Stop_Hour-Start_Hour)
FROM COURSE C, COURSE-SCHEDULE CS
WHERE C.CourseCode=CS.CourseCode AND C.Year = 3
GROUP BY C.CourseCode, C.CourseName
HAVING SUM(Stop_Hour-Start_Hour)>10
AND COUNT(DISTINCT WeekDay)=3;
```

2. The following relations are given (primary keys are underlined)

FLAT (FCode, Address, City, Surface)
LEASING-CONTRACT (LCCode, Start_Date, Stop_Date, PersonName, Monthly_Price, FCode)

Pay Attention. Surface is expressed in square metres. For the contracts which are not expired Stop_Date is NULL.

- For the cities in which have been stipulated at least 100 contracts, find the city, the maximal monthly price, the average monthly price, the maximal duration of the leasing contracts, the average duration of leasing contracts and the total number of stipulated contracts.

```
SELECT City, MAX(Monthly_Price), AVG(Monthly_Price),
MAX(Stop_Date-Start_Date), AVG(Stop_Date-Start_Date), COUNT(*)
FROM FLAT F, LEASING-CONTRACT LC
WHERE F.FCode=LC.FCode
GROUP BY City
HAVING COUNT(*)>=100;
```

- Find the name of people which have never been rented a flat with surface greater than 80 square metres.

```
SELECT DISTINCT PersonName
FROM LEASING-CONTRACT
WHERE PersonName NOT IN
      (SELECT PersonName
       FROM LEASING-CONTRACT LC, FLAT F
       WHERE F.FCode=LC.FCode AND Surface>80);
```

```
-----
SELECT DISTINCT PersonName
FROM LEASING-CONTRACT LC1
WHERE NOT EXISTS
      (SELECT *
       FROM LEASING-CONTRACT LC2, FLAT F
       WHERE LC2.FCode=F.FCode
       AND LC2.PersonName=LC1.PersonName
       AND F.Surface>80);
```

- Find the name of people which have stipulated more than two leasing contracts for the same flat (in different period).

```
SELECT PersonName
FROM LEASING-CONTRACT
GROUP BY FCode,PersonName
HAVING COUNT(*)>2;
```

- Find the code and the address of flats in Turin in which the leasing price has always been greater than 500\$ and for which more than 5 contracts have been stipulated.

```
SELECT F.FCode, Address
FROM FLAT F, LEASING-CONTRACT LC
WHERE F.FCode=LC.FCode AND City='Turin'
AND F.FCode NOT IN
      (SELECT FCode
       FROM LEASING-CONTRACT
       WHERE Monthly_Price<=500)
GROUP BY F.FCode, Address
HAVING COUNT(*)>=5;
```

```
-----
SELECT F.FCode,Address
FROM FLAT F, LEASING-CONTRACT LC
WHERE F.FCode=LC.FCode AND City='Turin'
GROUP BY F.FCode, Address
HAVING COUNT(*)>=5 AND MIN(Monthly_Price)>500;
```

3. The following relations are given (primary keys are underlined>)

```
PERSON(Name, Sex, Age)
PARENT(Parent_Name, Son_Name)
```

- Find the name of people which are less than 10 years old and are only sons.

```
SELECT DISTINCT Name
FROM PERSON P, PARENT G
WHERE P.Name=G.Son_Name AND P.Age<10
AND P.Name NOT IN
      (SELECT G1.Son_Name
       FROM PARENT G1, PARENT G2
       WHERE G1.Parent_Name=G2.Parent_Name
       AND G1.Son_Name<>G2.Son_Name);
```