Airoport(City,Country,NumberOfRunways)
Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)
Plane(PlaneType,NumberOfPassengers)

1. The cities with airport for which the number of runways is not known.
2. The arrival and the departure countries of flight AZ274
3. The types of aircraft used for flights leaving Boston
4. The types of aircrafts and the corresponding number of passengers for the types of aircraft used for flights leaving Boston. If the description of the aircraft is not available, give only the type.
5. The cities from which international flight leave.
6. The cities from which direction flight to Sidney leave, in alphabetical order.
7. The number of international flights that leave Boston on Thursday
8. The number of flights that leave Canadian cities each week (to be done in two ways, one showing the airports without international flight and one not)
9. The French cities from which more than twenty direct flights to Germany leave each week
10. The Belgian airport that have only domestic flights. Show this query in three ways: (i) with a nested query with the **not in** operator, (ii) with a nested query with the **not exist** operator, (iii) with the outer join.
11. The cities served by the type of aircraft able to carry the maximum number of passengers.
12. The maximum number of passengers who could arrive in a Greek airport form Norway on Thursday. If there are several flights, the total number of of passengers must be found.

Airoport(City,Country,NumberOfRunways)
Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)
Plane(PlaneType,NumberOfPassengers)

1. The cities with airport for which the number of runways is not known.

```
SELECT City
FROM Airport
WHERE NumberOfRunWays is Null
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

2. The arrival and the departure countries of flight AZ274

```
SELECT A1.Country AS Arrival, A2.Country AS Departure
FROM (Airport AS A1 INNER JOIN Flight ON
       Flight.ArrCity=A1.City)
         INNER JOIN Airport AS A2 ON Flight.DepartCity=A2.City
WHERE Flight.FlightID='AZ274'
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

3. The types of aircraft used for flights leaving Boston

```
SELECT PlaneType AS Aircraft
FROM Flight
WHERE DepartCity='Boston'
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

4. The types of aircrafts and the corresponding number of passengers for the types of aircraft used for flights leaving Boston. If the description of the aircraft is not available, give only the type.

```
SELECT Flight.PlaneType, Plane.NumberOfPassengers
FROM Flight LEFT JOIN Plane ON
         Plane.PlaneType=Flight.PlaneType
WHERE Flight.DepartCity='Boston'
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

5. The cities from which international flight leave.

```
SELECT DepartCity
FROM (Airport AS A1 INNER JOIN Flight ON
         A1.City=Flight.DepartCity) INNER JOIN
   Airport AS A2 ON Flight.ArrCity=A2.City
WHERE A1.Country<>A2.Country
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

6. The cities from which direction flight to Sidney leave, in alphabetical order.

```
SELECT DepartCity
FROM Flight
WHERE ArrCity="Sidney"
ORDER BY DepartCity
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

7. The number of international flights that leave Boston on Thursday

```
SELECT count(*) AS Numbers
FROM Flight INNER JOIN Airport ON
          Airport.City=Flight.ArrCity
WHERE DepartCity='Boston' And Day='Thursday' and
   Country<>’USA’
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

8. The number of flights that leave Canadian cities each week (to be done in two ways, one showing the airports without international flight and one not)

```
SELECT count(*) AS NumberOf
FROM Flight INNER JOIN Airport ON
          Airport.City=Flight.DepartCity
WHERE Country='Canada'

SELECT count(*) AS NumberOf
FROM (Airport AS A1 INNER JOIN Flight ON
   Flight.DepartCity=A1.City) INNER JOIN Airport AS A2 ON
   A2.City=Flight.ArrCity
WHERE A1.Country='Canada' and A2.Country<>'Canada'
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

9. The French cities from which more than twenty direct flights to Germany leave each week

```
SELECT DepartCity
FROM (Airport AS A1 INNER JOIN Flight ON
   A1.City=Flight.DepartCity) INNER JOIN Airport AS
   A2 ON Flight.ArrCity=A2.City
WHERE A1.Country='France' And A2.Country='Germany'
GROUP BY DepartCity
HAVING count(*) >20
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

10. The Belgian airport that have only domestic flights. Show this query in three ways: (i) with a nested query with the ***not in*** operator, (ii) with a nested query with the not exist operator, (iii) with the outer join.

```
SELECT DepartCity
FROM Flight INNER JOIN Airport ON
   Flight.DepartCity=Airport.City
WHERE Airport.Country='Belgium'  AND
            Flight.DepartCity  NOT IN
               (SELECT DepartCity
                FROM (Airport as A1 INNER JOIN Flight on
                      A1.City=Flight.DepartCity) INNER JOIN
                        Airport as A2 on Flight.ArrCity=A2.City
                WHERE A1.Country='Belgium' AND
                                        A2.Country<> 'Belgium')
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

10. The Belgian airport that have only domestic flights. Show this query in three ways: (i) with a nested query with the ***not in*** operator, (ii) with a nested query with the ***not exist*** operator, (iii) with the outer join.

```
SELECT DepartCity
FROM Flight INNER JOIN Airport AS A1 ON
       Flight.DepartCity=A1.City
WHERE A1.Country='Belgium'  AND   NOT EXISTS
   (SELECT *
    FROM (Flight INNER JOIN Airport as A2 on
                          A2.City=Flight.ArrCity)
    WHERE A1.City=Flight.DepartCity AND
                   A2.Country<> 'Belgium')
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

10. The Belgian airport that have only domestic flights. Show this query in three ways: (i) with a nested query with the ***not in*** operator, (ii) with a nested query with the not exist operator, (iii) with the outer join.

```
SELECT DepartCity
FROM (Airport AS A1 INNER JOIN Flight ON
   Flight.DepartCity=A1.City) LEFT JOIN Airport AS A2
   ON Flight.ArrCity=A2.City and A2.Country='Belgium'
WHERE A1.Country='Belgium'
GROUP BY Flight.DepartCity
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

11. The cities served by the type of aircraft able to carry the maximum number of passengers.

```
SELECT DepartCity as City
FROM Flight INNER JOIN Plane ON
   FLight.PlaneType=Plane.PlaneType
WHERE NumberOfPassengers=
       (SELECT max(NumberOfPassengers) FROM Plane)
   UNION
SELECT ArrCity
FROM Flight INNER JOIN Plane ON
   FLight.PlaneType=Plane.PlaneType
WHERE NumberOfPassengers=
       (SELECT max(NumberOfPassengers) FROM Plane);
```

Airoport(City,Country,NumberOfRunways)

Flight(FlightID,Day,DepartCity,DepartTime,ArrCity,ArrTime,PlaneType)

Plane(PlaneType,NumberOfPassengers)

12. The maximum number of passengers who could arrive in a Greek airport form Norway on Thursday. If there are several flights, the total number of of passengers must be found.

```
SELECT Sum(NumberOfPassengers)
FROM ((Flight INNER JOIN Airport AS A1 ON
   Flight.DepartCity=A1.City) INNER JOIN Airport AS A2
   ON Flight.ArrCity=A2.City) INNER JOIN Plane ON
   Plane.PlaneType=Flight.PlaneType
WHERE A1.Country='Greece' and A2.Country='Norway' and
   Day='Thursday';
```