



Politecnico  
di Torino

DBG  
MG

# Exercises on SQL language (no.3)

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# Exercise

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MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

- Find the names of the magazines that publish both articles about motorcycles and articles about cars.

# Exercise

MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

- Find the names of the magazines that publish both articles about motorcycles and articles about cars.

## Alternative solutions

```
SELECT MName
FROM MAGAZINE M
WHERE MId IN (SELECT MId
              FROM ARTICLE
              WHERE Topic = 'Motorcycle')
AND MId IN (SELECT MId
            FROM ARTICLE
            WHERE Topic = 'Car')
```

```
SELECT MName
FROM MAGAZINE M, ARTICLE A
WHERE M.MId=A.MId AND Topic='Motorcycle'
AND M.MId IN (SELECT MId
              FROM ARTICLE
              WHERE Topic = 'Car')
```

# Exercise

---

MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

➤ Find the names of the magazines that have never published any article about motorcycles

Set of data to be excluded: Set of magazines that published at least an article on Motorcycle topic

# Exercise

---

MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

➤ Find the names of the magazines that have never published any article about motorcycles

Set of data to be excluded: Set of magazines that published at least an article on Motorcycle topic

```
SELECT MName
FROM MAGAZINE
WHERE MId NOT IN (SELECT MId
                  FROM ARTICLE
                  WHERE Topic= 'Motorcycle')
```

# Exercise

---

MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

➤ Find the names of the magazines that have only ever published articles about motorcycles

Set to be excluded: Magazines with at least an article on a topic different than Motorcycle

# Exercise

MAGAZINE (MId, MName, Publisher)

ARTICLE (AId, Title, Topic, MId)

➤ Find the names of the magazines that have only ever published articles about motorcycles

Set to be excluded: Magazines with at least an article on a topic different than Motorcycle

## Alternative solutions

```
SELECT MName
FROM MAGAZINE
WHERE MId IN
    (SELECT MId
     FROM ARTICLE
     WHERE TOPIC = 'Motorcycle')
AND MId NOT IN
    (SELECT MId
     FROM ARTICLE
     WHERE TOPIC <> 'Motorcycle')
```

```
SELECT MName
FROM MAGAZINE M, ARTICLE A
WHERE M. MId =A. MId AND Topic='Motorcycle'
AND M.MId NOT IN (SELECT MId
                  FROM ARTICLE
                  WHERE TOPIC <> 'Motorcycle')
```

# Exercise

---

SAILOR (SId, SName, Expertise, DateofBirth)

BOAT(Bid, BName, Color)

BOOKING (SId, BId, Date)

- Find the codes and the names of the sailors who have booked at least a red boat and at least a green boat



# Exercise

SAILOR (SId, SName, Expertise, DateofBirth)

BOAT(Bid, BName, Color)

BOOKING (SId, BId, Date)

- Find the codes and the names of the sailors who have booked at least a red boat and at least a green boat

## Alternative solutions

```
SELECT S.SId, SName
FROM SAILOR
WHERE SId IN (SELECT SId
              FROM BOOKING BK, BOAT BT
              WHERE BK.BID=BT.BID AND Color ='Red' )
AND S.SId IN (SELECT SId
              FROM BOOKING BK1, BOAT BT1
              WHERE BK1.BId=BT1.BId and Color = 'Green')
```

```
SELECT DISTINCT S.SId, SName
FROM BOOKING BK, SAILOR S, BOAT BT
WHERE BK.BId=BT.BId AND S.SId=BK.SId
AND Color ='Red'
AND S.SId IN (SELECT SId
              FROM BOOKING BK1, BOAT BT1
              WHERE BK1.BId=BT1.BId and Color = 'Green')
```

# Exercise

---

SAILOR (SId, SName, Expertise, DateofBirth)

BOAT(Bid, BName, Color)

BOOKING (SId, BId, Date)

➤ Find the codes of the sailors who have never booked a red boat

Set to be excluded: set of sailors who booked a red boat

# Exercise

---

SAILOR (SId, SName, Expertise, DateofBirth)

BOAT(Bid, BName, Color)

BOOKING (SId, BId, Date)

➤ Find the codes of the sailors who have never booked a red boat

Set to be excluded: set of sailors who booked a red boat

```
SELECT SId
FROM SAILOR
WHERE SId NOT IN (SELECT SId
                  FROM BOOKING BK, BOAT BT
                  WHERE BK.BId= BT.BId AND Color ='Red')
```

# Exercise

---

AIRCRAFT (AID, AName, MaximumRange)

PILOT (PID, PName, Salary)

CERTIFICATE (AID, PID)

- Find the codes and the names of the pilots who are qualified to fly on at least two aircrafts that can cover distances greater than 5,000 km (MaximumRange $\geq$ 5,000), and who are qualified to fly on a Boeing (AName = 'Boeing')

# Exercise

AIRCRAFT (AID, AName, MaximumRange)

PILOT (PID, PName, Salary)

CERTIFICATE (AID, PID)

- Find the codes and the names of the pilots who are qualified to fly on at least two aircrafts that can cover distances greater than 5,000 km (MaximumRange $\geq$ 5,000), and who are qualified to fly on a Boeing (AName = 'Boeing')

## Alternative solutions

```
SELECT PID, PName
FROM PILOT
WHERE PID IN (SELECT PID
              FROM AIRCRAFT A, CERTIFICATE C
              WHERE A.AID=C.AID AND MaximumRange >= 5,000
              GROUP BY PID
              HAVING COUNT(*) >=2)
AND PID IN (SELECT PID
            FROM AIRCRAFT A1, CERTIFICATE C1
            WHERE A1.Aid=C1.AID AND AName = 'Boeing')
```

```
SELECT P.PID, PName
FROM AIRCRAFT A, CERTIFICATE C, PILOT P
WHERE A.AID=C.AID AND C.PID=P.PID
AND MaximumRange >= 5,000
AND P.PID IN (SELECT PID
              FROM AIRCRAFT A1, CERTIFICATE C1
              WHERE A1.AID=C1.AID AND AName = 'Boeing')
GROUP BY P.PID, PName
HAVING COUNT(*) >=2
```

# Exercise

---

COURSE (CourseCode, CourseName, Year, Semester)

COURSE-SCHEDULE (CourseCode, DayOfWeek, StartTime, EndTime, Room)

➤ Find the rooms where no first-year courses have ever been given

Set of data to be excluded: Set of ROOMS used for a lecture related to the first year course

# Exercise

---

COURSE (CourseCode, CourseName, Year, Semester)

COURSE-SCHEDULE (CourseCode, DayOfWeek, StartTime, EndTime, Room)

➤ Find the rooms where no first-year courses have ever been given

Set of data to be excluded: Set of ROOMS used for a lecture related to the first year course

```
SELECT DISTINCT Room
FROM COUSE-SCHEDULE CS
WHERE Room NOT IN (SELECT Room
                   FROM COURSE-SCHEDULE CS1, COURSE C
                   WHERE CS1.CourseCode=C.CourseCode AND Year =1)
```

# Exercise

---

FLAT (FCode, Address, City, Surface)

LEASING-CONTRACT (LCCode, StartDate, EndDate, PersonName, MonthlyPrice, FCode)

- Find the names of the people who have never rented any flat with a surface greater than 80 square meters

Set of data to be excluded: set of people who rented at least one flat with a surface greater than 80 square meters



# Exercise

---

FLAT (FCode, Address, City, Surface)

LEASING-CONTRACT (LCCode, StartDate, EndDate, PersonName, MonthlyPrice, FCode)

- Find the names of the people who have never rented any flat with a surface greater than 80 square meters

Set of data to be excluded: set of people who rented at least one flat with a surface greater than 80 square meters

```
SELECT DISTINCT PersonName
FROM LEASING_CONTRACT LC
WHERE PersonName NOT IN (SELECT PersonName
                        FROM LEASING_CONTRACT LC1, FLAT F
                        WHERE F.Surface>80 AND LC1.FCode=F.FCode)
```

# Exercise

---

FLAT (FCode, Address, City, Surface)

LEASING-CONTRACT (LCCode, StartDate, EndDate, PersonName, MonthlyPrice, FCode)

- Find the codes and the addresses of flats in Turin whose monthly leasing price has always been greater than 500 Euro and for which more than 5 contracts have been signed.

Set of data to be excluded: set of people with at least a monthly leasing price of 500 euros or less

# Exercise

FLAT (FCode, Address, City, Surface)

LEASING-CONTRACT (LCCode, StartDate, EndDate, PersonName, MonthlyPrice, FCode)

- Find the codes and the addresses of flats in Turin whose monthly leasing price has always been greater than 500 Euro and for which more than 5 contracts have been signed.

Set of data to be excluded: set of flats with at least a monthly leasing price of 500 euros or less

## Alternative solutions

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

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